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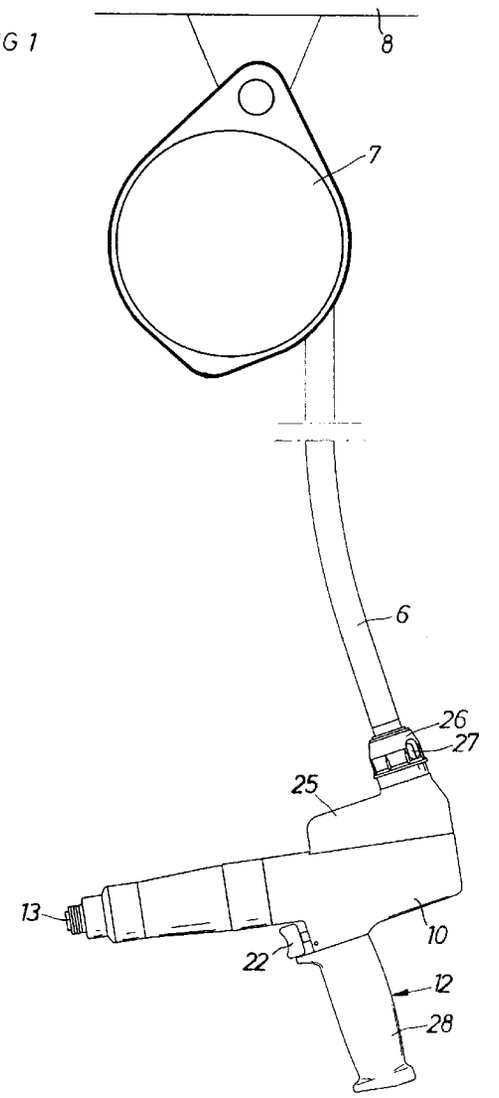
(54) Pneumatic power tool.

(57) A pneumatic power tool including a housing (10), a motor (14), an air inlet passage (23) in the housing (10) communicating with the motor (14), a pistol type handle (12) extending from the housing (10) substantially perpendicularly to the application direction of the tool, and an air communication means (16, 20, 23) for connecting the air inlet passage (23) to a pressure air supply conduit connected to the tool, wherein the air communication means (16, 20, 23) is separated from the handle (12) and comprises an air supply passage forming member (16) connected to the rear part of the housing (10), and an exhaust air passage forming means (25, 26) having an outlet portion (26) coaxially disposed relative to the air supply passage forming means (16).

FIG 1



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This invention relates to a pneumatic power tool, in particular a pneumatic power tool comprising a housing, a motor, an air inlet passage in the housing communicating with the motor, a pistol type handle extending from the housing substantially perpendicularly to the application direction of the tool, and an air communication means for connecting the air inlet passage to a pressure air supply conduit connected to the tool.

In practically all prior art pneumatic power tools of the above type, the air communication means, i.e. inlet and exhaust passages, are located in the handle. This means that the pressure air supply hose as well as the exhaust air ducting hose, when used, are connected to the lower end of the handle. In working areas where the tool is used in horizontal application directions, which is the most common application for pistol handle tools, and the pressure air hose extends from a hose reel located above the working area of the tool, the air hose connected to the lower end of the handle causes an awkward handling of the tool.

Prior attempts to solve this problem have comprised the employment of a U-shaped pipe between the tool handle and the air hose, thereby obtaining a closer bend of the line in that the hose itself is not bent. However, the handling of the tool is not really improved since the hose still runs in parallell with the handle.

Another problem concerned with pistol handle type pneumatic tools having the exhaust passage located in the handle is the undesirable cooling of the handle. This is the case, for example when ducting away of the exhaust air is desired via a hose connected coaxially with the pressure air supply hose.

The above problems are solved by the invention as it is defined in the claims.

An embodiment of the invention is described below in detail with reference to the accompanying drawings.

On the drawings:

Fig 1 shows a pneumatic power tool according to the invention suspended by the pressure air hose in a weight balancing hose reel.

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

The tool shown on the drawings is a pneumatically powered screw tightening tool which is suspended in its working position by a pressure air supply hose 6 connected to the tool. The hose 6 is wound on a weight balancing hose reel 7, which is mounted on a firm overhead building structure like a beam 8.

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

The connection 11 for the pressure air supply hose 6 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 and perpendicular to the application direction of the tool, which is in the axial direction of the output shaft 13. This means that when the tool is used with the handle 12 directed downwards, which is normally the case, the inlet pipe 16 is directed upwards.

In the rear end portion 15 of the housing 10, there is mounted a tilting type throttle valve 20 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 which surrounds the inlet pipe 16 in a coaxial relationship and which comprises 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 coaxially with 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.

As being apparent from Fig 1, the air communication means in the form of the upwardly directed inlet pipe 16 and the exhaust casing 25 provides for a more comfortable handling of the tool, since the upwardly running pressure air supply hose 6 does not interfere with the grip area around the handle 12. It is also clearly illustrated that the air hose 6 very well may be used for suspending the tool in a balancing device. Thereby, the commonly used suspension yoke on the tool and the suspension cable coupling the tool to a balancing reel may be omitted.

It is important to note, however, that the invention is not limited to the specific inlet pipe location illustrated in the described example. The invention relates to a handle separated tool housing mounted air communication means with coaxial air supply and air exhaust passages, and the very location of these

means may be varied within the scope of the claims in order to adapt the tool to various working conditions. For instance, the air communication means may be located at the rear end wall of the housing 10 to facilitate operation of the tool in a downward direction.

Claims

1. A pneumatic power tool, comprising a housing (10), a motor (14), an air inlet passage (23) in said housing (10) communicating with said motor (14), a pistol type handle (12) extending from said housing (10) substantially perpendicularly to the application direction of the tool, and an air communication means (16, 20, 25, 26) for connecting said air inlet passage (23) to an external pressure air supply conduit (6), **characterized in** that said air communication means (16, 20, 25, 26) comprises an air supply passage forming member (16) rigidly connected at its one end to the rear part of said housing (10) separate from said handle (12), and an exhaust air passage forming means (25, 26) having an outlet portion (26) which is disposed in a substantially coaxial relationship with said air supply passage forming member (16).

2. Power tool according to claim 1, wherein said outlet portion (26) comprises a coupling means for connection of an exhaust air conduit in a coaxial relationship with said pressure air supply conduit (6).

3. Power tool according to claim 2, wherein said outlet portion (26) is rotatable for adjustability of the flow direction of the exhaust air.

4. Power tool according to anyone of claims 1-3, wherein said air supply passage forming member (16) extends from said housing (10) substantially perpendicularly to the application direction of the tool and substantially opposite to said handle (12).

5. Power tool according to anyone-of claims 1-4, wherein said air communication means (16, 20, 25, 26) comprises a throttle valve (20), and a trigger (22) located on said handle (12) is arranged to operate said throttle valve (20) via a coupling element (19).

FIG 1

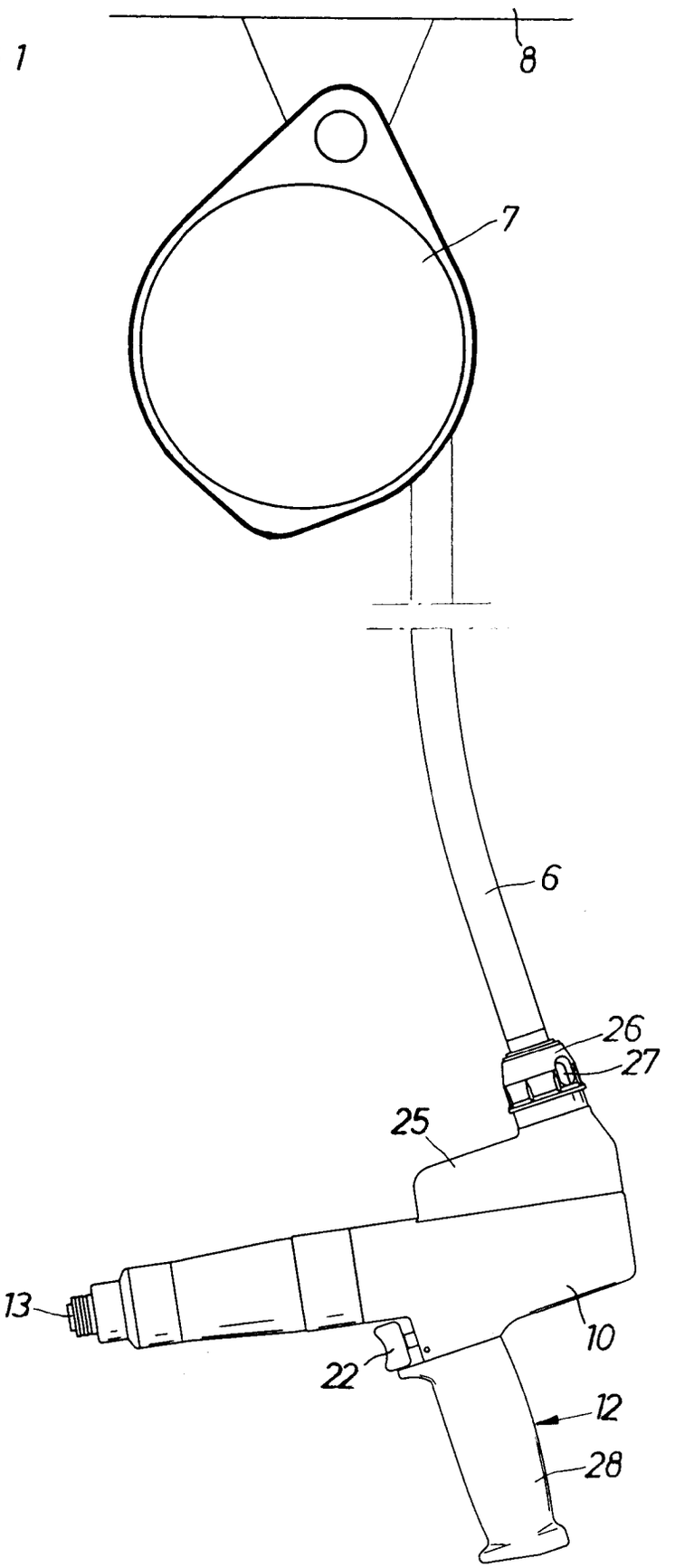

FIG 2