METHOD FOR REPLACING AN EXISTING STONE PANEL IN A STONE PANEL WALL ARRANGEMENT, AND AN ASSEMBLY COMPRISING A STONE PANEL WALL ARRANGEMENT

The present invention relates generally to the field of architecture and construction, and more specifically to a method for replacing an existing stone panel in a stone panel wall arrangement and an assembly comprising a stone panel wall arrangement.

The US-20190085567 discloses a stone panel panel having a rear, mounting face, a front, a decorative face, an upper surface having a raised section and a recess, and a lower surface. The upper surface and the lower surface of adjacent stone panels overlap to form a joint therebetween. At least one bracket extends from the stone body; a leftward extension on the stone body; and a rightward extension on the stone body, such that the leftward extension and rightward extension of adjacent stone panels form a joint therebetween.

This application addresses the problem of replacing and securing stone panels in a stone panel wall arrangement, and safely accessing parts of a building using a BMU platform, in a more efficient and effective manner.

This problem is solved by the subject matter of the independent claims. Further improvements are given by the subject matter of the dependent claims.

The method comprises the following steps:

- providing a retaining anchor in the structure wall element, the retaining anchor being located in a first area of a gap in the stone panel wall arrangement,
- inserting a new stone panel into a gap in the stone panel wall arrangement.

The method of the application is safe, as compared with the prior art. There is no danger that a replaced stone panel can fall out from the stone panel wall arrangement.

In a development, the step of connecting the safety wire with the structure wall element comprises connecting a safety wire with a bottom bracket of another existing stone panel of the stone panel wall arrangement.

In a development, the step of connecting the safety wire with the structure wall element comprises forming a closed loop of a piece of wire by connecting two open ends of the piece of wire are connected with each other. is put into its final position.

At least one new stone panel is provided with a bottom groove at the bottom of the new stone panel, with a top groove at the top of the new stone panel, and with a first side groove at a first side of the new stone panel, and with a second side groove at a second side of the new stone panel, with the bottom groove being positioned on a lower bracket that is provided at the structure wall element such that the lower bracket being located in a second area of the gap and with an upper bracket being positioned in the top groove with the upper bracket being connected with the retaining anchor, wherein a safety wire is provided in the bottom groove, in the first side groove, and in the second side groove, wherein the safety wire is connected with the structure wall element.

In a development, the safety wire is connected with a lower bracket of an existing stone panel. That makes it easy to connect the safety wire with the structure wall element. In a development, the safety wire forms a closed loop of a piece of wire with two open ends of the piece of wire being connected with each other, which makes it easy to mount that safety wire.

In a further development, the safety wire is provided within holes in the new stone panel that connect the bottom groove with the first side groove and the second side groove. 20.In a development, a channel for a placing a safety wire is provided by the bottom groove, by the first side groove, and by the second side groove, and by holes that connect the bottom groove with the first side groove and the second side groove and/or that connect the top groove with the first side groove and the second side groove. That channel makes with holes sure that the safety wire is always tightly connected with the new stone panel. This prevents detaching and falling of the new stone panel.

Advantages of the subject matter claims section

The application provides a method for replacing an existing stone panel in a stone panel wall arrangement on a structure wall element in the form of a carrier wall, a structure wall, a façade stone, a pillar, or similar.

Providing a retaining anchor , for example in the form of a wall anchor, in the structure wall element, wherein the retaining anchor (4) being located in a first area (5) (upper area) of a gap (6) in the stone panel wall arrangement (1), has an advantage of creating a secure connection with the structure wall element.

According to a further step, inserting a new stone panel into a gap in the stone panel wall arrangement, wherein the new stone panel is provided with a (pre-cut) bottom groove at the bottom of the new stone panel, with a (pre-cut) top groove at the top of the new stone panel, and with a first side groove at a first side of the new stone panel, and with a second side groove at a second side of the new stone panel, has an advantage of increasing the speed and ease of installation of the stone panel wall arrangement. The pre-cut grooves on the new stone panel allow for a precise and secure fit with the adjacent panels, reducing the need for additional cutting and shaping during installation. This results in less time and effort required for the installation process, leading to increased efficiency and cost-effectiveness. Additionally, the precise fit of the new panel can enhance the overall appearance and structural integrity of the stone panel wall arrangement.

The bottom groove being positioned on a (piece-a) lower bracket that is provided at the structure wall element, the lower bracket being located in a second area (lower area) of the gap has an advantage of providing a secure and stable support for the structure wall element by allowing the bottom groove to securely engage with a corresponding top groove on the upper bracket that is positioned in a first area (upper area) of the gap. This ensures proper alignment and prevents the structure wall element from shifting or dislodging, even under heavy loads or external forces. Additionally, the positioning of the lower bracket and bottom groove in the lower area of the gap enables easy access for installation and maintenance, without the need for complicated or time-consuming procedures.

Inserting an upper bracket into the top groove has an advantage of providing additional stability and support to the structure.

Connecting the upper bracket with the retaining anchor has an advantage of providing increased stability and support to the object being secured.

A safety wire (steel wire) is provided in the bottom groove, in the first side groove, and in the second side groove with an advantage of providing additional safety and security by ensuring that the components held in the grooves remain in place, even if there is sudden impact or vibration. The safety wire adds an extra layer of protection, preventing disengagement or accidental release of the components.

Connecting the safety wire with the structure wall element has an advantage of increased stability and rigidity of the overall structure, providing improved safety and durability.

In the case that a step of creating a gap by removing an existing stone panel from the structure wall element is provided, that makes sure that residues of earlier existing stone panels are properly removed before the step of filling that gap follows.

Barricading an area of work under the gap (to ensure sufficient space) has an advantage of improving safety by preventing unauthorized persons or equipment from entering the work area, reducing the risk of accidents or injuries.

Covering the area of work (ground right below the stone panels) with protective panels (polyfoam and plywood) has an advantage of providing a cushioning effect that absorbs impact energy and reduces the risk of damage to the underlying surface, thereby increasing the longevity and durability of the stone panels. Additionally, the protective panels prevent moisture and debris from penetrating the subfloor, which helps maintain a clean and stable working environment.

Assigning a traffic marshall to control a ground traffic (for safety purpose) has an advantage of reducing the likelihood of accidents and improving the overall efficiency of ground traffic management.

Carefully approach the building maintenance unit “BMU” working platform for identifying the location of the (damaged) existing stone panel that needs to be replaced has an advantage of reducing time and costs associated with identifying and replacing damaged stone panels, improving overall efficiency and performance of building maintenance operations.

Providing a safety catch netting between (by one side) a (façade) surface of the structure wall element (by suction cups) and (by the other side) a bmu platform (cradle) right below the area of work has an advantage of reducing the risk of falling debris or tools from the work area, thereby increasing worker safety and preventing damage to property below.

Providing (installing and securing) at least one suction cup to the existing stone panel has an advantage of allowing for quick and easy installation and removal of the panel without the need for drilling or damaging the underlying surface.

Removing (cutting away) existing sealant (around the existing stone panel thoroughly), thereby exposing existing holding elements (brackets/pins) of the existing stone panel has an advantage of providing a clear view of the condition of the holding elements, allowing for easier maintenance and replacement of any damaged or weakened elements. Additionally, it ensures a secure and stable hold for the stone panel, improving overall building safety and longevity.

Installing a safety belt (tie-in belt) around the existing stone panel has an advantage of increasing the overall stability and security of the stone panel, reducing the risk of dislodgement or collapse in the event of seismic activity or other external forces.

Connecting the safety belt with a structure wall element (e.g. tighten securely to the roof structure) has an advantage of increasing the stability and strength of the safety

belt, ensuring better protection for the wearer in case of an impact or sudden stop. Additionally, it reduces the likelihood of the safety belt becoming disconnected or slipping out of place, providing a more reliable and secure seatbelt system.

Connecting the safety belt with the BMU platform has an advantage of providing real-time monitoring and alerting of safety belt usage, ensuring compliance with safety regulations and reducing the risk of accidents in the workplace.

Using a cutting tool for removing the existing holding elements has an advantage of increased efficiency and precision in the removal process, resulting in reduced labor costs and improved product quality.

Moving the existing stone panel (carefully) to the BMU platform has an advantage of facilitating the replacement of damaged or worn out panels without the need for expensive and time-consuming scaffolding or building maintenance equipment.

Lowering the BMU platform to a ground has an advantage of making it easier and more efficient to load and unload heavy equipment or materials without the need for additional machinery or personnel. This can result in significant time and cost savings, as well as increased safety and reduced risk of damage to the equipment or materials being moved.

Disconnecting the safety belt from the BMU platform has an advantage of allowing the user to easily and quickly exit the platform in case of an emergency or danger.

Unloading the (damaged) existing stone panel from the BMU platform has an advantage of allowing for efficient and safe replacement of the panel, reducing the risk of injury to workers and minimizing downtime for the building's façade maintenance.

Loading the new stone panel to a BMU platform has an advantage of reducing the risk of worker injury and improving efficiency in building maintenance operations. The platform can be easily raised to the desired level, providing a stable and safe

working surface for workers to install the panel, without the need for manual lifting or scaffolding. Additionally, the use of the platform minimizes the time required to replace panels, resulting in faster turnaround times for building maintenance tasks.

Installing a safety belt around the new stone panel has an advantage of increasing the structural stability of the panel, thereby preventing any possible accidents or damages caused by its displacement or dislodgement.

Connecting the safety belt with the BMU platform has an advantage of increasing the safety and stability of workers while performing maintenance tasks at heights.

Bringing the BMU platform up to the gap (the location for replacement) has an advantage of reducing the risk of injury to maintenance personnel by eliminating the need for them to access the gap area.

Disconnecting the safety belt from the BMU platform has an advantage of eliminating the risk of the worker being suspended in the air while trying to unfasten the belt, thus increasing the overall safety and efficiency of the work process.

Connecting the safety belt with a structure wall element (e.g. tighten securely to the roof structure of the building) has an advantage of providing increased stability and strength in case of sudden movements or impacts.

Providing (installing) a first lower bracket element (piece-B bracket) at the structure wall element, in the second area of the gap has an advantage of increasing the stability and load-bearing capacity of the structure wall element by creating a secure connection point for the second upper bracket element (piece-A bracket) to be attached.

Providing (installing) a second lower bracket element (piece-A bracket) at the first lower bracket element (to link with piece-B bracket) has an advantage of increasing the stability and weight-bearing capacity of the entire bracket system, allowing for larger and heavier objects to be securely mounted.

Adjusting the second lower bracket element with respect to the first lower bracket element (make any necessary adjustment by moving through the bracket slots) has an advantage of providing precise alignment and stability in supporting a load-bearing structure.

Securing the position of the second lower bracket element with respect to the first lower bracket element by (once the position of the bracket is finalized, spot-weld the two brackets together) has an advantage of providing a sturdy and durable connection between the first and second lower bracket elements, which enhances the overall stability of the structure and ensures that the components remain in place during use. This feature also helps to prevent any unwanted movement or shifting of the brackets, which can improve the safety and performance of the device. Additionally, the use of spot-welding provides a cost-effective and efficient means of securing the brackets, reducing production time and minimizing the need for additional hardware or assembly steps.

The application provides a method comprising the step of providing (fixing in place) a rubber element (rubber pad) to the lower bracket (bottom piece-A bracket, to achieve a cushion connection).

The application provides a method comprising the step of providing (fixing in place) a rubber element (rubber pad) to the lower bracket (bottom piece-A bracket, to achieve a cushion connection).

By providing a rubber element to the lower bracket, the application improves shock absorption and creates a cushion connection between components, reducing the likelihood of damage or wear to the construction.

The use of a rubber pad in the lower bracket also reduces the transmission of vibration and noise through the system, enhancing overall performance and user comfort.

The application provides a method comprising the step of providing a retaining anchor for the upper bracket. The retaining anchor for the upper bracket provides enhanced stability and strength to the overall structure.

Providing a first retaining element in the retaining anchor (drill hole on reinforced concrete structure wall/column, and insert drop in anchor to receive the “Part A” of new retaining element) has an advantage of enhancing the stability and longevity of the retaining element, as it securely anchors it to the concrete structure and prevents it from slipping, loosening or breaking away over time. This ensures the safety and reliability of the structure, especially in high-stress situations or harsh environmental conditions. Additionally, the use of a single retaining anchor with multiple retaining elements reduces the overall cost and complexity of installation, maintenance and repair, while also minimizing the impact on the structure and the surrounding environment.

Providing a coupler element at the first retaining element (install in position, the Part A of new retaining anchor with 40mm long coupler for securing Part B of new retaining pin), wherein the coupler element is at least partially provided in the structure wall element (turned in the reinforced concrete rc structure) has an advantage of providing a secure and durable joining of the first and second retaining elements, thereby ensuring the stability and strength of the reinforced concrete structure.

Providing a second retaining element in the coupler element (mark 20mm from the rc surface and cut the Part A rod Install the Part B of new retaining pin and adjust the coupler outwards to ensure both parts of the new retaining pin to be anchored 20mm) has an advantage of improving the overall strength and stability of the coupler element, thereby reducing the risk of detachment or failure during use.

Providing (structural non-shrink) grout to the hole in the structure wall element of the rc structure after turning the coupler outwards) has an advantage of improving the load transfer and enhancing the overall stability and strength of the structure.

Inserting a new stone panel into a gap in the stone panel wall arrangement comprising a step of turning the second retaining element such that a retaining pin of the second retaining element engages in the top groove has an advantage of allowing for quick and easy replacement of damaged or worn panels without the need to dismantle and rebuild the entire stone panel wall arrangement. This can save time and money in maintaining and repairing the wall, as well as minimizing disruption to the surrounding area.

Fixing the new stone panel into position, the new stone panel having a pre-cut slot at the top to allow the Part B of new retaining pin to secure it for permanently securing the new stone panel by turning the retaining pin 90 degree face down with Allen key has an advantage of providing a secure and long-lasting installation of the stone panel, without the need for specialized tools or equipment. Additionally, the pre-cut slot and retaining pin system provide a seamless and aesthetically pleasing finish to the installation.

Providing sealant to a slot around the new stone panel (to prevent water stagnant) has an advantage of reducing the risk of water infiltration and potential damage to underlying structures.

The step of connecting the safety wire with the structure wall element comprising connecting the safety wire with a bottom bracket of another existing stone panel of the stone panel wall arrangement has an advantage of providing additional support and stability to the stone panel wall arrangement by utilizing the existing structural elements, thereby reducing the need for additional hardware and enhancing the overall efficiency of the installation process.

The step of connecting the safety wire with the structure wall element comprises forming a closed loop of a piece of wire by connecting two open ends of the piece of wire are connected with each other. (by using a wire end connector clamp, make the loop long enough so that the ends can be closed before the new stone panel is put into its final position) has an advantage of ensuring the secure attachment of the

stone panel to the structure wall element, preventing any potential safety hazards caused by the panel's detachment due to harsh weather conditions or other external factors. The closed loop design of the safety wire provides a strong and durable connection between the panel and the structure, increasing the longevity and safety of the building's facade.

The step of connecting the safety wire with the structure wall element comprises providing holes in the new stone panel that connect the lower groove with the first groove and the second groove has an advantage of providing a secure and reliable attachment of the stone panel to the structure wall element, ensuring stability and safety against potential detachment or failure. Additionally, the use of holes in the stone panel enables easy installation and maintenance of the safety wire, reducing the cost and effort of regular inspections and replacements. The configuration of grooves also facilitates the alignment and positioning of the panel during installation, ensuring precise fit and aesthetic appeal. Overall, this feature enhances the performance and durability of the stone panel system, reducing the risk of damage, injury, and liability for the users and owners.

The use of backer rod before sealant application to the stone joints provides an advantage of improving the sealant's performance and longevity. The backer rod serves as a filler, preventing the sealant from being squeezed too deeply into the joint and ensuring that it adheres properly to the surfaces. This reduces the risk of sealant failure due to inadequate adhesion or movement, which can lead to water penetration, air leakage, and structural damage over time. The masking of joints and application of sealant to the perimeter further enhances the water-tightness and durability of the stone panel wall arrangement. The post-con photos and lowering of the BMU platform to ground allow for easy inspection and maintenance of the installation, ensuring that any issues can be quickly identified and addressed.

The application provides a stone panel wall arrangement on a structure wall element (carrier wall, a structure wall, a façade stone, a pillar), with a plurality of existing stone panels and new stone panels, wherein at least one new stone panel is

provided with a (pre-cut) bottom groove at the bottom of the new stone panel, with a (pre-cut) top groove at the top of the new stone panel, and with a first side groove at a first side of the new stone panel, and with a second side groove at a second side of the new stone panel, with the bottom groove being positioned on a (piece-A) lower bracket that is provided at the structure wall element such that the lower bracket being located in a second area (lower area) of the gap and with an upper bracket being positioned in the top groove with the upper bracket being connected with the retaining anchor, wherein a safety wire (steel wire) is provided in the bottom groove, in the first side groove, and in the second side groove, wherein the safety wire is connected with the structure wall element.

This provides several advantages for the stone panel wall arrangement. Firstly, the pre-cut grooves on the new stone panels and the lower and upper brackets on the structure wall element enable a precise and secure fit of the panels, reducing the need for additional cutting and shaping during installation. This results in less time and effort required for the installation process, leading to increased efficiency and cost-effectiveness.

Secondly, the safety wire included in the grooves of the new stone panels provides additional reinforcement and support for the structure. This helps to prevent the panels from shifting or falling out of place, ensuring the safety and stability of the installation.

Finally, the use of retaining anchors and steel wires connected to the structure wall element enhances the overall durability and longevity of the stone panel wall arrangement. These components help to absorb any stress or movement in the panels caused by environmental factors such as wind or seismic activity, reducing the risk of damage or failure of the installation over time.

In the case that a stone panel wall arrangement is provided, wherein the safety wire is connected with a lower bracket of an existing stone panel, this has an advantage of providing enhanced stability and security against potential dislodging or damage caused by external factors such as wind, earthquakes, or vibrations. The safety wire

acts as a reliable anchor, ensuring that the stone panels remain securely in place for long-lasting durability and protection. Additionally, the use of a lower bracket allows for easy installation and adjustment of the safety wire for optimal customization and flexibility in design. Overall, this feature greatly improves the overall performance and longevity of stone panel wall arrangements, making them a more reliable and safe solution for various applications.

In the case that the safety wire forms a closed loop of a piece of wire with two open ends of the piece of wire being connected with each other, this has an advantage of providing a secure and tamper-proof connection, ensuring even greater safety and reliability of the system.

By incorporating safety wires within the holes that connect the bottom groove with the first side groove and the second side groove on the new stone panel, the installation of the stone panel gains an added advantage of enhanced security and stability. The safety wire acts as a reinforcement, ensuring that the panel remains securely fastened to the mounting surface even under conditions of high wind, seismic activity, or other external stress factors. By being embedded within the stone panel itself, the safety wire also avoids any unsightly external attachment points or detracting from the aesthetic qualities of the panel design.

The application provides a stone panel with several advantages for the stone panel wall arrangement. It can be used to close gaps left by missing existing stone panels, providing a convenient and efficient solution for repair or replacement of damaged or deteriorated panels. This can help to restore the appearance and functionality of the stone panel wall arrangement, improving the overall aesthetics and value of the structure.

The stone panel can be easily installed onto the structure wall element, reducing the time and cost required for repair or replacement work. This can lead to increased efficiency and cost-effectiveness of the repair or replacement process.

The stone panel is durable and long-lasting, ensuring the longevity and stability of the stone panel wall arrangement. This can help to minimize the need for future repairs or replacements, saving time and money in the long run.

The new stone panel being provided with a (pre-cut) bottom groove at the bottom of the new stone panel has an advantage of facilitating easy installation and reducing installation time as it allows for easier alignment and placement of the stone panel during installation.

The new stone panel being provided with a (pre-cut) top groove at the top of the new stone panel has an advantage of easier installation as it allows for quick and accurate alignment with the preceding panel, reducing installation time and cost.

The new stone panel being provided with a first side groove at a first side of the new stone panel has an advantage of allowing for interlocking engagement with a correspondingly shaped tongue on a neighboring stone panel, thereby enhancing the overall structural stability and resistance to movement or shifting when installed in a building or other structure.

The new stone panel being provided with a second side groove at a second side of the new stone panel has an advantage of allowing for easy installation and secure attachment to other stone panels, thereby providing a more stable and durable overall structure.

The new stone panel being provided with the bottom groove being provided for being positioned on a (piece-A) lower bracket has an advantage of improved stability and secure installation of the stone panels, preventing any potential slipping or dislodging, thereby ensuring long-lasting durability and safety.

The new stone panel being provided with the top groove being provided for being positioned in an upper bracket has an advantage of easier installation and enhanced stability, as it ensures a secure fit and prevents the panel from slipping or moving out

of place. Additionally, the top groove provides a seamless appearance without visible brackets or hardware, enhancing the aesthetic appeal of the stone panel installation.

A channel for a placing a safety wire (steel wire) provided by the bottom groove, by the first side groove, and by the second side groove has an advantage of ensuring secure fastening and protection against accidental detachment or dislodging of the wire during use, thereby increasing the overall safety and reliability of the device or system in which it is employed.

Holes that connect the bottom groove with the first side groove and the second side groove has an advantage of allowing for easy installation and removal of the invention's components.

The application provides the advantage of attachability, as the retaining anchor is attachable to the structure wall element, allowing for easy installation and removal.

The application ensures the retainment of the retaining anchor in the structure wall element, which enhances the stability and durability of the stone panel wall arrangement.

The application offers the advantage of triplication, as the process of connecting the upper bracket with the retaining anchor is triplicated, ensuring a robust and secure connection.

The application introduces the advantage of a tunnel, as the retaining anchor is tunnelized into the structure wall element, providing a secure and firm hold.

The application presents the advantage of augmentation, as the retaining anchor is augmented into the structure wall element, enhancing the strength and stability of the stone panel wall arrangement.

In a development, the step of connecting the upper bracket with the retaining anchor comprises the following steps:

-Providing a hole into the structure wall element,
-inserting the retaining anchor into the hole,
-screwing a retaining screw assembly into the retaining anchor,
-cutting the retaining screw assembly in order to create a first retaining element and a second retaining element with a retaining pin,
-screwing a coupler sleeve on the [threaded end of the] first retaining element [such that the coupler sleeve is flush with the first retaining element or similar],
-holding a threaded end of the second retaining element near the coupler sleeve and the threaded end of the first retaining element,
-unscrewing the coupler sleeve from the threaded end of the first retaining element and onto the threaded end of the second retaining element such that the coupler sleeve connects the first retaining element with the second retaining element.

In a development, the step of connecting the lower bracket with the retaining anchor comprises the following steps:
-Providing a hole into the structure wall element,
-inserting the retaining anchor into the hole,
-screwing a first retaining element into the retaining anchor,
-screwing an adjustment nut on the first retaining element is flush with the inner surface of the next existing stone wall panel),
-putting the new stone panel with the lower bracket onto the [threaded end of the] first retaining element, such that it contacts the outer surface of the adjustment nut
-screwing a holding nut onto the [threaded end of the] first retaining element, such that the lower bracket is held between the adjustment nut and the holding nut.

In a development, the holding nut is provided with an Allen key hole [so that the holding nut can be turned in the gap between the new stone panel and the existing stone panel].

In a development, the lower bracket is used as upper bracket.

In a development, the step of connecting the lower bracket with the retaining anchor comprises the following steps:

-providing a hole into the structure wall element,
-inserting the retaining anchor into the hole,
-screwing a bolt into the retaining anchor,
-putting a piece-A element on the bolt and secure it with a nut against the structure wall element,
-mounting a piece-B element to the piece-A element, using a second bolt-nut element,
-adjusting the piece-A element with respect to the structure wall element and the piece-B element with respect to the piece-A element such that the outer surface of the next existing stone wall panel is flush with the outer surface of the new stone wall panel,
-fixing the piece-A element with respect to the structure wall element,
-fixing the piece-B element with respect to the piece-A element.

The retaining anchor provides a secure and stable connection between the structure wall element and the new stone panel, preventing any potential movement or detachment of the panel.

The retaining screw assembly allows for easy installation and adjustment of the retaining anchor, ensuring precise positioning of the new stone panel.

The coupler sleeve provides a strong and durable connection between the first and second retaining elements, ensuring the stability and longevity of the stone panel wall arrangement.

The retaining anchor provides a secure and stable connection between the structure wall element and the lower bracket, preventing any potential movement or detachment of the bracket and the new stone panel.

The adjustment nut allows for easy and precise adjustment of the position of the new stone panel, ensuring a flush and seamless appearance with the existing stone wall panels.

The holding nut with an Allen key hole allows for easy and convenient tightening and loosening of the nut, facilitating any necessary adjustments or maintenance.

The lower bracket can be used as an upper bracket, providing versatility and flexibility in the installation process.

The bolt and nut elements provide a strong and durable connection between the retaining anchor and the piece-A and piece-B elements, ensuring the stability and longevity of the stone panel wall arrangement.

The adjustable piece-A and piece-B elements allow for precise positioning and alignment of the new stone panel, ensuring a flush and seamless appearance with the existing stone wall panels.

Definitions

The term "stone panel wall arrangement" is used herein to refer to a wall arrangement on a structure wall element. The term "existing stone panel" is used herein to refer to a stone panel that has not yet been replaced. The terms "retaining anchor" or “retainer anchor” are used herein to refer to an element that enables the insertion of a retaining element into a gap in the structure wall element. The term “gap” designates an opening that implies a breach or defect, for example in the sense that an existing wall element has been partly removed. The term "new stone panel" is used herein to refer to a new stone panel that is installed on a structure wall element for closing such a gap. The term "bottom groove" refers to a groove in the bottom of the stone panel, whereas the term "bottom of the stone panel" may refer to the bottom of the stone panel.

A “suction cup” designates a cup made of flexible material, such as rubber, that uses suction as an adhesive means. A “safety wire”, in the sense of a locking-wire designates a type of positive locking device that prevents stone wall panels from falling out due to vibration and other forces.

Short Description Of Figures

The present disclosure is illustrated by way of example and not limited in the accompanying figures in which like reference numerals indicate similar elements. Embodiments of the application will now be described with reference to the attached drawings.

Fig. 1 shows a perspective view of a work area for replacing an existing stone panel in a stone panel wall arrangement on a structure wall element,
Fig. 2 shows a front view of the stone panel wall arrangement of Fig. 1,
Fig. 3 shows a front view that illustrates the use of a safety wire in a new panel that is used to close a gap in the stone panel wall arrangement of Fig. 2.
Fig. 4 shows a cross-sectional view of an upper bracket 29 of Fig. 2,
Fig. 5 shows a cross-sectional view of a lower bracket 28 of Fig. 2,
Fig. 6 shows a perspective view of the upper bracket 29 of Fig. 2,
Fig. 7 shows a front view of the upper bracket 29 of Fig. 2,
Fig. 8 shows several views of the lower bracket 28 of Fig. 2,
Fig. 9 shows several views of another embodiment of an upper bracket 29,
Fig. 10 shows a view of another embodiment,
Fig. 11 shows a view of another embodiment,
Fig. 12 shows a view of another embodiment,
Fig. 13 shows a view of another embodiment,
Fig. 14 shows a view of another embodiment, and
Fig. 15 shows a view of another embodiment.

Detailed Description of Figures

Figure 1 illustrates a method for replacing a damaged stone panel on a building's façade 1. The process involves barricading an area of work under a gap 6 to ensure sufficient space and covering the area of work ground 24 right below the stone panels 2 with protective panels made of polyfoam and plywood. A traffic marshall is assigned to control the ground traffic for safety purposes.

To safely remove the existing stone panel 2, a safety catch netting is installed between the surface of a structure wall element 3 and the BMU platform right below the area of work. At least one suction cup is attached to the existing stone 2 panel to

secure it in place. The existing sealant around the existing stone panel 2 is thoroughly cut away to expose the existing holding elements 22 in the form of brackets or pins of the existing stone panels 2.

A safety belt is installed around the existing stone panel 2 and is connected to both the structure wall element 3 and the BMU platform. The existing holding elements 22 are then removed using a cutting tool. The existing stone panel 2 is carefully moved to the BMU platform and lowered to the ground 24. The safety belt is disconnected from the BMU platform, and the damaged existing stone panel 2 is unloaded.

To replace the damaged existing stone panel 2, a new stone panel is loaded onto the BMU platform and a safety belt is installed around it. The safety belt is connected to the BMU platform and brought up to the gap 6 for replacement. The safety belt is then disconnected from the BMU platform and connected to the structure wall element to secure the new stone panel in place. New sealant is installed around the new stone panel to prevent water stagnation.

Figure 2 illustrates a method for replacing an existing stone panel 2 in a stone panel wall arrangement 1 on a structure wall element, such as a carrier wall, a structure wall 3, a façade stone, or a pillar. The method comprises the following steps.

One step is to provide a retaining anchor, also referred to as a wall anchor 4, in the structure wall element 3, which is located in a first area, referred to as the upper area, of a gap 6 in the stone panel wall arrangement 1.

Next, a new stone panel 7 is inserted into the gap 6 in the stone panel wall arrangement 1. The new stone panel 7 is provided with a pre-cut bottom groove 8 at the bottom 9 of the new stone panel 7, a pre-cut top groove 10 at the top 11 of the new stone panel 7, a first side groove 12 at a first side of the new stone panel 7, and a second side groove 13 at a second side of the new stone panel 7. The bottom groove is positioned on a lower bracket 28, also referred to as piece-A, provided at the structure wall element. The lower bracket 28 is located in a second area, referred to as the lower area, of the gap.

Then, a lower bracket 28 is inserted into the top groove 10, and connected to the retaining anchor 4. A safety wire, made of steel wire 27, is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13. The method further includes connecting the safety wire 27 with the structure wall element 3.

In Fig. 3, the subject matter is shown for replacing an existing stone panel 2 in a stone panel wall arrangement 1 on a structure wall element 3 (carrier wall, a structure wall, a façade stone, a pillar). The method includes the following steps:
- providing a retaining anchor, e.g. a wall anchor 4, in the structure wall element 3, wherein the retaining anchor 4 is located in a first area 5, an upper area of a gap 6 in the stone panel wall arrangement 1,
- Inserting a new stone panel 7 into a gap 6 in the stone panel wall arrangement 1.

The new stone panel 7 is provided with a pre-cut bottom groove 8 at the bottom 9 of the new stone panel 7, with a pre-cut top groove 10 at the top 11 of the new stone panel 7, with a first side groove 12 at a first side 14 of the new stone panel 7, and with a second side groove 13 at a second side 15 of the new stone panel 7.

Further steps are mentioned below.

Positioning the bottom groove 8 on a piece-A lower bracket 28 that is provided at the structure wall element 3. The lower bracket 28 is located in a second area 26, a lower area of the gap 6.

Inserting a lower bracket 29 into the top groove 10 and connecting the lower bracket 29 with the retaining anchor 4.

Providing a safety wire 27 (steel wire) in the bottom groove 8, in the first side groove 12, and in the second side groove 13.

Connecting the safety wire 27 with the structure wall element 3.

The step of connecting the safety wire 27 with the structure wall element 3 can have one, two, or three steps :

Connecting the safety wire 27 with a lower bracket 22 of another existing stone panel 2 of the stone panel wall arrangement 1.

Forming a closed loop of a piece of wire 27 by connecting two open ends of the piece of wire 27 with each other, using a wire end connector clamp. The loop should be long enough so that the ends can be closed before the new stone panel 7 is put into its final position 6.

Providing holes in the new stone panel 7 that connect the bottom groove 8 with the first side groove 12 and the second side groove 13 and that connect the top groove 10 with the first side groove 12 and the second side groove 13.

Fig. 4 illustrates the method for replacing an existing stone panel in a stone panel wall arrangement 1 on a structure wall element, such as a carrier wall 3, a structure wall, a façade stone, or a pillar. The method includes the following steps: providing a retaining anchor, e.g. the wall anchor 4, in the structure wall element 3, the retaining anchor 4 being located in a first area, the upper area of the gap 6 in the stone panel wall arrangement 1; inserting the new stone panel 7 into the gap 6 in the stone panel wall arrangement 1, wherein the new stone panel 7 is provided with a pre-cut bottom groove 8 at the bottom 9, a pre-cut top groove 10 at the top 11, a first side groove 12 at a first side 14, and a second side groove 13 at a second side 14. After positioning the bottom groove 9 on a lower bracket in the form of a piece-A 28 provided at the structure wall element 3, there is the step of inserting an upper bracket 29 into the top groove 10. A step of connecting the upper bracket 29 with the retaining anchor 4 follows, wherein a safety wire in the form of a steel wire 27 is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13. The safety wire 27 is then connected with the structure wall element 3.

The safety wire 27 is provided in the bottom groove 9, in the first side groove 13, and in the second side groove 14.

In Fig. 5, the subject matter is shown for replacing an existing stone panel in a stone panel wall arrangement 1 on a structure wall element, in the form of a carrier wall, a structure wall 3, a façade stone, or a pillar. A new stone panel 7 is inserted into the gap 6 in the stone panel wall arrangement 1. The new stone panel 7 is provided with a pre-cut bottom groove 8 at the bottom 9 of the new stone panel 7. The bottom groove 8 is positioned on a lower bracket 28 that is provided at the structure wall element 3, the lower bracket 28 being located in a second area, a lower area of the gap 6.

Fig. 6 and Fig. 7 show the lower bracket 28 that provided at the structure wall element 3 in greater detail. The lower bracket 28 has a horizontal basis 49, that extends vertically upwards into an upper wing 50 on one lateral edge and vertically downwards into a lower wing 51 on the opposite lateral edge. A mounting hole 52 is centrally provided in the lower wing 51. The horizontal basis 49, the upper wing 50, and the lower wing 51 have each a rectangular shape. The lower bracket 28 is bent from one single sheet of stainless steel with a thickness of a few millimeters, preferably 3mm.

The lower bracket 28 of Fig. 6 can also be used as an upper bracket 29, simply by turning it upside down.

Fig. 8 shows another embodiment of a lower bracket 28 that is provided in a retaining anchor 4 in the structure wall element 3, with the retaining anchor 4 being located in a second area 26, the lower area of the gap 6 in the stone panel wall arrangement 1.

The bottom groove 8 is positioned on the lower bracket 28, which comprises a piece-A element 60 provided at the structure wall element 3 by a bolt 63 that is provided in the retaining anchor 4, and a piece-B element 61 provided at the bottom groove 8. The piece-A element 60 and the piece-B element 61 are interconnected by a bolt-nut-element 62.

The piece-A element 60 is made from an L-shaped stainless steel profile that comprises an elongated hole 64 that is arranged longitudinally, while the piece-B element 61 has essentially the same shape as the piece-A element 60, but it comprises an elongated hole 65 that is arranged in a transverse direction.

Fig. 9 depicts a method for providing a retaining anchor 4 in the structure wall element 3, the retaining anchor 4 being located in a first area 5, the upper area of a gap 6 in the stone panel wall arrangement 1; and inserting a new stone panel 7 into the gap 6. The new stone panel 7 is provided with a pre-cut top groove 10 at the top 11. After having positioned the bottom groove 8 on a lower bracket 28 provided at the structure wall element 3, an upper bracket 29 is inserted into the top groove 10, and the upper bracket 29 is connected with the retaining anchor 4.

The upper bracket 29 comprises a first retaining element in the form of a threaded screw 70, a threaded coupler sleeve 71, and a second retaining element 72 that is provided with a retaining pin 73. The outer end of the threaded second retaining element 72 is provided with a hexagonal keyhole.

After inserting the new stone panel 7 into the gap 6 in the stone panel wall arrangement 1, the second retaining element 72 is turned such that the retaining pin 73 engages in the top groove 10. The new stone panel 7 has a pre-cut slot 10 at the top to allow the of the retaining pin 73 to secure it. The new stone panel is permanently secured by turning the retaining pin 73 by 90 degree facing down with an Allen key that is inserted into the hexagonal hole.

In Figs. 1 - 9, a stone panel wall arrangement 1 is shown on a structure wall element 3, which can be a carrier wall, a structure wall, a façade stone, or a pillar. The arrangement includes a plurality of existing stone panels 2 and new stone panels 7. At least one new stone panel 7 has a pre-cut bottom groove 8 at the bottom 9, a pre-cut top groove 10 at the top 11, a first side groove 12 at the first side 14, and a second side groove 13 at the second side 15. The bottom groove 8 is positioned on a lower bracket (Piece-A) provided at the structure wall element 3, which is located in the second area 26 (lower area) of the gap 6. An upper bracket is positioned in the top groove 10 and connected with the retaining anchor 4. Additionally, a safety wire 27 (steel wire) is provided in the bottom groove 8, first side groove 12, and second

side groove 13, and connected with the structure wall element 3.

The stone panel wall arrangement 1 presents several features aimed at providing enhanced safety and security for the wall structure. An aspect of the arrangement is the provision of a stone panel 7 with a safety wire 27 that can be fixed at a wall structure to prevent the dislodging of the stone panel 7. In particular, the safety wire 27 is connected with a lower bracket of an existing stone panel 2 to form a closed loop of a piece of wire with two open ends of the piece of wire being connected with each other. This configuration ensures that the safety wire 27 can effectively prevent displacement of the stone panel 7.

Furthermore, the safety wire 27 is provided within holes in the new stone panel 7 that connect the bottom groove 8 with the first side groove 12 and the second side groove 13. This arrangement ensures that the safety wire 27 is optimally positioned to provide maximum resistance to displacement forces. By integrating the safety wire 27 with the stone panel wall arrangement 1, a secure and durable wall structure is achieved, thereby enhancing safety and stability.

Figure 10 shows a stone panel 2 wall arrangement 1 on a structure wall element 3 with a gap 6 where an existing stone panel 2 needs to be replaced. The figure illustrates the method for replacing the stone panel 2 using a retaining anchor 4 located in the first area 5 of the gap 6. A new stone panel 7 is inserted into the gap 6 and is provided with a bottom groove 8, top groove 10, first side groove 12, and second side groove 13. The bottom groove 8 is positioned on a lower bracket 28 provided at the structure wall element 3, located in the second area of the gap 6. An upper bracket 29 is inserted into the top groove 10 and connected with the retaining anchor 4. The safety wire is provided in the bottom groove 8, first side groove 12, and second side groove 13, and is connected with the structure wall element 3.

Figure 11 shows a schematic representation of the method for replacing an existing stone panel 2 in a stone panel 2 wall arrangement 1 on a structure wall element 3 according to claims 1, 3, 4, and 5. The figure illustrates the steps of inserting a new

stone panel 7 into a gap 6 in the stone panel 2 wall arrangement 1, wherein the new stone panel 7 is provided with a bottom groove 8 at the bottom 9 of the new stone panel 7, with a top groove 10 at the top 11 of the new stone panel 7, and with a first side groove 12 at a first side 14 of the new stone panel 7, and with a second side groove 13 at a second side 15 of the new stone panel 7. The bottom groove 8 is positioned on a lower bracket 28 that is provided at the structure wall element 3, the lower bracket 28 being located in a second area of the gap 6. An upper bracket 29 is inserted into the top groove 10, and connected with the retaining anchor 4. The safety wire is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13, and is connected with the structure wall element 3. The figure also shows the retaining anchor 4, the retaining screw assembly 75, the coupler sleeve 71, the first retaining element 70, the second retaining element 72, the retaining pin 73, the adjustment nut 92, the holding nut 90, the Allen key hole 76, and the bolt-nut elements used in the method.

Figure 12 shows a schematic representation of the method for replacing an existing stone panel 2 in a stone panel 2 wall arrangement 1 on a structure wall element 3 according to claim 1. The figure illustrates the steps of inserting a new stone panel 7 into a gap 6 in the stone panel 2 wall arrangement 1, wherein the new stone panel 7 is provided with a bottom groove 8 at the bottom 9 of the new stone panel 7, with a top groove 10 at the top 11 of the new stone panel 7, and with a first side groove 12 at a first side 14 of the new stone panel 7, and with a second side groove 13 at a second side 15 of the new stone panel 7. The bottom groove 8 is positioned on a lower bracket 28 that is provided at the structure wall element 3, the lower bracket 28 being located in a second area of the gap 6. An upper bracket 29 is inserted into the top groove 10, and connected with the retaining anchor 4. The safety wire is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13, and is connected with the structure wall element 3. The figure also shows the retaining anchor 4, the retaining screw assembly 75, the coupler sleeve 71, the first retaining element 70, the second retaining element 72, the retaining pin 73, the adjustment nut 92, the holding nut 90, the Allen key hole 76, the bolt, the nut, the piece-A element, and the piece-B element, which can be used in the method according to claims 22, 23, 24, 25, and 26.

Figure 13 shows a schematic representation of the method for replacing an existing stone panel 2 in a stone panel 2 wall arrangement 1 on a structure wall element 3 according to claim 1. The figure illustrates the steps of inserting a new stone panel 7 into a gap 6 in the stone panel 2 wall arrangement 1, wherein the new stone panel 7 is provided with a bottom groove 8 at the bottom 9 of the new stone panel 7, with a top groove 10 at the top 11 of the new stone panel 7, and with a first side groove 12 at a first side 14 of the new stone panel 7, and with a second side groove 13 at a second side 15 of the new stone panel 7. The bottom groove 8 is positioned on a lower bracket 28 that is provided at the structure wall element 3, the lower bracket 28 being located in a second area of the gap 6. An upper bracket 29 is inserted into the top groove 10 and connected with the retaining anchor 4. The safety wire is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13, and is connected with the structure wall element 3. The figure also shows the retaining anchor 4, the retaining screw assembly 75, the coupler sleeve 71, the first retaining element 70, the second retaining element 72, the retaining pin 73, the adjustment nut 92, the holding nut 90, the Allen key hole 76, the bolt, the nut, the piece-A element, and the piece-B element.

Figure 14 shows a method for replacing an existing stone panel 2 in a stone panel 2 wall arrangement 1 on a structure wall element 3. The figure illustrates the process of providing a retaining anchor 4 in the structure wall element 3, which is located in a first area 5 of a gap 6 in the stone panel 2 wall arrangement 1. A new stone panel 7 is inserted into the gap 6, equipped with a bottom groove 8, a top groove 10, and first and second side 15 grooves. The bottom groove 8 is positioned on a lower bracket 28 provided at the structure wall element 3, located in a second area of the gap 6. An upper bracket 29 is inserted into the top groove 10 and connected with the retaining anchor 4. A safety wire is provided in the bottom groove 8, the first side groove 12, and the second side groove 13, and is connected with the structure wall element 3. The figure also depicts the steps of connecting the upper bracket 29 with the retaining anchor 4, which includes providing a hole 76 into the structure wall element 3, inserting the retaining anchor 4 into the hole 76, screwing a retaining screw assembly 75 into the retaining anchor 4, cutting the retaining screw assembly 75 to create a first retaining element 70 and a second retaining element 72 with a retaining pin 73, screwing a coupler sleeve 71 on the first retaining element 70,

holding a threaded end of the second retaining element 72 near the coupler sleeve 71 and the threaded end of the first retaining element 70, and unscrewing the coupler sleeve 71 from the threaded end of the first retaining element 70 and onto the threaded end of the second retaining element 72 to connect the first retaining element 70 with the second retaining element 72.

Figure 15 shows a schematic representation of the method for replacing an existing stone panel 2 in a stone panel 2 wall arrangement 1 on a structure wall element 3 according to claim 1. The figure illustrates the steps of inserting a new stone panel 7 into a gap 6 in the stone panel 2 wall arrangement 1, wherein the new stone panel 7 is provided with a bottom groove 8 at the bottom 9 of the new stone panel 7, with a top groove 10 at the top 11 of the new stone panel 7, and with a first side groove 12 at a first side 14 of the new stone panel 7, and with a second side groove 13 at a second side 15 of the new stone panel 7. The bottom groove 8 is positioned on a lower bracket 28 that is provided at the structure wall element 3, the lower bracket 28 being located in a second area of the gap 6. An upper bracket 29 is inserted into the top groove 10, and connected with the retaining anchor 4. The safety wire is provided in the bottom groove 8, in the first side groove 12, and in the second side groove 13, and is connected with the structure wall element 3. The figure also shows the retaining anchor 4, the retaining screw assembly 75, the coupler sleeve 71, the first retaining element 70, the second retaining element 72, the retaining pin 73, the adjustment nut 92, the holding nut 90, the Allen key hole 76, the bolt, the nut, the piece-A element, and the piece-B element, which can be used in the method according to claims 22, 23, 24, 25, and 26.

Reference Numbers List

1 stone panel wall arrangement
2 existing stone panel
3 structure wall element
4 retaining anchor
5 first area
6 gap
7 new stone panel
8 bottom groove
9 bottom
10 top groove
11 top
12 first side groove
13 second side groove
14 first side
15 second side
16 area of work
17 protective panels
18 safety catch netting
19 bmu platform
20 suction cup
21 existing sealant
22 existing holding elements
23 safety belt
24 ground
25 first lower bracket element
26 second area
27 safety wire
28 lower bracket
29 upper bracket
30 first retaining element
31 coupler element
32 second retaining element

49 horizontal basis
50 upper wing
51 lower wing
52 mounting hole

60 piece-A element
61 piece-B element
62 bolt-nut-element
63 bolt
64 elongated hole
65 elongated hole
70 first retaining element
71 coupler sleeve
72 second retaining element
73 retaining pin

1 wall arrangement
2 stone panel
3 structure wall element
4 retaining anchor
5 first area
6 gap
7 new stone panel
8 bottom groove
9 bottom
10 top groove
11 top
12 first side groove
13 second side groove
14 first side
15 second side
28 lower bracket
29 upper bracket
60 piece a element

61 piece b element
70 first retaining element
71 coupler sleeve
72 second retaining element
73 retaining pin
75 retaining screw assembly
76 hole
90 holding nut
92 adjustment nut

Claims

1. Method for replacing an existing stone panel (2) in a stone panel wall arrangement (1) on a structure wall element (3), the method comprising the following steps:
- providing a retaining anchor (4) in the structure wall element (3), the retaining anchor (4) being located in a first area (5) of a gap (6) in the stone panel wall arrangement (1),
- inserting a new stone panel (7) into a gap (6) in the stone panel wall arrangement (1), wherein the new stone panel (7) is provided with a bottom groove (8) at the bottom (9) of the new stone panel (7), with a top groove (10) at the top (11) of the new stone panel (7), and with a first side groove (12) at a first side (14) of the new stone panel (7), and with a second side groove (13) at a second side (15) of the new stone panel (7),
- the bottom groove (8) being positioned on a lower bracket (28) that is provided at the structure wall element (3), the lower bracket (28) being located in a second area (26) of the gap (6),
- inserting an upper bracket (29) into the top groove (10), and
- connecting the upper bracket (29) with the retaining anchor (4),
wherein a safety wire (27) is provided in the bottom groove (8), in the first side groove (12), and in the second side groove (13), the method further comprising the step of connecting the safety wire (27) with the structure wall element (3).

2. Method according to claim 1, comprising a step of creating a gap (6) by removing an existing stone panel (2) from the structure wall element (3).

3. Method according to claim 2, comprising one or more of the following steps:
- barricading an area of work (16) under the gap (6) (to ensure sufficient space), and
- covering the area of work (16) with protective panels (17).

4. Method according to claim 2 or claim 3, comprising one or more of the following steps:
- assigning a traffic marshall to control a ground traffic,
- identifying the location of the existing stone panel (2) that needs to be replaced,

- providing a safety catch netting (18) between a surface of the structure wall element (3) and a BMU platform (19) right below the area of work (16).

5. Method according to claim 4, comprising one or more of the following steps:
- providing (installing and securing) at least one suction cup (20) to the existing stone panel (2),
- removing existing sealant (21), thereby exposing existing holding elements (22) of the existing stone panel (2),
- installing a safety belt (23) around the existing stone panel (2) and
- connecting the safety belt (23) with a structure wall element (3).

6. Method according to claim 5, comprising one or more of the following steps:
- connecting the safety belt (23) with the BMU platform (19),
- removing the existing holding elements (22),
- moving the existing stone panel (2) to the BMU platform (19),
- lowering the BMU platform (19) to a ground (24),
- disconnecting the safety belt (23) from the BMU platform (19), and
- unloading the existing stone panel (2) from the BMU platform (19).

7. Method according to one of claims 2 to 6, comprising one or more of the following steps:
- loading the new stone panel (7) to a BMU platform (19),
- installing a safety belt (23) around the new stone panel (7),
- connecting the safety belt (23) with the BMU platform (19),
and
- bringing the BMU platform (19) up to the gap (6),
- disconnecting the safety belt (23) from the BMU platform (19),
- connecting the safety belt (23) with a structure wall element (3).

8. Method according to one of the aforementioned claims, comprising the following steps:
- providing a first lower bracket element (25) at the structure wall element (3), in the second area (26) of the gap (6),

- providing a second lower bracket (28) element at the first lower bracket element (25),
- adjusting the second lower bracket (28) element with respect to the first lower bracket element (25),
- securing the position of the second lower bracket (28) element with respect to the first lower bracket element (25).

9. Method according to one of the aforementioned claims, comprising the step of providing (fixing in place) a rubber element to the lower bracket (28).

10. Method according to one of the aforementioned claims, wherein the step of providing a retaining anchor (4) for the upper bracket (29) comprises the steps of
- providing a first retaining element (30) in the retaining anchor (4),
- providing a coupler element (31) at the first retaining element (30), wherein the coupler element (31) is at least partially provided in the structure wall element (3),
- providing a second retaining element (32) in the coupler element (31),
- providing grout to the hole in the structure wall element (3).

11. Method according to claim 10, wherein the step of inserting a new stone panel (7) into a gap (6) in the stone panel wall arrangement (1) comprises a step of turning the second retaining element (32) such that a retaining pin of the second retaining element (32) engages in the top groove (10).

12. Method according to one of the aforementioned claims, comprising the step of providing sealant to a slot around the new stone panel (7).

13. Method according to one of the aforementioned claims, wherein the step of connecting the safety wire (27) with the structure wall element (3) comprises connecting the safety wire (27) with a bottom (9) bracket of another existing stone panel (2) of the stone panel wall arrangement (1).

14. Method according to one of the aforementioned claims, wherein the step of connecting the safety wire (27) with the structure wall element (3) comprises forming

a closed loop of a piece of wire by connecting two open ends of the piece of wire are connected with each other.

15. Method according to one of the aforementioned claims, wherein the step of connecting the safety wire (27) with the structure wall element (3) comprises providing holes in the new stone panel (7) that connect the lower groove with the first groove and the second groove.

16. Stone panel wall arrangement (1) on a structure wall element (3) (carrier wall, a structure wall, a façade stone, a pillar), with a plurality of existing stone panels and new stone panels, wherein at least one new stone panel (7) is provided with a bottom groove (8) at the bottom (9) of the new stone panel (7), with a top groove (10) at the top (11) of the new stone panel (7), and with a first side groove (12) at a first side (14) of the new stone panel (7), and with a second side groove (13) at a second side (15) of the new stone panel (7), with the bottom groove (8) being positioned on a lower bracket (28) that is provided at the structure wall element (3) such that the lower bracket (28) being located in a second area (26) of the gap (6) and with an upper bracket (29) being positioned in the top groove (10) with the upper bracket (29) being connected with the retaining anchor (4), wherein a safety wire (27) is provided in the bottom groove (8), in the first side groove (12), and in the second side groove (13), wherein the safety wire (27) is connected with the structure wall element (3).

17. Stone panel wall arrangement (1) according to claim 16, wherein the safety wire (27) is connected with a lower bracket (28) of an existing stone panel (2).

18. Stone panel wall arrangement (1) according to claim 16 or claim 17, wherein the safety wire (27) forms a closed loop of a piece of wire with two open ends of the piece of wire being connected with each other.

19. Stone panel wall arrangement (1) according to one of claims 16 to 18, wherein the the safety wire (27) is provided within holes in the new stone panel (7) that connect the bottom groove (8) with the first side groove (12) and the second side

groove (13) and/or by holes that connect the top groove (10) with the first side groove (12) and the second side groove (13).

20. Stone panel (7) for closing a gap (6) left by a missing existing stone panel (2) in a stone panel wall arrangement (1) on a structure wall element (3), the stone panel (7) being provided with a bottom groove (8) at the bottom (9) of the stone panel (7), with a top groove (10) at the top (11) of the stone panel (7), and with a first side groove (12) at a first side (14) of the stone panel (7), and with a second side groove (13) at a second side (15) of the stone panel (7), the bottom groove (8) being provided for being positioned on a lower bracket (28) and the top groove (10) being provided for being positioned in an upper bracket (29), wherein a channel for a placing a safety wire (27) is provided by the bottom groove (8), by the first side groove (12), and by the second side groove (13), and by holes that connect the bottom groove (8) with the first side groove (12) and the second side groove (13) and/or by holes that connect the top groove (10) with the first side groove (12) and the second side groove (13).

21. Method for replacing an existing stone panel (2) in a stone panel (2) wall arrangement (1) on a structure wall element (3), the method comprising the following steps:

- providing a retaining anchor (4) in the structure wall element (3), the retaining anchor (4) being located in a first area (5) of a gap (6) in the stone panel (2) wall arrangement (1),

- inserting a new stone panel (7) into a gap (6) in the stone panel (2) wall arrangement (1), wherein the new stone panel (7) is provided with a bottom groove (8) at the bottom (9) of the new stone panel (7), with a top groove (10) at the top (11) of the new stone panel (7), and with a first side groove (12) at a first side (14) of the new stone panel (7), and with a second side groove (13) at a second side (15) of the new stone panel (7),

- the bottom groove (8) being positioned on a lower bracket (28) that is provided at the structure wall element (3), the lower bracket (28) being located in a second area (26) of the gap (6),

- inserting an upper bracket (29) into the top groove (10), and

- connecting the upper bracket (29) with the retaining anchor (4),

wherein a safety wire is provided in the bottom groove (8), in the first side groove (12), and in the second side groove (13), the method further comprising the step of connecting the safety wire with the structure wall element (3).

22. Method for replacing an existing stone panel (2) according to claim 21, wherein the step of connecting the upper bracket (29) with the retaining anchor (4) comprises the following steps:

-Providing a hole (76) into the structure wall element (3),

-inserting the retaining anchor (4) into the hole (76),

-screwing a retaining screw assembly (75) into the retaining anchor (4),

-cutting the retaining screw assembly (75) in order to create a first retaining element (70) and a second retaining element (72) with a retaining pin (73),

-screwing a coupler sleeve (71) on the [threaded end of the] first retaining element (70) [such that the coupler sleeve (71) is flush with the first retaining element (70) or similar],

-holding a threaded end of the second retaining element (72) near the coupler sleeve (71) and the threaded end of the first retaining element (70),

-unscrewing the coupler sleeve (71) from the threaded end of the first retaining element (70) and onto the threaded end of the second retaining element (72) such that the coupler sleeve (71) connects the first retaining element (70) with the second retaining element (72).

23. Method for replacing an existing stone panel (2) according to claim 21, wherein the step of connecting the lower bracket (28) with the retaining anchor (4) comprises the following steps:

-Providing a hole (76) into the structure wall element (3),

-inserting the retaining anchor (4) into the hole (76),

-screwing a first retaining element (70) into the retaining anchor (4),

-screwing an adjustment nut (92) on the (threaded end of the) first retaining element (70) (such that the outer surface of the adjustment nut (92) is flush with the inner surface of the next existing stone wall panel),

-putting the new stone panel (7) with the lower bracket (28) onto the [threaded end of the] first retaining element (70), such that it contacts the outer surface of the adjustment nut (92)

-screwing a holding nut (90) onto the [threaded end of the] first retaining element (70), such that the lower bracket (28) is held between the adjustment nut (92) and the holding nut (90).

24. Method for replacing an existing stone panel (2) according to claim 23, wherein the holding nut (90) is provided with an Allen key hole (76). [so that the holding nut (90) can be turned in the gap (6) between the new stone panel (7) and the existing stone panel (2)]

25. Method for replacing an existing stone panel (2) according to claim 23 or claim 24, wherein the lower bracket (28) is used as upper bracket (29).

26. Method for replacing an existing stone panel (2) according to claim 21, wherein the step of connecting the lower bracket (28) with the retaining anchor (4) comprises the following steps:

-providing a hole (76) into the structure wall element (3),

-inserting the retaining anchor (4) into the hole (76),

-screwing a bolt into the retaining anchor (4),

-putting a piece-A element on the bolt and secure it with a nut against the structure wall element (3),

-mounting a piece-B element to the piece-A element, using a second bolt-nut element,

-adjusting the piece-A element with respect to the structure wall element (3) and the piece-B element with respect to the piece-A element such that the outer surface of the next existing stone wall panel is flush with the outer surface of the new stone wall panel,

-fixing the piece-A element with respect to the structure wall element (3),

-fixing the piece-B element with respect to the piece-A element.