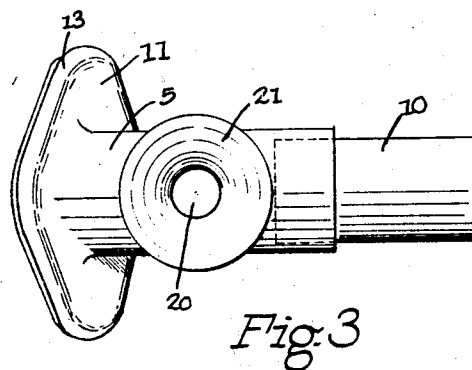
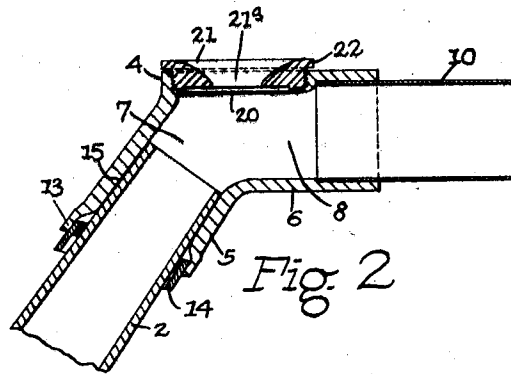
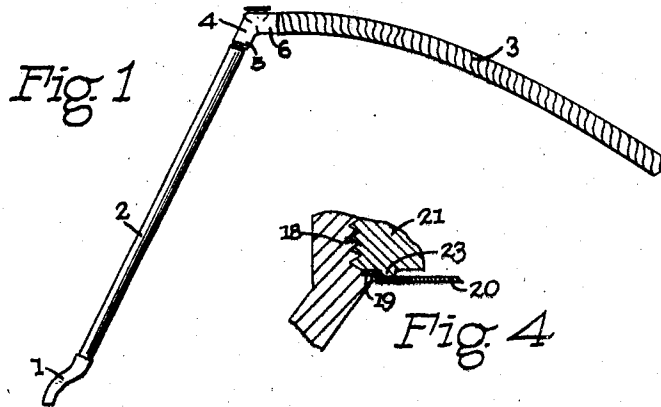


Dec. 15, 1925.

1,565,382

S. McCLATCHIE
VACUUM CLEANER DEVICE

Filed May 7, 1924



Patented Dec. 15, 1925.

1,565,382

UNITED STATES PATENT OFFICE.

STANLEY McCLATCHIE, OF STUTTGART, GERMANY.

VACUUM-CLEANER DEVICE.

Application filed May 7, 1924. Serial No. 711,610.

To all whom it may concern:

Be it known that I, STANLEY McCLATCHIE, a citizen of the United States of America, and a resident of Stuttgart, Germany, have invented certain new and useful Improvements in Vacuum-Cleaner Devices, of which the following is a full, clear, and exact description.

This invention relates to vacuum cleaners and has for its object the provision of new, improved and simplified means for indicating to the operator the relative quantity of dirt or dust passing through the discharge conduit, thus apprising him as to the extent to which the cleaning operation has proceeded. While it has been proposed to employ visual indicating means for this purpose, such devices have usually proven inadequate for the purpose in view since the glass or other transparent medium becomes fouled and clouded so quickly as to render it useless. Among the objects of the present invention is the provision of simple and efficient means for indicating the passage of dust or dirt through the cleaner which shall be of such a character that its indications shall be reliable even after long use and which shall be capable of indicating the passage of even minute particles of solid matter; the provision of an indicating device for the purpose in question which shall be free from fouling, breakage or other deterioration; the provision of an indicating device for the purpose described wherein the passage of dust or dirt through the suction conduit will produce audible sounds; while further objects and advantages of the invention will become apparent as the description proceeds.

In the drawings accompanying and forming a part of this application I have shown one physical form in which my improvements may be embodied, though it will be understood that these are intended to be merely illustrative of the principles of my invention and not to be exhaustive of physical constructions. Fig. 1 is a side elevation illustrating the application of my improvements to use with a floor nozzle and suction hose; Fig. 2 is a longitudinal vertical sectional view through the dust indicator and associated parts shown in Fig. 1; Fig. 3 is a top plan view of the parts shown in Fig. 2; and Fig. 4 is a fragmentary detail view to enlarged scale illustrating one means for tensioning the diaphragm.

In these drawings I have shown a floor cleaning nozzle 1 of the usual or any suitable type carried by the end of a rigid tube 2 and connected to a suitable suction hose 3 which leads from any suitable suction producing device (not shown). For joining the tube and hose I have illustrated a connector device 4 comprising a pair of angularly disposed and divergent tubular members 5, 6, defining angularly disposed passageways 7 and 8. I have shown the member 6 as provided with a nipple 10 for the attachment of the hose 3, although any suitable arrangement can be employed; and I have also shown the outer end of the member 5 as provided with a transverse elongated nozzle casing 11 terminating in depending lips 13 defining a long and narrow suction mouth whose lips are further provided with flexible margins 14, and whose throat is made round and slightly tapered as at 15 for the snug reception of the tube 2, enabling the instantaneous separation or connection of the parts thus providing either a short nozzle for upholstery or a long nozzle for floors and draperies; although it will be understood that this is a feature which may or may not be employed in connection with my improved indicator.

At the upper portion of the connector device 4 and preferably in the top of the member 6 adjacent the junction of the latter with the member 5, that is to say, at a point at the outside of the angle formed between the passageways 7 and 8 there is provided an opening which is externally screw threaded as at 18. This opening provides an annular flange 19 for supporting the edges of a circular diaphragm 20. This diaphragm is preferably of some thin and resonant material, such for example as spring steel. For retaining the diaphragm in position upon the flange 19, a ring 21 is provided, such ring being screw threaded upon its peripheral surface for engagement with the screw threads 18 and being knurled at its edge as indicated at 22 for ease of manipulation. This ring is provided with a central opening 21^a giving access to the upper surface of the diaphragm and is preferably provided at a point inwardly of the edge of the flange 19 with an annular rib or bead 23. When the ring 21 is screwed into engagement with the upper surface of the diaphragm, the rib 23 engages the diaphragm and serves to tension the latter in-

wardly of the seat formed by the flange 19. The resonant qualities of the diaphragm may thus be substantially increased.

During the operation of the device, whether with or without the extension tube 2, the current of air flowing through the passage is caused to impinge upon the inner surface of the diaphragm 20, such action being accentuated by reason of the location of such diaphragm at the outer side of the angle formed in the passage. The particles of dust or dirt carried by the air current strike this diaphragm producing an audible sound whereby the operator is able to determine as to the passage of such particles and with a little practice to estimate very closely as to the relative quantity of such particles passing. It is thus possible to determine whether the suction apparatus is functioning properly and when the dirt has been removed to the desired extent from the article being cleaned.

While I have here shown my improved indicator as used in connection with a particular kind of connecting device, it will be understood that the same is not limited to use in this relation since it is immaterial to

the present invention whether the short nozzle or the long nozzle be employed or whether it be used with a flexible hose, or some other type of cleaner since it might equally well be mounted at any desired point in a suction conduit of any suitable or desired type; and that while certain materials and certain relations of parts have been mentioned as desirable and useful, the same are intended to be merely illustrative and I do not limit myself in any wise except as set forth in my several claims.

Having thus described my invention what I claim is:

1. In combination with a cleaning apparatus having a passage for air mingled with solid particles, a member arranged for impingement by said particles whereby audibly to indicate their presence.

2. A cleaning apparatus having a passage for air mingled with solid particles, and a diaphragm positioned for impingement by said particles whereby audibly to indicate their passage.

In testimony whereof, I hereunto affix my signature.

STANLEY McCLATCHIE.