

AN APPLICATOR AND METHOD TO FABRICATE THEREOF

FIELD OF INVENTION

- 5 The present invention relates to the field of tools used in the construction industry.

BACKGROUND

10 Currently, the construction industry relies substantially on dedicated tools to carry out different tasks required to complete construction projects. In many instances, the tools may not be optimised for particular tasks, but builders/installers typically continue using those tools because of a lack of alternatives. In some instances, non-optimised tools result in greater fatigue for the builders/installers, and this adversely affects productivity of the builders/installers.

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In addition, a major issue facing construction projects relates to the generation of waste during the course of construction. This is due to the circumstance of the raw materials being slightly larger than required, so that variances in dimensions due to human elements can be addressed during the building/installation process.

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In this regard, it would be desirable for the issues of productivity of the builders/installers, and generation of waste to be addressed.

SUMMARY

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In a first aspect, there is provided a hand-held apparatus for application of a bonding compound to a plane surface. The apparatus is fabricated using steps comprising:

- 30 making a slit of a first pre-determined length at a first end of a thermoplastic cylinder, the slit being parallel with a central axis of the thermoplastic cylinder;
heating the first end of the thermoplastic cylinder at a pre-determined

temperature, the heat causing the first end to flare open to form an applicator portion; and

applying a force to flatten the applicator portion.

It is preferable that the force is applied to cause the applicator portion to be
5 substantially flat.

In another aspect, there is provided a method for fabricating a handheld apparatus, the apparatus being for application of a bonding compound to a plane surface. The method comprises:

10 making a slit of a first pre-determined length at a first end of a thermoplastic cylinder, the slit being parallel with a central axis of the thermoplastic cylinder;

heating the first end of the thermoplastic cylinder at a pre-determined temperature, the heat causing the first end to flare open to form an applicator portion; and

15 applying a force to flatten the applicator portion.

It is preferable that the force is applied to cause the applicator portion to be substantially flat.

It will be appreciated that the broad forms of the invention and their respective
20 features can be used in conjunction, interchangeably and/or independently, and reference to separate broad forms is not intended to be limiting.

DESCRIPTION OF FIGURES

25 Some embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

FIG 1 is a top view of an example apparatus of the present invention; and

FIG 2 is a flow chart of an example of a method for fabricating at least one hand
30 held apparatus for application of a bonding compound to a plane surface.

DETAILED DESCRIPTION

The present invention provides an apparatus which can be used for the application of bonding compounds for walls. The apparatus can be fabricated on site where
5 the apparatus is used, and the apparatus is less likely to cause fatigue to users compared to other tools that are currently in use for similar purposes. Furthermore, the apparatus can be fabricated from waste construction materials, which is beneficial in relation to reducing waste generated at construction projects. Moreover, the apparatus allows the application of bonding compounds at greater
10 heights (compared to when using existing bonding compound application apparatus) while the user stands on a floor.

Referring to FIG 1, there is shown an example hand-held apparatus 100 of the present invention. While some dimensions of the apparatus 100 are indicated in
15 FIG 1, it should be appreciated that the dimensions should not be deemed to be limiting.

The hand-held apparatus 100 is typically fabricated from thermoplastic piping and is configured for application of a bonding compound to a plane surface. The
20 thermoplastic can be, for example, PVC, PE, PP and so forth. At a first end 105 of the apparatus 100, there is an applicator portion 110 configured for scooping and applying the bonding compound on the plane surface.

A gripping layer 120 is located at a second end 115 of the apparatus 100, and the
25 gripping layer 120 can be made from, for example, rubber, silicone, textile, and so forth. The gripping layer 120 can be either wrapped or sheathed at the second end 115. The gripping layer 120 is configured to enable comfort and non-slippage when the apparatus 100 is held by the user.

30 Compared to existing tools used for the application of bonding compounds on plane surfaces, the apparatus 100 is lighter and correspondingly, leads to less

fatigue for users. In addition, the relatively small size of the applicator portion 110 means that an amount of bonding compound being manipulated by the apparatus 100 is relatively little, as thus, the user is able to carry out the scooping/application actions in a less strenuous manner. Moreover, the apparatus 100 allows the
5 application of bonding compounds at greater heights while the user stands on a floor.

Referring to FIG 2, there is provided an example of a method 200 for fabricating at least one hand-held apparatus for application of a bonding compound to a plane
10 surface. An example of the hand-held apparatus 100 is shown in FIG 1, and portions of the apparatus 100 described in the following paragraphs will also refer to FIG 1.

Firstly, the method 200 typically uses PVC (for the sake of illustration, but other
15 thermoplastics can be used) piping of common sizes, such as, for example, diameter between 1.9 cm to 2.6 cm, and wall thickness of less than 0.4 cm. While new PVC piping can be used, it is likely that PVC piping that is considered as waste material is used for the method 200. One of the reasons for this is because PVC material that is deemed to be waste material is likely to be of a length of
20 between 30 cm to 60 cm, and need not be cut to a desired length.

In the event that a length of PVC piping is longer than a desired length, at step 210, the PVC piping is cut to a pre-determined length, which is typically between 30 cm to 60 cm. PVC piping of such lengths are of a size and weight which can be
25 easily hand-held.

At step 220, a slit of a pre-determined length is made at a first end 105 of the PVC cylinder. The pre-determined length can be between 8 cm to 12 cm, and the longer the slit, the bigger a surface area of an applicator portion 110 of the hand-
30 held apparatus 100. When the surface area of the applicator portion 110 is bigger, a greater amount of bonding compound can be scooped and applied on a plane

surface. The slit is made at the first end 105 of the PVC cylinder, parallel to a central axis of the PVC cylinder.

At step 230, the first end 105 of the PVC cylinder is heated at a pre-determined
5 temperature of between 75⁰C to 100⁰C. Typically, this is a glass transition temperature range for the PVC cylinder. Direct heat can be applied to the PVC cylinder, or the PVC cylinder can be located at a heated ambient environment. Correspondingly, the heat causing the first end 105 to flare open to form an applicator portion 110.

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At step 240, a force is applied to flatten the applicator portion 110, whereby the force is applied to cause the applicator portion 110 to be substantially flat. It should be appreciated that the force applied can either be a reactive force from pressing the applicator portion 110 against a hard surface or a force directly applied to the
15 applicator portion 110.

Finally, at step 250, a second end 115 of the PVC cylinder is encased with a gripping layer 120. The gripping layer 120 can be made from, for example, rubber, silicone, textiles and the like and can be configured to enable comfort and non-
20 slippage for the user when holding the apparatus 100. The gripping layer 120 can be either wrapped or sheathed at the second end 115.

It should be appreciated that the method 200 can be carried out at a location where the apparatus 100 is used. Advantageously, this can overcome situations
25 when there are no/insufficient bonding compound applicators on-site, as the apparatus 100 can be fabricated on-site and used immediately.

Throughout this specification and claims which follow, unless the context requires otherwise, the word “comprise”, and variations such as “comprises” or
30 “comprising”, will be understood to imply the inclusion of a stated integer or group of integers or steps but not the exclusion of any other integer or group of integers.

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention.

CLAIMS

1. A hand-held apparatus for application of a bonding compound to a plane surface, the apparatus being fabricated using steps comprising:
 - 5 making a slit of a first pre-determined length at a first end of a thermoplastic cylinder, the slit being parallel with a central axis of the thermoplastic cylinder;
heating the first end of the thermoplastic cylinder at a pre-determined temperature, the heat causing the first end to flare open to form an applicator portion; and
 - 10 applying a force to flatten the applicator portion,
wherein the force is applied to cause the applicator portion to be substantially flat.
2. The apparatus of claim 1, being fabricated using further steps comprising:
 - 15 cutting the thermoplastic cylinder to a second pre-determined length;
encasing a second end of the thermoplastic cylinder with a gripping layer, the gripping layer being configured to enable comfort and non-slippage when holding the apparatus.
- 20 3. The apparatus of claim 2, wherein the second pre-determined length is between 30 cm to 60 cm.
4. The apparatus of any of claims 1 to 3, wherein the first pre-determined length is between 8 cm to 12 cm.
- 25 5. The apparatus of any of claims 1 to 4, wherein the pre-determined temperature is at a glass transition temperature range of the thermoplastic.
6. The apparatus of any of claims 1 to 5, wherein the cylinder is of a diameter of between 1.9 cm to 2.6 cm, and wherein a wall thickness of the cylinder is less than 0.4 cm.
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7. The apparatus of any of claims 1 to 6, wherein the thermoplastic is selected from a group consisting of: PVC, PE, and PP.

5 8. A method for fabricating a handheld apparatus, the apparatus being for application of a bonding compound to a plane surface, the method comprising:
making a slit of a first pre-determined length at a first end of a thermoplastic cylinder, the slit being parallel with a central axis of the thermoplastic cylinder;
heating the first end of the thermoplastic cylinder at a pre-determined
10 temperature, the heat causing the first end to flare open to form an applicator portion; and
applying a force to flatten the applicator portion,
wherein the force is applied to cause the applicator portion to be substantially flat.

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9. The method of claim 8, further comprising:
cutting the thermoplastic cylinder to a second pre-determined length;
encasing a second end of the thermoplastic cylinder with a gripping layer, the gripping layer being configured to enable comfort and non-slippage when
20 holding the apparatus.

10. The method of claim 9, wherein the second pre-determined length is between 30 cm to 60 cm.

25 11. The method of any of claims 8 to 10, wherein the first pre-determined length is between 8 cm to 12 cm.

12. The method of any of claims 8 to 11, wherein the pre-determined temperature is at a glass transition temperature range of the thermoplastic.

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13. The method of any of claims 8 to 12, wherein the cylinder is of a diameter of between 1.9 cm to 2.6 cm, and wherein a wall thickness of the cylinder is less than 0.4 cm.
- 5 14. The method of any of claims 8 to 13, wherein the thermoplastic is selected from a group consisting of: PVC, PE, and PP.