

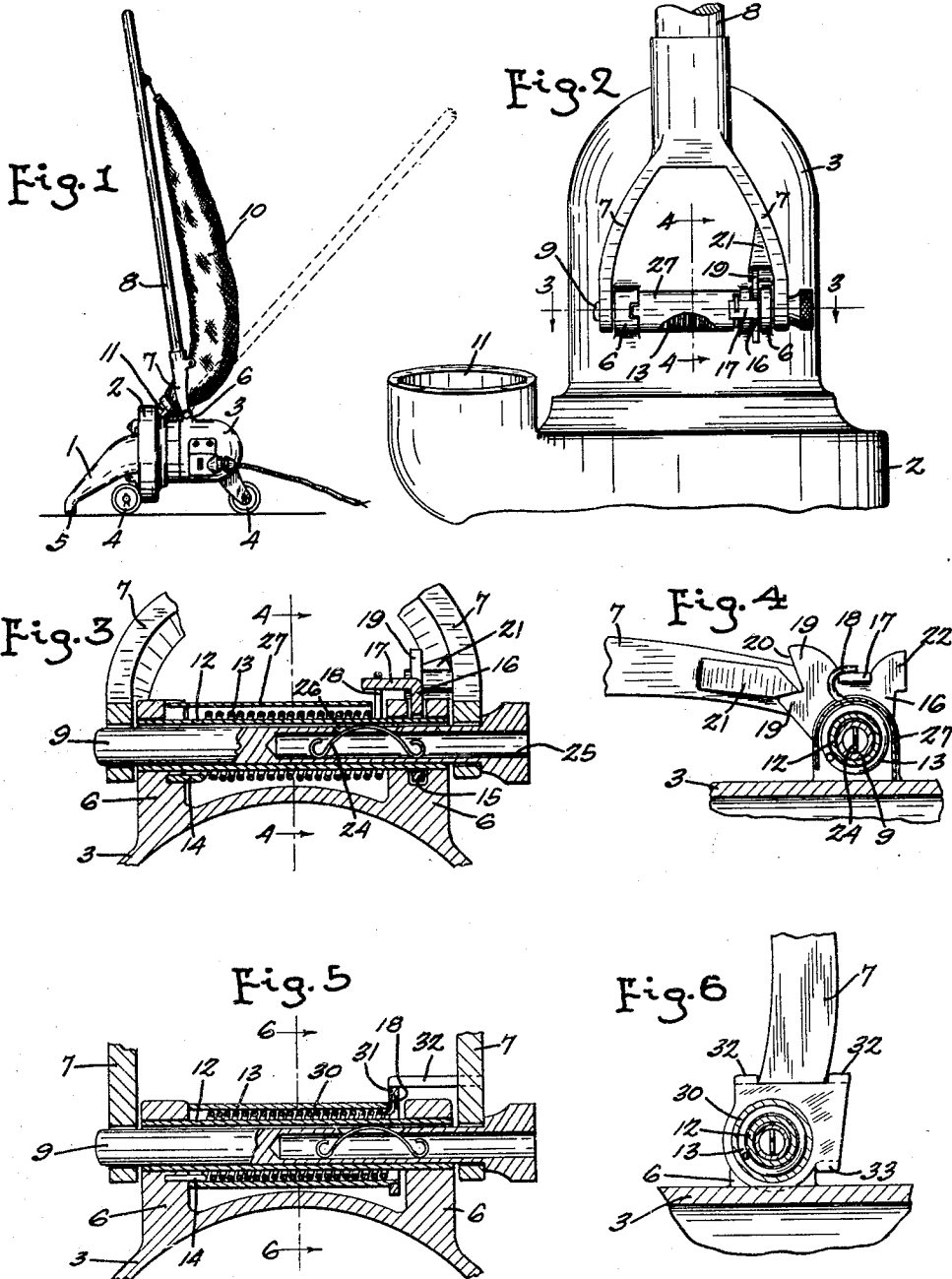
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PIVOTAL CONNECTION

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PIVOTAL CONNECTION

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This invention relates to pivotal connections and has for its object an improved connection between two pivoted members such as the handle and the casing of a vacuum cleaner whereby the handle is resiliently held in one position when the cleaner is not in use, without in any way impeding the ready disconnection of the parts upon occasion. Certain illustrative embodiments of my invention are shown in the drawing accompanying and forming a part of this application, in which Fig. 1 is a side elevation of a suction cleaner embodying my improvements; Fig. 2 is a top plan view drawn to enlarged scale of the cleaner shown in Fig. 1, the handle being turned until its axis is parallel to the axis of the cleaner casing; Fig. 3 is a view drawn to still further enlarged scale corresponding to the line 3—3 of Fig. 2; Fig. 4 is a sectional view corresponding to the line 4—4 of Fig. 3; Fig. 5 is a view similar to Fig. 3 showing a slightly modified construction; and Fig. 6 is a sectional view corresponding to the line 6—6 of Fig. 5.

The casing of the cleaner herein chosen for illustrative purposes comprises a collecting nozzle 1, fan casing 2, and motor housing 3 rigidly secured together in the order named from front to rear and supported by wheels 4—4 with the axis of the motor housing substantially horizontal and the inlet mouth 5 of the nozzle operatively presented to the supporting surface. Projecting upwardly from the top of the motor housing adjacent to the fan casing are two integral lugs 6, 6, embraced by the arms 7, 7, of a fork to which is secured the operating handle 8, said lugs, and also the extremities of the fork-arms being apertured for the reception of the horizontal pin 9 by which the fork is pivotally secured to the casing. Suspended from this handle near its free end is a dust bag 10, whose mouth is attached to the outlet neck 11 of the fan casing. The weight of this dust bag taken in conjunction with its mode of attachment to the cleaner casing renders it difficult for the handle 8 to remain upright, and to overcome this difficulty, and at the same time to secure certain advantages in the

operation of the cleaner itself, I have provided the following construction:

Through the apertures in the lugs 6, 6 I pass a horizontal, hollow, cylindrical, metal sleeve 12 closely embracing the pin 9, and around this sleeve in embracing relation I provide a helical spring 13, having one end rigidly anchored to one lug as shown at 14, and having the opposite end operatively but detachably secured to one arm of the handle fork. That may be effected in many ways, two of which are shown herein. In the form of the invention shown in Figs. 2, 3, and 4 one of the lugs 6 is formed with a deep, narrow slot 15 perpendicular to the axis of the sleeve 12 and receiving a movable metal fitting 16, which is apertured for the passage of the sleeve 12 in such wise that the fitting is rotatable about said sleeve while being held securely against removal. A tongue 17 integral with this fitting is bent laterally over the free end of the spring 13, and the latter is formed with a hook 18, interlocked with said tongue. A pair of fingers 19, 19 projecting from said fitting and defining between them a slot 20 receive between them a part of the handle fork of such as the ear 21; and another projection 22 carried by said fitting is formed to engage some part of the cleaner casing to constitute a stop for the handle when in the proper upright position. The direction of twist of the spring 13 is such as always to throw the handle upwardly. When the stop 22 is in engagement with the casing and the handle is upright, as shown in Fig. 1, the pin 9 can be withdrawn without difficulty and the handle released. To hold the pin against accidental removal I have shown a friction spring 24 therein, the same being made arcuate in shape and inserted in the hollow bore 25 with which said pin is formed, the bight of said spring projecting through a longitudinal slot 26 in the wall of said bore and pressing frictionally against the interior of the tube 12. I have also shown the spring 13 as concealed and protected by a sheet metal housing 27. In Figs. 5 and 6 I have shown a modified construction employing the same sleeve 12 and spring 13, but with a modified kind of

connecting fitting. In this modification the spring is surrounded by a rotatable, metal tube 30, having secured to one end the fitting 31, which is thus located between the lugs 6, 6. Said fitting 31 is formed with two spaced fingers 32, 32 which traverse the top of one of the lugs and embrace between them one of the arms 7 of the handle fork. A third finger 33 carried by said fitting constitutes a stop; and the free end 18 of the spring is connected to this tube and fitting in such wise as to move the handle in the desired direction.

It will be seen that the sleeve has no essential function except to hold the spring in line and in some cases can be omitted. It will also be understood that this invention is not limited to suction cleaners, but can be employed wherever a handle is attached to a device to be operated thereby; and that the spring need not be so arranged as to throw the handle away from the device, since sometimes it is desirable to cause the handle, when not in use, to lie closely beside the device; certain features of the invention are also applicable to other pivotal connections, wherefore I do not limit myself to any of the details herein shown and described except as those details are specifically shown and recited in my several claims.

Having thus described my invention what I claim is:

1. In a device of the character described, in combination, a device adapted to be moved about a supporting surface, an operating handle pivoted to said device upon a horizontal axis which is transverse to said handle, and means for securing said handle to said device, comprising a removable pin, a coiled spring surrounding said pin, and having one of its ends fastened to said device, and a fitting operatively secured to the other end of said spring, and mounted for rotation about said axis and having a part detachably interengaged with said handle.

2. In a device of the character described, a movable device having a pair of spaced, apertured lugs, a movable member having a pair of spaced apertured arms overlapping the outer faces of said lugs, a pin traversing all said apertures and holding said members pivotally together, a coiled spring surrounding said pin, and having one end fixed relatively to one of said lugs, and a movable member secured to the other end of said spring and constrained to move about the axis defined by said pin, said fitting having fingers detachably interengaged with a part of one of said arms.

3. In a device of the character described, a movable device having a pair of spaced, apertured lugs, a movable member having a pair of spaced apertured arms overlapping the outer faces of said lugs, a hollow sleeve mounted in said lugs coaxial with the apertures therein, a coil spring surrounding said sleeve, a fitting secured to and movable with one end of said spring, the other end of said spring being fixed, and a removable pin traversing the apertures in said arms and mounted in said sleeve, said fitting and one of said arms having interengaging parts.

4. In a device of the character described, in combination, a supporting member, a second member coaxial therewith, a removable pivot pin coaxial with both said members whereby said members are pivoted together, and a spring actuated element carried by one of said members and pivoted coaxially with said pin and having projections adapted to interfit with the other member to hold said members in a predetermined relative position without impeding the removal or replacement of said pin.

5. In a vacuum cleaner, a cleaner body, a handle pivoted in relation thereto, means tending normally to move said handle into a generally upright position, including a lever, an operative connection between said lever and said handle, and yielding means tending normally to rotate said lever in a predetermined direction.

In testimony whereof I hereunto affix my signature.

JAMES B. KIRBY.

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