April 3, 1956 J. W. BISHOP 2,740,153

VACUUM CLEANER NOZZLE

Filed Jan. 28, 1954

Fig. 1

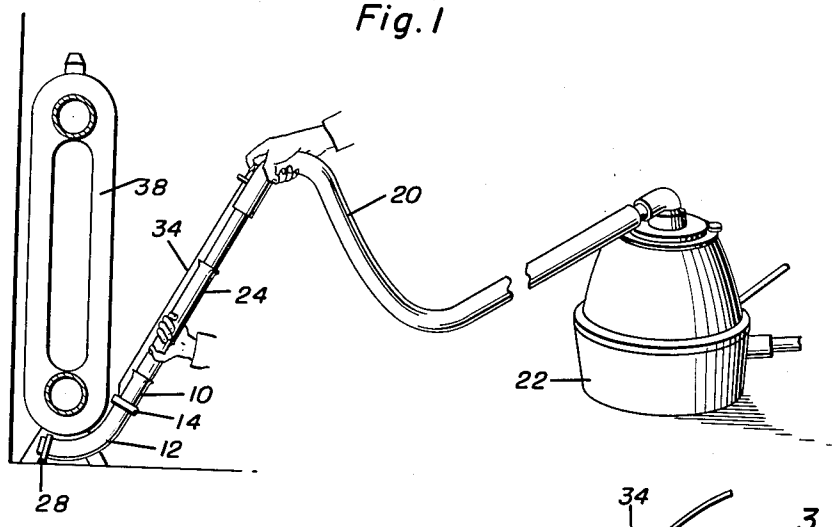


Fig. 2

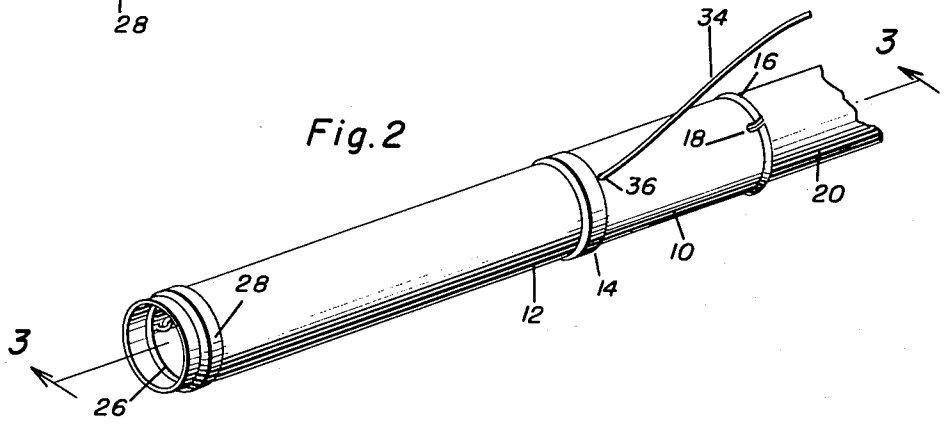


Fig. 3

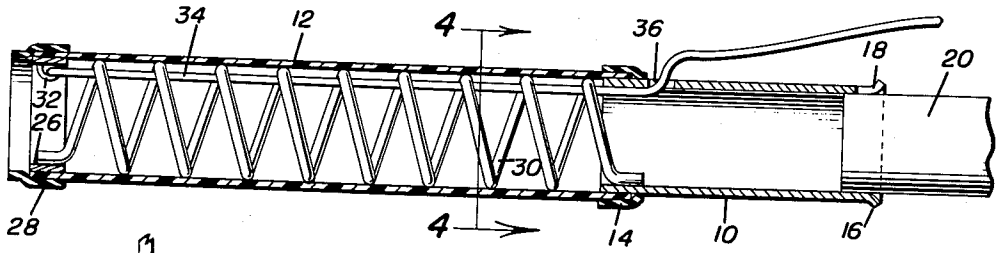
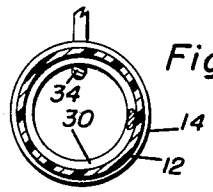


Fig. 4



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VACUUM CLEANER NOZZLE

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2 Claims. (Cl. 15—415)

This invention relates to a vacuum cleaner nozzle and more particularly to a device enabling the operator of a vacuum cleaner to position the inlet end of the suction conduit in relatively inaccessible places for removing dust and dirt therefrom.

An object of this invention is to provide a vacuum cleaner nozzle having a flexible portion which can be deflected in order to clean behind objects such as radiators and the like.

Another object of this invention is to provide a vacuum cleaner nozzle having a flexible portion and having novel means for maintaining the flexible portion in a substantially straight line position.

A further object of this invention is to provide a vacuum cleaner nozzle having a flexible portion and having novel means for deflecting one end of said nozzle from a straight line position.

A still further object of this invention is to provide a vacuum cleaner nozzle having the above characteristics which can be quickly and easily attached to any conventional vacuum cleaner.

A yet further object of this invention is to provide a vacuum cleaner nozzle having the above characteristics which is simple and efficient in construction, and durable and lasting in use.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view showing the improved nozzle forming the subject of this invention attached to the suction conduit of a vacuum cleaner and in position for cleaning beneath a radiator;

Figure 2 is an enlarged perspective view of the vacuum cleaner nozzle forming the subject of this invention;

Figure 3 is a sectional view taken substantially along the section line 3—3 of Figure 2; and

Figure 4 is a sectional view taken substantially along the section line 4—4 of Figure 3.

Referring now more specifically to the accompanying drawings, it will be seen that the improved vacuum cleaner nozzle forming the subject of this invention includes a rigid portion **10** and a flexible portion **12**. Both sections **10** and **12** are tubular in cross-section, and one end of the flexible section **12** embraces one end of the rigid section **10**. A band **14** of suitable material, such as rubber or the like holds the end of flexible portion **12** in position on the end of rigid section **10**. The flexible section **12** is formed of plastic, rubber or other suitable material.

The other end of rigid section **10** is flared outwardly, as at **16**, and is also provided with a notch **18** whereby the rigid section **10** may be easily attached to the end of a suction conduit **20** of a conventional vacuum cleaner **22**. The rigid section **10** may be either connected directly

to the conduit **20** or to a tubular wand **24** which is connected to the conduit **20**.

Secured within the other end of the flexible portion **12** is a rigid ring **26**. The end of flexible portion **12** is maintained in position on the ring **26** by a band **28** of similar material as the band **14**. A helical spring **30** having a diameter substantially equal to the diameter of the rigid portion **10** is disposed wtihin the flexible portion **12** and is secured at one end to the rigid portion **10** and at its other end to the ring **26**. If desired, each end of the helical spring **30** can be provided with a section of compression spring to permit attachment of the spring to the ring **26** and the rigid portion **10**. The main portion of spring **30** is of expansible type.

Secured to the inner periphery of the ring **26** is a hook member **32**. A flexible strand or member **34** is connected at one end to the hook **32** and extends through the flexible portion **12** toward the rigid portion **10**. The rigid portion **10** is provided with an aperture **36** adjacent the band **14**, and the flexible member **34** passes through the aperture **36** to a point remote from the nozzle.

In practical use of the device, the rigid section **10** is placed in position on either the wand **24** or on the end of the conduit **20**. Then, when it is desired to clean behind an object, such as radiator **38**, the flexible member **34** is pulled, causing the free end of the nozzle to bend to a position as shown in Figure 1. Thus, it is possible to easily clean behind fixed or heavy objects which are inaccessible with conventional attachments for vacuum cleaners. Release of tension on the flexible member **34** will allow the spring **30** to urge the flexible portion **12** to the straight line position.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A vacuum cleaner nozzle comprising: a rigid tube for connection to a suction conduit, a flexible tube mounted on said rigid tube and projecting longitudinally therefrom, a helical spring mounted concentrically in the flexible tube and substantially coextensive therewith for yieldingly resisting bending thereof, said spring having one end anchored to the free end portion of said flexible tube and its other end anchored to said rigid tube, and a flexible strand extending into the flexible tube from the rigid tube and having one end anchored off-center to said free end portion of said flexible tube for bending same against the tension of the spring, said strand being free to move longitudinally relative to the rigid and flexible tubes except at its connection to the latter and having its other end accessible to an operator.

2. A vacuum cleaner nozzle comprising: a rigid tube for connection to a suction conduit, said rigid tube having an opening therein intermediate the ends thereof, a flexible tube mounted on one end portion of the rigid tube and extending longitudinally therefrom, a ring fixed in the free end portion of the flexible tube, a helical spring mounted longitudinally in the flexible tube for yieldingly resisting bending thereof, said spring being substantially coextensive with said flexible tube and having its ends fixed to the rigid tube and the ring, and a flexible strand slidable through the opening and extending longitudinally through the spring from the rigid tube and having one end anchored off-center to the ring for bending the flexible tube against the tension of said spring, said strand being free

to move longitudinally relative to the rigid and flexible tubes except at its connection to the latter and having its other end accessible to an operator.

References Cited in the file of this patent

UNITED STATES PATENTS

992,516 Mulconroy et al. ---------- May 16, 1911

1,012,195 English ---------- Dec. 19, 1911

2,524,522 Gilmore et al. ---------- Oct. 3, 1950

FOREIGN PATENTS

6,405 Great Britain ---------- 1904