R. N. BAYLIS.
TOOL ATTACHMENT.
APPLICATION FILED MAR. 3, 1915.

1,175,402.

Patented Mar. 14, 1916.

Fig 1

Fig 2

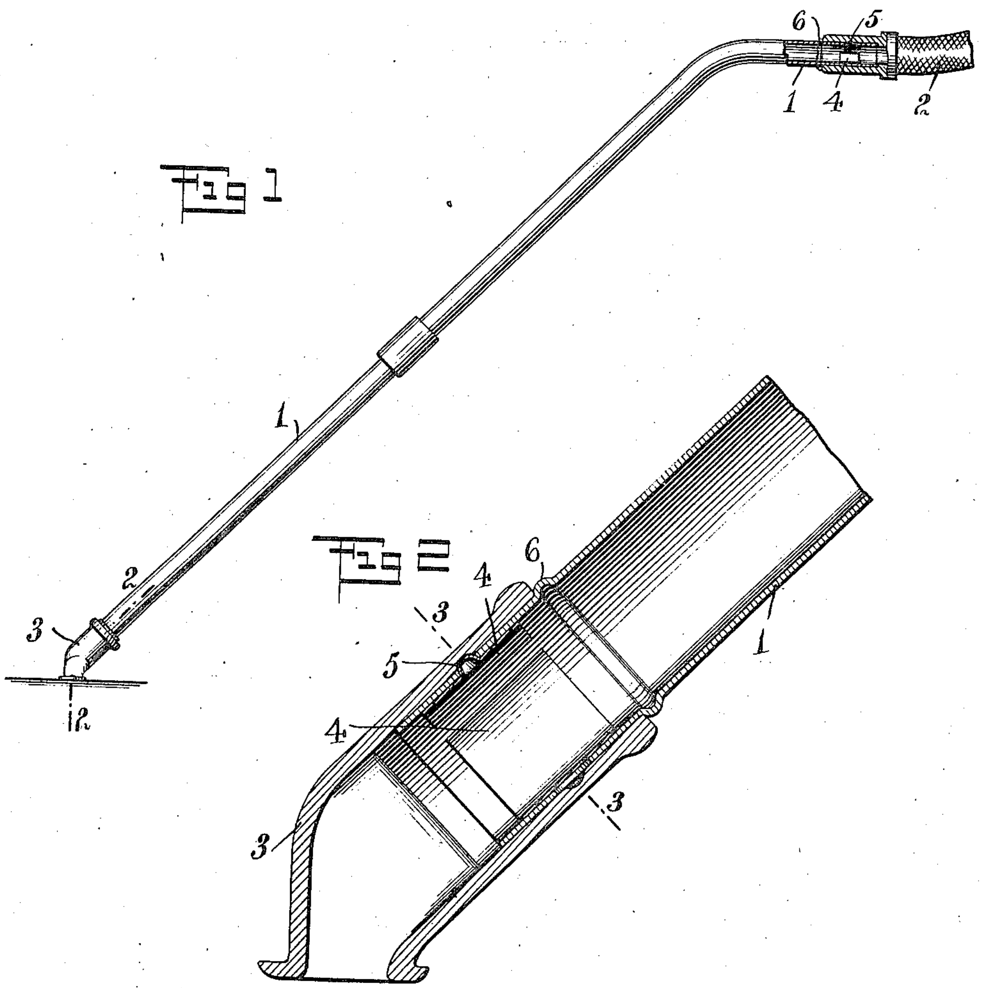


Fig 3

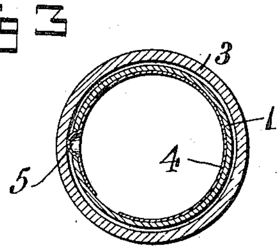
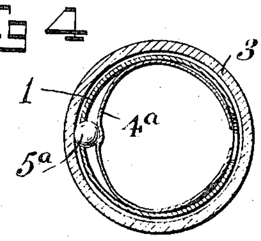


Fig 4



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UNITED STATES PATENT OFFICE.

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TOOL ATTACHMENT.

1,175,402. Specification of Letters Patent. Patented Mar. 14, 1916.

Application filed March 3, 1915. Serial No. 11,800.

To all whom it may concern:

Be it known that I, ROBERT N. BAYLIS, a citizen of the United States, residing at Caldwell, Essex county, State of New Jersey, have invented certain new and useful Improvements in Tool Attachments, of which the following is a full, clear, and exact description.

My invention relates to improvements in vacuum cleaning apparatus and particularly to improved tool attaching means.

In the drawings: Figure 1 is a side elevation on a relatively reduced scale of the so-called "cleaning tool" of a vacuum cleaning apparatus. Fig. 2 is a relatively enlarged longitudinal section of the lower end of the parts shown in Fig. 1, said section being in a longitudinal plane at right angles to the plane of the line 2—2 of Fig. 1. Fig. 3 is a cross-section on the line 3—3 of Fig. 2. Fig. 4 is a similar view of a modification.

1 represents the operator's handle which is in the form of a tube, to the rear end of which is connected a flexible hose 2 leading to the vacuum creating mechanism (not shown). The tubular handle 1 may be in one piece or of pointed sections, as desired. At the lower end of the tubular handle is the cleaning tool 3. These cleaning tools 3 are provided in a variety of designs or styles which are interchangeably connected with the tube 1. It is desirable that the connection should be effective and at the same time free enough to permit the parts to partake of relatively rotative movement.

I have illustrated my invention in certain preferred forms. In the form shown in Figs. 2 and 3 I provide a leaf spring 4 curved so that it may be inserted within the lower end of the tube 1, the said spring being provided at some suitable point with an outwardly projecting detent 5, designed to project through an opening in the tube 1, which detent, in this embodiment, is integral therewith. The inner wall of the socket in the shank of the tool 3 wherein the tube 1 is inserted, is provided with a transverse recess or groove which is preferably annular and so positioned as to receive the detent 5 when the tube is pushed into place within the tool shank 3. The tube may be provided with a positioning shoulder 6. Each of the tools of different design may have its tubular shank similarly constructed so as to receive the tube 1 and the detent 5. By this arrangement the tube 1 may fit with comparative freedom within the tool shank so that an easy swivel action may be obtained, when an annular groove or recess is employed, and so that at the same time the parts are securely held together in coöperative relation by the detent 5 and the wall of the groove in which it stands.

In the modification shown in Fig. 4, the detent is in the form of a steel ball 5^a which projects partly through the opening in the side wall of the tube 1 and is backed up by the spring 4^a so as to be forced outwardly in the same manner as the detent 5. By the simple arrangements hereinbefore described, the passage through the pipe 1 is in no way substantially interfered with and yet a powerful spring action is provided for the tool engaging detent. Again by my invention the improvement may be easily associated with existing tools at comparatively small expense. This improved connection may be employed at any convenient point; for example, the hose 2 may be provided with a similar connection, and indeed if the operator's tubular handle 1 is made of sections, such sections may likewise be provided with said holding means. I mention this as I desire to have it understood that in the broadest sense this connection is applicable to anyone of the joints in the tool and hose connections between the nozzle end and the vacuum cleaning device itself.

What I claim, therefore, and desire to secure by Letters Patent is:

1. In an attachment of the character described, two tubular members, one being arranged to enter the other, the external member having a recess in its inner wall facing the outer wall of the internal member, a side aperture in the inner member, a detent projecting partially through said aperture and arranged to yieldingly project into said recess in the external member, and a flat C-shaped expansion spring closely fitting the inner wall of the inner member and held under compression thereby, and coöperating with said detent, to hold the same normally in its projected position.

2. In an attachment of the character described, two tubular members, one being arranged to enter the other, the external member having in its inner wall a recess facing the outer wall of the internal member, a side aperture in the inner member, a detent projecting partially through said aperture, and beyond the surface of said inner member,

and means for yieldingly holding said detent in said position, said means comprising a flat expansion spring located within said internal tubular member and held under tension by the surrounding wall thereof, said detent comprising a steel ball of greater diameter than the diameter of said aperture.

3. In a vacuum cleaning apparatus, a tool comprising two members, one telescopic within the other, the internal member having a side aperture, a detent located in said aperture and projecting partially through the same and arranged to frictionally engage the inner wall of the other member, and a flat C-shaped expansion spring closely fitting the inner wall of the inner member and held under compression thereby, said spring coöperating with said detent to press the same outwardly into engagement with said external member.

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