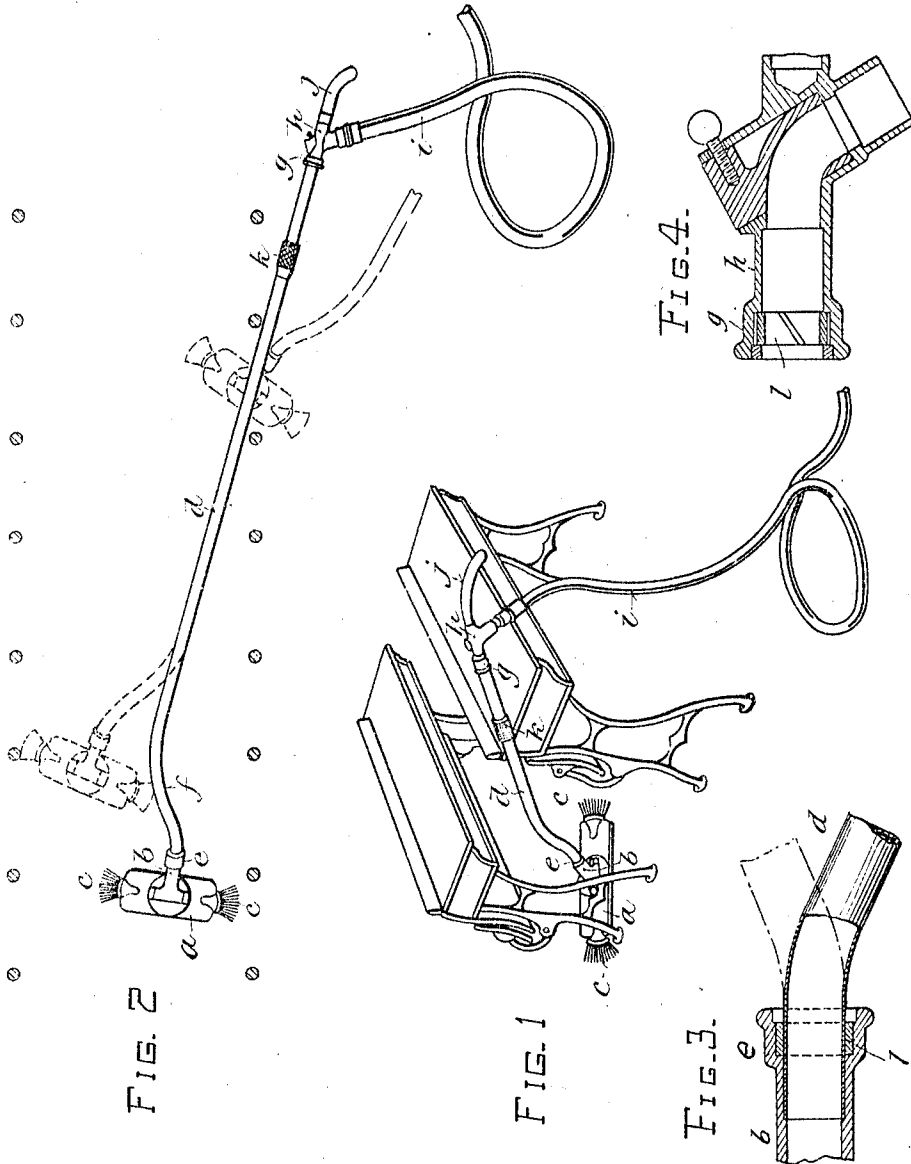


R. L. COOLEY.
PNEUMATIC CLEANING TOOL.
APPLICATION FILED JUNE 12, 1909.

1,102,142.

Patented June 30, 1914



INVENTOR:

WITNESSES:

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PNEUMATIC CLEANING-TOOL.

1,102,142.

Specification of Letters Patent.

Patented June 30, 1914.

Application filed June 12, 1909. Serial No. 501,733.

To all whom it may concern:

Be it known that I, ROBERT L. COOLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Pneumatic Cleaning-Tools, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates more particularly to handles for tools of this class, its main objects being to facilitate the passage and movement of the tools between, around and underneath obstructions such as the legs of fixtures or furniture, and to render their operation more effective.

It consists in the construction, arrangement and combination of parts as herein-after particularly described and pointed out in the claims.

In the accompanying drawing like characters designate the same parts in both figures.

Figure 1 is a perspective view, and Fig. 2 is a plan view of a tool embodying the invention illustrating the manner of using the tool for sweeping underneath a row of school desks, and Figs. 3 and 4 are enlarged detail sectional views of the swivel joint connections at the ends of the tubular operating arm and exhaust conduit.

For the purpose of illustration and explanation, the invention is shown in connection with a floor sweeper, although the tubular operating arm and its connections constituting the essential features of the invention, may be used with cleaning heads or nozzles of various forms designed for various kinds of work.

Referring to the drawing, *a* designates the head or body of the sweeper provided with a tubular shank *b*, which is hinged or pivoted to the back transversely to the axis of the shank. It is also provided in the present case at the ends with brushes or flexible extensions *c* for working close to the legs or bases of fixtures, furniture or other objects without marring the same.

d is a tubular operating arm and exhaust conduit having at one end a swivel joint connection *e* with the tool head or shank, and adjacent to the same end a double reverse bend or offset *f*. At the opposite end it has

a swivel joint connection *g* with a coupling piece *h* for the attachment of hose *i*, by which the tool is connected with a pump or other air exhausting means. These swivel joint connections may be made as shown in Figs. 3 and 4, and each consists of a severed spring ring *l* which is fitted to turn and loosely confined in the shank *b* of the tool head or nozzle or in the coupling piece *h*, and into which one end of the tubular arm *d* is tightly but removably fitted. The swiveled ends of the arm *d* are substantially parallel with each other so that by turning the arm around its axis the lateral bend or offset *f* is reversed and the tool head or body *a* is shifted to one side or the other of the line of the handle end of the arm. The coupling piece *h* is preferably and usually provided with a handle *j*, to aid in the manipulation of the tool. The arm *d* is provided preferably adjacent to the coupling piece *h* and handle, with a hand grip *k* for turning it into different positions.

In the operation of a tool of this kind in sweeping under a row of school desks as illustrated in the drawing, the bend or offset *f* of the arm *d* is turned out as indicated by dotted lines in Fig. 2, to facilitate inserting the head or body *a* of the tool between the legs of adjacent desks at one end thereof. With an arm of sufficient length the floor underneath a number of desks may be thoroughly and quickly swept without removing and reëntering the tool for every desk or at short intervals, as would be required if a short, straight handle or arm was used.

As the tool is moved back and forth underneath the row of desks it may be carried or shifted from one side to the other so as to work close to either row of legs by turning the arm *d* in its swivel joint connections with the head *a* and coupling piece *h* so as to reverse the bend or offset *f*. The bend or offset *f* in the arm *d* permits the tool to pass between obstructions and to work in places where it could not otherwise be used, besides greatly facilitating its operation around obstructions and within restricted spaces.

The pivot or hinge connection of the tubular shank *b* with the tool head or body *a*, and the bend or offset *f* of the arm *d* in connection with the swivel joints at the ends

thereof, admit of the use of the tool underneath furniture, fixtures or other objects where the vertical as well as the horizontal space is so limited that it could not be otherwise employed. The bend or offset and the swivel joints at the ends of the tubular arm *d* thus cooperate with the hinge or pivot between the shank *b* and the tool head *a* in affording adjustments whereby the tool may be effectively used in limited spaces where it could not otherwise be successfully operated.

I claim:

1. A pneumatic cleaning tool provided with a tubular operating arm having a swivel connection with the tool head, and having a double reverse bend adjacent to said connection, whereby the tool may be shifted to one side or the other relative to said arm, by turning the latter around its axis without materially changing the angular relation of the tool head to a straight line passing through the ends of said arm.

2. In a pneumatic cleaning tool the combination with a tool and handle, of a tubular operating arm having swivel joint connections at the ends with the tool head and the handle, and having a double reverse bend adjacent to the end with which the tool is connected, whereby the tool may be shifted laterally relative to said arm, by turning the latter around its axis without

materially changing the angular relation of the tool to a straight line passing through the ends of said arm.

3. In a pneumatic cleaning tool the combination with a tool head and a hose coupling, of a tubular arm having swivel joint connections with said head and coupling and having a double reverse bend adjacent to the tool head, the axes of rotation of said connections being approximately parallel.

4. In a pneumatic cleaning tool the combination with the tool head having a tubular shank pivoted thereto transversely to the axis of the shank and a hose coupling, of a tubular operating arm having swivel joint connections at the ends with said shank and coupling and having a double reverse bend adjacent to said shank.

5. In a pneumatic cleaning tool the combination with the tool head having a tubular shank pivoted thereto transversely to the axis of the shank, of a tubular operating arm having a swivel joint connection with said shank and having a double reverse bend adjacent to said shank.

In witness whereof I hereto affix my signature in presence of two witnesses.

ROBERT L. COOLEY.

Witnesses:

CHAS. L. Goss,
ALICE E. Goss.