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(54) **DEVICE FOR REMOVING PRINTING CYLINDER SLEEVES**

VORRICHTUNG ZUM ENTFERNEN VON DRUCKZYLINDERHÜLSEN

DISPOSITIF SERVANT A EXTRAIRE LES MANCHONS DE CYLINDRES D'IMPRESSION

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Description

Field of the invention

[0001] This invention refers to a device for removing printing cylinder liners using removing strength components generated by compressed air in a chamber coupled with the liner to be removed. The device foresees the use, at least in part, of already existing pneumatic means to facilitate that the liner slides on the shaft to introduce compressed air in such chamber.

Background of the invention

[0002] The current printing rolls comprise a corelike shaft on which a liner is mounted, means being provided to releasably fasten such liner on the shaft and pneumatic means for facilitating that the liner slides on the shaft to be removed. Such liner is usually an external liner, such as a screening or cliché-holding rollers or an intermediate liner on which such external liner is mounted. The means for fastening the liner on the shaft are usually of two kinds. A first kind comprises expansion bushings associated to the exterior of the shaft ends and mechanically or hydraulically associated to catch or release the liner. Another kind comprises friction means formed by a deformable layer of compressible material associated to the liner cylindrical internal wall. In this case, the said pneumatic means to facilitate that the liner slides on the shaft include forming an air bag between such deformable layer and the shaft by injecting compressed air through passageways of the shaft which communicate with a duct existing lengthwise the internal of the shaft and connected by one of its ends to a source of compressed air supply. Most of such passageways are concentrated close to the end of the shaft from which the liner is to be removed and the compressed air of the air bag exhausts to the environment around such end.

[0003] ES 2187236-A1 by this applicant discloses improvements to the cliché-holding rollers for flexographic machines including means for forming an air bag as above disclosed with the aim of facilitating that the liners slide and therefore are placed and removed.

[0004] Effectively removing the liner is carried out with the assistance of the said air bag, by hand. However, and depending on the factors such as the kind of liner, the time the roller has been in the machine, the presence of ink residues, etc., the hand removing process is hindered and the said air bag is insufficient to be able to easily remove the liner.

[0005] US 5706731-B1 related to an intermediate printing sleeve having air nozzles and means for selectively closing the nozzles, discloses a device for removing printing cylinder sleeves from a shaft by using compressed air which is applied in a radial direction from the shaft to an inner wall of the sleeve

[0006] An object of this invention is to contribute with a device for removing liners from printing cylinders, such

cylinders being of the kind which comprise means for forming an air bag to facilitate that the liner slides on the shaft or on an intermediate liner, such device being capable to generate, through supplying compressed air, removing strength components in an axial direction and in opposite senses capable to have the liners sliding on the shaft.

[0007] Another object of this invention is to provide a device of this kind in which the compressed air supply comes from the said means for forming the air bag.

Explanation of the invention

[0008] Above objects are achieved, according to this invention, by providing a device for removing printing cylinders liners, such cylinders being of the kind which comprise a corelike shaft on which the liner is mounted, means being provided for releasably fasten such liner on the shaft and pneumatic means for facilitating that the liner slides on the shaft for its removal. The device essentially comprises a chamber delimited by a wall fastened to or forming part of an end portion of the liner and by surfaces pertaining to the shaft, means being provided to introduce compressed air in such chamber, and the relative arrangement of an internal surface of such wall and of the said surfaces pertaining to the shaft being such that the pressure which impinges on such surfaces generates removing strength components in the liner sliding direction and in opposite senses on such shaft and on such wall fastened to or forming part of the liner, respectively.

[0009] According to an embodiment, the said wall forms a body which defines such chamber, which is open by a mouth. This body can be fastened to the liner by means of a releasable locking device so that such mouth encompasses within its perimeter at least an end of the shaft. Pneumatic means are capable to introduce compressed air in such chamber and with it to generate the said removing strength components. Thus, the effect of the compressed air within the said chamber makes that this later, together with the hollow interior of the liner, acts as a pneumatic cylinder to displace the shaft as a piston.

[0010] The said liner mounted on the shaft can be an external liner, such as a screening or cliché-holding liner, or an intermediate liner on which in turn is mounted such external liner. In the first case, the body which defines the chamber can be fastened to the external liner, while in the second case the body can be fastened either to the intermediate liner or to the external liner, to remove either of them and, in the practice, the device has available a set of two bodies, one suitable for the intermediate liner and the other for the external liner.

[0011] According to an example of embodiment of this invention, the said means to introduce compressed air in the chamber include at least part of the said pneumatic means provided for facilitating that the external or the intermediate liner slides on the shaft. Such pneumatic

means are known and comprise a duct arranged within the shaft in a direction lengthwise it connected to a compressed air supply, and first passageways within the shaft which radially communicate such longitudinal duct with a first deformable layer of a compressible material interposed between the external and the intermediate liner and the shaft, under such first deformable layer an air bag can be created by the effect of the compressed air injected through such duct and passageways which are, most of them, concentrated close to the end of the shaft through which the liner is to be removed, and the compressed air of the air bag exhausts through the said end. The device uses such compressed air escaping from the air bag to fill the chamber thanks to the fact that the chamber mouth has a size sufficient to communicate through it the said end of the air bag with the inside of the chamber.

[0012] To facilitate that the external liner slides on the intermediate liner, known pneumatic means comprise second passageways radially arranged through the intermediate liner, which communicate at least some of such first passageways with a second deformable layer of a compressible material, interposed between the external liner and the intermediate liner, under which second deformable layer a second air bag can be created. In this case, the mouth has the size sufficient to communicate through it an end of such second air bag with the inside of the chamber. According to an alternative construction, the pneumatic means comprise shifts communicating such second passageways with an area of such surface of the end of the intermediate liner comprised within a perimeter of the chamber mouth. In the crossing of the second passageway with such shift, a valve member is arranged which can be changed from a first position, in which the compressed air coming from the longitudinal duct is directed towards the deformable second layer through the second passageways and a second position, in which the compressed air coming from the longitudinal duct is directed towards the chamber through the shift. A tool is provided to carry out such change of position of the valve member, having access to it through corresponding shift from its opening in the surface of the liner end, before coupling the body defined by the chamber. With the valve at the first position and a chamber fastened to the external liner this later would be removed having it sliding on the intermediate liner, while with the valve at the second position and a chamber fastened to the intermediate liner, the intermediate liner would be made sliding on the shaft.

[0013] Another example of embodiment of this invention can be applied to printing rollers in which the means for releasably fastening the external liner or the intermediate liner on the shaft would comprise extensible elements associated to the shaft, mechanically or hydraulically driven and on which the said means for facilitating to slide by means of an air bag are only present between the external liner and the intermediate liner. In this case, the means for introducing compressed air in the chamber of the device of the invention include, at least part of the

said pneumatic means for facilitating that the external liner slides on the intermediate liner, which are analogous to those above disclosed to create corresponding air bag. Here also the mouth has a size sufficient for communicating through an end of such air bag with the inside of the chamber to make the external liner slides on the intermediate liner, or the second passageways include shifts and valve members analogous to those above disclosed with which the external liner can selectively slide on the intermediate liner or this later on the shaft.

[0014] In another variation of the embodiment, the surface of the end of the intermediate liner where the body defining the chamber is coupled is a final portion of a cylindrical external surface, coaxial to the centerline of the shaft in which holes are opened as outlets from the second passageways, and a corresponding surface of the body, arranged around the mouth is an internal surface facing such cylindrical surface of the liner, and it is formed between both surfaces, in the lack of the external liner, a space closed at its external end by sealing means and communicated by its internal end with the chamber through, for example, channels or offsets formed in an annular protuberance of an internal wall of the chamber which is abutting against a end flat surface of the intermediate liner to communicate such space with the chamber.

[0015] The device of this invention also provides an example of embodiment in which the means to introduce compressed air in the chamber are independent from the pneumatic means to facilitate the liners slide with respect to each other or with respect to the shaft. In this case, the chamber comprises an inlet which can communicate directly with a duct connected to a compressed air supply. Optionally such inlet can directly communicate with a duct connected to a compressed air supply. Optionally, such inlet comprises a retaining valve and such duct is finished in a nozzle which can be releasably coupled to the inlet.

[0016] Last, according to another embodiment, such wall delimited by the chamber does not form a detachable body but it is integral with an end of the liner and comprises a hole through which a final configuration of the shaft passes, provided to support and guide it. Between such hole and such final configuration dynamic sealing means are arranged which allow that the wall slides on the final configuration. The means for introducing compressed air in the chamber include at least part of the said pneumatic means to facilitate that the liner slides on the shaft.

Short explanation of the drawings

[0017] These and other characteristics and advantages will be more apparent from following detailed description of specific examples of embodiment with reference to the drawings appended in which:

Fig. 1 to 3 are cross sectional views which show an

explanatory sequence of the operation of the device of this invention according to an example of embodiment;

Fig. 4 to 6 are cross sectional views showing variations of the embodiment of Fig. 1 to 3;

Fig. 7 and 8 are cross sectional views showing variations of another example of embodiment of the device of the invention;

Fig. 9 is a cross sectional view showing another additional example of embodiment of the invention; and Fig. 10 and 11 are cross sectional views showing another additional example of embodiment of the invention in two different positions of operation.

Detailed description of examples of embodiment

[0018] According to this invention, and as it is shown in the figures in general, the removing device can be applied to printing cylinders of the kind comprising, as it is well-known, a corelike shaft 51 on which a liner is mounted, which can be, as it is shown in Fig. 1 to 3, 10 and 11, an external liner 52, or, as it is shown in the remaining figures, an intermediate liner 53 on which such external liner 52 is mounted. The external liner 52 is typically a cliché-holding liner or a screening liner. Such printing cylinders include, as it is also well-known, means provided to releasably fasten such liner on the shaft 51 and pneumatic means to facilitate that the liner slides on the shaft 51 to be removed. For this, the device comprises a body 1 defining a chamber 2 open by a mouth 3 and a surface 4, 4a, 4b which delimits such mouth 3, fully surrounding it. Such body 1 can be fastened to such liner 52, 53 by means of a releasable locking device 5, such as a bayonet lock, so that such surface 4, 4a, 4b remains significantly tight coupled to a corresponding surface 54, 54a, 54b of the liner end 53, 53 and encompassing within the mouth 3 perimeter, an end of the shaft 51. Such chamber 2 of the body 1 is capable of operatively housing a final configuration 66 or shaft 51 gudgeon, provided for supporting and guiding it in the printing machine. Means 50, 55, 60, 65 are provided to introduce compressed air in the chamber 2 and with it generate removing strength components in an axial direction capable of making the liner slides on the shaft 51.

[0019] In the example of embodiment of the device of the invention, disclosed with respect to Fig. 1 to 6, a printing cylinder is applied in which the fastening means of the external liner 52 to the shaft 51 consist in the friction exerted by a deformable layer 56, of a compressible material, associated to a cylindric internal surface of the external liner 52, on the cylindric external surface of the shaft 51. On its hand, the said pneumatic means to facilitate that an external liner 52 slides on the shaft 51 comprise a duct 50 within the shaft 51, in the longitudinal direction thereof, connected to a compressed air supply and first passageways 55 within the shaft 51 which communicate such longitudinal duct 50 with such deformable layer 56. When compressed air is injected through the

duct 55 from the opposite end of the shaft 51, an air bag is created between the deformable layer 56 and the shaft which facilitates their mutual sliding. When there exists an intermediate liner 53, the deformable layer 56 is fastened to the internal surface of the intermediate cylinder 53 while a second deformable layer 59 is fastened to the external cylinder 52 to make contact with the external surface of the intermediate cylinder 53. Second passageways 58 run radially through the intermediate liner 53 to communicate at least some of such first passageways 55 with such second deformable layer 59 under which a second air bag is formed.

[0020] Referring now concretely to Fig. 1 to 3, the device is shown in three consecutive steps of its operation, applied to remove an external cylinder 52 from a shaft 51. In a first step (Fig. 1), the body 1 is brought close to the end of the printing cylinder to be coupled and fastened to the external liner 52. The surface 54 of the end of such external liner 52 on which the body 1 is coupled is a flat annular surface, significantly perpendicular to the shaft 51 centerline and the corresponding surface 4 of the body 1, which is arranged around the mouth 3, is also a flat annular surface. In a second step (Fig. 2), the body 1 is already coupled to the external liner 52 and fastened to it, for example by means of a bayonet lock 5. The mouth 3 has a size sufficient to communicate, in coupling situation, an end 57 of such first air bag with the interior of the chamber 2 through it. Last, in a third step (Fig. 3), the compressed air injected by the opposite end (not shown) of the shaft 51 arrives to the deformable layer 56 through the duct 50 and passageways 55 to form the said air bag between the deformable layer 56 and the shaft 51, and the compressed air exhausts by the end 57 of the air bag to the chamber 2. The pressure within the chamber 2 generates removing strength components shown with solid arrows which combined with the air bag, makes that the external lined 52 joined to the body 1 slides with respect to the shaft 51 in the direction shown by hollow arrows. The removing strength components are proportional to the air pressure in the chamber 2 and the area of the cross section (and, therefore, the diameter) of the shaft 51. Even keeping the supply air pressure constant, the pressure within the chamber 2 can be regulated by means of the variation of the passageways of an exhaust hole 6 provided in the body 1, which communicates the chamber 2 with the external environment. Advantageously, the exhaust hole 6 is located at the axial end of the body 1, close to a handle 11, that an operator can regulate the said passageway of the exhaust hole 6 by means of the finger of a hand seizing such handle 11. By means of the touch sensitivity and the perception of the removing strength it is easy for the operator to accurately carry out such regulation. Alternatively, obturating such exhaust hole 6 can be carried out by hand with the assistance, for example, of an obturating plate (not shown) rotatably or slidably mounted on the body 1.

[0021] Now referring to Fig. 4, an example of embodiment is shown equivalent to that disclosed with respect

to Fig. 1 to 3, but applied to a printing cylinder in which the external liner 52 is mounted on an intermediate liner 53 which in turn is mounted on the shaft 51, the said first and second deformable layers 56, 59 being communicated with the duct 50 through the first and second passageways 55, 58. In this figure, the body 1 is fastened to the intermediate liner 53 so that the chamber 2 receives compressed air from the end 57 of the first air bag and the removing strength generated will make that the assembly of both liners 52, 53 slides on the shaft 51. The air of the second air bag exhausts outside from its end 57a. However, the air of the first air bag, suitably regulated, is sufficient to carry out the removal of the assembly. With a body 1 having a suitable configuration to fasten it on the external liner 52 (not shown) the air can be collected from the ends 57 and 57a of both air bags and thus make that the external liner 52 slides on the intermediate liner 53.

[0022] This possibility can be controlled in a more accurate way by means of the variation shown in Fig. 5 and 6 in which shifts 61 are arranged which communicate such second passageways 58 with an area of the surface 54 of the end of the intermediate liner 53 comprised within the perimeter of the mouth 3 of the chamber 2. In the crossing of each second passageway 58 with its corresponding shift 61 a valve member 62 is arranged which can be changed from a first position, in which the compressed air from the longitudinal duct 50 is directed to the second deformable layer 59 through the second passageway 58 and a second position in which the compressed air from the longitudinal duct 50 is directed to the chamber 2 through the shift 61. In Fig. 5, the body 1 has a surface 54a around the mouth 3 suitable to be fastened to a corresponding surface 54a of the external liner 52 and with the valve member 62 at the said first position, the generated removing strength component will make that the external liner 52 slides on the intermediate liner 53. In the Fig. 6, the body 1 has a suitable configuration to be fastened to the intermediate liner 53 and, with the valve member 62 in the said second position, the generated removing strength component will make that the assembly of the external liner 52 and the intermediate liner slide on the shaft 51 or, in the event that an external liner has been previously removed, the intermediate liner 53 on the shaft 51. To carry out such change of position of such valve member 62, a hand-operated tool (not shown) has been provided capable to have access to it through the corresponding shift 61 from its opening in the surface 54, 54a of the end of such intermediate liner 52.

[0023] In Fig. 7 to 9, another example of embodiment of the device of the invention is shown, applied to a printing cylinder in which such means to releasably fasten the external liner 52 or the intermediate liner 53 on the shaft 51 comprise extensible elements associated to the shaft 51 mechanically or hydraulically driven, for example, expansion hydraulic bushings 51a and in which such means 50, 55 to introduce the compressed air in the chamber 2

include at least part of such pneumatic means to facilitate that the external liner 52 slides on the intermediate liner 53, which are similar to those disclosed with relation to the example of embodiment of Fig. 4 to 6 for creating the second air bag. The mouth 3 of the chamber 2 could have a size sufficient to communicate through an end 57b of such air bag with the interior of the chamber 2 to receive the compressed air from it (not shown).

[0024] In the variation of the Fig. 7, valve members 62 are shown which can be changed from and to a first and a second positions to selectively direct the compressed air to the deformable layer 59 through passageways 58a or to the chamber 2 through shifts 61a, respectively. The operation is analogous to the disclosed above with relation to the Fig. 5 and 6 and same tool can be used for changing from and to the first and second positions.

[0025] In Fig. 8 a variation is shown in which the surface 54b of the end of such intermediate liner 53 is an end portion of a cylindrical external surface, coaxial to the shaft 51 centerline where outlets from the second passageways 58a are open while the surface 4b, which is arranged around the mouth 3, is an internal surface facing such surface 54b, being formed between both surfaces 4b, 54b, in lack of the external liner, a space 9 closed at its external end by sealing means 8, such as a O ring and communicated by its internal end with the chamber 2, for example, through channels or offsets 7 formed on an annular protuberance 10 of the internal wall of the chamber 2 which is abutting against a final flat surface of the intermediate liner 52 for communicating such space 9 with the chamber 2. Locking means are arranged 5 in this annular protuberance and flat final surface. The external liner would have previously removed by means of a body 1 similar to the shown in Fig. 5.

[0026] Last, Fig. 9 shows another example of embodiment applied to a cylinder with expansion hydraulic bushings, although it could also be applied to any kind of cylinder with liners because, in it, the means for introducing compressed air in the chamber 2 are independent of the pneumatic means to facilitate that the liners slide. Thus, in the device of the Fig. 9, the body 1 is analogous to the one disclosed with respect to any of the Fig. 1 to 7, and although it shows it connected to the intermediate liner 53, although it could be fastened to the external liner 52, but they comprise an inlet 65 to the chamber 2 which can communicate with a duct 60 connected to a compressed air supply. Optionally, the said inlet 65 comprises a retaining valve 64 and such duct 60 is ending in a nozzle 63 which can be releasably coupled to the inlet 65 and it can be associated to handles provided with a catch for regulating the compressed air passageway, for example, a gun like (not shown). Alternatively, the connection/disconnection of such inlet 65 to/from such duct 60 can be carried out by means of a quick connector.

[0027] The device according to the examples of embodiment disclosed up to now can be easily automated. For this, such body 1 is mounted at the end of a handling arm (not shown), for example, of the robotic kind, capable

to automatically fasten/release it to/from such liner and to control the air exhaust to carry out the removal operation.

[0028] Last, it is referred to Fig. 10 and 11 in which another example of embodiment is shown in which such wall 1a delimiting the chamber 2 is integral with an end of the external liner 52 instead of forming a detachable body 1, as above disclosed. The said wall 1a comprises a hole 67 through which a final configuration 66 of the shaft 51 is passing provided for supporting and guiding it. In the case that this configuration 66, requires a final stop 69, such final stop 69 can be dismountable, for example, by means of a screw device 70. Between such hole 67 and such final configuration 66 dynamic sealing means 68 are arranged, such as an O ring and the like, which prevent that the compressed air exhausts from the chamber while it allows that the wall 1a slides along the configuration 66. In the example illustrated, the means 50 for introducing compressed air in the chamber 2 use, as disclosed with relation to Fig. 1 to 3, the said pneumatic means for facilitating that the liner 52 slides on the shaft 51.

[0029] Fig. 10 shows the device idle, suitable for the rollers carrying out their functions, for example, in a printing machine, while in the Fig. 11 the device is shown operating, in which the compressed air within the chamber 2 generates extraction strengths, stated by the solid arrows, which makes the liner 52 slides joined to the wall 1a with respect to the shaft 51 in the direction stated by hollow arrows. Obviously, the extraction strength will stop when the wall 1a arrives to the end of the configuration 66 and the compressed air exhausts through the hole 67, but an inertia will be created which, combined with the lower coefficient of dynamic friction, will be sufficient to allow that the liner is finished to be removed by hand.

[0030] Although the invention has been described with relation to specific examples of embodiment, these have not a limiting nature but an illustrating purpose and a man of the art would be able to introduce new variations or combine some of the variations disclosed with different kinds of engraving cylinders without being beyond the scope of this invention as defined in the claims appended.

Claims

1. Device for removing printing cylinder sleeves, said printing cylinders being of the kind comprising a shaft (51) acting as a core on which a printing sleeve is mounted, means being provided for releasably fastening said sleeve on the shaft (51) and pneumatic means for making easier the sliding of the sleeve on the shaft (51), **characterized in that** it comprises a chamber (2) delimited by a wall (1a) fastened to or forming part of an end portion of the sleeve and by surfaces pertaining to the shaft (51), means (50, 60) being provided to introduce compressed air in said chamber (2), the relative arrangement of an internal

surface of said wall (1a) and said surfaces pertaining to the shaft (51) being such that pressure impinging on said surfaces generates extracting force axial components in opposite senses on said shaft and on said wall (1a) fastened to or forming part of the sleeve, respectively, said extracting force axial components being capable of making the sleeve slide on the shaft (51).

2. Device according to claim 1, **characterized in that** said wall (1a) delimiting said chamber (2) forms a body (1) in which the chamber (2) is open by a mouth (3) surrounded by a surface (4, 4a, 4b), said body (1) being adapted to be fastened on said sleeve by means of a releasable lock device (5) with said surface (4, 4a, 4b) coupled in a substantially tight manner to a surface (54, 54a, 54b) of the sleeve end, and encompassing within the perimeter of said mouth (3) an end of the shaft (51).

3. Device according to claim 2, **characterized in that** said sleeve is an external sleeve (52) or an intermediate sleeve (53) on which said external sleeve (52) is mounted, said body (1) being adapted to be fastened to said external sleeve (52) or said intermediate sleeve (53) with said surface (4, 4a, 4b) coupled in a substantially tight manner to a surface (54, 54a, 54b) of the end of it.

4. Device according to claim 3, **characterized in that** said means (50, 55) to introduce compressed air in the chamber (2) include at least part of the said pneumatic means for making easier the sliding of the external sleeve (52) or intermediate sleeve (53) on the shaft (51) which comprise a duct (50) within the shaft (51), lengthwise the same, connected to a compressed air supply and first passageways (55) within the shaft (51) which communicate said longitudinal duct (50) with a first deformable layer (56) of a compressible material, interposed between the external sleeve (52) or the intermediate sleeve (53) and the shaft (51) under which deformable layer (56) a first air cushion can be created.

5. Device according to claim 4, **characterized in that** said mouth (3) has a size sufficient to communicate through it an end (57) of the first air cushion with the interior of the chamber (2).

6. Device, according to claim 4, **characterized in that** said pneumatic means comprise second passageways (58) through the intermediate sleeve (53) which communicate at least some of said first passageways (55) with a second deformable layer (59), of a compressible material, interposed between the external sleeve (52) and the intermediate sleeve (53), under which second deformable layer (59) a second air cushion can be created.

7. Device, according to claim 6, **characterized in that** the mouth (3) has a size sufficient to communicate through it an end (57a) of said second air cushion with the interior of the chamber (2).
8. Device according to claim 6, **characterized in that** it comprises at least a diversion (61) which communicates at least one of said second passageways (58) with an area of said surface (54) of the end of the intermediate sleeve (53) comprised within the perimeter of the mouth (3) of the chamber (2), a valve member (62) being arranged in the crossing of the second passageway (58) with said diversion (61) which can be changed between a first position, in which the compressed air coming from the longitudinal duct (50) is directed towards the second deformable layer (59) through the second passageway (58) and a second position in which the compressed air coming from the longitudinal duct (50) is directed towards the chamber (2) through the diversion (61).
9. Device according to claim 3, **characterized in that** said means for releasably fastening the external sleeve (52) or intermediate sleeve (53) on the shaft (51) comprise mechanically or hydraulically driven expansible elements associated to the shaft (51), and said means (50, 55) to introduce compressed air in the chamber (2) include at least part of said pneumatic means to facilitate that the external sleeve (52) slides on the intermediate sleeve (53) which comprise a duct (50) within the shaft (51) lengthwise the same, connected to a compressed air supply and first passageways (55) within the shaft (51) which communicate said longitudinal duct (50) with second passageways (58a) through the intermediate sleeve (53) communicating with at least some of said first passageways (55) with a deformable layer (59), of a compressible material, interposed between the external sleeve (52) and the intermediate sleeve (53), under said deformable layer (59) an air cushion can be created.
10. Device according to claim 9, **characterized in that** said mouth (3) has a size sufficient to communicate through an end (57a) of said air cushion with the interior of the chamber (2).
11. Device, according to claim 9, **characterized in that** it comprises at least a diversion (61) communicating at least one of said second passageways (58a) with an area of said surface (54a) of the end of the intermediate sleeve (53) comprised within the perimeter of the mouth (3) of the chamber (2), a valve member (62) being arranged in the crossing of the second passageways (58a) with said diversion (61) which can be changed between a first position, in which the compressed air coming from the longitudinal duct (50) is directed to the second deformable layer (59) through the second passageways (58a) and a second position in which the compressed air coming from the longitudinal duct (50) is directed to the chamber (2) through the diversion (61).
12. Device according to claim 8 or 11, **characterized in that** a tool has been provided to carry out said change of position of the valve member (62), having access to it through corresponding diversion (61) from its opening in the surface (54, 54a) of the end of said intermediate sleeve (52).
13. Device, according to claim 9, **characterized in that** said surface (54b) of the end of said intermediate sleeve (53) is a end portion of a cylindric external surface, coaxial to the shaft (51) centerline in which outlets of the second passageways (58a) are open and said surface (4b) which is arranged around the mouth (3), is an internal surface facing said surface (54b), a space (9) being formed between both surfaces (4b, 54b) in lack of the external sleeve, which is closed at its external end by sealing means (8) and communicated at its internal end with the chamber (2).
14. Device, according to claim 13, **characterized in that** it comprises channels or offsets (7) formed in an annular protuberance (10) of the body (1) which is abutting against a end flat surface of the intermediate sleeve (52) to communicate said space (9) with the chamber (2).
15. Device according to claim 3, **characterized in that** said means (60, 65) to introduce compressed air in the chamber (2) comprise an inlet (65) to the chamber (2) in the body (1) which can communicate with a duct (60) connected to a compressed air supply.
16. Device according to claim 15, **characterized in that** said inlet (65) comprises a retaining valve (64) said duct (60) ending in a nozzle (63) which can be releasably coupled to the inlet (65).
17. Device according to claim 16, **characterized in that** said nozzle is associated to a handle provided with a catch for regulating the compressed air passage.
18. Device, according to claim 17, **characterized in that** it comprises a quick connector for connecting/disconnecting said inlet (65) to/from said duct (60).
19. Device, according to any of the claims 1 to 12, **characterized in that** said surface (54) of the end of said external sleeve (52) or intermediate sleeve (53) is a flat annular surface substantially perpendicular to the shaft (51) centerline and said surface (4) which is arranged, around the mouth (3) is a corresponding flat annular surface.

20. Device, according to any of the preceding claims **characterized in that** said releasable lock device (5) between the body (1) and the external sleeve (52) or intermediate sleeve (53) comprises a bayonet lock.
21. Device, according to any of the preceding claims, **characterized in that** the chamber (2) of the body (1) can operatively house a final configuration (66) of the shaft (51) provided for supporting and guiding it.
22. Device, according to any of the preceding claims, **characterized in that** said body (1) comprises at least an exhaust hole (6) which communicates the chamber (2) with the external environment, the passageway of said exhaust hole (6) being apt to be regulated in order to regulate with it said removal strength.
23. Device, according to claim 22, **characterized in that** said exhaust hole (6) is located close to a handle (11) attached to the body (1), the said passageway of the exhaust hole (6) being apt to be hand regulated by touching it with a finger of one hand seizing said handle (11).
24. Device, according to claim 3, **characterized in that** the said external sleeve (52) is a cliché-holdingsleeve or a screening or inking sleeve,
25. Device, according to claim 3, **characterized in that** said body (1) is mounted at the end of a handling arm capable of automatically fastening/releasing said sleeve to carry out the removal operation.
26. Device, according to claim 1, **characterized in that** said wall (1a) delimiting the chamber (2) is integral with [a] an end of the sleeve and comprises a hole (67) through which passes a final configuration (66) of the shaft (51) provided for supporting and guiding it, dynamic sealing means (68) being provided between said hole (67) and said final configuration (66), said means (50) to introduce compressed air in the chamber (2) including at least part of the said pneumatic means for making easier the sliding of the sleeve on the shaft (51).

Patentansprüche

1. Vorrichtung zum Ausbau von Druckwalzenmanschetten, wobei die Druckwalzen eine Welle (51) aufweisen, die als Hülse wirkt, an der eine Druckmanschette befestigt wird, wobei Mittel zur ablösbaren Befestigung der Manschette an der Welle (51) sowie Pneumatikmittel zur leichteren Gleitbewegung der Manschette entlang der Welle (51) vorge-

sehen sind, **dadurch gekennzeichnet, dass** sie eine Kammer (2) aufweist, die von einer Wand (1a) begrenzt ist, die an einem Endstück der Manschette befestigt ist oder einen Teil davon bildet, sowie von zur Welle (51) gehörenden Flächen begrenzt ist, wobei Mittel (50, 60) zur Einleitung von Druckluft in die Kammer (2) vorgesehen sind, wobei die relative Anordnung einer Innenfläche der Wand (1a) und der zur Welle (51) gehörenden Flächen derart erfolgt, dass durch den auf die Flächen treffenden Druck axiale Komponenten einer Ausziehkraft erzeugt werden, die an der Welle und der Wand (1a), die an der Manschette befestigt sind bzw. einen Teil derselben bilden, in entgegengesetzter Richtung wirken, wobei die axialen Komponenten der Ausziehkraft in der Lage sind, die Gleitbewegung der Manschette entlang der Welle (51) zu bewirken.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die die Kammer (2) begrenzende Wand (1a) einen Körper (1) bildet, in dem die Kammer (2) durch eine Mündung (3) geöffnet ist, die von einer Fläche (4, 4a, 4b) umgeben ist, wobei der Körper (1) an der Manschette mit einer lösbaren Verriegelungsvorrichtung (5) befestigt werden kann, wobei die Fläche (4, 4a, 4b) im wesentlichen dicht mit einer Fläche (54, 54a, 54b) des Manschettenendes gekoppelt ist und innerhalb des Umfangs der Mündung (3) ein Ende der Welle (51) einschließt.
3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** es sich bei der Manschette um eine Außenmanschette (52) bzw. eine Zwischenmanschette (53) handelt, an der die Außenmanschette (52) befestigt ist, wobei der Körper (1) an der Außenmanschette (52) bzw. der Zwischenmanschette (53) befestigt werden kann, wobei die Fläche (4, 4a, 4b) im wesentlichen dicht mit einer Fläche (54, 54a, 54b) des Endes derselben gekoppelt ist.
4. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Mittel (50, 60) zur Einleitung von Druckluft in die Kammer (2) zumindest teilweise Pneumatikmittel zur leichteren Gleitbewegung der Außenmanschette (52) bzw. Zwischenmanschette (53) entlang der Welle (51) aufweisen, die einen Kanal (50) innerhalb der Welle (51) entlang derselben aufweisen und mit einer Druckluftversorgung sowie ersten Durchgängen (55) innerhalb der Welle (51) verbunden sind, die den Längskanal (50) mit einer ersten deformierbaren Schicht (56) aus einem zusammendrückbaren Material verbinden, die zwischen der Außenmanschette (52) bzw. Zwischenmanschette (53) und der Welle (51) angeordnet ist, wobei unterhalb der deformierbaren Schicht (56) ein erstes Luftkissen erzeugt werden kann.
5. Vorrichtung nach Anspruch 4, **dadurch gekenn-**

- zeichnet, dass** die Mündung (3) so groß ist, dass durch diese hindurch ein Ende (57) des ersten Luftkissens mit dem Innern der Kammer (2) kommunizieren kann.
6. Vorrichtung nach Anspruch 4, **dadurch gekennzeichnet, dass** die Pneumatikmittel zweite Durchgänge (58) durch die Zwischenmanschette (53) hindurch aufweisen, durch die die ersten Durchgänge (55) zumindest teilweise mit einer zweiten deformierbaren Schicht (59) aus einem zusammendrückbaren Material kommunizieren, die zwischen der Außenmanschette (52) und der Zwischenmanschette (53) angeordnet ist, wobei unterhalb der zweiten deformierbaren Schicht (59) ein zweites Luftkissen erzeugt werden kann.
7. Vorrichtung nach Anspruch 6, **dadurch gekennzeichnet, dass** die Mündung (3) so groß ist, dass durch diese hindurch ein Ende (57a) des zweiten Luftkissens mit dem Innern der Kammer (2) kommunizieren kann.
8. Vorrichtung nach Anspruch 6, **dadurch gekennzeichnet, dass** sie mindestens eine Abzweigung (61) aufweist, über die zumindest einer der zweiten Durchgänge (58) mit einem Bereich der zweiten Fläche (54) des Endes der Zwischenmanschette (53) kommuniziert, die innerhalb des Umfangs der Mündung (3) der Kammer (2) liegt, wobei ein Ventilglied (62) an der Kreuzung des zweiten Durchgangs (58) mit der Abzweigung (61) angeordnet ist, die zwischen einer ersten Position, bei der die vom Längskanal (50) kommende Druckluft in Richtung der zweiten deformierbaren Schicht (59) durch den zweiten Durchgang (58) geleitet wird, und einer zweiten Position umschaltbar ist, bei der die vom Längskanal (50) kommende Druckluft in Richtung der Kammer (2) durch die Abzweigung (61) geleitet wird.
9. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Mittel zur ablösbaren Befestigung der Außenmanschette (52) bzw. Zwischenmanschette (53) an der Welle (51) mit der Welle (51) verbundene mechanisch oder hydraulisch angetriebene ausdehbare Elemente aufweisen und die Mittel (50, 60) zur Einleitung von Druckluft in die Kammer (2) zumindest teilweise Pneumatikmittel zur leichteren Gleitbewegung der Außenmanschette (52) entlang der Zwischenmanschette (53) aufweisen, die einen Kanal (50) innerhalb der Welle (51) entlang derselben aufweisen und mit einer Druckluftversorgung sowie ersten Durchgängen (55) innerhalb der Welle (51) verbunden sind, die den Längskanal (50) mit zweiten Durchgängen (58a) durch die Zwischenmanschette (53) verbinden, wobei die ersten Durchgänge (55) zumindest teilweise mit einer deformierbaren Schicht (59) aus einem zusammendrückbarem Material kommunizieren, die zwischen der Außenmanschette (52) und der Zwischenmanschette (53) angeordnet ist, wobei unterhalb der deformierbaren Schicht (59) ein Luftkissen erzeugt werden kann.
10. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** die Mündung (3) so groß ist, dass durch diese hindurch ein Ende (57a) des Luftkissens mit dem Innern der Kammer (2) kommunizieren kann.
11. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** sie mindestens eine Abzweigung (61) aufweist, über die zumindest einer der zweiten Durchgänge (58a) mit einem Bereich der zweiten Fläche (54a) des Endes der Zwischenmanschette (53) kommuniziert, die innerhalb des Umfangs der Mündung (3) der Kammer (2) liegt, wobei ein Ventilglied (62) an der Kreuzung des zweiten Durchgangs (58a) mit der Abzweigung (61) angeordnet ist, die zwischen einer ersten Position, bei der die vom Längskanal (50) kommende Druckluft in Richtung der zweiten deformierbaren Schicht (59) durch den zweiten Durchgang (58a) geleitet wird, und einer zweiten Position umschaltbar ist, bei der die vom Längskanal (50) kommende Druckluft in Richtung der Kammer (2) durch die Abzweigung (61) geleitet wird.
12. Vorrichtung nach Anspruch 8 oder 11, **dadurch gekennzeichnet, dass** ein Werkzeug zur Durchführung dieser Positionsumschaltung des Ventilglieds (62) vorgesehen ist, das über die entsprechende Abzweigung (61) von deren Öffnung in der Fläche (54, 54a) des Endes der Zwischenmanschette (53) zugänglich ist.
13. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** die Fläche (54b) des Endes der Zwischenmanschette (53) ein Endabschnitt einer Zylinderaußenfläche ist, die koaxial zur Mittellinie der Welle (51) verläuft, bei der die Ausgänge der zweiten Durchgänge (58a) offen sind und die Fläche (4b), die um die Mündung (3) herum angeordnet ist, eine der Fläche (54b) gegenüberliegende Innenfläche ist, wobei zwischen beiden Flächen (4b, 54b) bei Fehlen der Außenmanschette ein Raum (9) gebildet wird, der an seinem äußeren Ende mit Dichtmitteln (8) verschlossen ist und an seinem inneren Ende mit der Kammer (2) kommuniziert.
14. Vorrichtung nach Anspruch 13, **dadurch gekennzeichnet, dass** sie Kanäle oder Versätze (7) aufweist, die in einem ringförmigen Vorsprung (10) des Körpers (1) angeordnet sind, die an einer Endplanfläche der Zwischenmanschette (53) anliegt, um den Raum (9) mit der Kammer (2) zu verbinden.

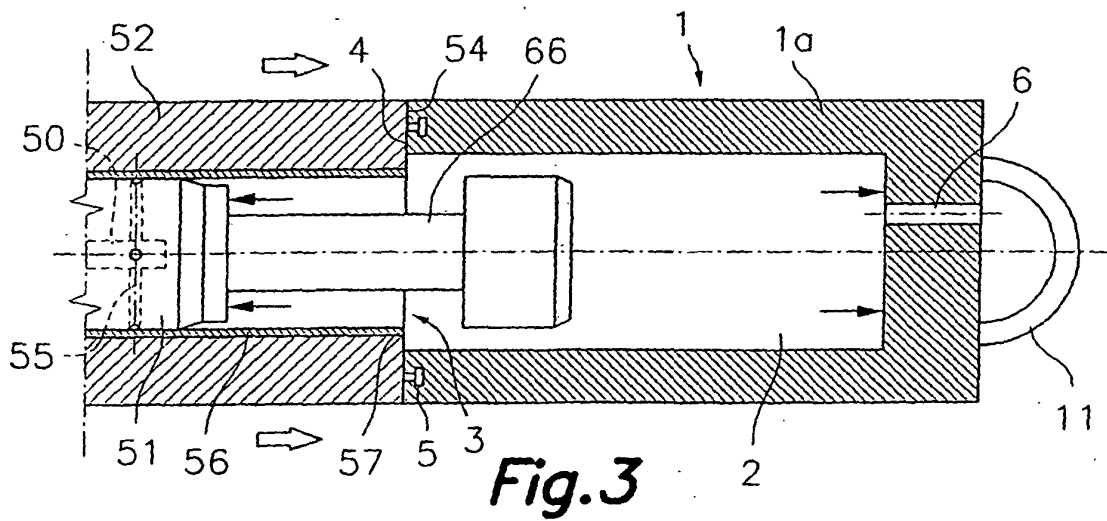
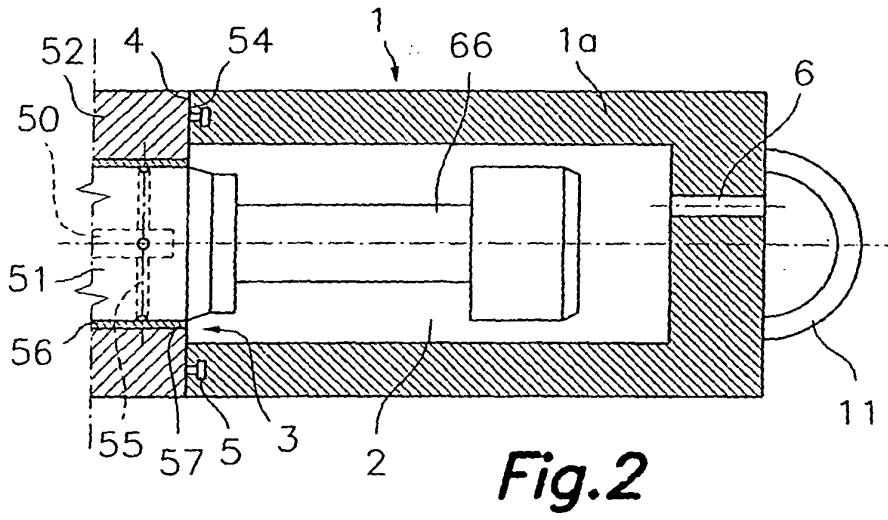
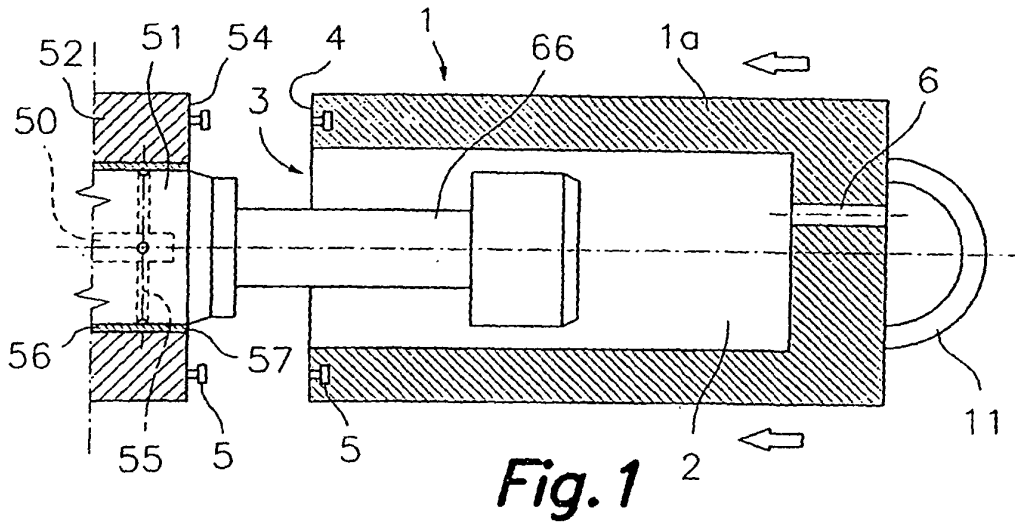
15. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Mittel (60, 65) zur Einleitung von Druckluft in die Kammer (2) einen Einlass (65) zur Kammer (2) im Körper (1) aufweisen, der mit einem mit der Druckluftversorgung verbundenen Kanal (60) kommunizieren kann.
16. Vorrichtung nach Anspruch 15, **dadurch gekennzeichnet, dass** der Einlass (65) ein Sicherheitsventil (64) aufweist, wobei der Kanal (60) in einer Düse (63) endet, die mit dem Einlass (65) lösbar gekoppelt werden kann.
17. Vorrichtung nach Anspruch 16, **dadurch gekennzeichnet, dass** die Düse mit einem Griff verbunden ist, der mit einer Sperre zur Regulierung des Druckluftstroms versehen ist.
18. Vorrichtung nach Anspruch 17, **dadurch gekennzeichnet, dass** sie eine Schnellsteckverbindung zur Verbindung/Lösung des Einlasses (65) mit/vom Kanal (60) aufweist.
19. Vorrichtung nach einem der Ansprüche 1 bis 12, **dadurch gekennzeichnet, dass** die Fläche (54) des Endes der Außenmanschette (52) bzw. Zwischenmanschette (53) eine ringförmige Planfläche ist, die im wesentlichen senkrecht zur Mittellinie der Welle (51) angeordnet ist, und die Fläche (4), die um die Mündung (3) herum angeordnet ist, eine entsprechende ringförmige Planfläche ist.
20. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die lösbare Verriegelungsvorrichtung (5) zwischen dem Körper (1) und der Außenmanschette (52) bzw. Zwischenmanschette (53) einen Bajonettverschluss aufweist.
21. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in der Kammer (2) des Körpers (1) im Betrieb eine Endkonfiguration (66) der Welle (51) untergebracht werden kann, die zu dessen Stützung und Führung dient.
22. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Körper (1) zumindest eine Ausblasöffnung (6) aufweist, die die Kammer (2) mit der Außenumgebung verbindet, wobei der Durchgang der Ausblasöffnung (6) reguliert werden kann, um damit die Ausbaustärke zu regulieren.
23. Vorrichtung nach Anspruch 22, **dadurch gekennzeichnet, dass** sich die Ausblasöffnung (6) nahe eines Griffs (11) befindet, der an dem Körper (1) befestigt ist, wobei der Durchgang der Ausblasöffnung (6) handreguliert werden kann, indem man den Griff (11) mit einem Finger einer Hand berührt und ihn festhält.
24. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** es sich bei der Außenmanschette (52) um eine Klischeehaltermanschette oder eine Sieb- oder Farbauftragsmanschette handelt.
25. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** der Körper (1) am Ende eines Bedienungsarms befestigt ist, der zwecks Durchführung des Ausbavorgangs zur automatischen Befestigung bzw. zum Lösen der Manschette befähigt ist.
26. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die die Kammer (2) begrenzende Wand (1a) mit einem Ende der Manschette integral verbunden ist und ein Loch (67) aufweist, durch das eine Endkonfiguration (66) der Welle (51) geführt wird, die zu deren Stützung und Führung dient, wobei zwischen dem Loch (67) und der Endkonfiguration (66) dynamische Dichtmittel (68) vorgesehen sind, wobei die Mittel (50) zur Einleitung von Druckluft in die Kammer (2) zumindest teilweise Pneumatikmittel zur leichteren Gleitbewegung der Manschette entlang der Welle (51) aufweisen.

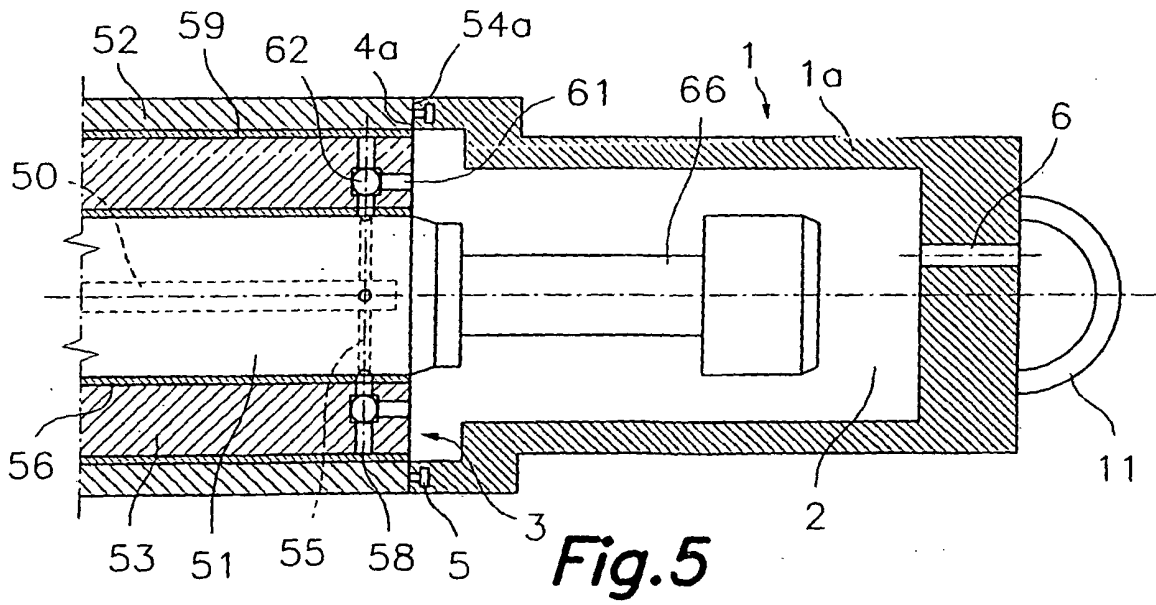
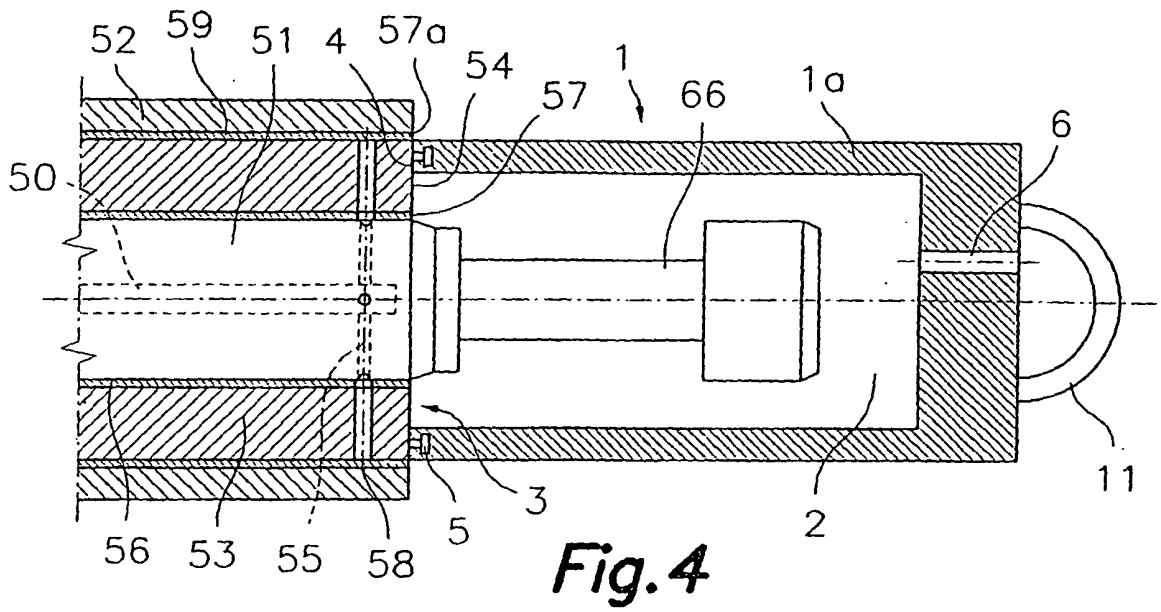
30 Revendications

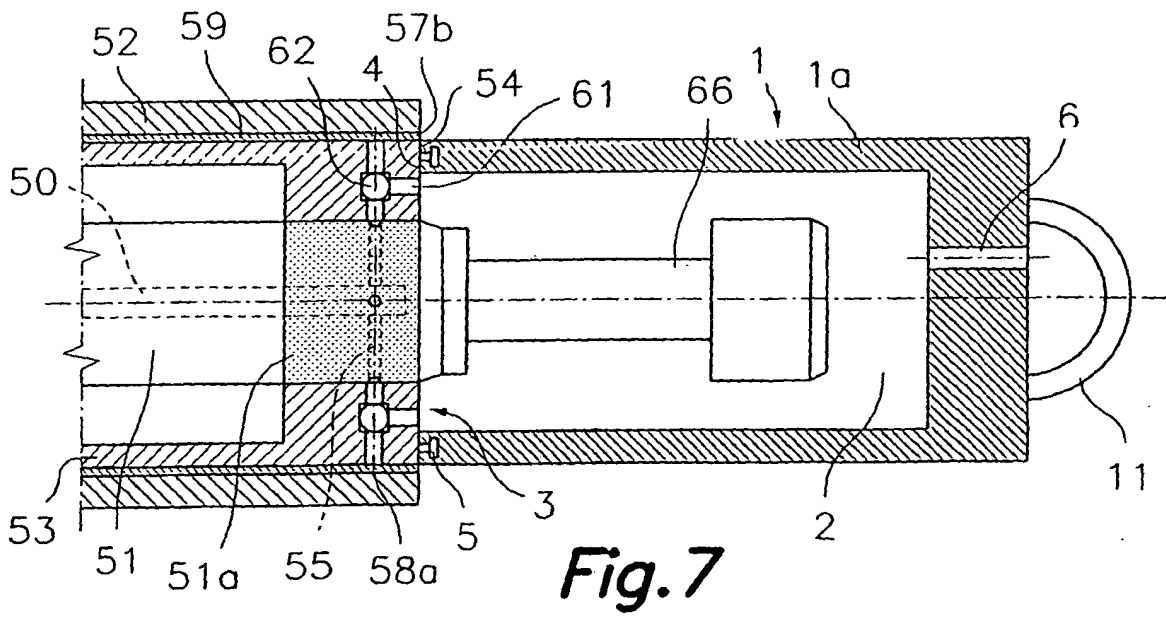
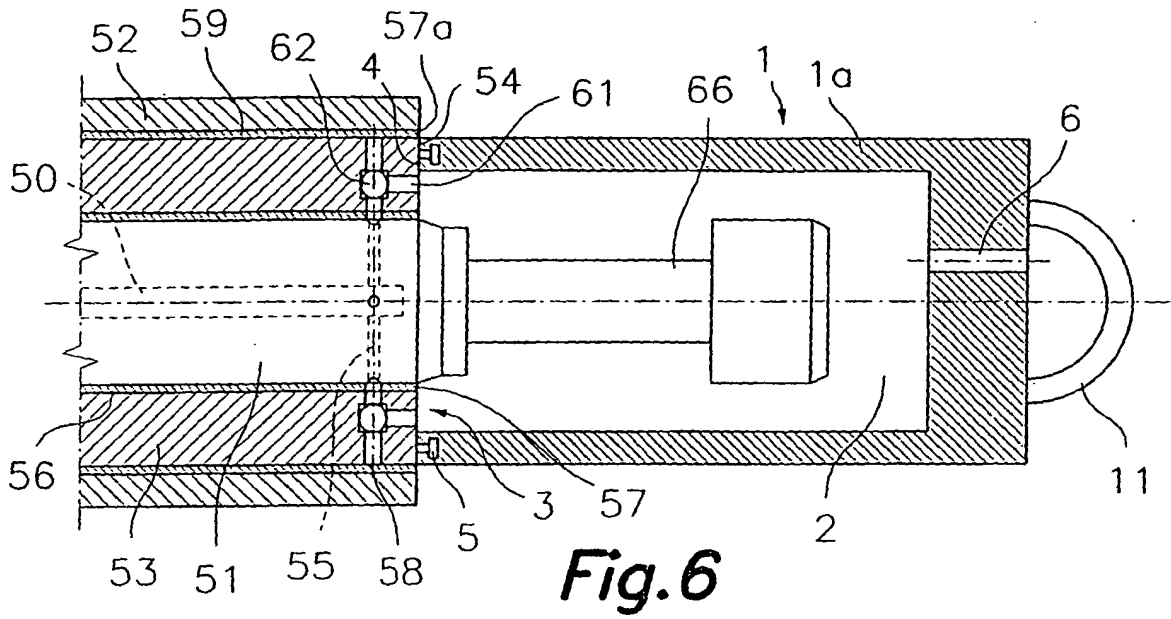
1. Dispositif pour enlever les manchons des cylindres imprimeurs, ces cylindres imprimeurs étant du genre comportant un axe (51) agissant comme noyau sur lequel un manchon imprimeur est monté, des moyens étant prévus pour fixer de façon amovible ce manchon sur l'axe (51) et des moyens pneumatiques pour que le glissement du manchon sur l'axe (51) soit plus aisé, **caractérisé en ce qu'il** comporte une chambre (2) délimitée par une paroi (1a) fixée ou faisant partie d'une portion d'extrémité du manchon et par des surfaces appartenant à l'axe (51), des moyens (50, 60) étant prévus pour introduire l'air comprimé dans cette chambre (2), l'aménagement correspondant d'une surface interne de cette paroi (1a) et ces surfaces appartenant à l'axe (51) étant telles que la pression qui rencontre ces surfaces génère des composants axiaux de force d'extraction en sens opposés sur cet axe et sur cette paroi (1a) fixés ou faisant partie du manchon, respectivement, ces composants axiaux de force d'extraction étant capables de faire glisser le manchon sur l'axe (51).
2. Dispositif conformément à la revendication 1, **caractérisé en ce que** cette paroi (1a) délimitant cette chambre (2) forme un corps (1) dans lequel la chambre (2) est ouverte par une bouche (3) entourée d'une surface (4, 4a, 4b), ce corps (1) étant adapté

- pour être fixé sur ce manchon au moyen d'un dispositif de verrouillage dégageable (5) cette surface (4, 4a, 4b) étant couplée de façon sensiblement tendue à une surface (54, 54a, 54b) de l'extrémité du manchon et comportant dans le périmètre de cette bouche (3) une extrémité de l'axe (51).
- 5
3. Dispositif conformément à la revendication 2, **caractérisé en ce que** ce manchon est un manchon externe (52) ou un manchon intermédiaire (53) sur lequel ce manchon externe (52) est monté, ce corps (1) étant adapté pour être fixé à ce manchon externe (52) ou ce manchon intermédiaire (53), cette surface (4, 4a, 4b) étant couplée de façon sensiblement tendue à une surface (54, 54a, 54b) de son extrémité.
- 10
4. Dispositif conformément à la revendication 3, **caractérisé en ce que** ces moyens (50, 60) pour introduire de l'air comprimé dans la chambre (2) comporte au moins une partie de ces moyens pneumatiques pour rendre plus aisé le glissement du manchon externe (52) ou du manchon intermédiaire (53) sur l'axe (51) qui comporte un conduit (50) à l'intérieur de l'axe (51) le long de celui-ci, relié à une amenée d'air comprimé et des premiers passages (55) à l'intérieur de l'axe (51) qui communiquent ce conduit longitudinal (50) avec une première couche déformable (56) d'un matériau compressible interposé entre le manchon externe (52) ou le manchon intermédiaire (53) et l'axe (51) sous laquelle couche déformable (56) un coussin d'air peut être créé.
- 15
5. Dispositif conformément à la revendication 4, **caractérisé en ce que** cette bouche (3) a une taille suffisante pour communiquer à travers elle une extrémité (57) de ce premier coussin d'air avec l'intérieur de la chambre (2).
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6. Dispositif, conformément à la revendication 4, **caractérisé en ce que** ces moyens pneumatiques comportent des deuxièmes passages (58) à travers le manchon intermédiaire (53) qui communiquent au moins une partie de ce premier passage (55) avec une deuxième couche déformable (59) d'un matériau compressible interposé entre le manchon externe (52) et le manchon intermédiaire (53), sous laquelle deuxième couche déformable (59) un deuxième coussin d'air peut être créé.
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7. Dispositif, conformément à la revendication 6, **caractérisé en ce que** la bouche (3) a une taille suffisante pour communiquer à travers elle une extrémité (57a) de ce deuxième coussin d'air avec l'intérieur de la chambre (2).
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8. Dispositif, conformément à la revendication 6, **caractérisé en ce qu'**il comporte au moins une dérivation (61) qui communique au moins un de ces
- 35
- deuxièmes passages (58) avec une aire de cette surface (54) de l'extrémité du manchon intermédiaire (53) compris dans le périmètre de la bouche (3) de la chambre (2), un élément de soupape (62) étant aménagé dans le croisement du deuxième passage (58) avec cette dérivation (61) qui peut être changée entre une première position dans laquelle l'air comprimé provenant du conduit longitudinal (50) est dirigé vers la deuxième couche déformable (59) à travers le deuxième passage (58) et une deuxième position dans laquelle l'air comprimé provenant du conduit longitudinal (50) est dirigé vers la chambre (2) à travers la dérivation (61).
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9. Dispositif conformément à la revendication 3, **caractérisé en ce que** ces moyens pour fixer de façon amovible le manchon externe (52) ou le manchon intermédiaire (53) sur l'axe (51) comporte des éléments expansibles à entraînement mécanique ou hydraulique reliés à l'axe (51) et à ces moyens (50, 55) pour introduire l'air comprimé dans la chambre (2) comportent au moins une partie de ces moyens pneumatiques pour rendre plus aisé le glissement du manchon externe (52) sur le manchon intermédiaire (53) qui comporte un conduit (50) à l'intérieur de l'axe (51) tout le long de celui-ci, relié à une amenée d'air comprimé et des premiers passages (55) à l'intérieur de l'axe (51) qui communiquent ce conduit longitudinal (50) avec le deuxième passage (58a) à travers le manchon intermédiaire (53) communiquant avec au moins une partie du premier passage (55) avec une couche déformable (59) de matériau compressible, interposé entre le manchon externe (52) et le manchon intermédiaire (53) sous cette couche déformable (59) un coussin d'air peut être créé.
- 45
10. Dispositif conformément à la revendication 9, **caractérisé en ce que** cette bouche (3) a une taille suffisante pour communiquer à travers une extrémité (57a) de ce coussin d'air avec l'intérieur de la chambre (2).
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11. Dispositif conformément à la revendication 9, **caractérisé en ce qu'**il comporte au moins une dérivation (61) communiquant au moins un de ces deuxième passages (58a) avec une aire de cette surface (54a) de l'extrémité du manchon intermédiaire (53) se trouvant dans le périmètre de la bouche (3) de la chambre (2), un élément de soupape (62) étant aménagé dans le croisement du deuxième passage (58a) avec cette dérivation (61) qui peut être changée entre une première position dans laquelle l'air comprimé provenant du conduit longitudinal (50) est dirigé à la deuxième couche déformable (59) à travers le deuxième passage (58a) et une deuxième position dans laquelle l'air comprimé provenant du conduit longitudinal (50) est dirigé vers la chambre (2) à tra-
- 55

- vers la dérivation (61).
12. Dispositif conformément à la revendication 8 ou 11, **caractérisé en ce qu'**un outil a été prévu pour effectuer ce changement de position de l'élément de soupape (62) ayant accès à celui-ci à travers une dérivation correspondant (61) depuis son ouverture sur la surface (54, 54a) de l'extrémité de ce manchon intermédiaire (53).
13. Dispositif conformément à la revendication 9, **caractérisé en ce que** cette surface (54b) de l'extrémité de ce manchon intermédiaire (53) est une portion d'extrémité d'une surface externe cylindrique, coaxial à la ligne centrale de l'axe (51) dans laquelle des sorties du deuxième passage (58a) sont ouvertes et cette surface (4b) qui est aménagée autour de la bouche (3), est une surface interne faisant face à cette surface (54b), un espace (9) étant formé entre ces deux surfaces (4b, 54b) à défaut de manchon externe, qui est fermé à son extrémité externe par des moyens d'étanchéité (8) et communiqués à son extrémité interne avec la chambre (2).
14. Dispositif conformément à la revendication 13, **caractérisé en ce qu'**il comporte des rainures ou des retraits (7) formés dans une bosse annulaire (10) du corps (1) qui s'appuie contre une surface plate d'extrémité du manchon intermédiaire (52) pour communiquer cet espace (9) avec la chambre (2).
15. Dispositif conformément à la revendication 3, **caractérisé en ce que** ces moyens (60, 65) pour introduire l'air comprimé dans la chambre (2) comportent une entrée (65) à la chambre (2) dans le corps (1) qui peut communiquer avec un conduit (60) relié à une amenée d'air comprimé.
16. Dispositif conformément à la revendication 15, **caractérisé en ce que** cette entrée (65) comporte une soupape de retenue (64), ce conduit (60) finissant en un ajutage (63) pouvant être accouplée amovible à l'entrée (65).
17. Dispositif conformément à la revendication 16, **caractérisé en ce que** cet ajutage est relié à un manche pourvu d'un cran d'arrêt pour régler le passage de l'air comprimé.
18. Dispositif conformément à la revendication 17, **caractérisé en ce qu'**il comporte un connecteur rapide pour connecter/déconnecter cette entrée (65) à ce conduit (60).
19. Dispositif conformément à une quelconque des revendications 1 à 12, **caractérisé en ce que** cette surface (54) de l'extrémité de ce manchon externe (52) ou manchon intermédiaire (53) est une surface annulaire plate sensiblement perpendiculaire à la ligne de centre de l'axe (51) et cette surface (4) qui est aménagée autour de la bouche (3) est une surface annulaire plate correspondante.
20. Dispositif conformément à une quelconque des revendications précédentes, **caractérisé en ce que** ce dispositif de verrouillage dégageable (5) entre le corps (1) et le manchon externe (52) ou le manchon intermédiaire (53) comporte un joint à baïonnette.
21. Dispositif conformément à une quelconque des revendications précédentes, **caractérisé en ce que** la chambre (2) du corps (1) peut loger opératoirement une configuration finale (66) de l'axe (51) prévue pour le supporter et le guider.
22. Dispositif conformément à une quelconque des revendications précédentes, **caractérisé en ce que** ce corps (1) comporte au moins un trou d'échappement (6) qui communique la chambre (2) avec l'environnement extérieur, la passage de ce trou d'échappement (6) étant apte pour être réglé afin de l'ajuster à cette force de retrait.
23. Dispositif conformément à la revendication 22, **caractérisé en ce que** ce trou d'échappement (6) est situé près d'un manche (11) relié au corps (1), ce passage du trou d'échappement (6) étant apte pour être réglé à la main en le touchant avec le doigt d'une main saisissant ce manche (11).
24. Dispositif conformément à la revendication 3, **caractérisé en ce que** ce manchon externe (52) est un manchon porte-cliché ou un manchon de sérigraphie ou encreur.
25. Dispositif conformément à la revendication 3, **caractérisé en ce que** ce corps (1) est monté à l'extrémité d'un bras de manipulation capable de fixer/dégager automatiquement ce manchon pour effectuer l'opération de retrait.
26. Dispositif conformément à la revendication 1, **caractérisé en ce que** cette paroi (1a) délimitant la chambre (2) est solidaire de (a) une extrémité du manchon et comporte un trou (67) à travers lequel passe une configuration finale (66) de l'axe (51) prévu pour le supporter et le guider, des moyens d'étanchéité dynamique (68) ayant été prévus entre ce trou (67) et cette configuration finale (66), ces moyens (50) pour introduire l'air comprimé dans la chambre (2) comportant au moins une partie de ces moyens pneumatiques pour rendre plus aisé le glissement du manchon sur l'axe (51).







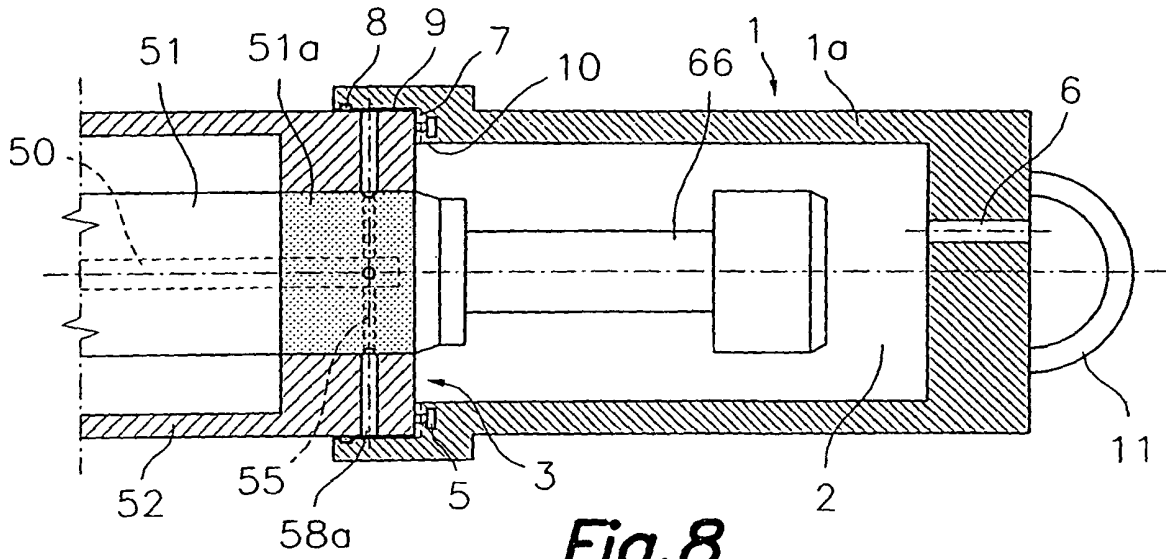


Fig. 8

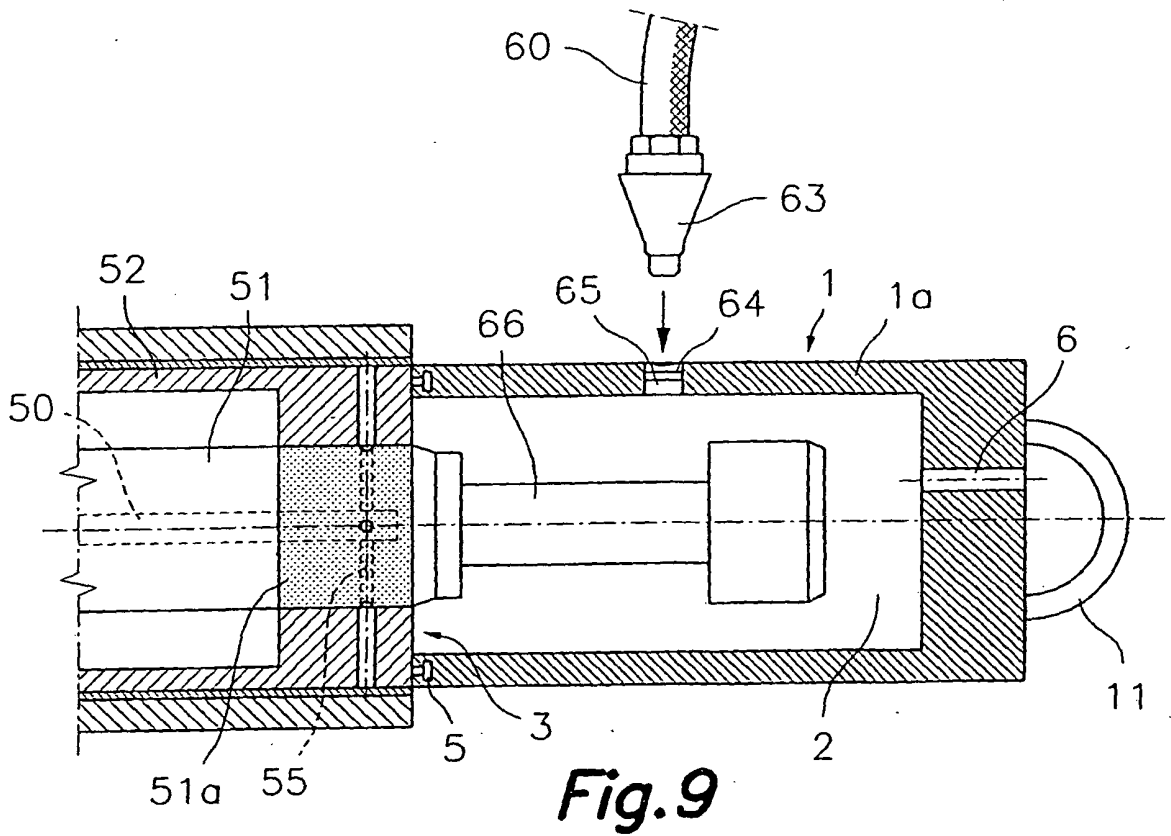
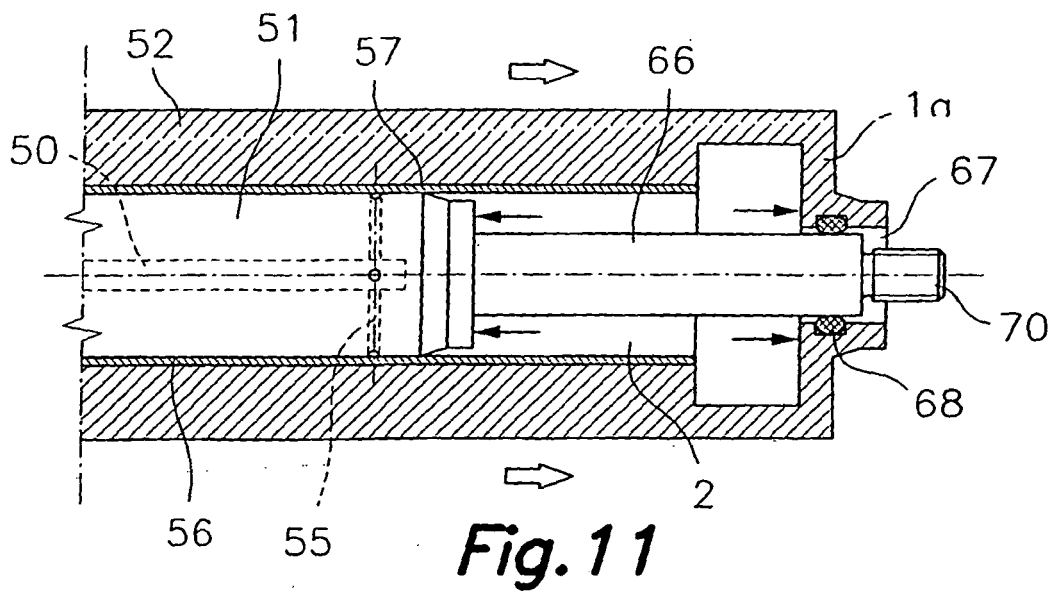
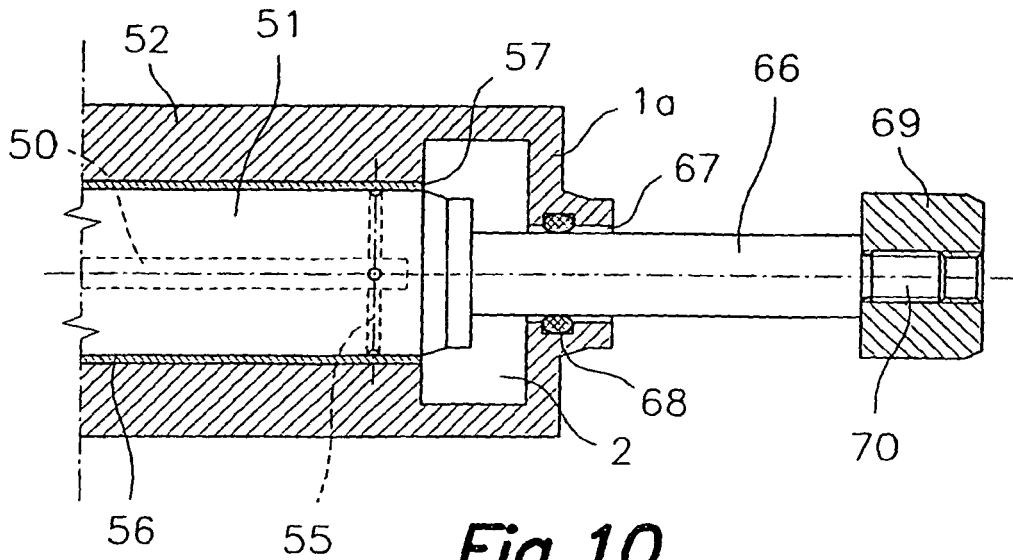


Fig. 9



REFERENCES CITED IN THE DESCRIPTION

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