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(54) **Air compressor**

Luftkompressor

Compresseur d'air

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Description

[0001] The present invention relates to an air compressor, and more particularly to an air compressor having a detachable or changeable structure for allowing an outlet tube of the air compressor to be adjusted to different angular positions or directions, and for allowing the air compressor to be attached to or received within various receptacles.

[0002] Typical air compressors comprise a cylinder housing attached or secured to a base and having a piston slidably disposed therein, and a motor secured to the base and coupled to the piston of the cylinder housing for actuating or driving the piston of the cylinder housing in a reciprocating action.

[0003] The applicant has developed various kinds of typical air compressors, such as U.S. Patent No. 6,846,162 to Chou, which also comprises a piston slidably disposed within a cylinder housing and slidably along or relative to the cylinder housing in a reciprocating action and in a great speed, and an outlet tube extended from and formed integral with the cylinder housing and having one or more ducts extended outwardly from the outlet tube for receiving the pressurized air from the outlet tube.

[0004] The ducts may be coupled to various kinds of facilities that require pressurized air supplied thereto, such as pressure gauges, air nozzles, safety valves, relief valves, etc. However, the outlet tube and the ducts are formed integral with the cylinder housing, such that the outlet tube and the ducts may include a large volume altogether, and may not be adjusted to different directions or positions relative to the cylinder housing, such that the cylinder housing and the outlet tube and the ducts may not be suitably engaged into or received within some of the outer receptacles or packages, or the like.

[0005] US 3,374,944 discloses a compressor unit according to the preamble of claim 1 and is more particularly concerned with a hermetic Scotch yoke compressor of the type employed in the refrigeration industry. The invention aims to provide an hermetic compressor adapted to be mass produced and including low cost means for providing a uniformly low clearance volume in the compressor cylinder regardless of manufacturing variations in the components thereof. The invention also provides a Scotch yoke compressor of simplified construction requiring a minimum number of machined or finished dimensions.

[0006] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional air compressors.

[0007] The primary objective of the present invention is to provide an air compressor including a detachable or changeable structure for allowing an outlet tube of the air compressor to be adjusted to different angular positions or directions, and for allowing the air compressor to be attached to or received within various receptacles.

[0008] This objective is achieved by an air compressor

according to claim 1. The dependent claims relate to advantageous embodiments.

[0009] Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

FIG. 1 is a perspective view of an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention ;

FIG. 2 is a partial exploded view of the air compressor;

FIG. 3 is a perspective view similar to FIG. 1, in which one half of the air compressor is cut off for showing an inner structure of the air compressor;

FIG. 4 is a perspective view similar to FIG. 3, illustrating the operation of the air compressor;

FIG. 5 is a partial perspective view of the air compressor, in which some of the parts or elements have been removed from the air compressor;

FIG. 6 is a partial exploded view as seen from the bottom of a cover of the air compressor;

FIG. 7 is a perspective view similar to FIG. 1, illustrating the operation of the air compressor;

FIG. 8 is a further partial exploded view of the air compressor;

FIG. 9 is a partial exploded view similar to FIG. 2, illustrating a first embodiment of an air compressor in accordance with the invention;

FIG. 10 is a perspective view of the air compressor as shown in FIG. 9, in which one half of the air compressor is cut off for showing an inner structure of the air compressor;

FIG. 11 is a perspective view similar to FIG. 10, illustrating the operation of the air compressor as shown in FIGS. 9-10;

FIG. 12 is a perspective view illustrating another arrangement of an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention;

FIG. 13 is a partial exploded view of the air compressor as shown in FIG. 12;

FIG. 14 is a perspective view of the air compressor as shown in FIGS. 12-13, in which one half of the air compressor is cut off for showing an inner structure of the air compressor;

FIG. 15 is a perspective view similar to FIG. 14, illustrating the operation of the air compressor as shown in FIGS. 12-15;

FIG. 16 is a perspective view similar to FIG. 12, illustrating yet a further arrangement of an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention; and

FIG. 17 is a partial exploded view illustrating the air compressor as shown in FIG. 16.

[0010] Referring to the drawings, and initially to FIGS. 1-8, an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention comprises a supporting base 10 including a plate 11 having an aperture 12 formed in a lower portion 13 thereof, and having an orifice 14 formed in an upper portion 15 thereof (FIGS. 5, 8), and having an arm 16 laterally extended from the upper portion 15 thereof, and a cylinder housing 17 provided on or extended from the arm 16 and preferably formed integral with the arm 16 and the plate 11, but the cylinder housing 17 may also be separated from the plate 11 and detachably secured to the plate 11 with such as fasteners 99 (FIG. 8).

[0011] The cylinder housing 17 includes a chamber 18 formed therein (FIGS. 2-4) and having an open top (FIG. 2) and an open bottom (FIGS. 3, 4), and defined by a peripheral wall 19 (FIGS. 2), for slidably receiving a piston 70 therein. The piston 70 is slidably received in the chamber 18 of the cylinder housing 17, and includes an extension or piston rod 71 extended therefrom, for allowing the piston 70 to slide in reciprocating action in the chamber 18 of the cylinder housing 17, and to generate pressurized air. The piston 70 includes a sealing ring 72 attached or secured onto the outer peripheral portion thereof and slidably engaged with the cylinder housing 17, for making an air tight seal between the piston 70 and the cylinder housing 17.

[0012] The cylinder housing 17 includes a cover 20 detachably secured on top thereof with such as fasteners 90, for enclosing or blocking the open top of the chamber 18 thereof (FIGS. 2-4), and a sealing ring 91 is disposed and engaged between the cover 20 and the cylinder housing 17, for making an air tight seal between the cover 20 and the cylinder housing 17. For example, the cover 20 includes a peripheral slot 92 formed in the bottom portion thereof (FIG. 6), for receiving the sealing ring 91 and for partially receiving the peripheral wall 19 of the cylinder housing 17. The cover 20 includes an outlet tube 21 extended upwardly or outwardly from the top thereof, and having a compartment 22 formed therein and communicating with the chamber 18 of the cylinder housing 17, for receiving the pressurized air from the chamber 18 of the cylinder housing 17.

[0013] A spring-biased check valve 24 (FIGS. 2-4) may be disposed in the outlet tube 21, and engaged with a valve seat 26 that is formed or provided between the outlet tube 21 and the cover 20 or the cylinder housing 17, for controlling the inner air to flow from the chamber 18 of the cylinder housing 17 into the compartment 22 of the outlet tube 21 only, and for preventing the inner air from flowing backwardly from the compartment 22 of the outlet tube 21 into the chamber 18 of the cylinder housing 17. A cap 27 may further be provided and attached to the outer or free end of the outlet tube 21 with such as threading engagements, for blocking or enclosing the compartment 22 of the outlet tube 21, and for stably retaining the spring-biased check valve 24 within the compartment 22 of the outlet tube 21.

[0014] A relief valve or safety valve (not shown) may further be provided and attached to the outlet tube 21 when the cap 27 is disengaged from the outer or free end of the outlet tube 21, for relieving the pressurized air when the air pressure within the cylinder housing 17 and the outlet tube 21 is over-pressurized, or when the air pressure reaches a predetermined value. The spring-biased check valve 24 may thus be used as a control means to control the pressurized air to flow from the chamber 18 of the cylinder housing 17 into the compartment 22 of the outlet tube 21, and to prevent the pressurized air from flowing backwardly from the compartment 22 of the outlet tube 21 into the chamber 18 of the cylinder housing 17.

[0015] The cover 20 further includes a port 25 extended therefrom, and communicating with the compartment 22 of the outlet tube 21, for receiving the pressurized air from the compartment 22 of the outlet tube 21. A coupler 85 is further provided and includes one or more ducts 28, 29, 30, 31 extended outwardly therefrom, for coupling to various kinds of facilities that require pressurized air supplied thereto. One or more lids (not shown) may further be provided and attached or secured to either of the ducts 28, 29, 30, 31 with such as threading or force-fitting engagements, for selectively enclosing or blocking the ducts 28, 29, 30, 31, when the ducts 28, 29, 30, 31 are not required to be used.

[0016] For example, one of the ducts 31 of the coupler 85 may be coupled to the port 25 of the cover 20 with such as a hose 88, for receiving the pressurized air from the compartment 22 of the outlet tube 21 via the port 25 of the cover 20. A pressure gauge 33 may be provided and attached to the other duct 28, for detecting and showing the air pressure within the cylinder housing 17 and/or the outlet tube 21. A nozzle 34 may be provided and attached to another duct 29, for allowing the pressurized air to be supplied from the chamber 18 of the cylinder housing 17 and the compartment 22 of the outlet tube 21 to various facilities that require pressurized air supplied thereto, with the nozzle 34.

[0017] A relief valve 32 may further be provided and attached to the other duct 30, for relieving the pressurized air when the air pressure within the cylinder housing 17 and/or the outlet tube 21 reaches a predetermined pressure or the highest pressure, and thus for preventing the cylinder housing 17 and/or the outlet tube 21 from being over-pressurized, and/or for safety purposes. The pressure gauge 33 and the nozzle 34 and the relief valve 32 may thus be easily and readily attached to or coupled to the outlet tube 21 with the ducts 28, 29, 30, 31 of the coupler 85, without additional or specialized coupling members or tools.

[0018] A gear 40 is rotatably attached to the lower portion 13 of the plate 11 with one or more bearings and a shaft 42, and an eccentric member 45 is secured to the shaft 42 of the gear 40 and rotated in concert with the gear 40 and includes a crank or an eccentric pin 47 extended therefrom and coupled to the piston rod 71 of the piston 70, in order to actuate or to move the piston 70

relative to the cylinder housing 17 in reciprocating actions.

[0019] A motor 50 may be attached or secured to the upper portion 15 of the plate 11 with such as fasteners 51 (FIGS. 1, 2, 7), and includes a spindle 52 extended into the upper orifice 14 of the plate 11 (FIGS. 3, 4), and includes a pinion 53 secured to the spindle 52 thereof, and engaged with the gear 40, for allowing the gear 40 to be rotated or driven by the motor 50 via the pinion 53, and thus for allowing the piston 70 to be actuated or moved relative to the cylinder housing 17 in reciprocating actions by the eccentric member 45 and the eccentric pin 47. A fan device 54 may further be provided and coupled to the motor 50 for being rotated or driven by the motor 50 to generate circulating or ventilating air.

[0020] In operation, as shown in FIGS. 3 and 4, the piston 70 may be actuated or moved relative to the cylinder housing 17 in reciprocating actions by the motor 50 via pinion 53, the gear 40, the eccentric member 45 and the eccentric pin 47, in order to generate a pressurized air, and to allow the pressurized air to flow into the compartment 22 of the outlet tube 21, and then to flow out through either or all of the ducts 28, 29, 30 of the coupler 85, and thus to allow the air pressure within the cylinder housing 17 and/or the outlet tube 21 to be detected and shown by the pressure gauge 33, and to allow the pressurized air to be supplied into the facilities that require pressurized air supplied thereto, with the nozzle 34, and/or to the pressurized air to be relieved via the relief valve 32 when the cylinder housing 17 and/or the outlet tube 21 is over-pressurized or reaches the predetermined pressure or the highest pressure.

[0021] As shown in FIGS. 2-4 and 6, the cover 20 further includes an inlet 36 formed therein and communicating with the chamber 18 of the cylinder housing 17, for allowing outside air to flow into the chamber 18 of the cylinder housing 17, and includes a recess 37 formed in the bottom portion thereof and communicating with the inlet 36 thereof, and includes a catch 38 extended therefrom or extended into the recess 37 thereof. A valve device 80 includes one or first end 81 engaged with or attached to the catch 38 of the cover 20, for attaching or securing the one or first end 81 of the valve device 80 to the cover 20.

[0022] The valve device 80 includes a spring blade structure or is a spring blade for biasing and blocking or enclosing the inlet 36 of the cover 20, and for forming or acting as a check valve means or device to control the outside air to flow into the chamber 18 of the cylinder housing 17 when the piston 70 moves away from the cover 20, and to prevent the inner air from flowing out of the chamber 18 of the cylinder housing 17 through the inlet 36 of the cover 20 when the piston 70 moves toward the cover 20.

[0023] The cylinder housing 17 includes one or more, such as four studs 23 formed or provided on the outer peripheral portion thereof, and the cover 20 further includes one or more, such as four holes or ears 39 formed

therein and selectively aligned with the studs 23 of the cylinder housing 17, for receiving the fasteners 90 which may secure the cover 20 on top of the cylinder housing 17.

[0024] It is to be noted that the cover 20 may be rotated or adjusted relative to the cylinder housing 17 to different angular position, before the fasteners 90 secure the cover 20 on top of the cylinder housing 17, and thus to allow the inlet 36 and the outlet tube 21 of the cover 20 to be rotated or adjusted relative to the cylinder housing 17 to different angular position or location, for example, the status of different positions of the cover 20 relative to the cylinder housing 17 are shown in FIGS. 1 and 7, and thus for allowing the air compressor to be attached to or received within various receptacles or packages.

[0025] Alternatively, as shown in FIGS. 9-11 in an embodiment of an air compressor according to the present invention, the cylinder housing 17 includes an upper wall 60 provided thereon for enclosing the upper portion of the chamber 18 thereof, and includes the inlet 36 formed therein, and includes a center opening 61 formed therein and defined by a peripheral fence 62, and includes a peripheral groove 63 formed therein and located around the peripheral fence 62, for receiving a sealing ring 64.

[0026] The cover 20 may be secured on top of the cylinder housing 17, and the spring-biased check valve 24 may be engaged into the compartment 22 of the outlet tube 21 via the lower or bottom portion thereof, and biased to engage with the peripheral fence 62, for controlling the inner air to flow from the chamber 18 of the cylinder housing 17 into the compartment 22 of the outlet tube 21 when the piston 70 moves toward the cover 20, and for preventing the inner air from flowing backwardly from the compartment 22 of the outlet tube 21 into the chamber 18 of the cylinder housing 17 when the piston 70 moves away from the cover 20.

[0027] The compartment 22 of the outlet tube 21 is preferably a blind compartment 22, and the outlet tube 21 includes a peg 66 extended therefrom, or extended into the compartment 22 thereof, for engaging with the spring-biased check valve 24, and for stably anchoring or positioning the spring-biased check valve 24 within the compartment 22 of the outlet tube 21. The sealing ring 64 is engaged between the upper wall 60 of the cylinder housing 17 and the cover 20, for making an air tight seal between the cover 20 and the upper wall 60 of the cylinder housing 17.

[0028] It is also to be noted that the upper wall 60 of the cylinder housing 17 is spaced away from the cover 20, and the inlet 36 of the upper wall 60 of the cylinder housing 17 may thus be kept out of the other objects or receptacles or packages, such that the inlet 36 of the upper wall 60 of the cylinder housing 17 may be prevented from being blocked or shielded when the air compressor is attached to or received within various receptacles or packages. In addition, the outlet tube 21 of the cover 20 may also be rotated or adjusted relative to the cylinder housing 17 to different angular position or location, for allowing the air compressor to be attached to or received

within various receptacles or packages.

[0029] Further alternatively, as shown in FIGS. 12-15, for an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention, the cover 20 of the cylinder housing 17 includes no inlet formed therein. Instead, the piston 70 includes a bore 73 formed therein, and the valve device 80 includes one or first end 81 engaged with or attached to the piston 70, for biasing and blocking or enclosing the bore 73 of the piston 70, and for forming a check valve means or device to control the outside air to intake or to flow into the chamber 18 of the cylinder housing 17 when the piston 70 moves away from the cover 20, and to prevent the inner air from flowing backwardly or outwardly from the chamber 18 of the cylinder housing 17 through the bore 73 of the piston 70 when the piston 70 moves toward the cover 20.

[0030] Further alternatively, as shown in FIGS. 16-17, for an air compressor which does not fall under the scope of the claims but which is useful for understanding the present invention, the cover 20 of the cylinder housing 17 includes no inlet formed therein, and the upper wall 60 of the cylinder housing 17 also includes no inlet formed therein, but also spaced away from the cover 20. Instead, the piston 70 includes a bore 73 formed therein, and the valve device 80 includes one or first end 81 engaged with or attached to the piston 70, for biasing and blocking or enclosing the bore 73 of the piston 70, and for forming a check valve means or device to control the outside air to intake or to flow into the chamber 18 of the cylinder housing 17 when the piston 70 moves away from the cover 20, and to prevent the inner air from flowing backwardly or outwardly from the chamber 18 of the cylinder housing 17 through the bore 73 of the piston 70, or from flowing out of the chamber 18 of the cylinder housing 17 when the piston 70 moves toward the cover 20.

[0031] It is to be noted that the cylinder housing 17 as shown in FIGS. 9-17 may also be separated from the plate 11, and may also be detachably secured to the plate 11 with such as fasteners 99, similar to that shown in FIG. 8, to allow different cylinder housings 17 of different structures or contours to be detachably or changeably secured to the plate 11 with such as the fasteners 99 (FIG. 8).

[0032] Accordingly, the air compressor in accordance with the present invention includes a detachable or changeable structure for allowing the outlet tube of the air compressor to be adjusted to different angular positions or directions, and for allowing the air compressor to be attached to or received within various receptacles or packages.

[0033] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

Claims

1. An air compressor comprising:

5 a cylinder housing (17), including a chamber (18) formed therein, and defined by a peripheral wall (19),
 a piston (70) slidably received in said chamber (18) of said cylinder housing (17), and having a piston rod (71) extended therefrom,
 10 a motor (50) coupled to said piston rod (71), for moving said piston (70) relative to said cylinder housing (17) in a reciprocating action, in order to generate pressurized air, and
 15 a cover (20) detachably secured on top of said cylinder housing (17), and including an outlet tube (21) having a compartment (22) formed therein and communicating with said chamber (18) of said cylinder housing (17), for receiving the pressurized air from said chamber (18) of said cylinder housing (17), said outlet tube (21) including a port extended therefrom, and communicating with said compartment (22) of said outlet tube (21), for receiving the pressurized air from said compartment (22) of said outlet tube (21),

characterized in that

said cylinder housing (17) includes an upper wall (60) provided thereon for enclosing an upper portion of said chamber (18) thereof, said upper wall (60) includes an inlet (36) formed therein and a center opening (61) formed therein and defined by a peripheral fence (62), and said cover (20) is secured on top of said cylinder housing (17), the upper wall (60) of the cylinder housing (17) being spaced away from the cover (20), and includes a check valve (24) engaged into said compartment (22) of said outlet tube (21) and biased to engage with said peripheral fence (62), for controlling the inner air to flow from said chamber (18) of said cylinder housing (17) into said compartment (22) of said outlet tube (21).

2. The air compressor as claimed in claim 1 further comprising a supporting base including a plate (11) having an arm (16) extended therefrom to support said cylinder housing (17), said motor (50) being attached to said plate (11) and including a spindle (52) extended through said plate (11), and an eccentric member coupled to said spindle (52) of said motor (50) and having a pin (47) extended therefrom and coupled to said piston rod, to move said piston (70) relative to said cylinder housing (17) in reciprocating action, said plate (11) includes a gear (40) rotatably attached thereto and rotatably attached to said plate (11) with a shaft (42), said eccentric member is secured to said shaft (42) and has said pin (47) extended therefrom.

3. The air compressor as claimed in claim 1, wherein said upper wall (60) includes a valve device (80) secured to said upper wall (60), for blocking said inlet (36) of said upper wall (60), and for controlling the outside air to flow into said chamber (18) of said cylinder housing (17).
4. The air compressor as claimed in claim 1 further comprising a coupler (85) coupled to said port of said outlet tube (21), and including a first duct (28), a second duct (29), and at least one third duct (30) extended outwardly therefrom and communicating with said compartment (22) of said outlet tube (21), for receiving the pressurized air from said compartment (22) of said outlet tube (21), a pressure gauge (33) attached to said first duct (28), a nozzle (34) coupled to said second duct (29), and a valve attached to said at least one third duct (30).
5. The air compressor as claimed in claim 4, wherein said coupler (85) includes a hose coupled to said port of said outlet tube (21).

Patentansprüche

1. Luftkompressor, der Folgendes umfasst:

ein Zylindergehäuse (17), das eine in demselben geformte Kammer (18) einschließt und durch eine Umfangswand (19) definiert wird, einen Kolben (70), der verschiebbar in der Kammer (18) des Zylindergehäuses (17) aufgenommen wird und eine Kolbenstange (71) hat, die sich von demselben aus erstreckt, einen Motor (50), der an die Kolbenstange (71) gekoppelt ist, um den Kolben (70) im Verhältnis zu dem Zylindergehäuse (17) in einer hin- und hergehenden Bewegung zu bewegen, um Druckluft zu erzeugen, und eine Abdeckung (20), die lösbar oben an dem Zylindergehäuse (17) befestigt ist und eine Auslassröhre (21) einschließt, die eine Abteilung (22) hat, die in derselben geformt und mit der Kammer (18) des Zylindergehäuses (17) verbunden ist, um die Druckluft aus der Kammer (18) des Zylindergehäuses (17) aufzunehmen, wobei die Auslassröhre (21) einen Anschluss einschließt, der sich von demselben aus erstreckt und mit der Abteilung (22) der Auslassröhre (21) verbunden ist, um die Druckluft aus der Abteilung (22) der Auslassröhre (21) aufzunehmen, **dadurch gekennzeichnet, dass** das Zylindergehäuse (17) eine obere Wand (60) einschließt, die an demselben bereitgestellt wird, um einen oberen Abschnitt der Kammer (18) desselben zu umschließen, wobei die obere Wand (60) einen Einlass (36), der in dersel-

ben geformt ist, und eine Mittelöffnung (61), die in derselben geformt und durch eine Umfangsumfassung (62) definiert wird, einschließt, und die Abdeckung (20) oben auf dem Zylindergehäuse (17) befestigt ist, wobei die obere Wand (60) des Zylindergehäuses (17) mit Zwischenraum entfernt von der Abdeckung (20) angeordnet ist und ein Rückschlagventil (24) einschließt, das in die Abteilung (22) der Auslassröhre (21) in Eingriff gebracht und dafür vorgespannt ist, mit der Umfangsumfassung (62) ineinanderzugreifen, um die innere Luft zu regeln, die aus der Kammer (18) des Zylindergehäuses (17) in die Abteilung (22) der Auslassröhre (21) strömt.

2. Luftkompressor nach Anspruch 1, der ferner eine Tragbasis umfasst, die eine Platte (11) einschließt, die einen Arm (16) hat, der sich von derselben aus erstreckt, um das Zylindergehäuse (17) zu tragen, wobei der Motor (50) an der Platte (11) befestigt ist und eine Welle (52), die sich durch die Platte (11) erstreckt, und ein exzentrisches Element einschließt, das an die Welle (52) des Motors (50) gekoppelt ist und einen Zapfen (47) hat, der sich von demselben aus erstreckt und an die Kolbenstange gekoppelt ist, um den Kolben (70) im Verhältnis zu dem Zylindergehäuse (17) in einer hin- und hergehenden Bewegung zu bewegen, wobei die Platte (11) ein Zahnrad (40) einschließt, das drehbar an demselben befestigt ist und mit einem Schaft (42) drehbar an der Platte (11) befestigt ist, wobei das exzentrische Element an dem Schaft (42) befestigt ist und den Zapfen (47) hat, der sich von demselben aus erstreckt.
3. Luftkompressor nach Anspruch 1, wobei die obere Wand (60) eine Ventileinrichtung (80) einschließt, die an der oberen Wand (60) befestigt ist, um den Einlass (36) der oberen Wand (60) zu sperren und um die äußere Luft zu regeln, die in die Kammer (18) des Zylindergehäuses (17) strömt.
4. Luftkompressor nach Anspruch 1, der ferner eine Kupplung (85), die an den Anschluss der Auslassröhre (21) gekoppelt ist und eine erste Leitung (28), eine zweite Leitung (29) und wenigstens eine dritte Leitung (30) einschließt, die sich von demselben aus nach außen erstrecken und mit der Abteilung (22) der Auslassröhre (21) verbunden sind, um die Druckluft aus der Abteilung (22) der Auslassröhre (21) aufzunehmen, einen Druckmesser (33), der an der ersten Leitung (28) befestigt ist, eine Düse (34), die an die zweite Leitung (29) gekoppelt ist, und ein Ventil, das an der wenigstens einen dritten Leitung (30) befestigt ist, umfasst.
5. Luftkompressor nach Anspruch 4, wobei die Kupplung (85) einen Schlauch einschließt, der an den An-

schluss der Auslassröhre (21) gekoppelt ist.

Revendications

1. Compresseur d'air comprenant :

un corps de cylindre (17), à l'intérieur duquel est formée une chambre (18), et défini par une paroi périphérique (19),

un piston (70) reçu de façon glissante dans ladite chambre (18) du corps de cylindre (17), et depuis lequel s'étend une tige de piston (71), un moteur (50) couplé à ladite tige de piston (71), pour mouvoir ledit piston (70) par rapport audit corps de cylindre (17) dans un mouvement de va-et-vient, afin de produire de l'air sous pression, et

un couvercle (20) fixé de manière détachable au sommet dudit corps de cylindre (17), et comprenant un tube de sortie (21) dans lequel est formé un compartiment (22) et communiquant avec ladite chambre (18) du corps de cylindre (17), pour recevoir l'air sous pression de ladite chambre (18) du corps de cylindre (17), ledit tube de sortie (21) comprenant un orifice s'étendant depuis celui-ci et communiquant avec ledit compartiment (22) du tube de sortie (21), pour recevoir l'air sous pression du compartiment (22) dudit tube de sortie (21),

caractérisé en ce que ledit corps de cylindre (17) comprend une paroi supérieure (60) prévue pour fermer une partie supérieure de ladite chambre (18) de celui-ci, ladite paroi supérieure (60) comprend une entrée (36) formée dedans et une ouverture centrale (61) formée dedans et définie par un rebord périphérique (62), et ledit couvercle (20) est fixé au sommet du corps de cylindre (17), la paroi supérieure (60) du corps de cylindre (17) étant espacée du couvercle (20), et comprenant un clapet antiretour (24) engagé dans ledit compartiment (22) du tube de sortie (21) et soumis à une force pour être en contact avec ledit rebord périphérique (62), pour commander l'air intérieur de telle façon qu'il passe de ladite chambre (18) du corps de cylindre (17) au compartiment (22) dudit tube de sortie (21).

2. Compresseur d'air selon la revendication 1, comprenant en outre une base de support comportant une plaque (11) ayant un bras (16) s'étendant depuis celle-ci pour supporter ledit corps de cylindre (17), ledit moteur (50) étant fixé à ladite plaque (11) et comprenant un arbre (52) qui s'étend à travers ladite plaque (11), et un élément excentrique accouplé audit arbre (52) du moteur (50) et comportant un axe (47) s'étendant depuis celui-ci et accouplé à la tige de

piston, pour mouvoir ledit piston (70) par rapport au corps de cylindre (17) en mouvement de va-et-vient, ladite plaque (11) comprenant une roue d'engrenage (40) fixée à rotation à celle-ci et fixée à rotation à ladite plaque (11) avec un arbre (42), ledit élément excentrique est fixé audit arbre (42) et ledit axe (47) s'étend depuis celui-ci.

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3. Compresseur d'air selon la revendication 1, dans lequel ladite paroi supérieure (60) comprend un dispositif formant valve (80) fixé à ladite paroi supérieure (60), pour bloquer ladite entrée (36) de la paroi supérieure (60), et pour commander l'air extérieur pour le faire entrer dans ladite chambre (18) du corps de cylindre (17).

4. Compresseur d'air selon la revendication 1, comprenant en outre un raccord (85) accouplé audit orifice du tube de sortie (21), et comprenant une première conduite (28), une deuxième conduite (29) et au moins une troisième conduite (30) s'étendant vers l'extérieur depuis celle-ci et communiquant avec ledit compartiment (22) du tube de sortie (21), pour recevoir l'air sous pression provenant dudit compartiment (22) du tube de sortie (21), un manomètre (33) fixé à ladite première conduite (28), une buse (34) couplée à ladite deuxième conduite (29) et une valve fixée à ladite au moins une troisième conduite (30).

5. Compresseur d'air selon la revendication 4, dans lequel ledit raccord (85) comprend un tuyau couplé audit orifice du tube extérieur (21).

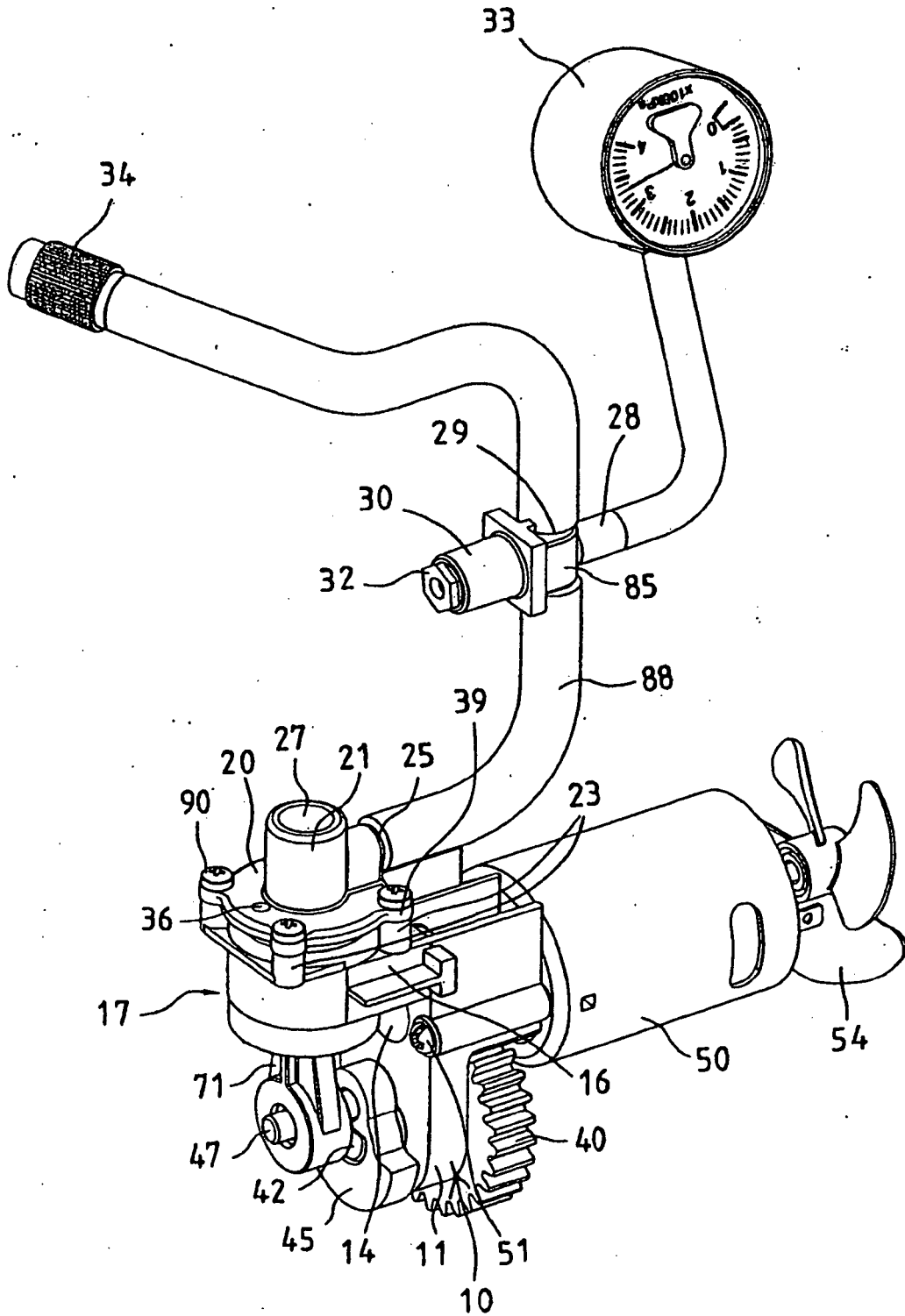


FIG. 1

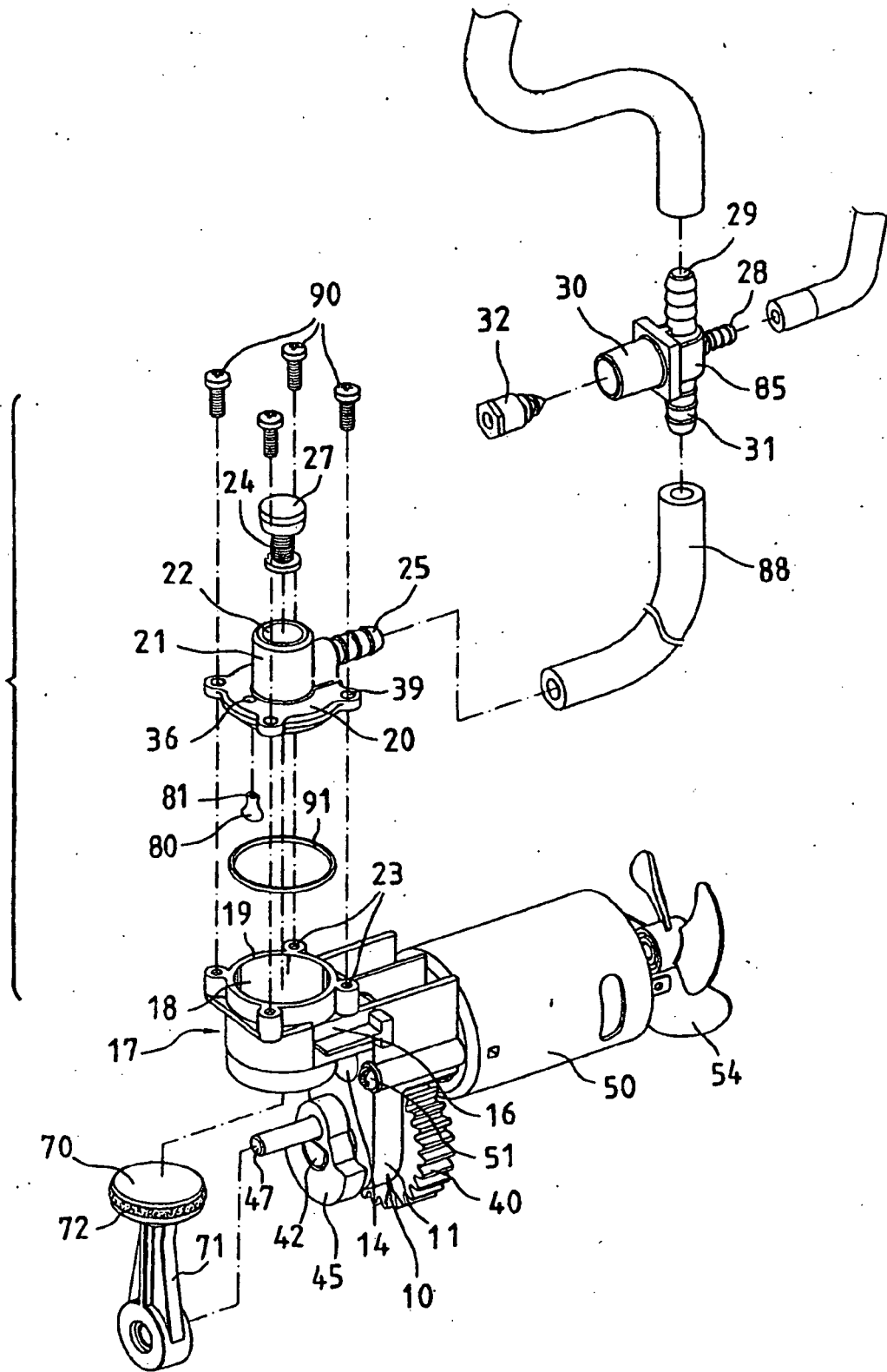


FIG. 2

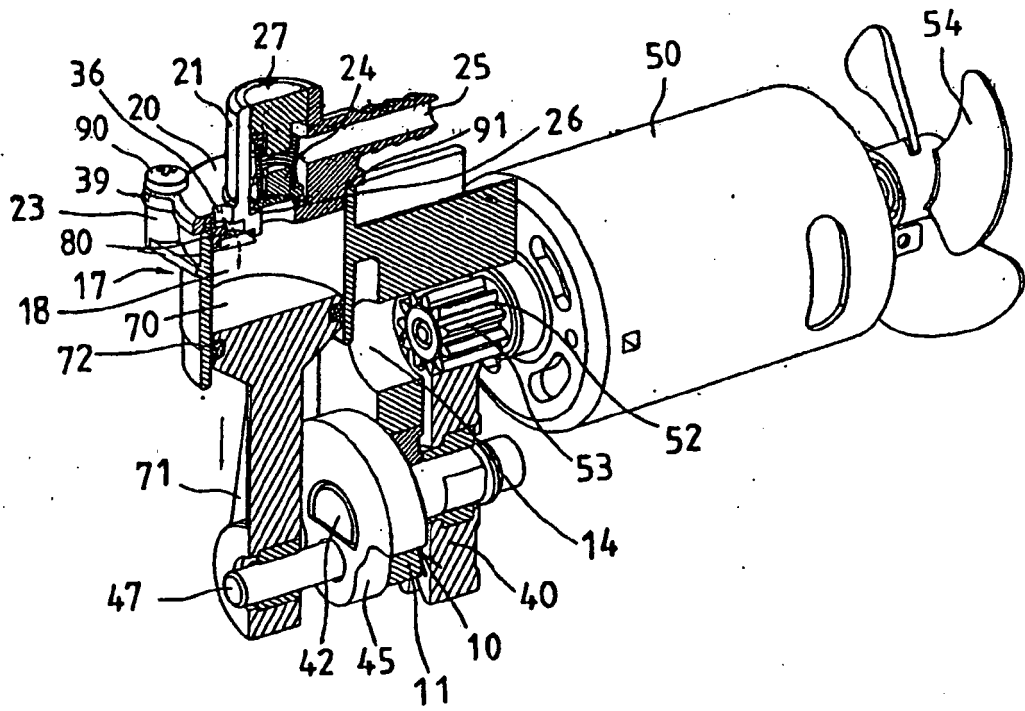


FIG. 3

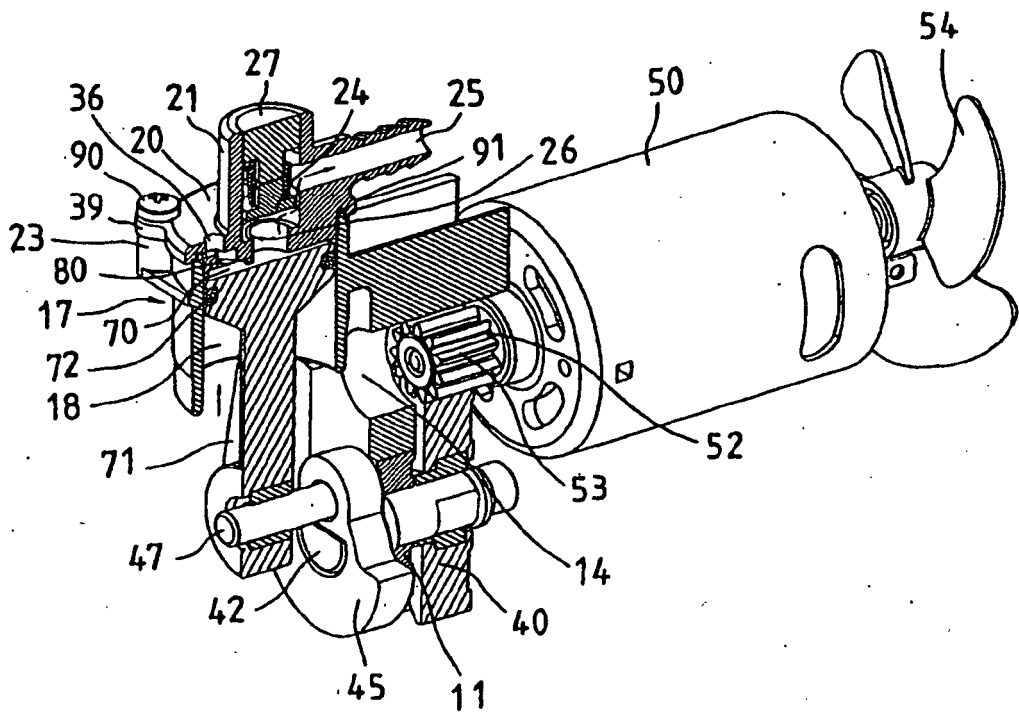


FIG. 4

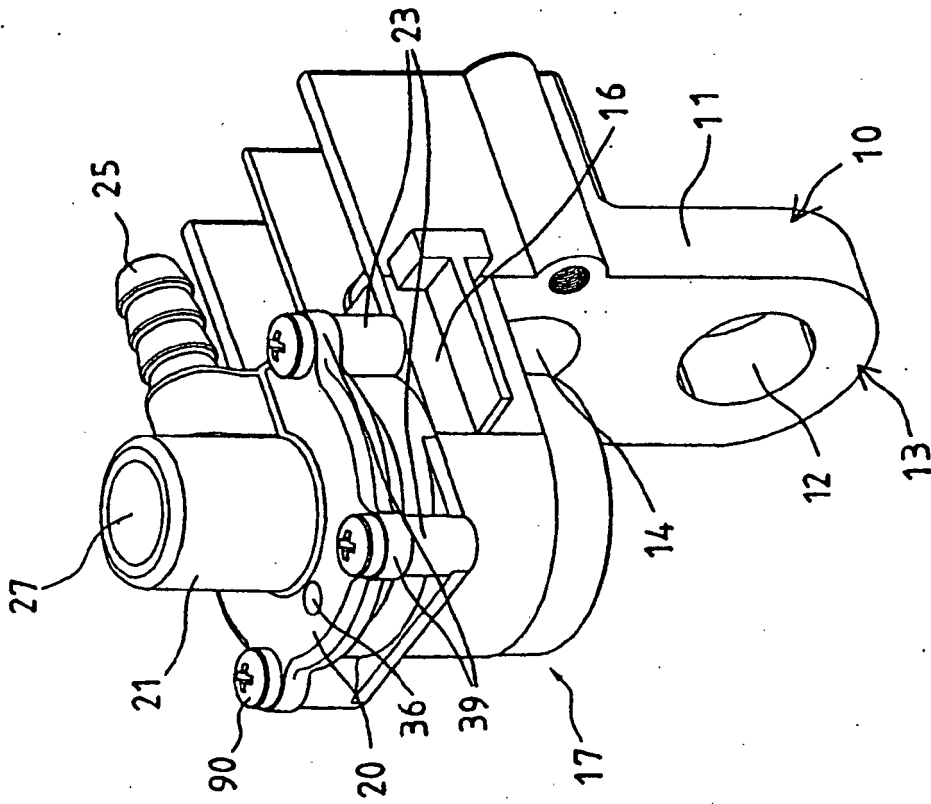


FIG. 5

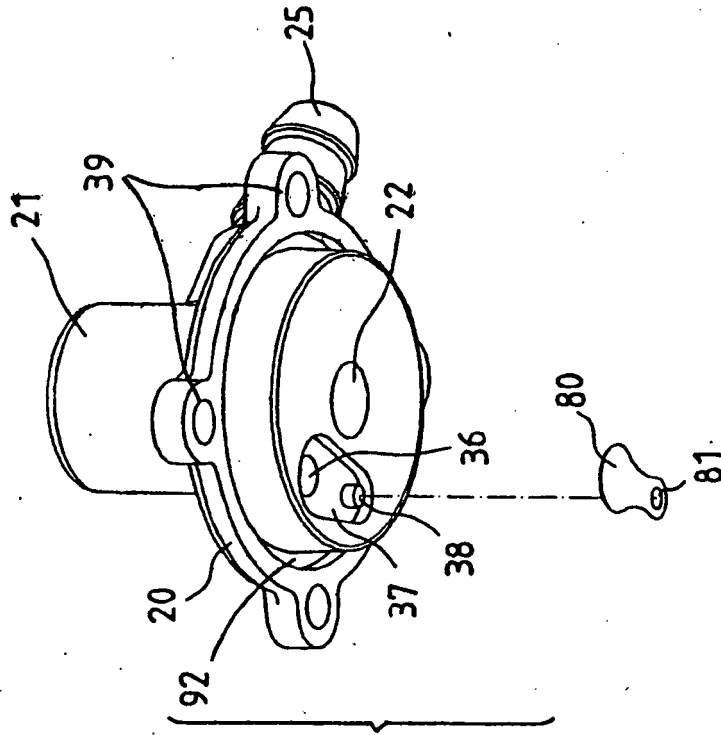


FIG. 6

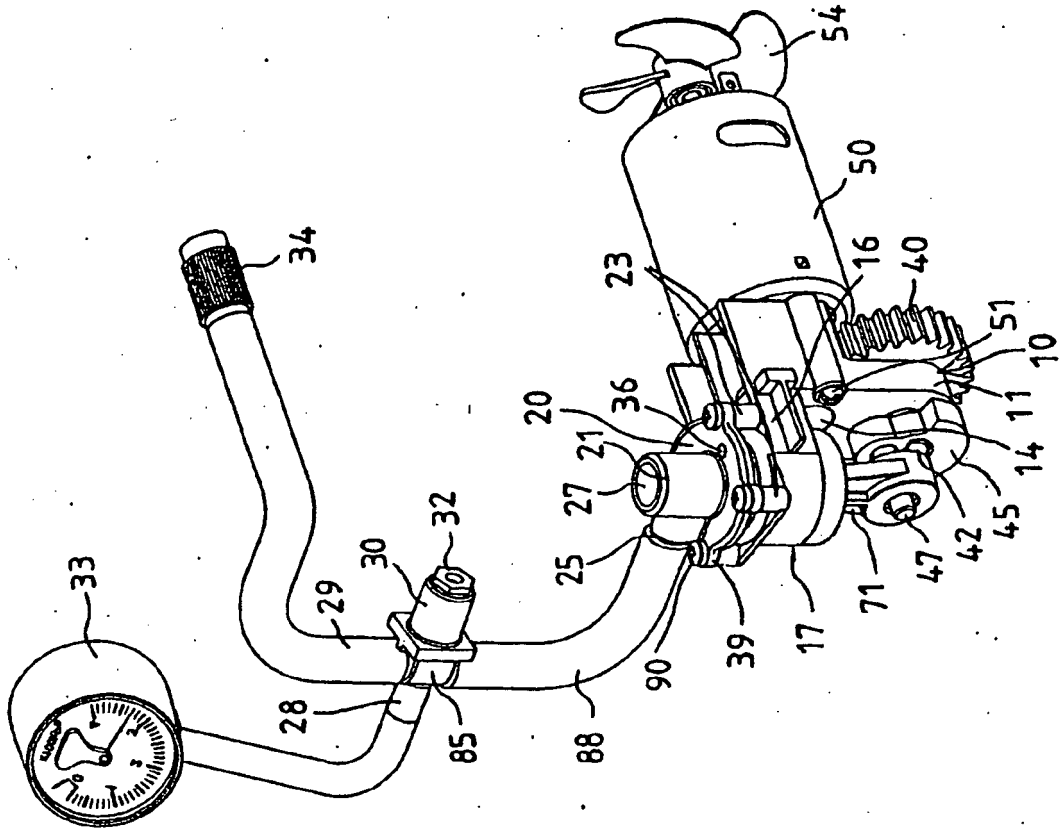


FIG. 7

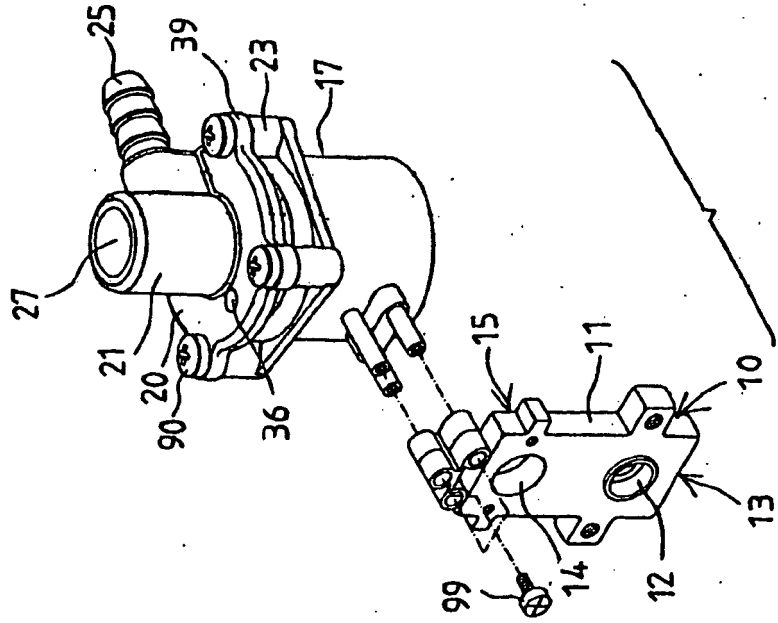


FIG. 8

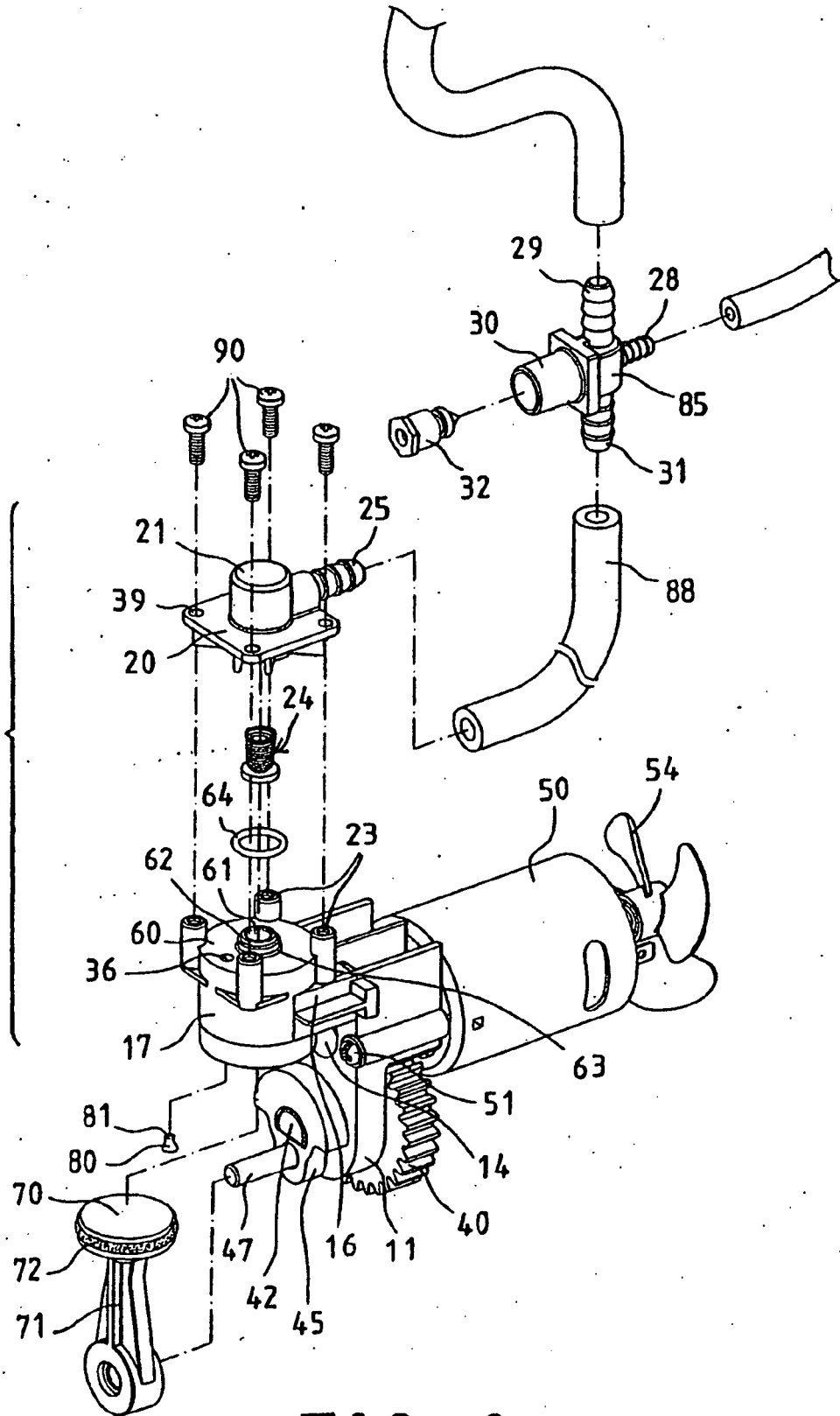


FIG. 9

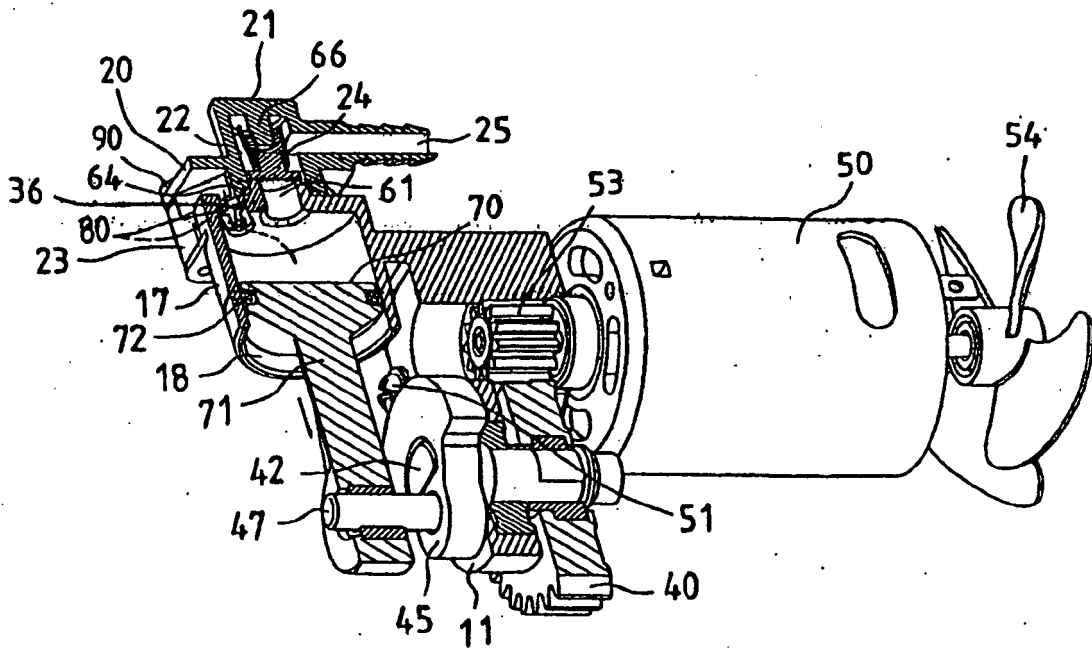


FIG. 10

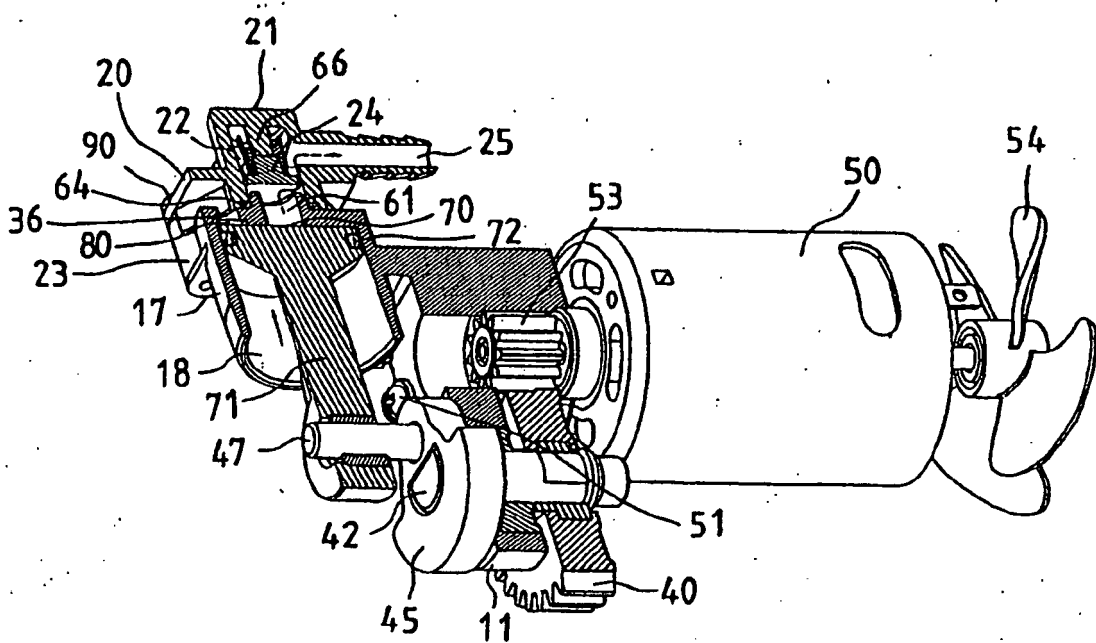


FIG. 11

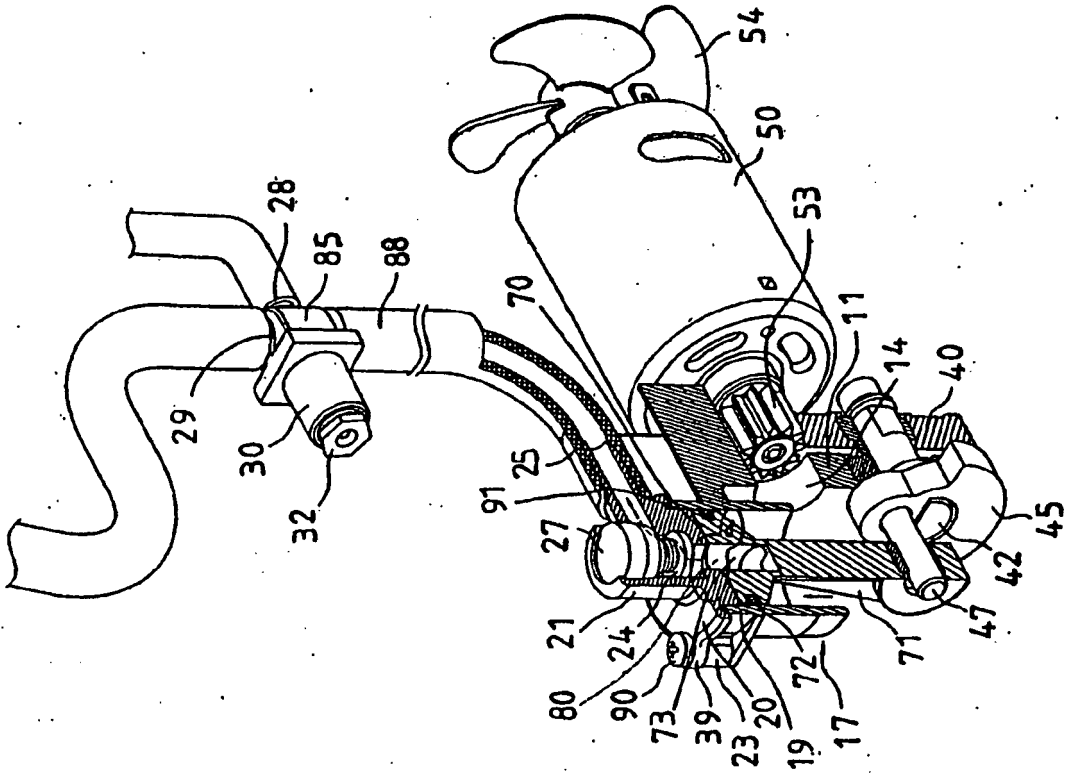


FIG. 14

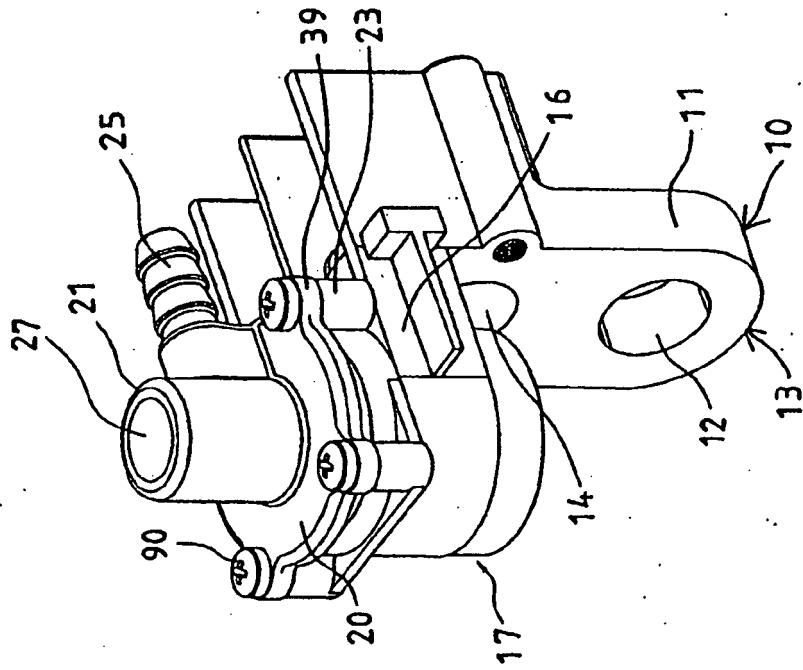


FIG. 12

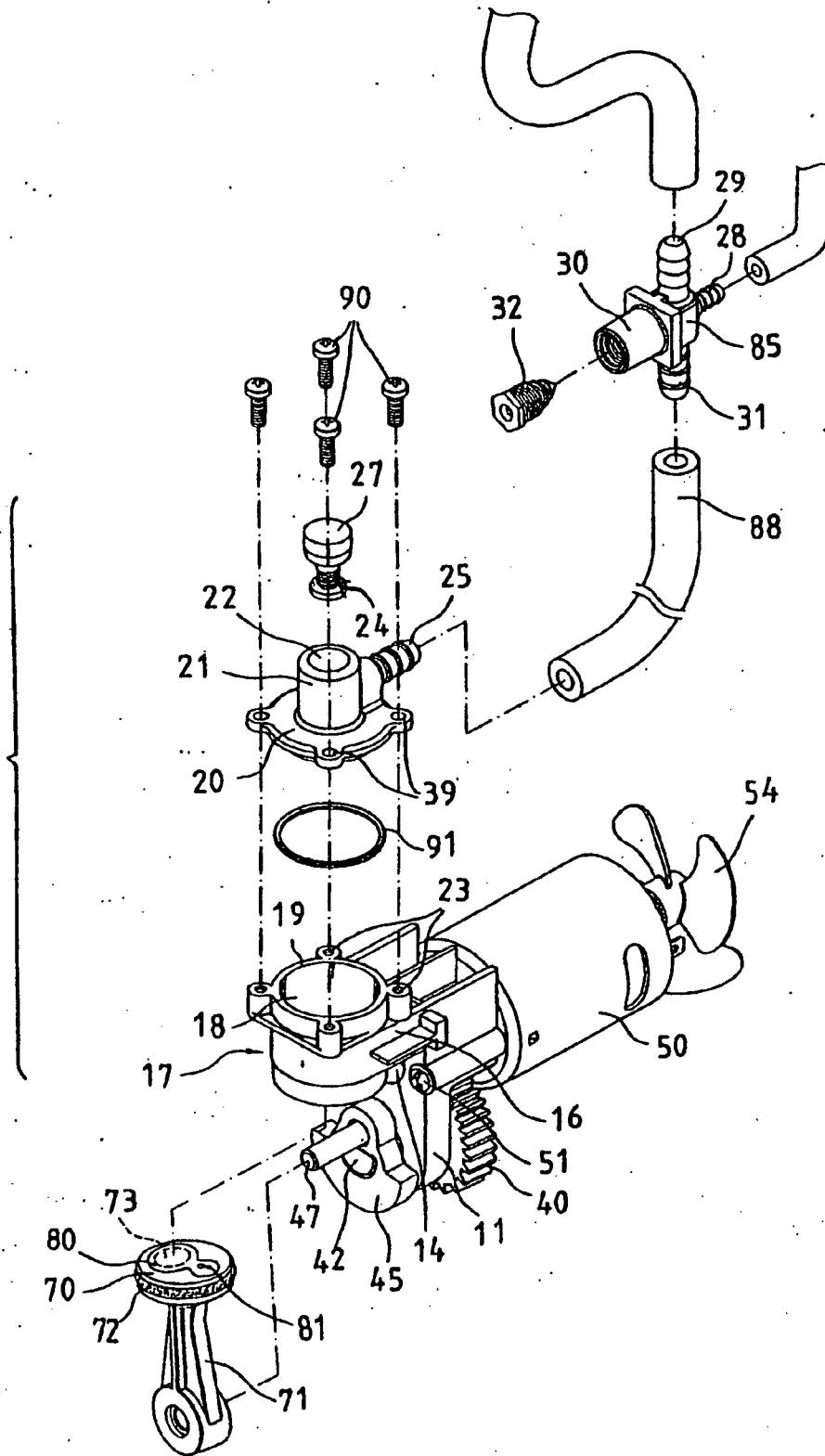


FIG. 13

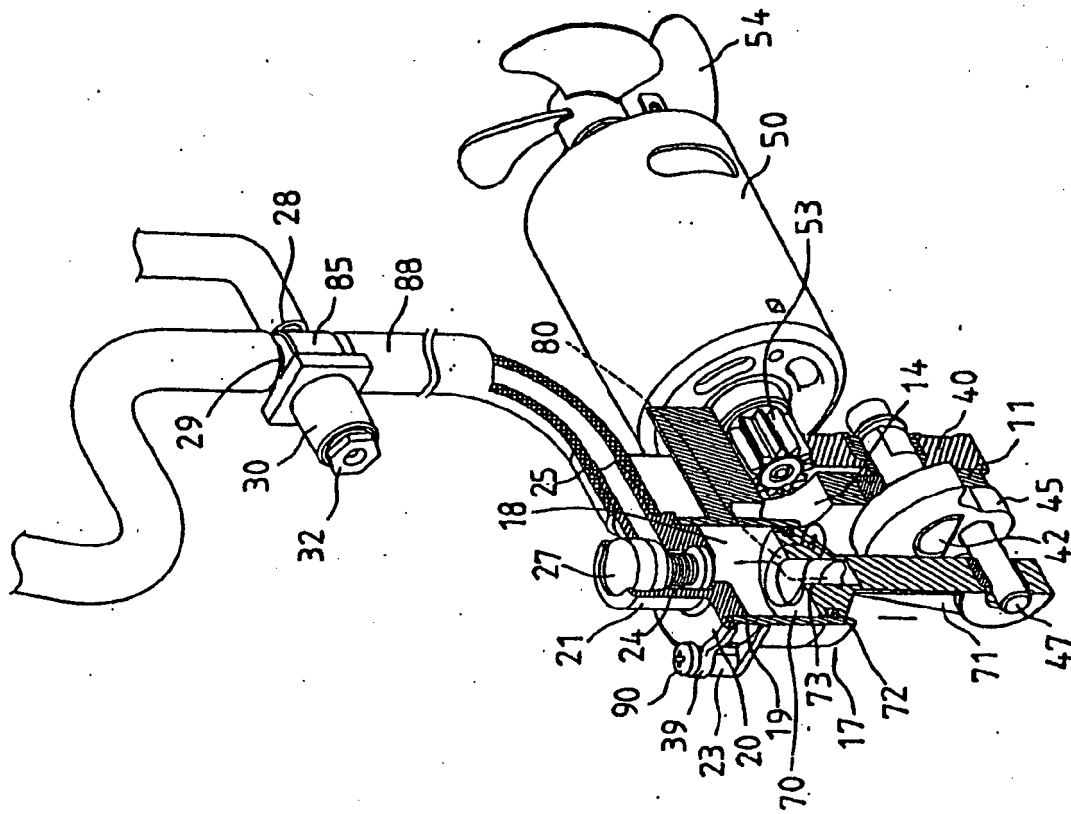


FIG. 15

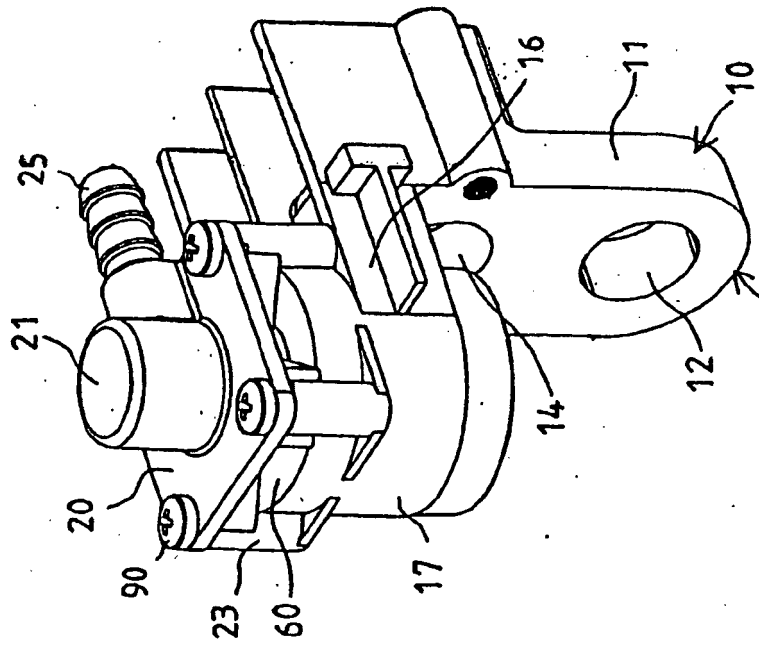


FIG. 16

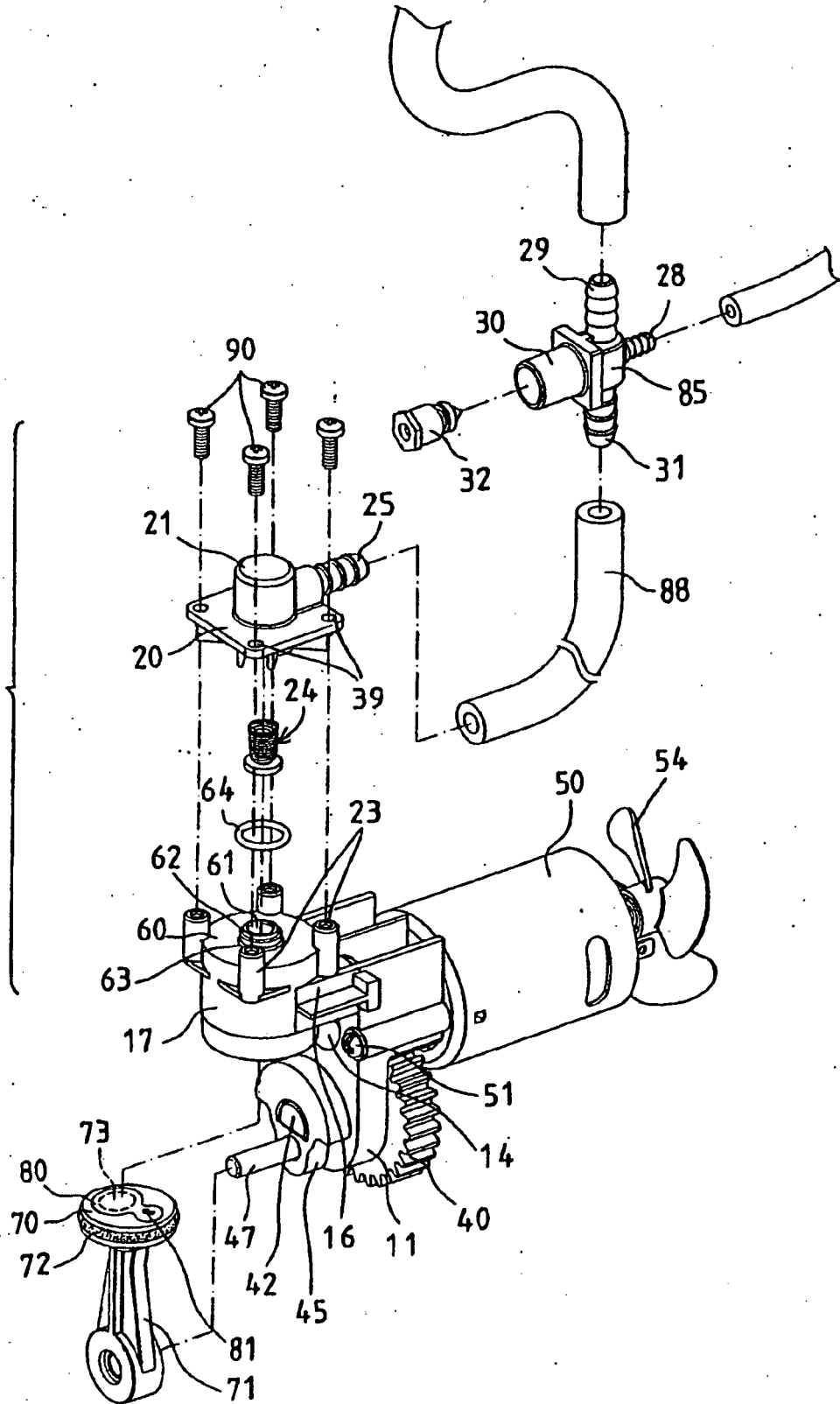


FIG. 17

REFERENCES CITED IN THE DESCRIPTION

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