

CONTAINER LOCKING DEVICE

DESCRIPTION

The invention relates to a container locking device according to the features set forth in the preamble of claim 1.

Container locking devices are typically mounted on the chassis of a vehicle, such as a semi-trailer, truck, or freight train, and serve to releasably connect a mounted container to the vehicle's chassis. Each container has so-called container corner fittings on its underside, which serve both as supports for setting down the container and simultaneously allow the engagement of a locking pin.

A locking device for containers known from the prior art is described in DE 20 2009 016 268 U1, comprising a housing and a locking pin that can be rotated and lowered by approximately 90° about a vertical axis in a helical guide. The locking pin mechanism uses a pressure plate, which is shifted by the weight of the container, initiating the rotation and lowering motion of the locking pin. However, a disadvantage has been found to be that after the container is unloaded, the pressure spring, especially if it is covered with dirt and grease, no longer opens reliably, and there is a risk that lifting the container will also lift the vehicle underneath it.

Document DE 10 2007 007 067 A1 also discloses a device for locking a container with a rotatable and retractable locking element, depending on the presence of a container being unloaded, by means of transmitting the container's weight force to a cam. This device, too, does not reliably release the locking element from engagement with the container corner fitting when the container is unloaded.

Therefore, the aim of the invention was to develop a container locking device which can be controlled more precisely between a state of receiving/unloading readiness and a state of locking readiness.

This aim is achieved according to the invention with the features of claim 1. In order to detachably connect the container to the housing and, via this, to a vehicle chassis, the locking pin, starting from a fully lowered and/or a ready-to-pick-up position and/or a clamped position, performs a movement in its axial and circumferential direction. The container is essentially locked in the clamped position of the locking pin and thus spatially fixed in its position relative to the housing.

A guide contour is understood to be, in particular, a groove recessed relative to the surface of the shaft. Similarly, the guide contour can also be a raised area of material on the surface of the shaft. In any case, the guide contour runs as a closed contour circumferentially around the locking pin. The at least one guide pin is always in operative engagement with the guide contour and follows the guide contour in one direction of rotation of the locking pin.

Since the locking pin must not rotate backwards, the locking pin always has to rotate in one direction, and the guide groove must therefore be circumferential so that the locking pin returns to its initial position.

The container locking device is preferably attached to the chassis or a supporting structure of the container vehicle by means of the housing.

Advantageously, the guide contour is formed circumferentially with alternating changes in direction between upper and lower contour points, wherein each upper contour point is arranged at a minimum axial distance from the mushroom head and each lower contour point is arranged at a maximum axial distance from the mushroom head. The guide contour follows a zigzag path circumferentially around the locking pin.

All upper contour points can have the same minimum axial distance, and all lower contour points can have the same maximum axial distance to the mushroom head. The minimum axial distance is always less than the maximum axial distance.

According to a particularly preferred embodiment, the upper and lower contour points are equidistant from each other in the circumferential direction, with the upper contour points offset by half a distance from the lower contour points. This results in a uniformly symmetrical distribution of the upper and lower contour points, which in turn gives the guide contour equal-length segments with alternating directions between the upper and lower contour points. This results, in particular, in a constant rotational movement of the locking pin.

Advantageously, an axially extending contour extension is formed from each upper contour point. When the at least one guide pin moves within the contour extension, this always results in a downward or upward movement of the locking pin, for example, to prepare a container for receiving or removal, or to clamp a container using the locking pin.

Preferably, the contour extensions are formed alternately as short contour extensions and long contour extensions in the direction of the mushroom head. The short contour extension is sufficient to clamp the container with its container corner fitting against the housing using the locking pin. A short contour extension is sufficient for this purpose because the clamping process is already completed by the container corner fitting on the housing, and the contour extension does not need to be longer. In the position ready for receiving or removal of a container, the at least one guide pin is located within the long contour extension.

According to a first, advantageous embodiment, the guide contour is formed directly on the shaft of the locking pin, and the at least one guide pin is fixedly mounted to the housing. Fixed mounting of the guide pin means a rotationally fixed mounting relative to the locking pin in the circumferential direction and a fixed mounting in the axial direction of the locking pin. The at least one guide pin can, in particular, be mounted in an intermediate housing layer located between a housing top wall and a housing bottom wall. The guide contour can, for example, be milled into the shaft of the locking pin.

According to a second, alternative embodiment, the guide contour is formed in a guide tube concentrically surrounding the shaft of the locking pin, and the at least one guide pin is fixedly mounted in the shaft of the locking pin. A guide pin fixedly mounted in the shaft of the locking pin is understood to be a rotationally fixed bearing relative to the locking pin in the circumferential direction and a fixed bearing in the axial direction of the locking pin.

Advantageously, the at least one guide pin is spring-loaded in its axial extension, regardless of the embodiment described above. This ensures permanent engagement of the at least one guide pin with the guide contour, particularly when interaction with a backstop (described later) is required, which may necessitate axial forward and backward movement of the at least one guide pin.

The at least one guide pin should be radially aligned with the locking pin, regardless of whether the at least one guide pin is fixed to the housing or directly attached to the locking pin.

It is particularly advantageous if the locking pin interacts with a backstop such that the locking pin moves only in a predetermined direction of rotation. The backstop preferably comprises shoulders formed in the guide contour, which the at least one guide pin can traverse in one direction. The shoulders can have a sharp edge on their entry side for the at least one guide pin and gradually taper to the original level of the guide contour on their exit side.

Reverse rotation of the locking pin is prevented by the fact that the at least one guide pin cannot pass over the sharp edge of the shoulder and therefore follows the further course of the guide contour.

As an alternative to the embodiment described above, the backstop can comprise one or more shoulders arranged in the shaft. These shoulders engage spring-loaded pawls in a predetermined direction of rotation and are held by the pawls in the opposite direction.

These shoulders also have a sharp edge on their entry side for the pawl and taper gradually to the original level of the shaft on their exit side.

Advantageously, the locking pin is driven by a reversible drive unit for an axial travel path. A reversible drive unit is understood to be a drive unit that can be switched between a forward and a reverse direction of rotation. The reversible drive unit is a drive motor or comprises a drive motor. The direction of rotation typically reverses each time the at least one guide pin reaches one of the lower contour points or a distal endpoint of one of the contour extensions. Appropriate sensors can be provided to detect whether the at least one guide pin has reached the lower contour point or the distal end of the contour extension. Alternatively, it is also possible to measure the increased current draw of the drive motor at these points and use it as a switching signal for the reversible drive unit.

Advantageously, the shaft of the locking pin is formed with an external thread that engages with an internal thread of a gear arranged on the shaft.

A rotary motion of the drive unit is transmitted via the gear running on the shaft to a movement of the locking pin along the guide contour. The gear travels on the external thread of the locking pin, continuously changing its position relative to the housing.

Preferably, the external thread and the guide contour are arranged to overlap in the axial direction of the shaft. This means that the guide contour runs through the external thread. The threads of the external thread are interrupted in sections by the guide contour.

Alternatively, the gear can be held fixedly in the axial direction relative to the housing and is driven by a pinion of the drive unit. The pinion is advantageously mounted to an output shaft of the drive unit to prevent rotation.

Expediently, the locking pin is surrounded by a guide sleeve between the mushroom-shaped head and the guide contour. When the locking pin is fully retracted, the guide sleeve moves into the housing along with it. In a position ready for receiving or unloading of the container locking device, the guide sleeve protrudes section by section from the housing and keeps horizontal forces caused by the loading or unloading process away from the locking pin. It has proven particularly advantageous if, starting from a lowered position of the locking pin, the guide sleeve is held rotationally fixed by guide walls integrated into the housing and guided axially by these guide walls over a predetermined axial travel path.

Advantageously, at least one latch is provided on the guide sleeve, which is movable in the radial direction of the locking pin. In the lowered position of the locking pin, this latch engages positively in a recess of the locking pin, thus fixing the guide sleeve to the locking pin, at least axially. This allows the locking pin to initially extend out of the housing together with the guide sleeve.

According to a particularly advantageous embodiment, the at least one latch is supported against the associated guide wall in the lowered position of the locking pin. The guide wall is an integral part of the housing and provides a support to prevent rotation of the guide sleeve.

In a partially extended position of the locking pin, the guide sleeve and the locking pin can be extended out of the housing together until the guide sleeve disengages from the guide walls and is axially supported against the housing by a collar projecting radially from the guide sleeve. The protruding collar thus limits the axial travel of the guide sleeve out of the housing. When the protruding collar contacts the housing, particularly the inside of the housing top wall, only the locking pin changes its axial position relative to the housing.

Preferably, in the partially extended position, at least one latch is pressed into the recess of the locking pin by means of a spring element.

Only as the locking pin is extended axially is the spring preload acting on the at least one bolt exceeded, causing the latch to slide out of the recess in the axial direction of the locking pin and along the shaft, particularly over the external thread formed on the shaft. Therefore, in a fully extended position of the locking pin, the at least one latch is spring-loaded against the shaft of the locking pin.

For better understanding, the invention is explained in more detail below with reference to 10 figures showing in

- FIG. 1:** a perspective cross-section through a container locking device according to a first embodiment with a fully lowered locking pin;
- FIG. 2:** a perspective view of the locking pin of the container locking device shown in Fig. 1;
- FIG. 3:** a perspective view of an enlarged section of the guide contour of the locking pin;
- Fig. 4:** a perspective top view of a guide sleeve of the container locking device;
- Fig. 5:** a perspective bottom view of a guide sleeve according to Fig. 4;

- Fig. 6:** a perspective cross-section through a container locking device according to the first embodiment with a slightly raised locking pin;
- Fig. 7:** a perspective cross-section through a container locking device according to the first embodiment between readiness to receive and clamped position;
- Fig. 8:** a perspective cross-section through a container locking device according to the first embodiment immediately before reaching the clamped position;
- Fig. 9:** a perspective side view of a container locking device according to a second embodiment in a position ready for insertion and removal and
- Fig. 10:** an enlarged cross-section on the guide sleeve and the upper end of the locking pin of the container locking device according to the second embodiment in the position ready for receiving and removal.

Fig. 1 shows a perspective cross-section through a container locking device with a housing 10 and a locking pin 20 movably mounted relative to the housing 10 in a fully lowered position. The housing 10 has a top wall 12 and a substantially parallel bottom wall 13, spaced apart from the top wall 12, wherein the top wall 12 and the bottom wall 13 are connected to each other by substantially perpendicular side walls 14.

The locking pin 20 comprises a shaft 21, the upper end of which integrally merges into a mushroom head 23. The mushroom head 23 has a convex upper surface and a flat lower surface. The lower surface is oriented substantially orthogonally to the shaft 21. With the container in place, the mushroom head 23 is inserted into the container's corner fitting (not shown). By a downward rotational movement of the locking pin 20, the container corner fitting is then clamped in the direction of the housing 10. At one free end of the shaft 21, it is provided with an external thread 25.

An upper pass-through opening 15 is formed in the housing top wall 12, dimensioned such that the mushroom head 23 of the locking pin 20 can be fully lowered into the housing 10. In this lowered position of the locking pin 20, the lower, free end of the shaft 21, together with the external thread 25, protrudes from the housing 10 through a lower housing pass-through opening 16. The lower housing pass-through opening 16 is closed at the bottom by means of a cup-shaped cover cap 17. The fully lowered position of the locking pin 20 within the housing 10 allows the container locking device to be moved out of the way when not in use, for example, to accommodate a different container size.

The locking pin 20 is actuated by means of a guide contour 30 formed on the shaft 21, into which two opposing guide pins 31a, 31b engage under spring tension, and a drive unit 50. The guide contour 30 is, in particular, a groove countersunk into the shaft 21.

The guide pins 31a, 31b are arranged radially to each other on opposite sides of the shaft 21 and are spring-loaded in an intermediate housing base 18. The intermediate housing base 18 is fixedly attached to the housing 10, specifically to the upright housing side walls 14. The guide pins 31a, 31b are always in contact with the guide contour 30, regardless of the position of the locking pin 20.

The drive unit 50 transmits a torque via its pinion 51 to a gear 26, which runs on an external thread 25 formed on the shaft 21. The external thread 25 overlaps the guide contour 30 in the axial direction Z of the shaft 21. The guide contour 30 extends through the external thread 25 of the shaft 21. Depending on the direction of rotation of the pinion 51 and the gear 26, the shaft 21 of the locking pin 20 moves upwards towards the housing top wall 12 or downwards towards the housing bottom wall 13. The movement of the locking pin 20 follows the position of the guide pins 31a, 31b within the guide contour 30 in the circumferential direction as well as in the axial direction Z.

The guide contour 30 is particularly well illustrated in Fig. 2, Fig. 3 and completely surrounds the shaft 21 of the locking pin 20 in the circumferential direction. The guide contour 30 is designed such that the locking pin 20 always changes its rotational and axial positions in a predetermined circumferential direction, regardless of the direction of rotation of the drive unit 50.

It is expressly not possible for the locking pin to also change its direction of rotation when the direction of rotation of the drive unit 50 is reversed.

The guide contour 30 is symmetrically designed for two opposing guide pins 31a, 31b, such that the guide pin 31b is located in the opposite, similarly shaped section of the guide contour 30 as the guide pin 31a.

The guide contour 30 runs alternately between upper contour points 32 and lower contour points 33 in a zigzag pattern. The upper contour points 32 have a minimum axial distance $Z_{\min}$ in the axial direction Z of the shaft 21 up to the mushroom head 23, and the lower contour points 33 have a maximum axial distance $Z_{\max}$. The maximum axial distance $Z_{\max}$ is always greater than the minimum axial distance $Z_{\min}$.

In the circumferential direction, the upper contour points 32 are preferably spaced apart from each other at a constant distance A. The lower contour points 33 are spaced the same distance A from each other circumferentially. Ideally, the lower contour points 33 are offset circumferentially by half the distance A from the upper contour points 32.

Only the upper contour points 32 are followed by contour extensions 34, 35 aligned in the axial direction Z, which are preferably formed with a shorter length as the short contour extension 34 and with a longer length as the long contour extension 35. In addition to the short contour extension 34 shown in Fig. 2, there is a second short contour extension 34 on the opposite side of the locking pin 20, which is not visible here. The short contour extensions 34 are oriented at an angle of approximately 180° to each other. Ideally, the long contour extensions 35 are arranged approximately 90° offset from the short contour extensions 34 (see Fig. 1).

In a position of readiness for loading or unloading of the locking pin 20, in which the locking pin 20 partially protrudes from the housing 10 to provide lateral guidance to the container corner fitting during loading, the guide pins 31a, 31b have migrated into the long contour extensions 35. In a clamped position of the locking pin 20 with a container placed on the housing 10, the guide pins 31a, 31b have migrated into the short contour extensions 34. A longer version of the short contour extensions 34 is not necessary, since the container corner fitting stops the guide pins 31a, 31b before they reach the distal end of the short contour extension 34 anyway. The short contour extensions 34 significantly reduce the risk of pinching for operators, as the mushroom head 23 cannot be lowered to the housing top wall 12 when a container is not present, and the guide pins 31a, 31b have already reached the distal end of the short contour extensions 34.

As soon as each upper and lower contour point 32, 33 has been traversed by the guide pins 31a, 31b, or the distal end of the short or long contour extensions 34, 35 has been reached by the guide pins 31a, 31b, the drive unit 50 reverses its direction of rotation. To prevent the guide pins 31a, 31b from returning to the previous section of the guide contour 30 when the drive unit 50 reverses its direction of rotation, a backstop 40 is provided on the shaft 21.

In the present embodiment, the backstop 40 is formed by the shape of the guide contour 30 itself. For this purpose, the backstop 40 has a sharp-edged shoulder 41 at each upper and lower contour point 32, 33, over which the guide pins 31a, 31b pass and, due to their spring-loaded guidance, engage.

Due to the stepped design of the shoulder 41, when the locking pin 20 is rotated backwards, the guide pins 31a, 31b abut the shoulder 41 in the circumferential direction of the shaft 21, thus preventing the locking pin 20 from rotating in this direction. In the illustration of Fig. 2, the locking pin 20 can only rotate in the rotation direction D, i.e., clockwise. Starting from each upper and lower contour point 32, 33, the guide contour 30 rises ramp-like against the rotation direction D to the adjacent lower or upper contour point 33, 32, in order to reach a sufficient level at the subsequent lower or upper contour point 33, 32 for a further stepped shoulder 41.

The locking pin 20 moves from its fully retracted position, as shown in Fig. 1, initially in its axial direction Z together with a guide sleeve 60, which is shown in Figs. 4 and 5. The guide sleeve 60 has an opening 64 for the shaft 21 of the locking pin 20, located centrally in a main part 65.

On its underside, the guide sleeve 60 is surrounded by a substantially cylindrical collar 62 that projects radially beyond the main part 65 and, in the fully retracted position of the locking pin 20, rests flat against the upper surface of the intermediate housing base 18.

Two opposing latches 61 are mounted in the collar 62 of the guide sleeve 60 so as to be movable in the radial direction towards the opening 64; these can, starting from a fully retracted position of the locking pin 20, engage in a recess 28 formed in the shaft 21 (see Fig. 2) and thereby connect the guide sleeve 60 to the locking pin 20 in an axial direction in a detachable manner. In the circumferential direction, the guide sleeve 60 is initially held by two opposing guide walls 11 which are fixedly secured in the housing 10.

The guide sleeve 60 engages the corresponding guide wall 11 on three sides, in particular by means of the latches 61.

Each of the two guide walls 11 is engaged by a spring element 63, which is particularly visible in Fig. 6 and whose distal end rests against opposite sides of the guide sleeve 60. As long as the two latches 61 are located within the guide walls 11, the guide sleeve 60, together with the locking pin 20, is moved upwards or downwards.

During an upward movement of the guide sleeve 60, it is initially blocked by the housing top wall 12. Further upward movement of the locking pin 20 presses the latches 61 against the force of the spring elements 63 over the inclined surfaces in the recess 28, so that the latches 61 rest against the guide walls 11. The diameter of the shaft 21, particularly in the area of the external thread 25, prevents the latches 61 from sliding back, thus locking the guide sleeve 60 in every degree of freedom. The locking pin 20 can rotate, close, and open without any horizontal forces acting on the guide sleeve 60 interfering with its further movement.

During lowering, the latches 61 are pressed back into the recess 28 by the spring elements 63, so that the locking pin 20 is lowered from that point onward together with the guide sleeve 60.

Fig. 7 shows the container locking device between the ready-to-receive and the clamped position of the locking pin 20. The guide pins 31a, 31b were previously in the ready-to-receive/remove position of the container in the long contour extension 35 and have now moved within the guide contour 30 via the upper contour point 32 in the direction of the lower contour point 33.

The guide sleeve 60 rests with its collar 62 against the housing top wall 12 and is thus blocked from further upward movement. The main part 65 of the guide sleeve 60 projects upwards out of the upper pass-through opening 15 and into a container corner fitting that may be located there (not shown here), so that horizontal forces are transferred from the main part 65 to the housing 10 and do not act on the locking pin 20.

After passing the lower contour point 33 located in the guide contour 30 in Fig. 7, both guide pins 31a, 31b move into the upward-facing section of the guide contour 30, as shown in Fig. 8. The mushroom head 23 is almost completely rotated into the position for clamping a container, as shown in Fig. 8, and moves downwards together with the entire locking pin 20, provided the guide pins 31a, 31b have entered the short contour extension 34. This presses the container corner fitting (not shown) against the housing 10. The container locking device is now in a clamped position.

Fig. 9 shows an alternative embodiment of the container locking device in which the guide contour 30 is not formed directly on the shaft 21 of the locking pin 20, but rather in a guide tube 24 that surrounds the shaft 21 from the outside. The opposing guide pins 31a, 31b, on the other hand, are fixedly mounted in the shaft 21 and project into the guide contour 30 of the guide tube 24.

While a backstop 40 in the form of shoulders 41 would be possible, it would be difficult to incorporate on the inside of the guide tube 24 from a manufacturing perspective.

The backstop 40 is therefore implemented at the upper end 22 of the shaft 21 and comprises several circumferentially distributed shoulders 41 formed in the shaft 21, which are covered by the main part 65 of the guide sleeve 60. On opposite sides of the guide sleeve 60, spring-loaded pins in the form of pawls 42 are arranged, under which the shoulders 41 pass in the specified direction of rotation. Rotation against the specified direction of rotation is prevented by the pawls 42 being held in the shoulders 41.

LIST OF REFERENCE NUMERALS

10	housing
11	guide walls
12	housing top wall
13	housing bottom wall
14	housing side wall
15	upper pass-through opening
16	lower pass-through opening
17	cover cap
18	intermediate housing base
20	locking pin
21	locking pin shaft
22	upper end of shaft
23	mushroom head locking pin
24	guide tube
25	external thread, shaft
26	gear, shaft
27	internal thread, gear
28	recess, locking pin
30	guide contour
31a,b	guide pin
32	upper contour point
33	lower contour point
34	short contour extension
35	long contour extension
40	backstop

41	shoulder
42	locking pawls
50	drive unit
51	pinion
60	guide sleeve
61	latch
62	guide sleeve collar
63	spring element
64	opening
65	main part
A	distance between contour points circumferential direction
D	rotation direction of locking pin
X	axial extension of guide pin
Z	axial direction of locking pin/shaft
$Z_{\min}$	minimum axial distance
$Z_{\max}$	maximum axial distance
Z_s	axial travel of guide sleeve

CLAIMS

1. A container locking device comprising a housing (10) and a locking pin (20) which can be moved relative to the housing (10) in the axial direction (Z) and rotationally in the peripheral direction and which has a shaft (21) at least partially accommodated by the housing (10) and has a mushroom head (23) for engaging in a container corner fitting, the mushroom head (23) being integrally formed on an upper end (22) of the shaft (21), wherein, by means of a guide contour (30) and at least one guide pin (31a, 31b) engaging in the guide contour (30), the locking pin (20) can be moved between positions in which the locking pin (20) is extended relative to the housing (10) to different extents,
characterized in that
the guide contour (30) is formed such that it peripherally extends continuously in the peripheral direction with respect to the shaft (21).
2. The device according to claim 1, **characterized in that** the guide contour (30) is formed circumferentially with alternating changes in direction between upper contour points (32) and lower contour points (33), wherein each upper contour point (32) is arranged at a minimum axial distance ($Z_{\min}$) from the mushroom head (23) and each lower contour point (33) is arranged at a maximum axial distance ($Z_{\max}$) from the mushroom head (23).
3. The device according to claim 2, **characterized in that** an axially extending contour extension (34, 35) is formed from each upper contour point (32).

4. The device according to claim 3, **characterized in that** the contour extensions (34, 35) are alternately formed as short contour extensions (34) and long contour extensions (35) in the direction of the mushroom head (23).
5. The device according to any one of claims 1 to 4, **characterized in that** the guide contour (30) is formed on the shaft (21) of the locking pin (20) and the at least one guide pin (31a, 31b) is fixedly mounted relative to the housing (10).
6. The device according to any one of claims 1 to 4, **characterized in that** the guide contour (30) is formed in a guide tube (24) concentrically surrounding the shaft (21) of the locking pin (20) and the at least one guide pin (31a, 31b) is fixedly mounted in the shaft (21) of the locking pin (20).
7. The device according to claim 5 or 6, **characterized in that** the at least one guide pin (31a, 31b) is spring-loaded in its axial extension (X).
8. The device according to any one of claims 1 to 7, **characterized in that** the at least one guide pin (31a, 31b) is aligned radially with respect to the locking pin (20).
9. The device according to any one of claims 1 to 8, **characterized in that** the locking pin (20) interacts with a backstop (40) such that the locking pin (20) is moved exclusively in a predetermined direction of rotation.

10. The device according to claim 9, **characterized in that** the backstop (40) comprises shoulders (41) formed in the guide contour (30), which can be traversed by the at least one guide pin (31a, 31b) in one direction.
11. The device according to claim 9, **characterized in that** the backstop (40) comprises one or more shoulders (41) arranged in the shaft (21), which engage spring-loaded pawls (42) in a predetermined direction of rotation and are held in the opposite direction of rotation by the pawls (42).
12. The device according to any one of claims 1 to 11, **characterized in that** the locking pin (20) is driven by a reversible drive unit (50) for a travel path in the axial direction (Z).
13. The device according to claim 12, **characterized in that** the shaft (21) of the locking pin (20) is formed with an external thread (25) which engages with an internal thread (27) of a gear (26) arranged on the shaft (21).
14. The device according to claim 13, **characterized in that** the external thread (25) and the guide contour (30) are arranged to overlap in the axial direction (Z) of the shaft (21).
15. The device according to claim 13 or 14, **characterized in that** the gear (26) is held fixedly in the axial direction (Z) relative to the housing (10) and is driven by a pinion (51) of the drive unit (50).

16. The device according to one of claims 1 to 15, **characterized in that** the locking pin (20) is surrounded by a guide sleeve (60) between the mushroom head (23) and the guide contour (30).