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- (54) Lockable Fastener Handle
- (57) A window fastener mechanism has an actuating handle (5) which is locked in a normal position by a combination lock (29) housed in the

handle. The handle may be rotated from the normal position after displacement of a locking slide (21) upon depression of a release button (22) which is only actuatable when the combination lock is in its unlocked configuration.

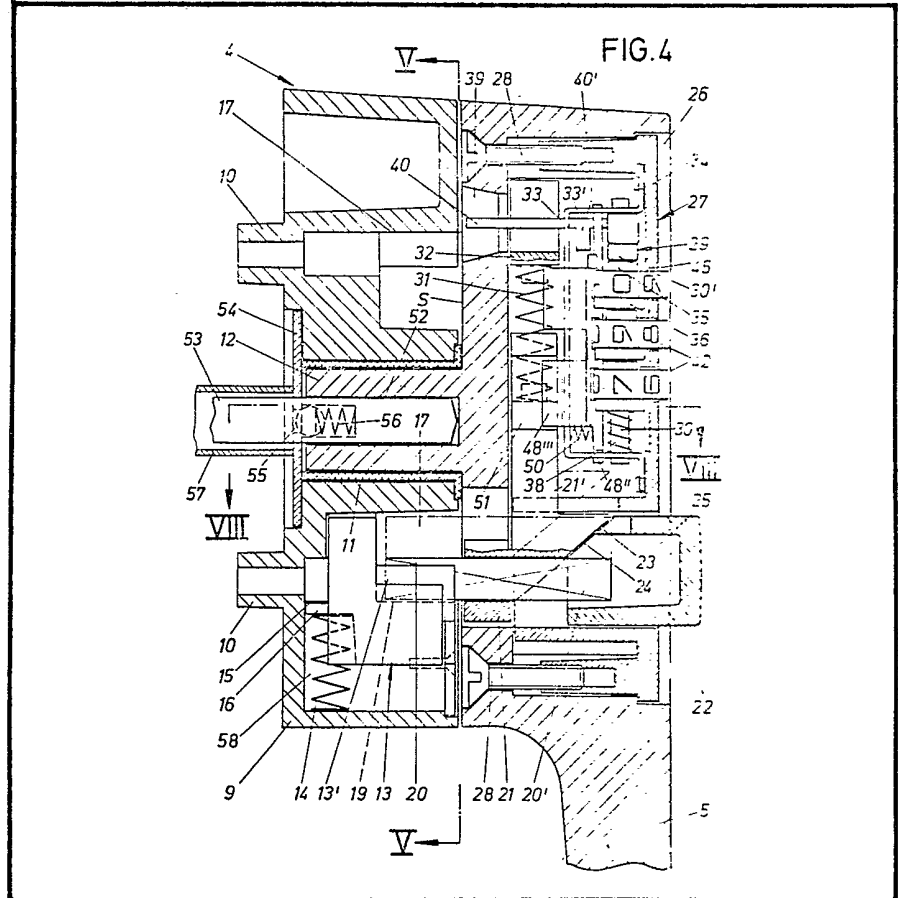
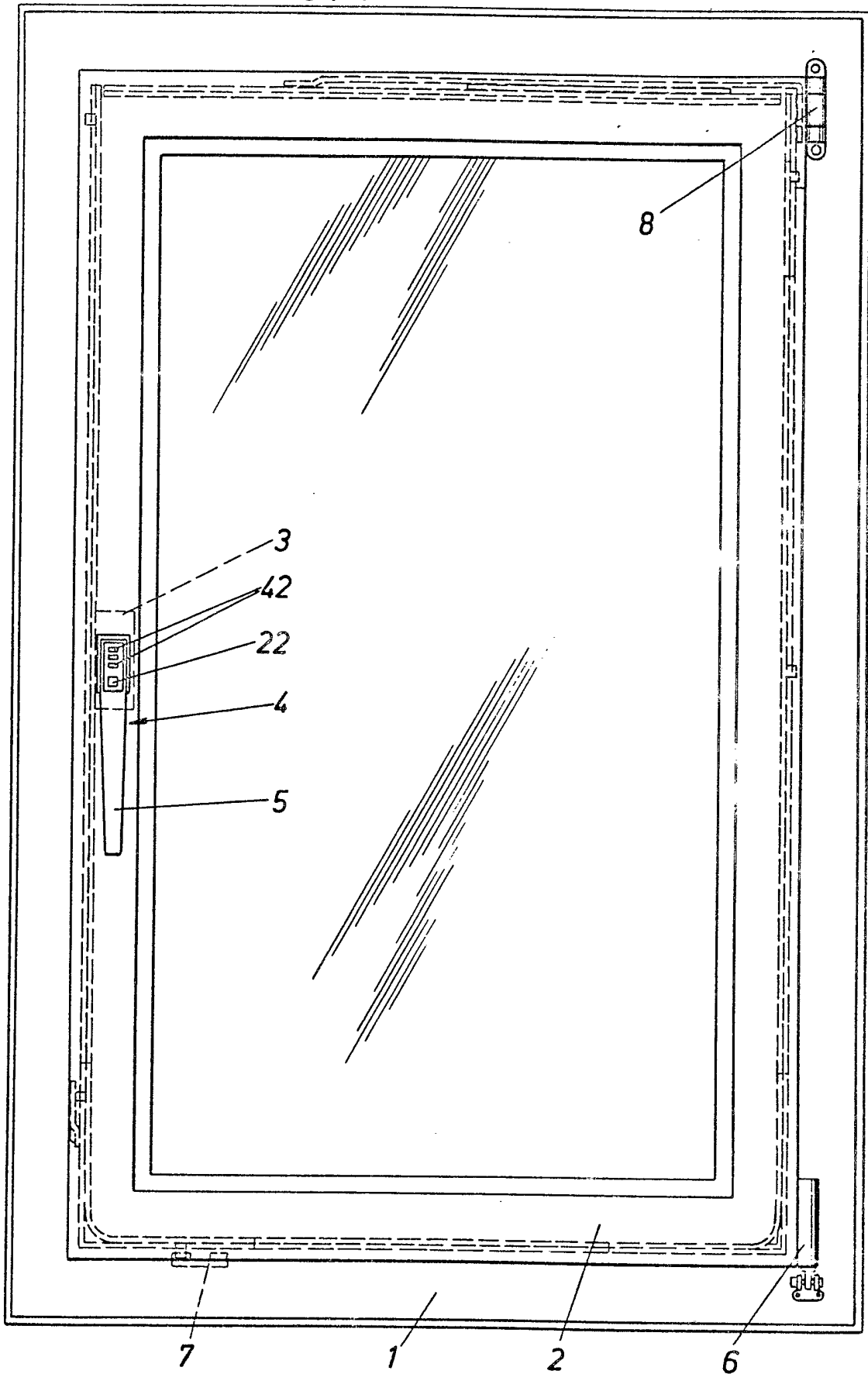


FIG. 1



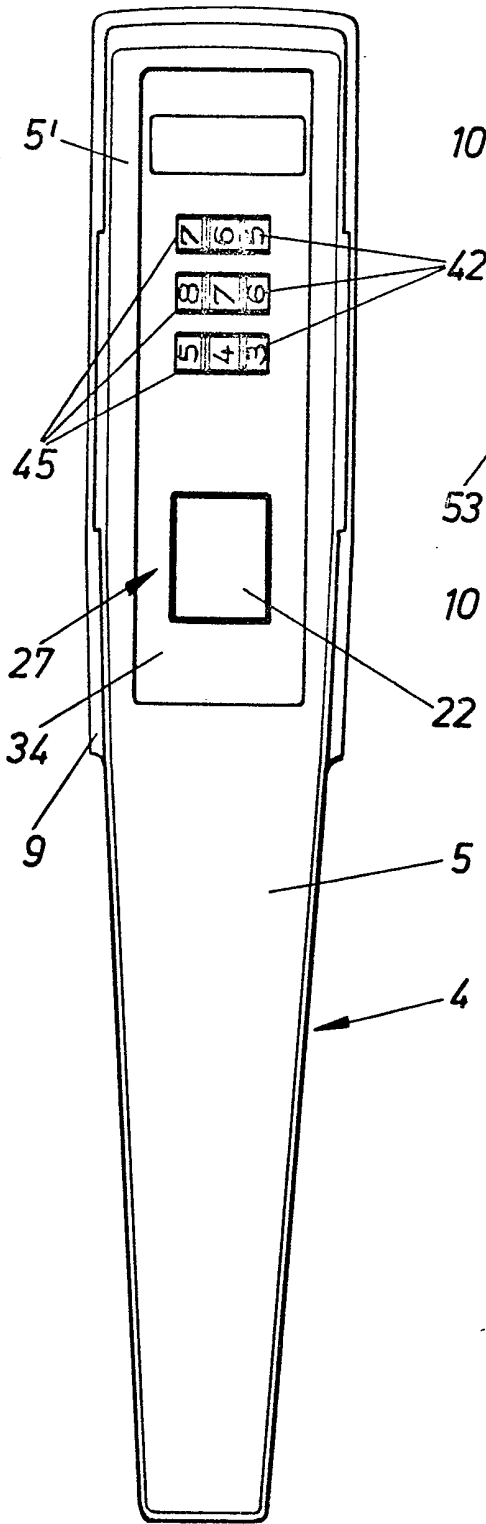


FIG. 2

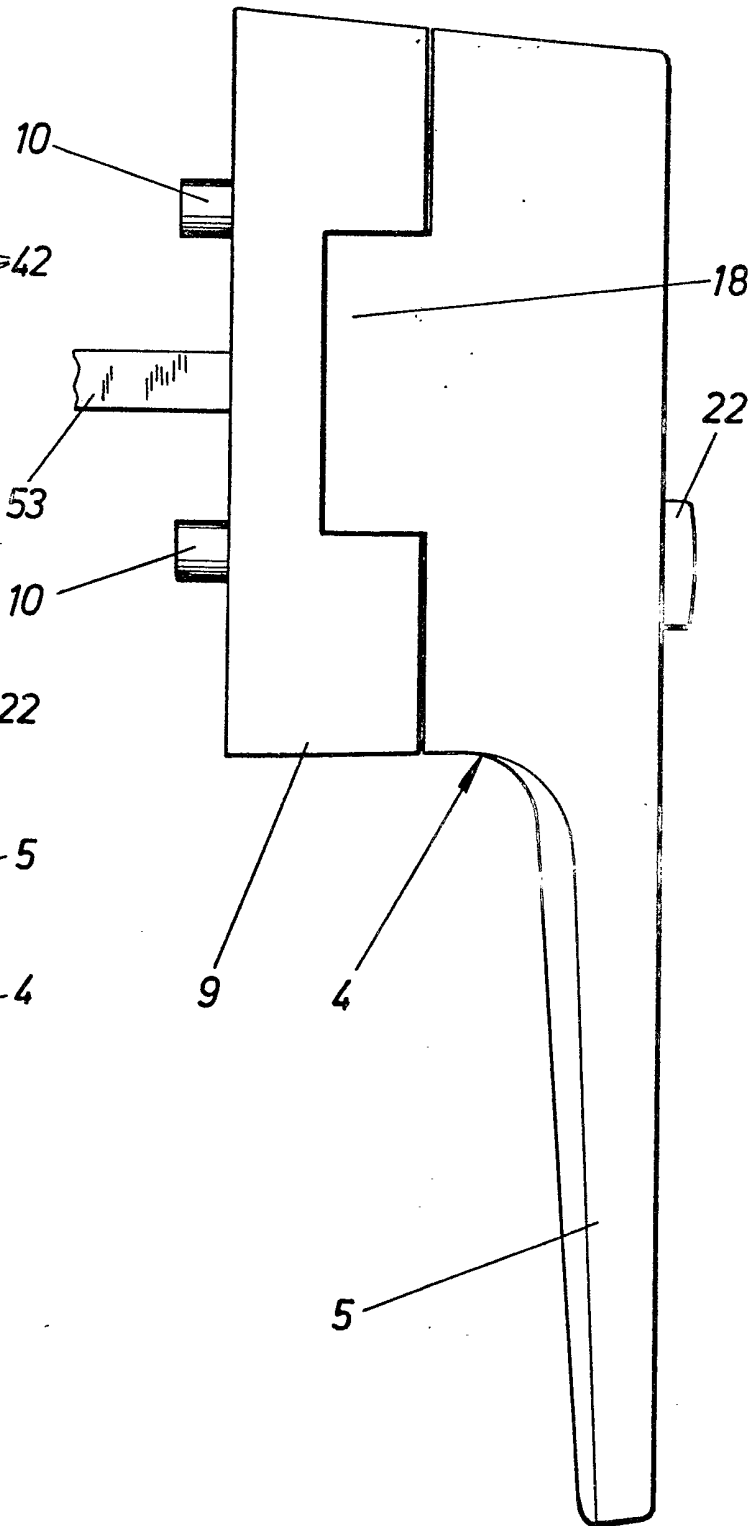


FIG. 3

FIG. 4

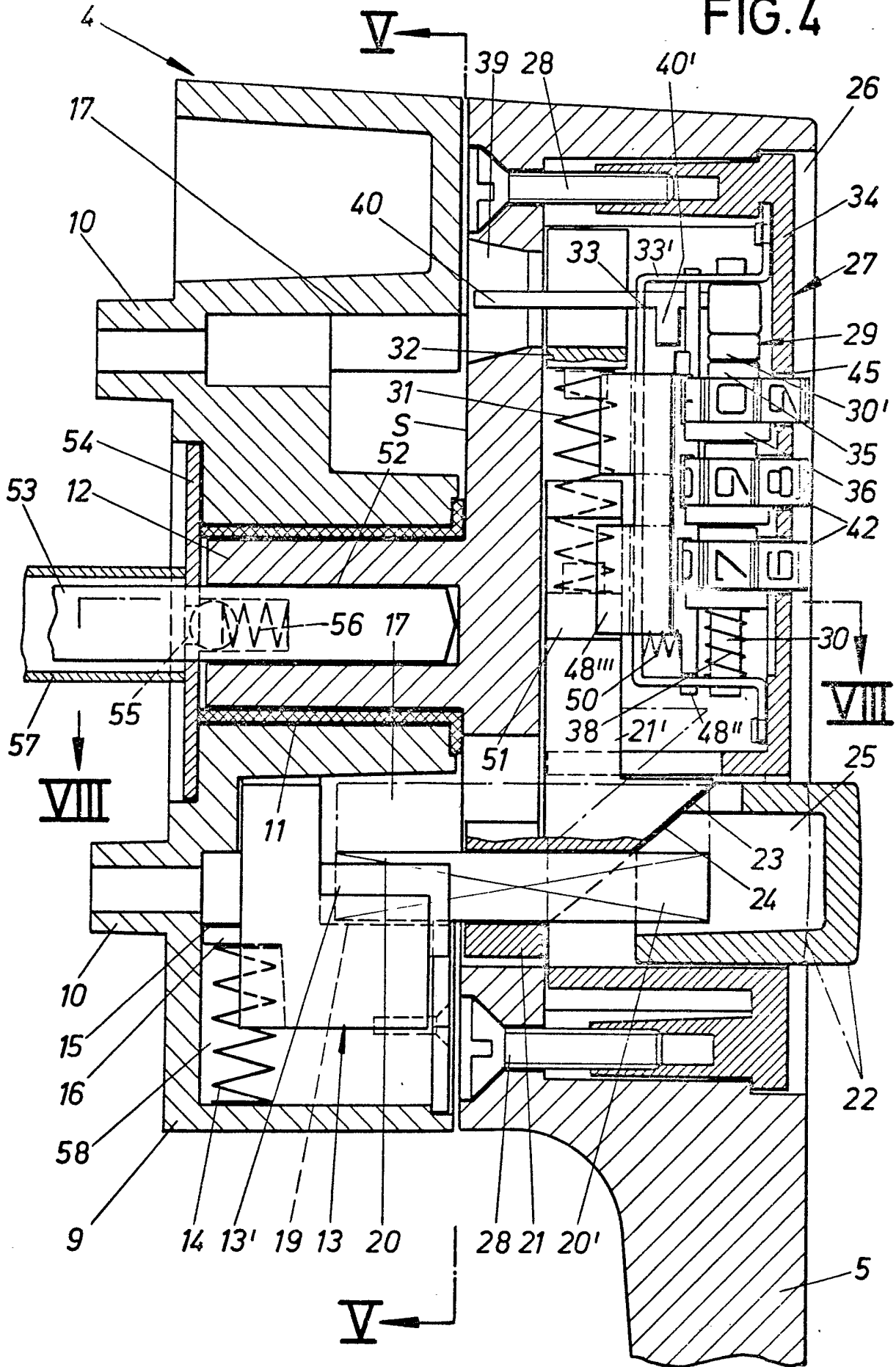
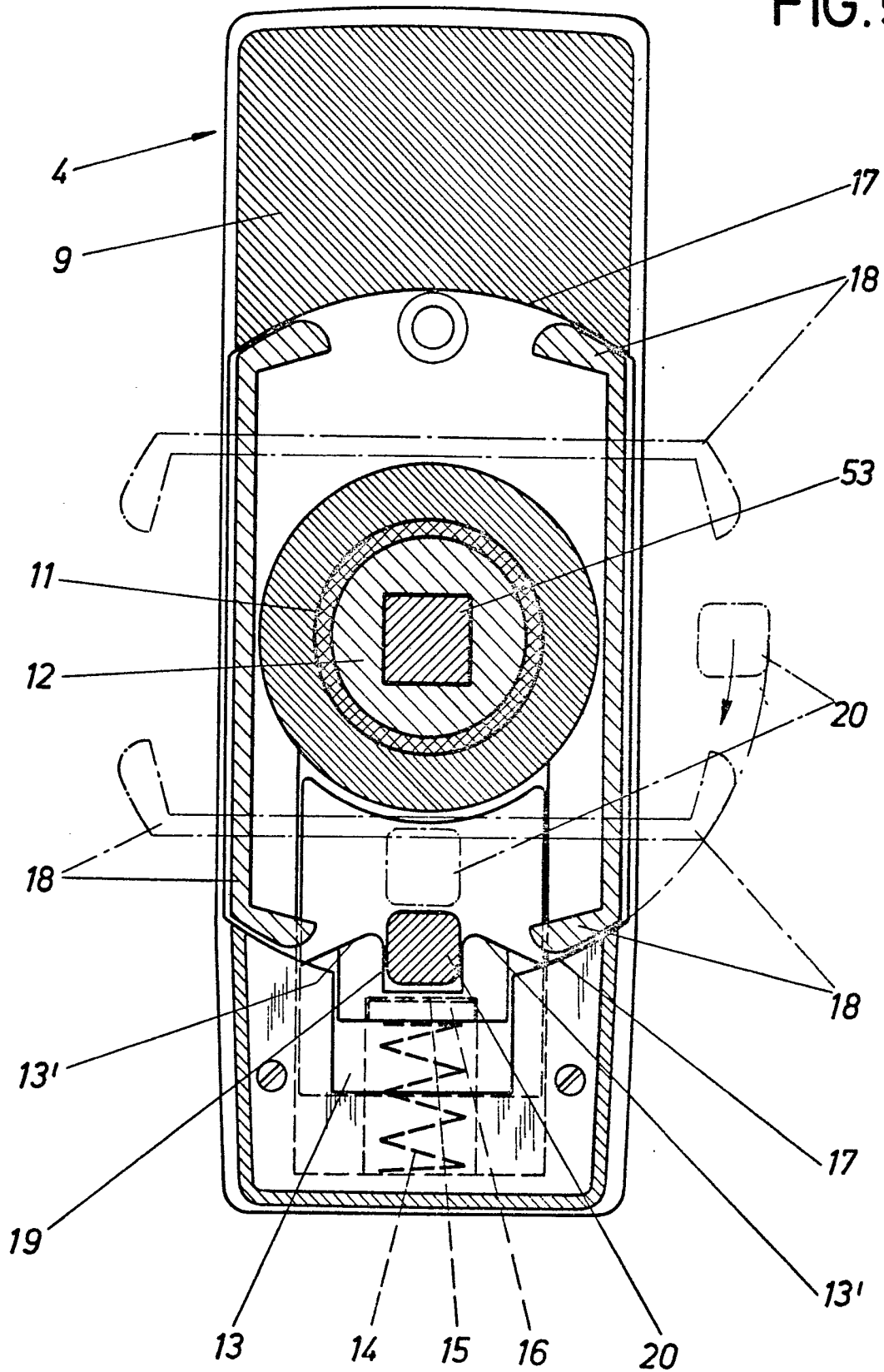


FIG. 5



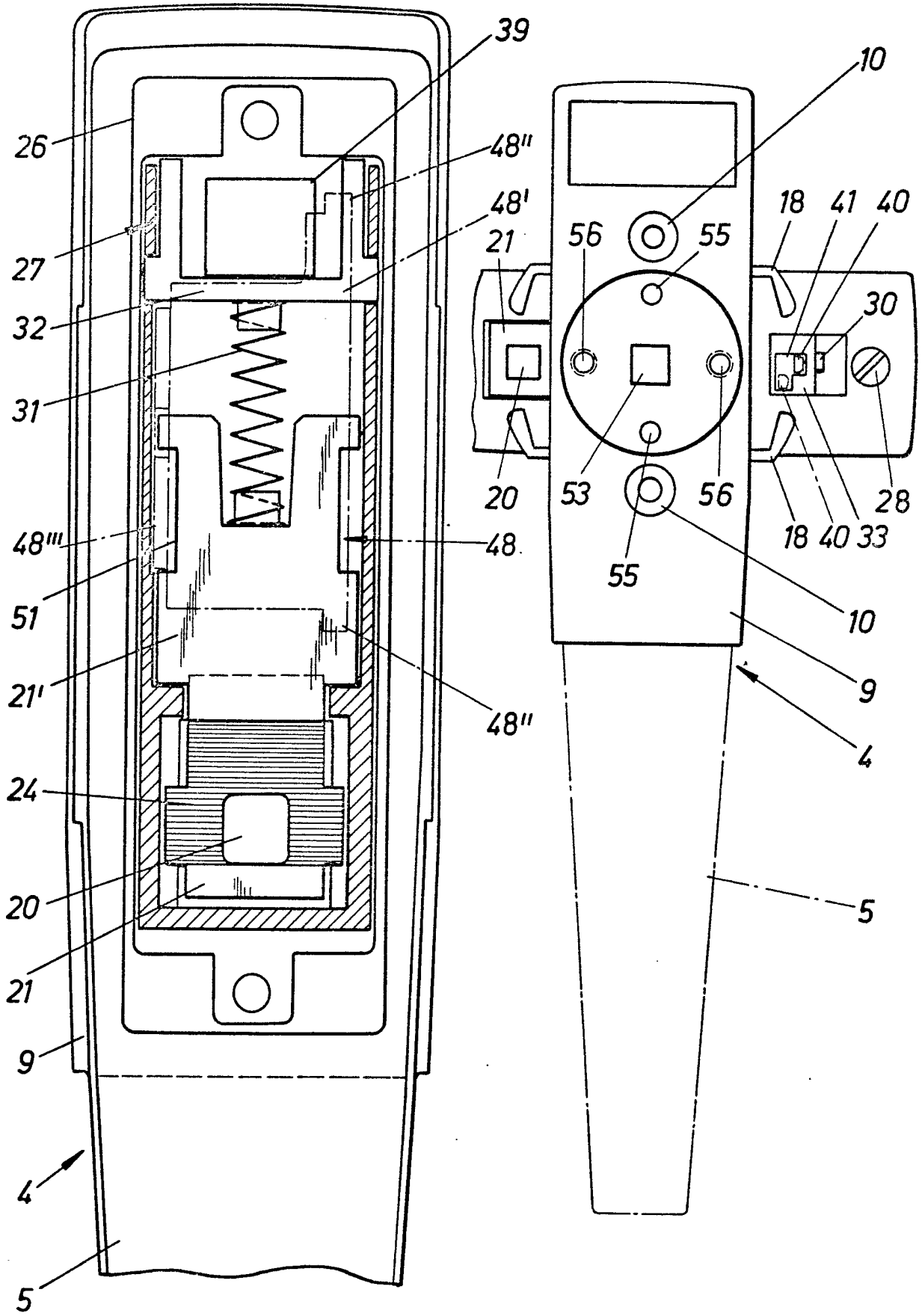


FIG. 6

FIG. 7

FIG. 8

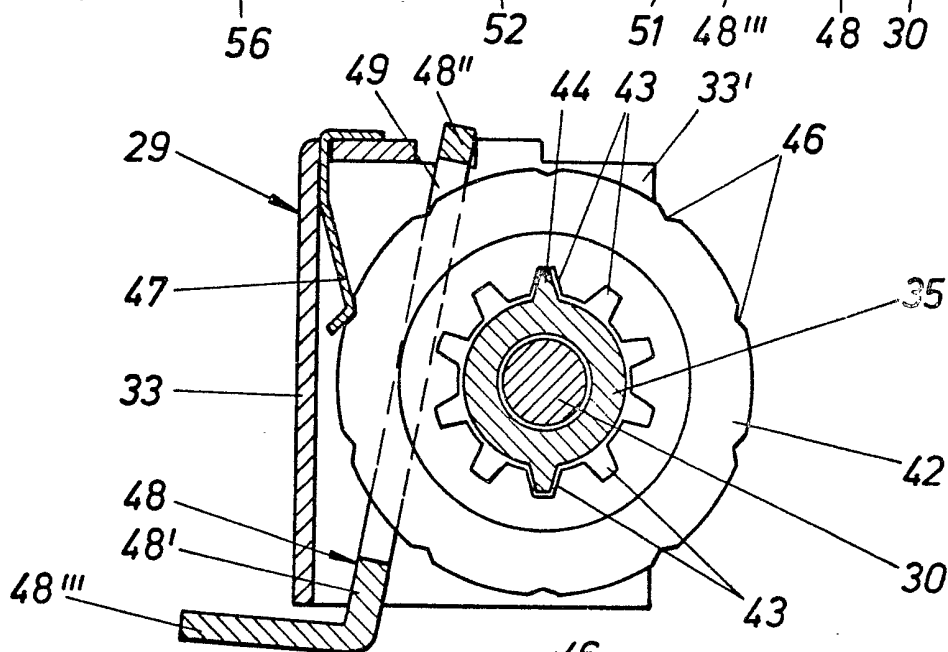
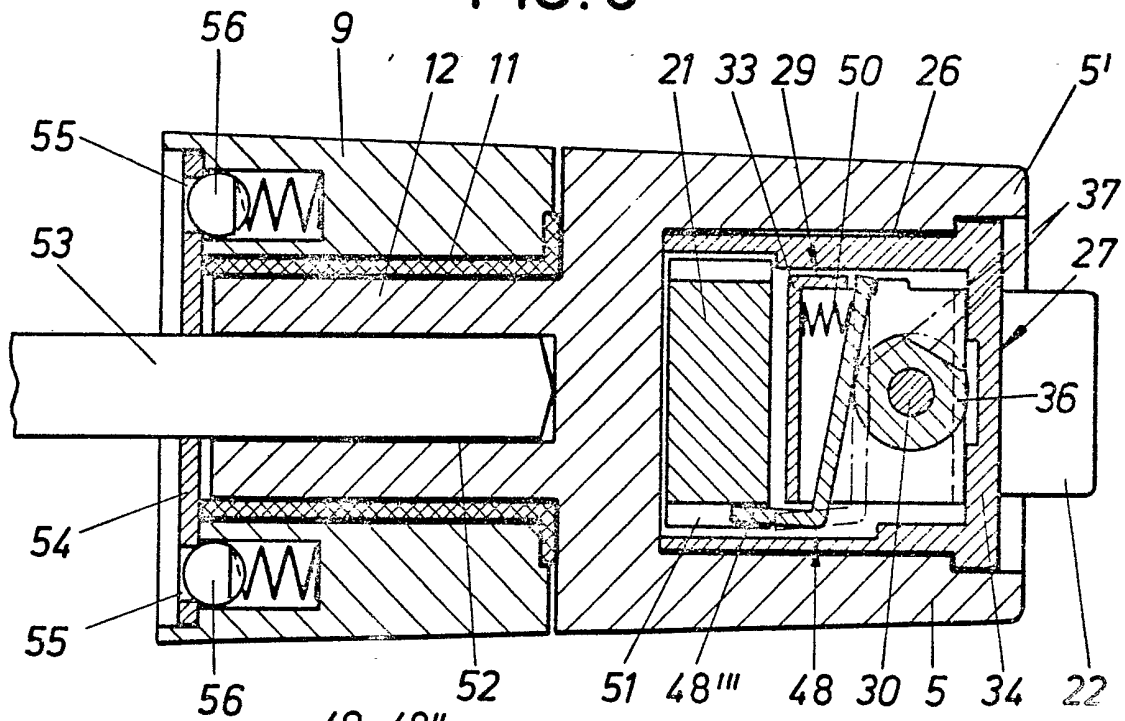


FIG. 9

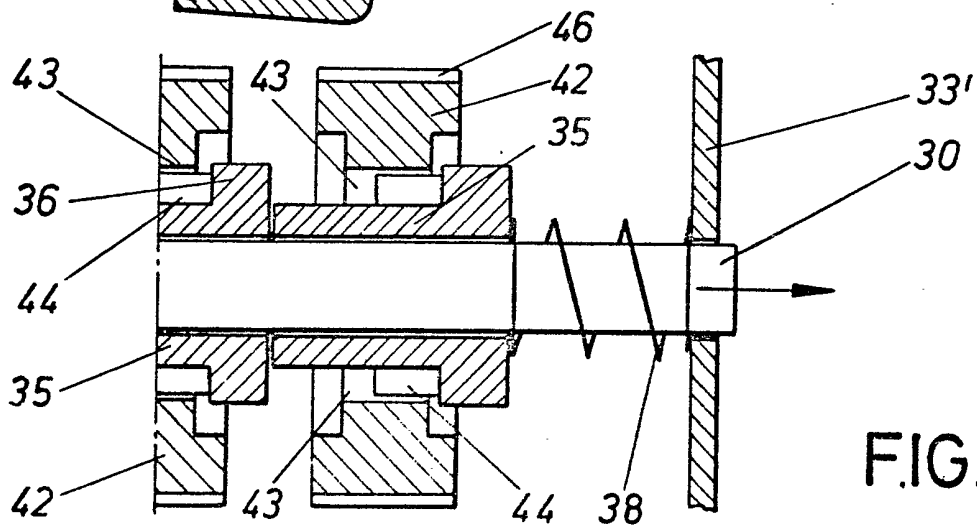


FIG. 10

## SPECIFICATION

## Lockable Actuating Grip

Lockable actuating grips, for example for catch mechanisms for windows or doors, are known in which an actuating handle made as a grip-olive contains a cylinder lock in order to achieve locking and unlocking of the grip-olive. These designs are costly in their construction. The key belonging to the cylinder lock is always necessary too in order to move the grip-olive from its locking position into its open position.

Underlying the object of the invention is the problem of designing a lockable actuating grip of the kind in question in a way which is simple for production and so that the operation of the actuating grip does not need one of these separate components.

This problem is solved if a lockable actuating grip has a locking device consisting of a combination lock.

In contrast to the known actuating grips, unlocking can be performed without a key or auxiliary implement. The appropriate unlocking configuration merely has to be set on the combination lock to allow subsequent opening of the window. The use is possible of combination lock systems which have already been well tried in practice.

Convenient setting and changing of the combination lock is possible if number selection discs of the combination lock project through window-shaped openings in an actuating handle of the grip.

In that case it is favourable if the discs project through a front panel of the handle which panel has an edge frame projecting from the panel by a substantially similar amount to the projection of the discs from the panel. The edge frame then forms a protection to the discs.

When the grip has an actuating handle which is lockable by the combination lock against displacement from a normal position, it proves advantageous if the actuating handle can be displaced into its normal position even when the combination lock is in a locked configuration. The combination of the combination lock can be changed after the procedure of opening the window and the displacement of the actuating handle effected in that case. The combination therefore cannot be recognised. Nevertheless it is possible to bring the actuating handle into the normal position without setting the prescribed combination, whether the person doing it is initiated or not.

Preferably, the actuating handle is releasable for displacement from the normal position after actuation of a release handle which is actuatable only when the combination lock is in its unlocked configuration. The opening forces exerted on the actuating handle are not then applied to the combination lock itself. The combination lock consequently does not need to be of such a heavy design.

Advantages in construction and operation

65 result if the release handle is formed as an actuating button which can be depressed into the actuating handle and which via a control bevel displaces into a release position a locking slide having an engagement opening for a locking plate of the combination lock. When not displaced the locking slide accepts the actuating forces exerted on the actuating handle. Pressure on the actuating button in the case of a lock combination which is not the one prescribed leads, on the contrary, exclusively to loading of the locking plate of the combination lock.

In order that the actuating handle can be displaced from an intermediate position into its normal position when the combination lock is in its locked configuration, there may be associated with the locking slide a counterlocking part which is supported in a baseplate of the grip, the counterlocking part having bevelling by means of which the counterlocking part can be overridden and deflected against spring action to allow the actuating handle to be displaced to its normal position.

For providing good support for the actuating handle, it proves advantageous if the base plate has in a central region a cavity extending therethrough from face to face into which cavity projects a stepped down extension from the actuating handle, the handle and extension being rotatable relatively to the base plate.

A resetting lever of the combination lock may be exposed on the underside of the actuating handle after it has been rotated from its normal position. In the normal position of the actuating handle no resetting can then be carried out. The actuating handle must firstly be rotated so that then the resetting lever is accessible.

The cooperation of the locking slide with the combination lock is favoured if a tail of the locking slide extends in parallel with a number selection disc spindle of the combination lock and is loaded by means of a spring towards the counterlocking part.

For the achievement of a simplified assembly of the grip the locking slide may be supported in an insert part which also carries the combination lock and which is fastened to the actuating handle from an underside of the handle.

It proves space-saving and promotes rigidity if the release handle actuating button is hollow and is substantially coaxial with a locking projection of the locking slide.

An example of a window fitted with an actuating grip in accordance with the invention is illustrated in the accompanying drawings, in which:—

Figure 1 shows the actuating grip associated with a turn-and-tilt window;

Figure 2 is a plan of the actuating grip with the actuating handle lying in the normal position, at about full size;

Figure 3 is a side elevation of the actuating grip;

Figure 4 is a longitudinal section through the actuating grip in its locking position;



Figure 5 is a section taken on the line V—V in Figure 4;

Figure 6 is an elevation of the front of the actuating grip, but with the combination lock omitted;

Figure 7 is a rear elevation of the actuating grip, the actuating handle of which is twisted through 90 degrees from its normal position;

Figure 8 is a section along the line VIII—VIII in Figure 4;

Figure 9 is on a greatly enlarged scale, a cross-section through the combination lock; and,

Figure 10 is a partial longitudinal section through the combination lock.

The illustrated window is made as a turn-and-tilt window with a window frame 1 and a window leaf 2. The latter exhibits a connecting-rod mechanism 3 not shown in detail, with an actuating grip 4 associated with it. If an actuating handle 5 of the latter is turned downwards, that is the closed position of the window leaf 2. In the position of the actuating handle 5 swung upwards the window leaf 2 can be moved into the tilted position, and in the position of the actuating handle 5 perpendicular to the closed and tilted positions turning of the window leaf 2 is available. In the tilted position the window leaf swings about a corner bearing 6 and a tilting bearing 7 fastened to the bottom limb of the frame, and in the turning position of the window leaf 2 it turns about a corner bearing 6 and an upper swinging hinge 8.

The actuating grip 4 has a grip base plate 9 from a fastening face of which project collars 10 which engage holes of suitable cross-section in the window leaf 2. In the central region of the base plate 9 of the grip a through cavity 11 is provided which opens into the wide faces of the base plate and into which projects an extension 12 stepped down from the actuating handle 5. The extension 12 is rotatable in the cavity 11.

Underneath the cavity 11 there is in the base plate 9 a recess 58 for a counterlocking part 13. A compression spring 14 acts upon this in the upwards direction. The upwards movement is limited by a shoulder 15 on the base plate 9 of the grip, against which shoulder 15 strikes a projection 16 on the counterlocking part 13.

Niches 17 lying in the base plate 9 of the grip concentrically with the cavity 11 serve for receiving web sections 18 projecting from a stepped face S of the actuating handle 5. These cooperate with lifting bevels 13' on the counterlocking part 13, facing one another like a roof. The lifting bevels 13' rise to the height of the concentric wall of the niches.

Between the lifting bevels 13' there is in the counterlocking part 13 a locking recess 19 for a locking slide locking projection 20 which is of square cross-section and is seated rigidly in a locking slide 21. A release handle 22 is aligned with the locking projection 20. This release handle 22 which is made as an actuating button which can be depressed, is formed with control bevels 23 facing the locking slide 21 and

cooperating with lifting bevels 24 on the locking slide 21. The release handle 22 is provided with an inner hollow 25 into which projects a section 20' at the end of the locking projection 20 (Figure 4).

A recess 26 extends from the front of the actuating handle 5 opposite to the base plate 9 of the grip, into which recess is inserted an insert part 27 in nesting manner. The insert part is secured by screws 28 extending from the stepped face S. The insert part 27 accepts inside it the previously mentioned release handle 22 and the locking slide 21. Further, a combination lock 29 is accommodated in the insert part. The tail 21' of the locking slide 21 moreover extends in parallel with a number selection disc spindle 30. A compression spring 31 engaging with the tail 21' acts upon the locking slide 21 in the direction towards the release button 22 so that the latter is always loaded in the outwards direction. A shoulder (not shown) on the insert part 21 prevents the release button 22 from being able to come right out. The other end of the compression spring 31 bears against a bridge 32 associated with the insert part 27.

The combination lock 29 exhibits a lock housing 33 which is fixed to the inside of a front panel 34 of the insert part 27. The housing 33 supports the number selection disc spindle 30. The latter is equipped with a projecting collar 30'. Blocking sleeves 35 are mounted on the spindle 30 axially of the collar 30'. Each of the sleeves continues into a collar 36 of larger cross-section, which forms a flat 37. A compression spring 38 arranged on the spindle 30 acts upon the blocking sleeves 35 and thereby the spindle 30 in the one direction. Between the collar 30' and one wall 33' of the housing is supported a combination lock resetting lever 40. This passes through an angular slot 41 in the housing 33 and projects into an opening 39 in the actuating handle 5, extending from the stepped face S.

A disc 42 is seated on each blocking sleeve 35 and is equipped with ten niches 43 lying at equal angular pitch, into which can enter two ribs 44 on the locking sleeve 35, lying diametrically opposite one another. Each disc 42 thereby forms with the blocking sleeve 35 associated with it a rotatable unit. The discs 42 pass through window-shaped openings 45 in the front panel 34 and consequently obtain a location in the axial direction. On the periphery of the disc 42 there are notches 46 lying at equal angular pitch, which cooperate with a catch-spring 47. The position of a disc 42 set at any time is thereby sensibly fixed.

A rocker 48 angular in cross-section is supported in the lock housing 33. Lugs 48" stand out from the end of one arm 48' of the rocker within the lock housing and engage in recesses in the lock housing 33. An arm 48' of the rocker is equipped with openings 49 for the discs 42 to pass through. A compression spring 50 loads the rocker 48 in the direction of the blocking sleeves 35 in such a way that the arm 48' bears against

the periphery of the collar 36 on each blocking sleeve 35.

With the locking combination changed at least one collar 36 displaces the rocker 48 in such a way that the smaller arm 48''' of the rocker which forms the locking plate, projects into an engagement opening 51 in the locking slide 21 (see in particular Figure 4 and Figure 8).

In this position an extension 40' of the resetting lever 40 is aligned with the longer arm 48' of the rocker so that the former cannot be displaced in the downwards direction. The consequence of that is that the blocking sleeves 35 cannot move out of their engagement with the discs 42.

The insert part 27 is inserted into the actuating handle 5 until an edge frame 5' on the operating handle 5 remains exposed. The projection of this edge frame 5' is very slightly larger than the projection of the discs 42 above the front panel 34.

As shown in Figure 4 the locking combination of the combination lock 29 has been changed. The locking plate 48''' in that case prevents displacement of the locking slide 21 by the release handle 22. The actuating handle 5 thus cannot be turned since the locking slide locking projection 20 is lying inside the locking recess 19 in the counterlocking part 13. Thus the window cannot be opened.

In order to be able to open the window the correct combination of the combination lock must be set. In that case the blocking sleeves 35 are turned by means of the discs 42 so that the flats 37 on the collars 36 allow the rocker 48 to swing over, that is, into the position shown in dash-dot line in Figures 4 and 8. Upon doing so the locking plate 48''' leaves the engagement opening 51 in the locking slide 21. The locking slide 21 can now be displaced upwards by depression of the release handle 22 so that its locking projection 20 comes out of the locking recess 19 in the counterlocking part 13.

Subsequent twisting of the actuating handle 5 is thereby possible. Movement of the window leaf 2 becomes possible as the twisting of the actuating handle proceeds. In the rotating position of the window leaf 2 the actuating handle 5 adopts the position illustrated in Figure 7. The resetting lever 40 is now exposed. If it is brought into the position shown in dash-dot line the combination lock spindle 30 is shifted together with the blocking sleeves 35. Shifting by the resetting lever 40 is possible since its extension 40' is not impeded by the rocker 48. Resetting of the lock combination, i.e. rotation of the discs 42 relatively to their respective sleeves 35, can now be carried out. By bringing back the resetting lever 40 into its position drawn in solid line in Figure 7 the engagement between the discs 42 and the blocking sleeves 35 is restored. After that the discs 42 may be set as necessary so that the collars 36 on the blocking sleeves 35 swing over the rocker 48 positively and bring the locking plate 48''' into engagement with the

locking slide 21. It is then not possible to press in the release handle 22. It is however guaranteed that the actuating handle can be brought into its normal position. In doing so the corresponding web section 18 on the actuating handle 5 acts upon a lifting bevel 13' on the counterlocking part 13 and moves it in the downwards direction against the force of the compression spring 14. As soon as the locking slide locking projection 20 is lying at the level of the locking recess 19 on the counterlocking part, the latter moves into its locking position in accordance with Figure 5. Further twisting of the actuating handle 5 is then no longer possible.

A spindle 53 is inserted immovably in a square recess 52 in the extension 12. A disc 54 connected fixedly in rotation to the spindle 53 contains four catch-holes 55 arranged at equal angular pitch, which cooperate with sprung catch-balls 56 in the base plate 9 of the grip (see in particular Figure 8). The respective positions of the actuating handle are hereby indicated by feel. The catch-disc 54 obtains an axially immovable position by slipping on a sleeve 57 (Figure 4).

Although the invention has been particularly described with respect to an actuating grip for a window, it could equally well be applied to an actuating grip for a turn and tilt door. In both cases the actuating grip is carried by the movable leaf of the window or door.

#### Claims

1. A lockable actuating grip especially for windows, the grip having a locking device consisting of a combination lock.

2. A grip according to claim 1, wherein number selection discs of the combination lock project through window-shaped openings in an actuating handle of the grip.

3. A grip according to claim 2, wherein the discs project through a front panel of the handle which panel has an edge frame projecting from the panel by a substantially similar amount to the projection of the discs from the panel.

4. A grip according to any one of the preceding claims, in which an or the actuating handle is lockable by the combination lock against displacement from a normal position.

5. A grip according to claim 4, wherein the actuating handle can be displaced into its normal position even when the combination lock is in a locked configuration.

6. A grip according to claim 4 or claim 5, wherein the actuating handle is releasable for displacement from the normal position after actuation of a release handle which is actuatable only when the combination lock is in its unlocked configuration.

7. A grip according to claim 6, wherein the release handle is formed as an actuating button which can be depressed into the actuating handle and which via a control bevel displaces into a release position a locking slide having an engagement opening for a locking plate of the combination lock.

8. A grip according to claim 7 when dependent on claim 5, wherein, with the locking slide, there is associated a counterlocking part which is supported in a base plate of the grip, the
- 5 counterlocking part having bevelling by means of which the counterlocking part can be overridden and deflected against spring action to allow the actuating handle to be displaced to its normal position when the combination lock is in its
- 10 locked configuration.
9. A grip according to claim 8, wherein the base plate has in a central region a cavity extending therethrough from face to face into which cavity projects a stepped down extension
- 15 from the actuating handle, the handle and extension being rotatable relatively to the base plate.
10. A grip according to claim 9, wherein a resetting lever of the combination lock is exposed
- 20 on the underside of the actuating handle after it has been rotated from its normal position.
11. A grip according to any one of claims 7 to 10, wherein a tail of the locking slide extends in parallel with a number selection disc spindle of
- 25 the combination lock and is loaded by means of a spring towards the counterlocking part.
12. A grip according to any one of claims 7 to 11, wherein the locking slide is supported in an insert part which also carries the combination
- 30 lock and which is fastened to the actuating handle from an undersurface of the handle.
13. A grip according to any one of claims 7 to 12, wherein the release handle actuating button is hollow and is substantially coaxial with a
- 35 locking projection of the locking slide.
14. A window actuating grip according to claim 1, substantially as described with reference to the accompanying drawings.