



(22) Date de dépôt/Filing Date: 2001/11/26

(41) Mise à la disp. pub./Open to Public Insp.: 2002/05/25

(30) Priorité/Priority: 2000/11/25 (P 10058630.9) DE

(51) Cl.Int.⁷/Int.Cl.⁷ A47L 13/20

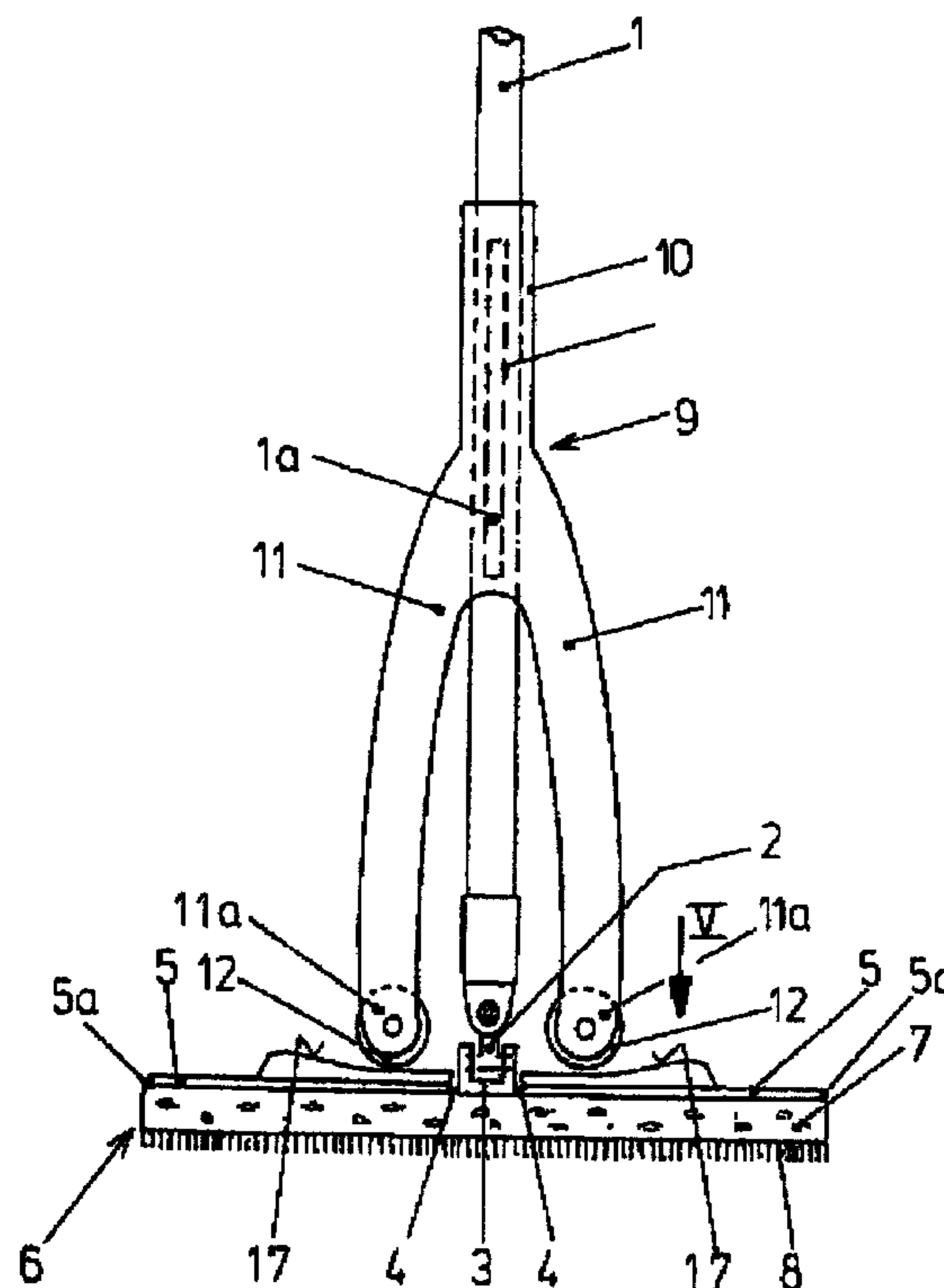
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(54) Title: FLOOR MOP



(57) Abrégé/Abstract:

A floor mop is disclosed which includes two carrier plates (5) which carry an absorbent mop cover (6) and are flexibly connected with a common intermediate carrier part (3). A mop handle (1) is connected to the intermediate carrier part (3) by way of a universal joint (2). A wringing actuator (9) moveable along the handle (1) and rotatably guided thereon has two rigid wringing arms (11), the ends (11a) of which are respectively engagable by way of rollers (12) with a guide surface (17) on the rear surface of the respectively associated carrier plate (5). The non-rotatable universal joint connection allows a free swivelling movement of the handle relative to the carrier plates, thereby permitting the user to reach with the mop substantially all edges and corners of a floor to be cleaned.

ABSTRACT

A floor mop is disclosed which includes two carrier plates (5) which carry an absorbent mop cover (6) and are flexibly connected with a common intermediate carrier part (3). A mop handle (1) is connected to the intermediate carrier part (3) by way of a universal joint (2). A wringing actuator (9) moveable along the handle (1) and rotatably guided thereon has two rigid wringing arms (11), the ends (11a) of which are respectively engagable by way of rollers (12) with a guide surface (17) on the rear surface of the respectively associated carrier plate (5). The non-rotatable universal joint connection allows a free swivelling movement of the handle relative to the carrier plates, thereby permitting the user to reach with the mop substantially all edges and corners of a floor to be cleaned.

FLOOR MOP

Field Of The Invention

The invention relates to floor mops including a pair of carrier plates for an absorbent mop cover which are flexibly connected with one another by a common intermediate portion, and a handle provided at the intermediate carrier portion, and a wringing actuator slidable along the handle and having a pair of rigid wringing arms for forcing the two carrier plates against one another.

Floor mops with two carrier plates which can be folded against one another for a squeezing out of the mop cover, which are also called butterfly mops, are known in a variety of types. In the floor mop according to US Patent US 5,483,720 and the International Application PCT/US/95/10759, a sleeve slidable along the handle is connected by a linkage with two brackets which are swivelably supported at the intermediate carrier part. The brackets slide along the backside of the two carrier plates upon displacement of the sleeve and thereby press the plates against one another. However, to achieve this, the handle must be rigidly connected with the intermediate carrier portion. Because of this rigid connection, the range of uses of the floor mop is limited, since only a certain angular positioning of the handle relative to the carrier plates in their operating position is possible.

In another known floor mop of the above described type, the ends of the wringing arm which are usually connected with the wringing actuator, are respectively connected by a linkage with the backside of each carrier plate. When the wringing actuator is moved downwardly along the handle, the two linkages act as articulated pressure links which push the two carrier plates against one another in order to wring out the mop cover there between. The angular position of the handle relative to the carrier plates is hereby also fixed so that the range of uses is limited.

Summary Of The Invention

It is an object of the invention to further improve a floor mop of the above described type so that while a simple and effective wringing is achieved, more or less any angular position of the handle relative to the carrier plates is made possible in the operating condition.

This object is achieved in accordance with the invention in a floor mop wherein the handle is connected by way of a universal joint with the intermediate carrier part, the ends of the wringing arms are respectively engagable with a guide surface on the rear surface of the respectively associated carrier plate, and that the wringing actuator is non-rotatably guided on the handle.

The connection of the handle with the carrier plates by way of the universal joint enables a freely selectable and changeable angular positioning of the handle relative to the carrier plates, while the rotation-fast connection through the universal joint allows a secure guiding of the carrier plates by way of the handle. The carrier plates are in a straightened out or aligned orientation in their operating position to lie flat on the floor can then be guided by way of the handle to all edges and corners of the floor surface to be cleaned. The freely selectable angular position of the handle allows a universal accessibility to all floor regions.

Preferably, no connection exists between the wringing arms and the carrier plates, in the retracted position of the wringing actuator, so that the wringing arrangement does not impede the free swivelling of the handle relative to the carrier plates over a wide range of angular positions.

The simple engagement connection between the ends of the wringing arms and the rear surfaces of the carrier plates provides that the carrier plates upon forward pushing of the wringing actuator are moved from any operating position which they previously held, into the wringing position in which the wringing arms are moved along the guide surface at the rear surface of each carrier plate in order to in the end completely press the two carrier plates against one another so that an effective and complete wringing process is guaranteed.

The non rotatable guiding of the wringing actuator in cooperation with the universal joint non-rotatable connection between the handle and the carrier plates ensures that the wringer arms during advance of the wringing actuator always reliably impact the rear surface of the carrier plates and interlock therewith.

According to a preferred embodiment of the invention, it is provided that the guide surface of each carrier plate is inclined away from the backsurface in a direction towards the free plate end up to a projection which protrudes from the rear surface of the carrier plate. This provides for an increased terminal pressing together of the carrier plates at the end of the wringing movement.

The guide surface preferably is declined towards the carrier plate backsurface on that side of the protrusion which faces the free end of the plate. It is achieved with this construction that the force to be applied to the wringing actuator decreases after passing of the protrusions at the end of the wringing process, which provides a clear signal to the user that the wringing process has been fully carried out and is completed.

Brief Description of the Drawings

The invention will now be described in more detail by way of exemplary embodiments and with reference to the attached drawings wherein

Figure 1 is a side view of a floor mop in accordance with the invention in operating position;

Figure 2 shows the floor mop according to claim 1 at the beginning of the wringing process;

Figure 3 illustrates the floor mop according to Figures 1 and 2 at the end of the wringing process;

Figure 4 shows the floor mop according to Figures 1-3 in an operating condition with a laterally angled handle;

Figure 5 is a top plan view in direction of the arrow V in Figure 1, whereby the handle and the wringing actuator have been omitted;

Figures 6a to 6d are partial illustrations of different embodiments of the rolling bodies or the bulged pressure surface at the end of a pressing arm;

Figure 7 is a cross section along the line VII-VII in Figure 5; and

Figure 8 is a simplified partial illustration of a variation of the rolling body at the end of the pressing arm.

Detailed Description Of The Preferred Embodiment

The floor mop illustrated in Figures 1-5 includes a handle 1, which is non-rotatably connected with an intermediate carrier part 3 by way of a universal joint 2 for swivelling in all directions. The intermediate carrier 3 is respectively connected with one of a pair of carrier plates 5 by hinges 4 provided at each side thereof.

The two carrier plates 5 (and in the illustrated embodiment also the intermediate carrier 3) carry an absorbent, squeezable mop cover 6, which consists in a conventional manner of a sponge layer 7 and a cover web 8.

The wringing actuator 9 is slidable along with the handle 1. The wringing actuator 9 includes a guide sleeve 10, which is non-rotatably and longitudinally slidably guided on the handle 1. For example, a longitudinal groove 10a is provided in the bore of the sleeve 10 and a pin 1a is provided on the handle 1, which pin engages the groove 10a.

The sleeve 10 is rigidly connected with two wringing arms 11, which in the preferred embodiment illustrated in Figures 1 to 5, respectively have at their end 11a, a rotatable rolling body, in this embodiment a rotatably supported roller 12.

Figure 6 shows that the roller 12 is supported on an axis 13 which is mounted to the wringing actuator either out both ends (Figure 6a) or at one end (Figure 6b). Instead it is also

possible (see Figures 6c) to provide as the rolling body a ball 15 which is rotatably received in a recess 14 at the end 11a of the wringing arm 11. A further possible alternative embodiment consists in that the end 11a of each wringing arm 11 has a convexly curved pressure surface 16 (Figure 6d).

When the wringing actuator 9 is downwardly moved along the handle 7 for the initiation of the wringing process, the rollers 12 (or in a comparable embodiment, the ball 15 or the curved pressure surface 16) respectively engage one guide surface 17 on the rear surface of the respectively associated carrier plate 5. The two carrier plates 5 are thereby swivelled towards one another as is illustrated in Figure 2 at the beginning of the wringing process. For an improved guiding of the rollers 12, over the ball 15 or the pressure surface 16, each guide surface 17 preferably includes a longitudinal groove 17a (Figure 7) which is concavely shallow in cross-section.

The two guide surfaces 17 at the rear surface of each carrier plate 5 are inclined away from that surface in direction towards the free plate end 5a and up to a protrusion 17b, which protrudes from the rear surface of the carrier plate 5.

At the end of the wringing process, which is illustrated in Figure 3, the rollers 12 have reached these protrusions 17b, whereby the two carrier plates 5 are folded against one another in their most extreme squeezing position. It can thereby be provided that the rollers 12 slightly surpass the protrusions 17b so that a decrease of the required advancing force on the wringing actuator 9 gives the user a feeling that the end point of the wringing process has been surpassed.

From this wringing position (Figure 3), the wringing actuator 9 is now retracted into its original position. The two carrier plates 5 are thereby moved into their aligned orientation by a spring arrangement, for example, a shank spring 8 (Figure 5) the shanks of which are connected with the carrier plates 5.

Figure 4 shows that the wringing actuator 9 can be moved back sufficiently far so that the

two rollers 12 are sufficiently free of the carrier plates 5 to allow a sufficient lateral rotation thereof as illustrated in Figure 4.

Figure 8 shows a further preferred embodiment, wherein the rolling body at the wringing arm 11 is a wheel 20 provided with circumferential depressions 19 which engage at least one protrusion 21 or 22 on the rear surface of the carrier plate 5 at the end of the wringing process.

CLAIMS

1. Floor mop, comprising

a handle;

an intermediate carrier non-rotatably connected with the handle by a universal joint;

a pair of carrier plates for carrying an absorbent mop cover, the carrier plates being flexibly connected with the intermediate carrier;

a wringing actuator longitudinally moveable on the handle and including two rigid wringing arms for selectively engaging the carrier plates and moving them from an aligned, working position to a folded, squeezing position;

the ends of the wringing arms respectively selectively engagable with a guide surface on a rear surface of the respectively associated carrier plate, and the wringing actuator being non-rotatably guided along the handle.

2. Floor mop according to claim 1, further comprising a spring arrangement for returning the carrier plates from the squeezing position into the aligned position.

3. Floor mop according to claim 2, wherein the guide surface of each carrier plate is inclined away from the plate in a direction towards the free end of the plate and up to a protrusion which protrudes from the rear surface of the carrier plate.

4. Floor mop according to claim 3, wherein the guide surface is inclined towards the carrier plate away from the protrusion and towards the plate free end.

5. Floor mop according to claim 1, wherein a plate engaging, free end of each wringing arm includes a rotatable rolling body for rolling along the guide surface.

6. Floor mop according to claim 5, wherein the rolling body is a roller rotatably supported on the wringing arm.

7. Floor mop according to claim 5, wherein the rolling body is a ball rotatably received in a

recess of the wringing arm.

8. Floor mop according to claim 5, wherein the rear surface of the carrier plate has at least one protrusion, and the rolling body is a wheel provided with circumferential depressions for engagement with the at least one protrusion.

9. Floor mop according to claim 1, wherein the end of each wringing arm has a convexly protruding pressure surface for forcing against the guide surface.

10. Floor mop according to claim 5 or 9, wherein the guide surface has a longitudinal groove which in cross-section is concavely flat.

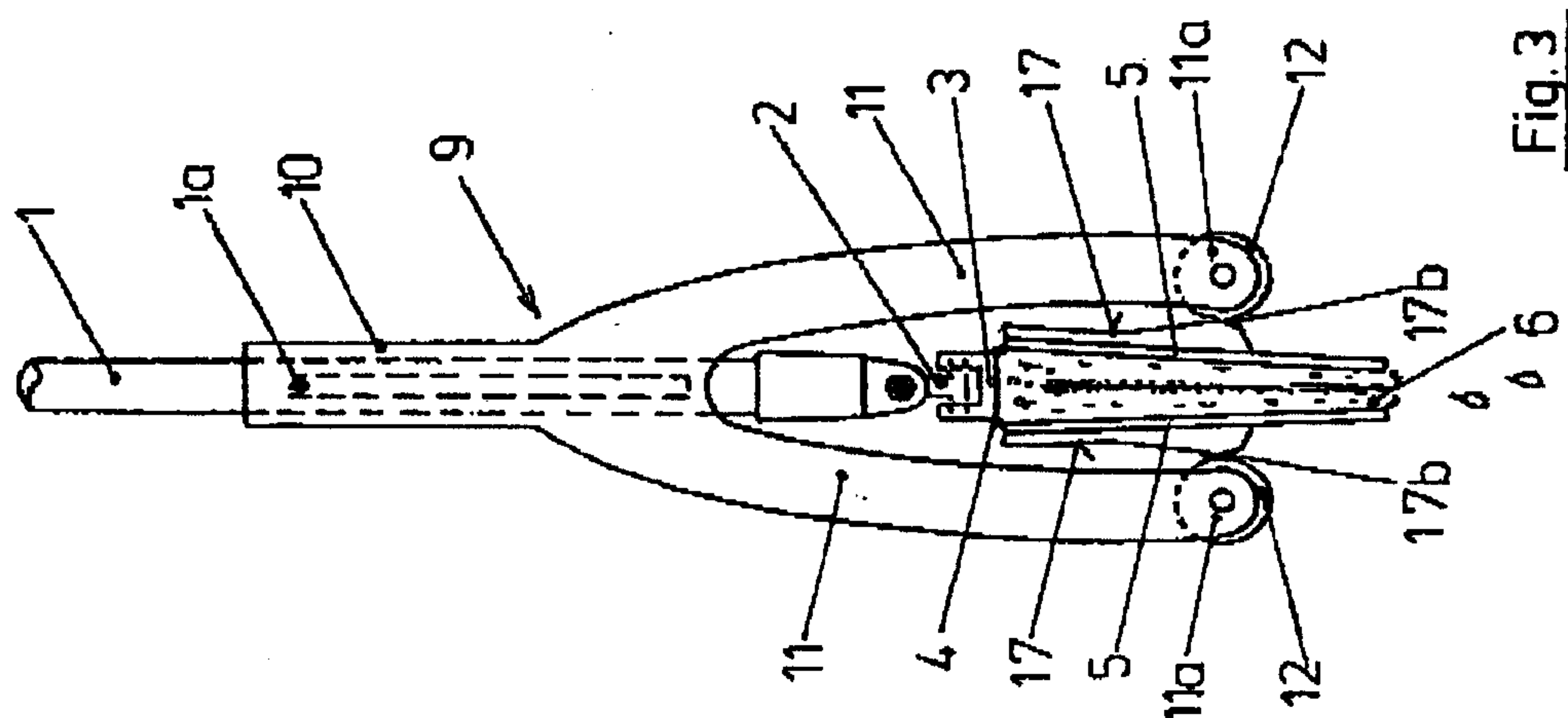


Fig. 3

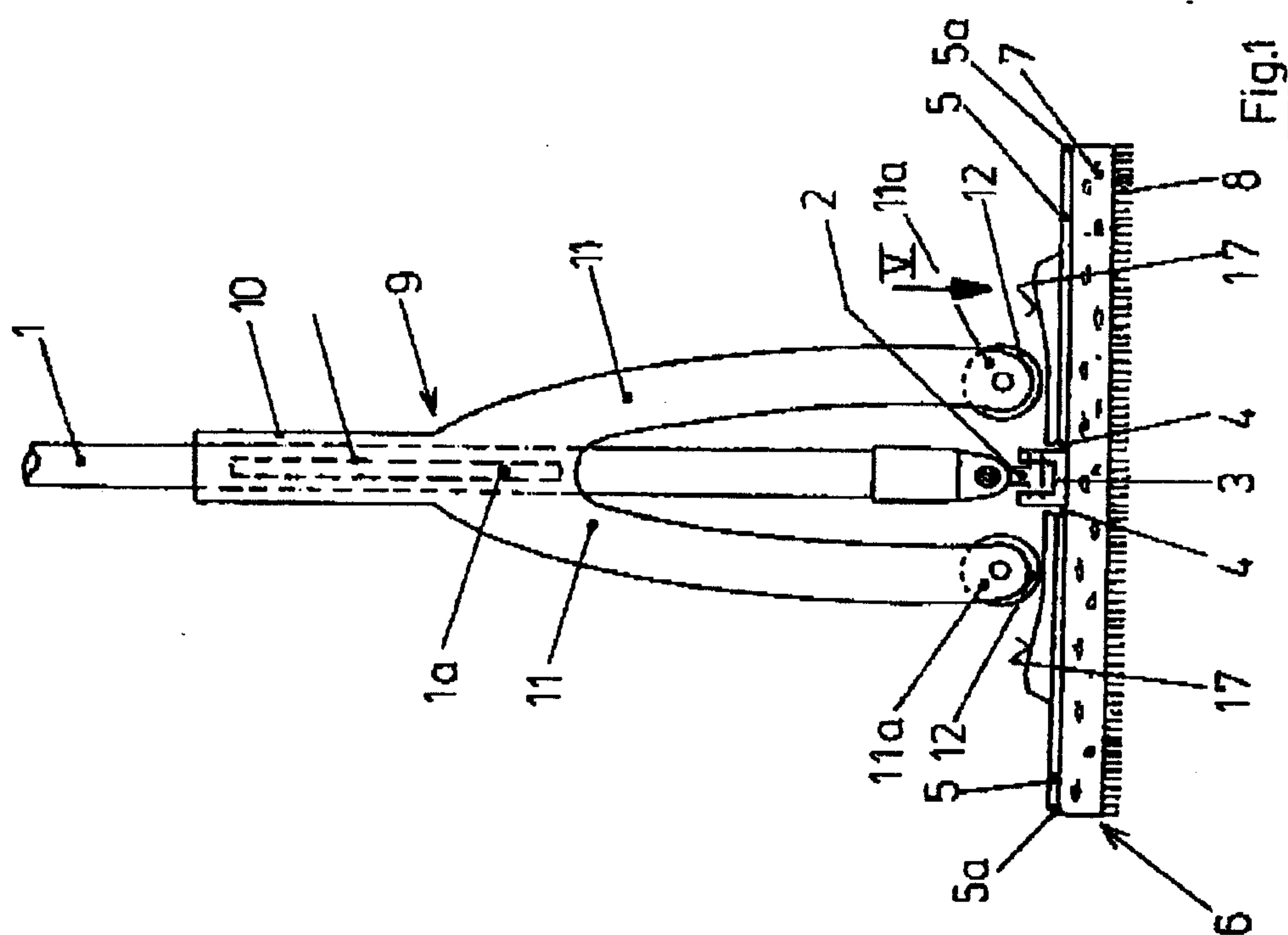


Fig. 1

