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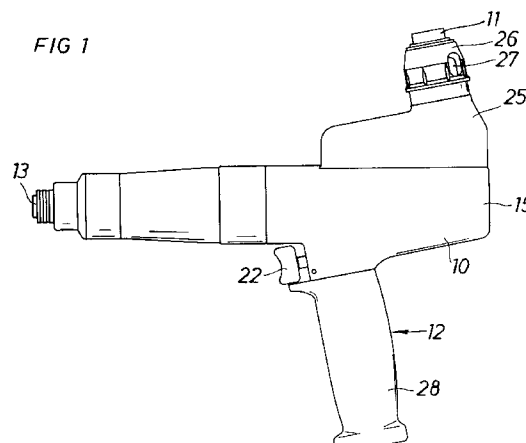
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(54) **A hand held power tool.**

(57) A hand held power tool including a housing (10), a motor (14), a pistol type handle (12) extending from the housing (10) substantially perpendicularly to the application direction of the tool, and a power communication means (16, 20, 23) including a power supply controlling means (20) for controlling the motive power supply from a power supply conduit to the motor, wherein the power communication means (16, 20, 23) inclusive of the power supply controlling means (20) is separated from the handle (12). The handle (12) comprises a trigger (22) for operating the power supply controlling means (20) and a detachable grip means (28) which forms part of a set of interchangeable grip elements (28, 28', 28'') of different sizes and/or shapes to fit different operators.



This invention relates to a hand held power tool, in particular a power tool having a housing, a motor, a pistol type handle extending from the housing substantially perpendicularly to the application direction of the tool, and a power communication means including a power supply controlling means for controlling the motive power supply from a power supply conduit to the motor.

In power tools of the above type there is a problem for some of the operators using the tool to get a safe and comfortable grip around the handle, because people, for example men and women, have different sized hands. This means that a big size tool handle is comfortable for a person with big hands, whereas a person with smaller hands may find it difficult to obtain a safe and comfortable grip on such a handle. Oppositely, a slimmer handle fits a person with relatively small hands, whereas a person with bigger hands would find it awkward and tiresome to grasp such a small handle.

Accordingly, it is a problem to provide a power tool of the above type with a handle that from the ergonomic point of view would fit all operators.

It is the main object of the invention to solve the above problem, which is accomplished by the invention as it is defined in the claims.

A preferred embodiment of the invention is below described in detail with reference to the drawings.

On the drawings:

Fig 1 shows a side elevation of a power tool according to the invention.

Fig 2 shows a longitudinal section through the rear part of the tool in Fig 1.

Figs 3 and 4 show exchangeable grip elements of different sizes.

The power tool shown as an example in the drawing figures is a pneumatic power wrench and comprises a housing 10, a pressure air supply hose connection 11, a pistol type handle 12 and an output shaft 13. The latter is coupled to a pneumatic vane motor 14 via a mechanical power transmission (not shown).

The pressure air supply hose connection 11 is located at the upper end of an air inlet pipe 16 which is threaded into a socket portion 17 in the rear end portion 15 of the housing 10. This socket portion 17 has a direction substantially opposite the handle 12, which means that when the tool is used with the handle 12 directed downwardly, which normally is the case, the inlet pipe 16 is directed upwards.

In the rear end portion 15 of the housing 10, there is mounted a throttle valve 20 of the tilting type sealingly cooperating with a seat 21. The valve 20 is operated by a common pistol type trigger 22 on the handle 12. The trigger 22 is provided with an extension rod 19 to reach the stem of the valve 20.

Downstream of the throttle valve 20, an air feed passage 23 leads pressure air from the valve 20 to the

motor 14. The exhaust air from the motor 14 is vented from the housing 10 through a number of openings 24 into an outlet casing 25. The latter is mounted on top of the tool housing 10 and surrounds the air inlet pipe 16. At its upper end, the outlet casing 25 is provided with a rotatable outlet sleeve 26 comprising one or more openings 27 for directing the exhaust air flow as desired.

Since the outlet casing 25 and sleeve 26 surround the inlet pipe 16 in a coaxial relationship, a hose for ducting away the exhaust air from the tool may be attached in a coaxial disposition relative to the pressure air supply hose. Such an exhaust hose is connected directly on the outlet sleeve 26.

The pistol type handle 12 comprises a grip element 28 which is formed with a socket portion 29 of square cross section for fitting on a projection 30 of a corresponding cross section on the housing 10. The grip element 28 is secured to the housing 10 by a screw 31 which is inserted through a stepped bore 32 in the grip element 28 and which engages a threaded bore 33 in the square projection 30. The grip element 28, which is easily removable, is one of a set of interchangeable grip elements of different sizes.

In Figs 3 and 4 there are shown two grip elements which together with the one mounted on the tool in Fig 1 form part of a set of interchangeable grip elements. The grip element 28¹ in Fig 3 is slimmer than the one fitted to the tool in Fig 1 so as to provide a safer and more comfortable handling of the tool for a person with small hands. The grip element 28¹¹ shown in Fig 4 on the other hand is thicker than the others to fit a person with big hands.

In a power tool according to the invention, it is not only possible to use a number of differently sized grip elements as parts of a set delivered with the tool. It also makes it possible for each operator of the tool to use his or her own personal individually shaped grip element fitting the anatomy of his or her hand. The grip elements 28 are preferably made of moulded plastics.

Although the above described embodiment of the invention comprises a screw joint 31, 33 for securing the grip element 28 to the tool housing 10, it is to be understood that the invention is not limited to that specific design. Instead, a quickly releasable snap mechanism may be used to facilitate grip element changes.

Neither is the invention limited to the very design of the tool housing projection 30 extending in the longitudinal direction of the handle 12. Within the idea of the invention, the housing 10 and the grip element 28 may be formed with a dove tail coupling means such that the grip element 28 is mounted on the housing 10 by sliding along the latter into its correct position and being locked therein by a screw joint or a snap means.

It is also important to note that although it is described above in connection with a pneumatically pow-

ered tool, the invention is not specifically related to that type of tool, but is as well applicable on electrically powered tools.

Claims

1. A hand held power tool, comprising a housing (10), a motor (14), a pistol type handle (12) extending from said housing (10) substantially perpendicularly to the application direction of the tool, and a power communication means (16, 20, 23) including a power supply controlling means (20) for controlling the motive power supply from a power supply conduit to said motor (14), **characterized in** that said power communication means (16, 20, 23) is separated from said handle (12), and that said handle (12) comprises on one hand a trigger (22) for operating said power supply controlling means (20), and on the other hand a grip element (28) detachably mounted on said housing (10). 10 15 20
2. Power tool according to claim 1, wherein said grip element (28) is one of a number of interchangeable grip elements (28, 28¹, 28¹¹) of different sizes and/or shapes fitting different operators. 25
3. Power tool according to claim 1 or 2, wherein said housing (10) comprises a projection (30) of non-circular cross section to be received in a socket portion (29) of corresponding cross section in said grip element (28), and a fastening means (31, 33) associated with said projection (30) for securing said grip element (28) to said housing (10). 30 35
4. Power tool according to claim 3, wherein said projection (30) extends in the longitudinal direction of said handle (12). 40
5. Power tool according to claim 3 or 4, wherein said fastening means (31, 33) comprises a threaded bore (33) in said projection (30) and a screw (31) extending longitudinally through said grip element (28) and engaging said threaded bore (33). 45

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FIG 1

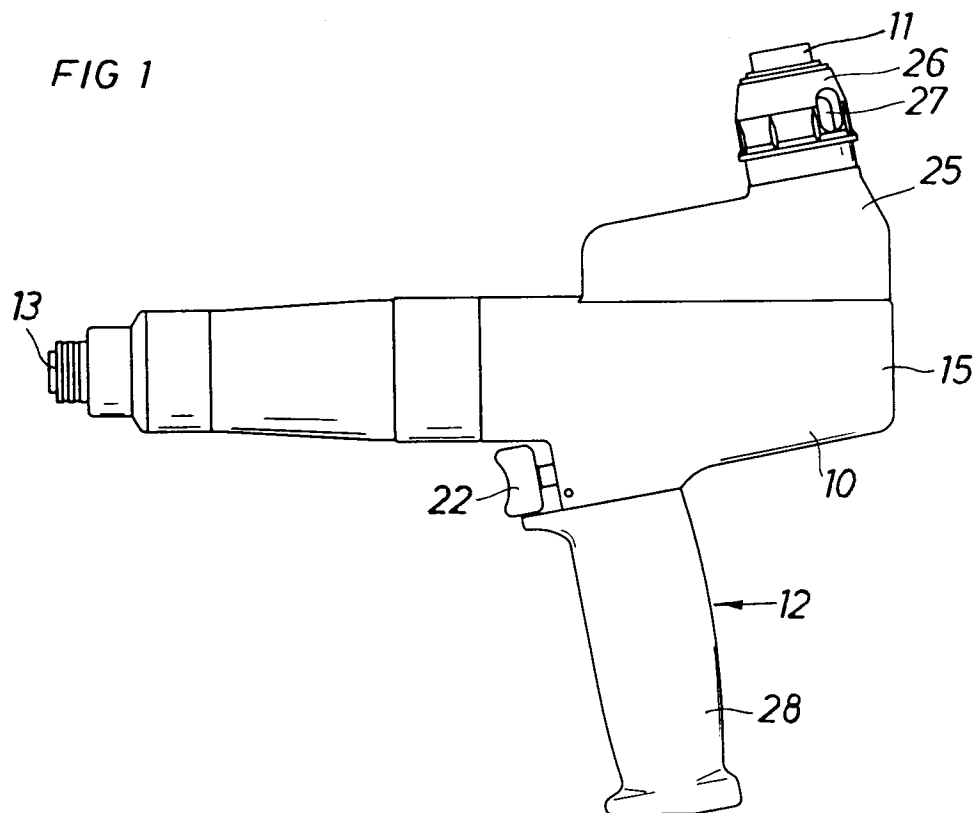


FIG 3

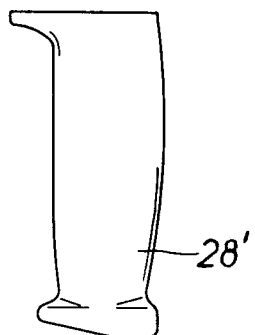


FIG 4

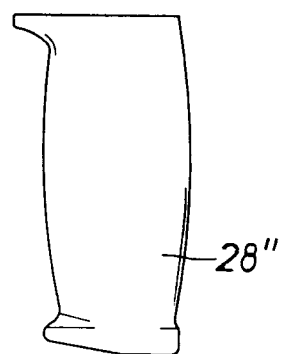


FIG 2

