W. J. WISE AND T. O. ADAMS.

VACUUM CLEANER.

APPLICATION FILED JUNE 3, 1921.

1,428,734.

Patented Sept. 12, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

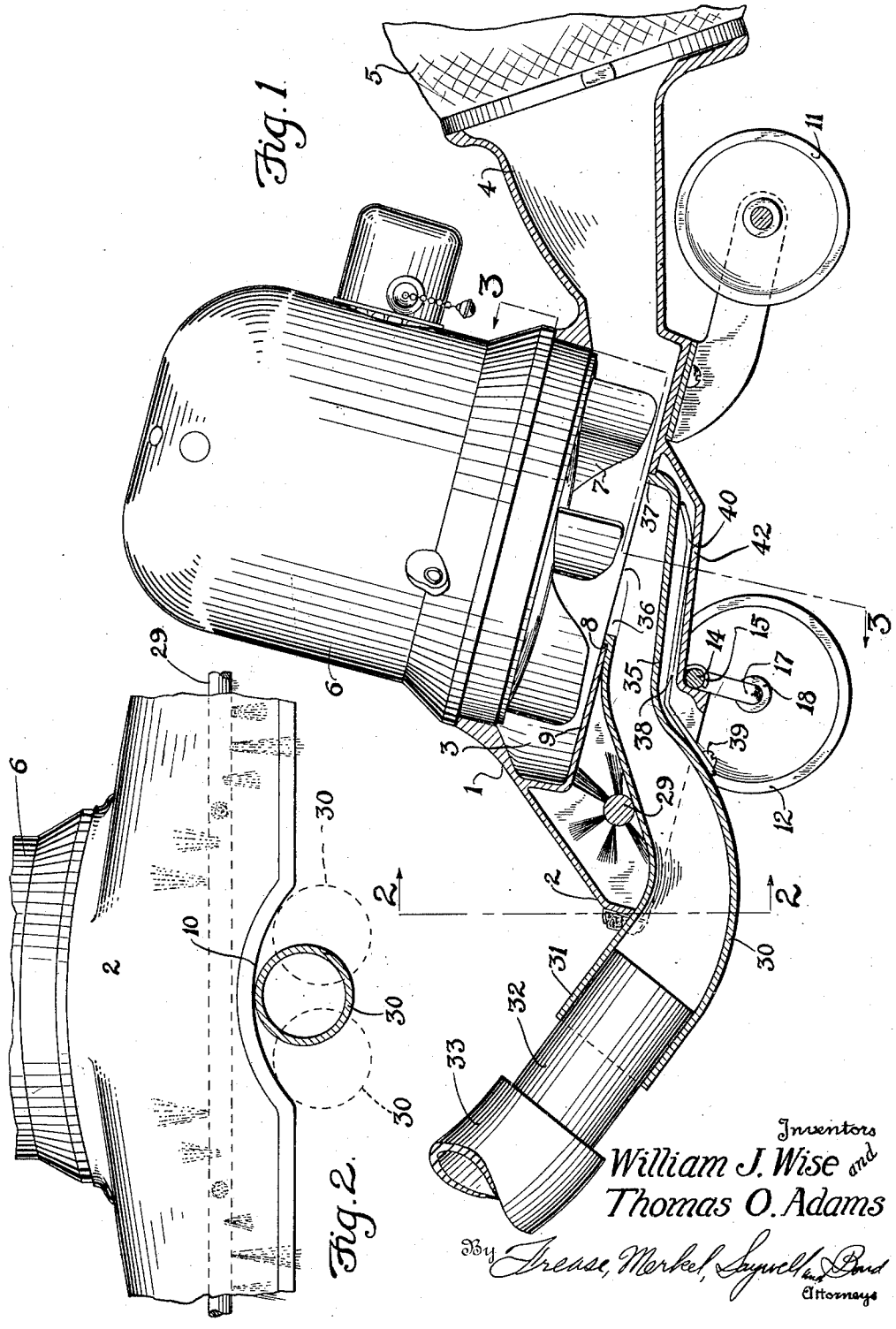


Fig. 2.

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3 SHEETS—SHEET 2.

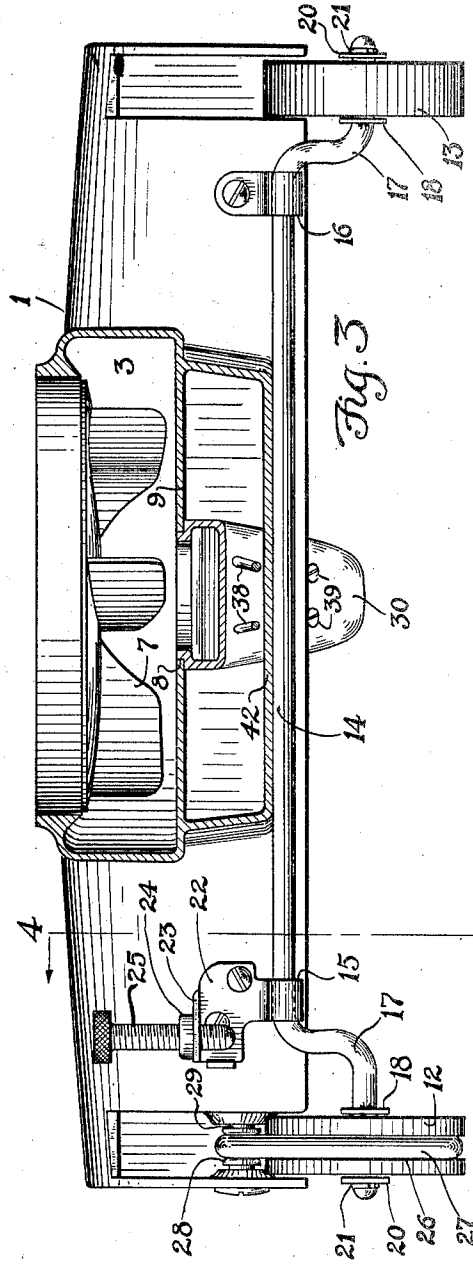


Fig. 3.

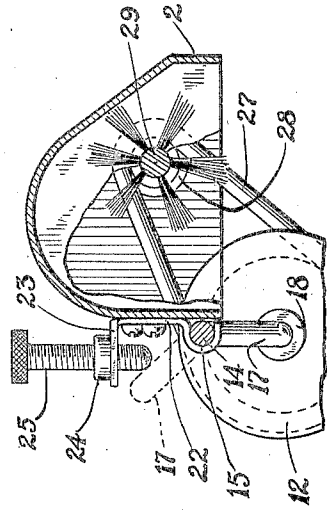


Fig. 4.

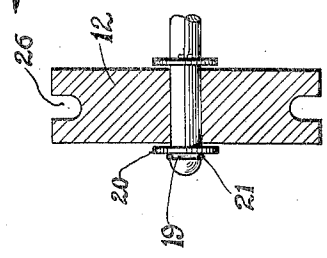


Fig. 5.

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3 SHEETS—SHEET 3.

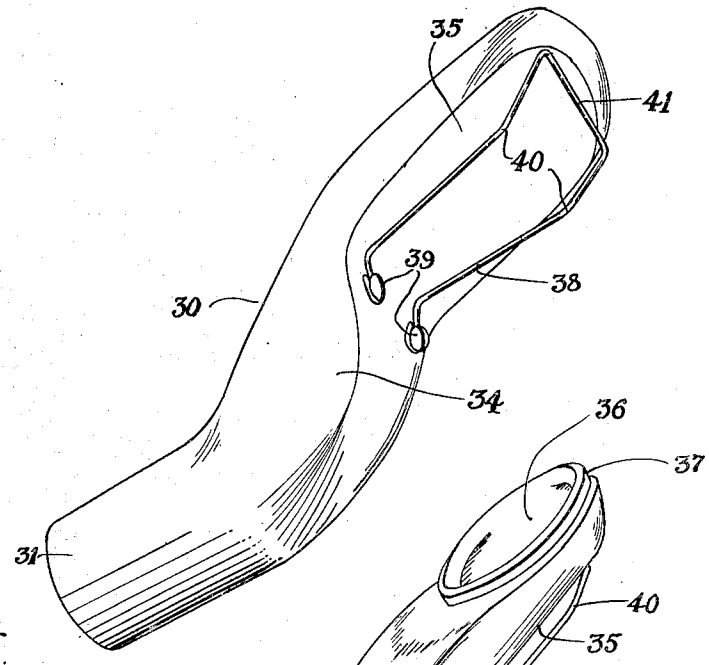


Fig. 6.

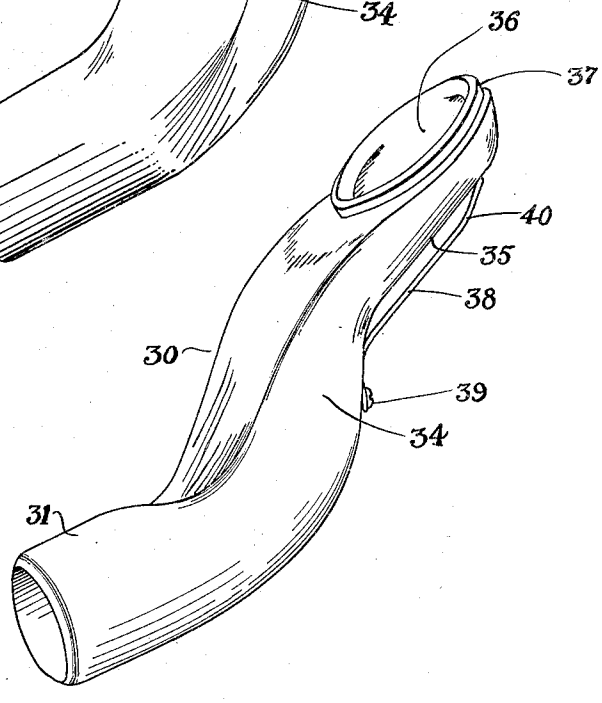


Fig. 7.

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Patented Sept. 12, 1922. 1,428,734

UNITED STATES PATENT OFFICE.

WILLIAM J. WISE AND THOMAS O. ADAMS, OF NEW PHILADELPHIA, OHIO, ASSIGNORS TO THE WISE-McCLUNG MANUFACTURING COMPANY, OF NEW PHILADELPHIA, OHIO, A CORPORATION OF OHIO.

VACUUM CLEANER.

Application filed June 3, 1921. Serial No. 474,672.

To all whom it may concern:

Be it known that we, WILLIAM J. WISE and THOMAS O. ADAMS, citizens of the United States, both residing at New Philadelphia, in the county of Tuscarawas and State of Ohio, have invented a new and useful Vacuum Cleaner, of which the following is a specification.

This invention relates to vacuum cleaners and more particularly to a cleaner provided with a removable attachment for connecting the usual flexible hose by means of which various forms of nozzles and brushes may be used in connection with the suction for cleaning draperies, upholstery and the like.

The objects of the invention are to provide a vacuum cleaner with means for connecting an attachment, of the character described, directly to the fan chamber of the cleaner, the attachment being adapted to be projected through the nozzle of the sweeper and into a suitable aperture in the fan chamber, means being provided for normally holding the attachment in place after it has been inserted. Other objects are the provision of means upon the cleaner for raising the nozzle of the cleaner above the surface of the floor a sufficient distance to allow the attachment to be inserted and operated conveniently.

The above, together with ancillary objects may be attained by providing an eccentric shaft or axle journaled in suitable bearings near the forward end portion of the cleaner and carrying the traction wheels and by providing a suitable opening into the under wall of the fan chamber, the attachment comprising a curved tubular member arranged to be inserted through the nozzle of the cleaner and provided with a collar arranged to be received in said opening, a spring being provided for holding the attachment in the operative position, the outer end of the attachment being arranged to receive the usual nipple of the flexible hose to which the usual nozzles and brushes may be connected.

With these objects in view, the invention consists in the construction and arrangement of parts, hereinafter described and illustrated in the accompanying drawings, it being understood that various changes in the form and details of construction may be made within the scope of the appended claims.

The invention thus set forth in general terms is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal, sectional view through a sweeper constructed in accordance with the invention and showing the attachment embodying the invention connected thereto;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a section on the line 3—3, Fig. 1;

Fig. 4 is a section on the line 4—4, Fig. 3;

Fig. 5 is a detail sectional view of one of the traction wheels and a portion of the shaft showing the means for attaching the wheel to the shaft;

Fig. 6 is a perspective view of the attachment showing the under side thereof; and

Fig. 7 is a perspective view of the upper side of the attachment.

Similar numerals of reference indicate corresponding parts throughout the several figures of the drawings.

The sweeper comprises generally the case 1 having the usual nozzle 2, the fan chamber 3 and exhaust outlet 4 leading to the usual dust bag 5, a motor 6 of usual construction being mounted upon the case above the fan chamber and having operatively connected thereto the usual rotary fan 7 which is located within the fan chamber and arranged to exhaust air from the nozzle into the fan chamber through the opening 8 provided in the lower wall 9 of the fan chamber.

All of these parts may be of any usual construction, the opening 8, however, being of suitable size and shape to receive the extremity of the attachment, as will be later described, the front wall of the nozzle having the shallow recess 10 which accommodates the attachment. The usual rear wheel 11 is provided upon the case and the forward wheels 12 and 13 are rotatably mounted upon the eccentric shaft 14 which is journaled in suitable bearings 15 and 16 mounted upon the case 1.

The shaft 14 is provided at each end beyond the bearings, with the off-set portions 17 upon which the wheels are journaled, a collar 18 being fixed upon each of these off-set portions at a point spaced from the extremity of the shaft, the wheel being jour-

naled upon the shaft and prevented from lateral movement upon the shaft by means of said collar, an annular groove 19 being provided near the extremity of each off-set portion 17 of the shaft.

A washer 20 is placed upon the end portion of the shaft in engagement with the wheel and a split ring 21 is forced into the groove 19, thus providing a simple and effective means for assembling the front wheels upon the shaft.

The bracket 22 which carries the bearing 15 is provided with the horizontal flange 23 having a tapped bearing portion 24 thereon through which is located the adjusting screw 25 arranged to engage the adjacent off-set portion 17 of the eccentric shaft, as shown in the dotted position in Fig. 4 for the purpose of holding the nozzle at the desired height above the carpet.

The wheel 12 is provided with the peripheral groove 26 for the reception of a resilient belt 27 which is located over the pulley 28 upon the brush shaft 29. When the eccentric shaft is in the position shown in Figs. 1, 3 and 4, it will be seen that this resilient belt will tend to hold the shaft in this position, urging the front wheels toward the brush shaft.

When the cleaner is adapted to be operated over the floor in the usual manner, the shaft is moved into the position shown in dotted lines in Fig. 4, the adjusting screw 25 engaging the adjacent off-set portion 17 of the shaft holding the front wheels in the desired position, the nozzle of the cleaner being thus held at the proper height above the floor.

With the shaft in this position, it will be seen that as the adjusting screw is moved downwardly to force the wheels downward, and raise the nozzle slightly above the floor, the tension upon the belt 27 will be increased, while as the parts are adjusted in the opposite direction, the tension upon the belt will be decreased. It will thus be seen that as the nozzle is adjusted away from the floor, such as is necessary for carpets having a long nap, a greater tension will be placed upon the belt, preventing slipping of the belt, due to the friction of the brush upon the long nap of the carpet.

The attachment which is connected to the sweeper for the purpose of attaching the usual flexible hose, which carries the various nozzles and brushes for cleaning draperies, upholstery and the like, is best shown in Figs. 6 and 7 and comprises the hollow curved tubular member indicated generally at 30 having the straight outer portion 31 adapted to receive the nipple 32 of the flexible hose 33.

The attachment is curved upwardly at its central portion as at 34 and provided with the slightly flattened, rearwardly projected portion 35 having an annular opening 36 in its upper face, said opening being surrounded by the shouldered, annular flange 37 of suitable size and shape to fit snugly within the opening 8 in the fan chamber.

A substantially U-shaped wire spring 38 is connected at its extremities to the curved portion 34 of the attachment as by the screws 39, the legs of said spring being curved or bent away from the flattened under surface of the attachment as at 40, the bar 41 of the spring engaging the under surface of the attachment near the rear end thereof.

In connecting the attachment to the sweeper, the shaft 14 is moved into the position shown in Figs. 1, 3 and 4, raising the case of the sweeper a considerable distance above the floor, allowing easy access to the nozzle. The flattened end of the attachment is then inserted through the nozzle and the annular flange 37 is engaged with the opening 8 in the bottom wall of the fan chamber, the spring 38 engaging the bottom wall 42 of the case and holding the attachment in engagement with the fan chamber, the straight portion 31 of the attachment extending through the nozzle and being seated in the shallow recess 10 in the front wall thereof.

The nipple 32 of the flexible hose may then be inserted into the straight end of the attachment and any desired nozzle or brush placed upon the free extremity of the hose. It will be seen that the flexible hose is connected directly to the fan chamber by means of the attachment above described.

The cleaner may be wheeled upon the floor to any desired point and the nozzle or brush upon the flexible hose may be easily operated therefrom. The attachment will be pivotally connected at the opening 8 and may be swung in either direction upon said pivot as shown in dotted lines in Fig. 2, the straight portion 31 of the attachment moving within the shallow recess 10 in the front wall of the nozzle of the cleaner, this pivotal movement of the attachment within the cleaner allowing for free movement of the flexible hose, without danger of overturning the sweeper.

We claim:

1. In a vacuum cleaner including a case containing a fan chamber and a nozzle having, an inlet mouth, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and into the fan chamber and adapted to be connected to a hose and spring means upon the attachment for engagement with the lower wall of the casing.

2. In a vacuum cleaner including a case containing a fan chamber and a nozzle having an inlet mouth, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and into the fan chamber and adapted to be connected to a hose, and

spring means for holding the attachment in place within the nozzle.

3. In a vacuum cleaner comprising a case including a nozzle having an inlet mouth and a fan chamber provided with an opening in its lower wall, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and provided with a flange arranged to be inserted into the opening in the fan chamber, said attachment arranged to be connected to a flexible hose and spring means upon the attachment for engagement with the interior of the nozzle.

4. In a vacuum cleaner including a case containing a fan chamber and a nozzle having an inlet mouth, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and into the fan chamber and adapted to be connected to a hose, and means for holding the attachment in place within the fan chamber.

5. In a vacuum cleaner including a case containing a fan chamber and a nozzle having an inlet mouth, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and into the fan chamber and means upon said attachment arranged to engage the lower wall of the case to normally hold the attachment in connection with the fan chamber.

6. In a vacuum cleaner comprising a case including a nozzle having an inlet mouth and a fan chamber provided with an opening in its lower wall, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and provided with a flange arranged to be inserted into the opening in the fan chamber and means for holding the attachment in place within the fan chamber.

7. In a vacuum cleaner comprising a case including a nozzle having an inlet mouth and a fan chamber provided with an opening in its lower wall, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and provided with a flange arranged to be inserted into the opening in the fan chamber, and a spring for holding the attachment in place within the nozzle.

8. In a vacuum cleaner comprising a case including a nozzle having an inlet mouth and a fan chamber provided with an opening in its lower wall, a tubular attachment arranged to be inserted through said inlet mouth and nozzle and provided with a flange arranged to be inserted into the opening in the fan chamber, and a spring upon said attachment arranged to engage the lower wall of the case to normally hold the attachment in connection with the fan chamber.

9. A vacuum cleaner including a case containing a fan chamber and a nozzle having an inlet mouth, and a tubular attachment inserted through said inlet mouth and nozzle and detachably connected with the fan chamber.

In testimony that we claim the above, we have hereunto subscribed our names.

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