Aug. 21, 1934. D. B. REPLOGLE ET AL 1,970,576

SUPPORT FOR AIR METHOD CLEANERS

Filed April 9, 1932 2 Sheets-Sheet 1

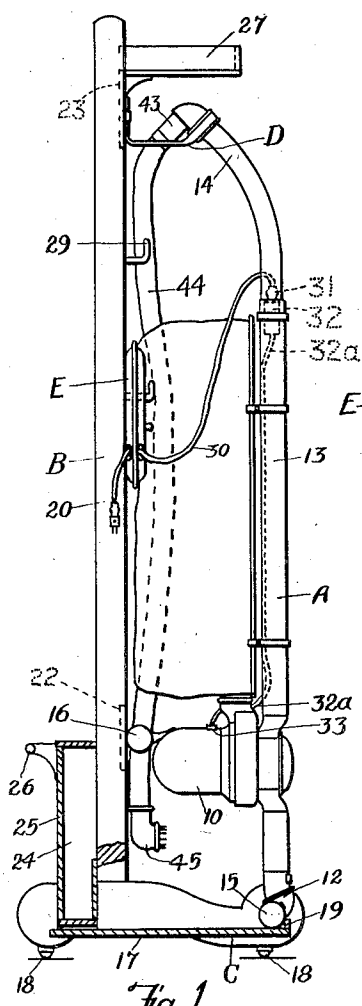


Fig. 1

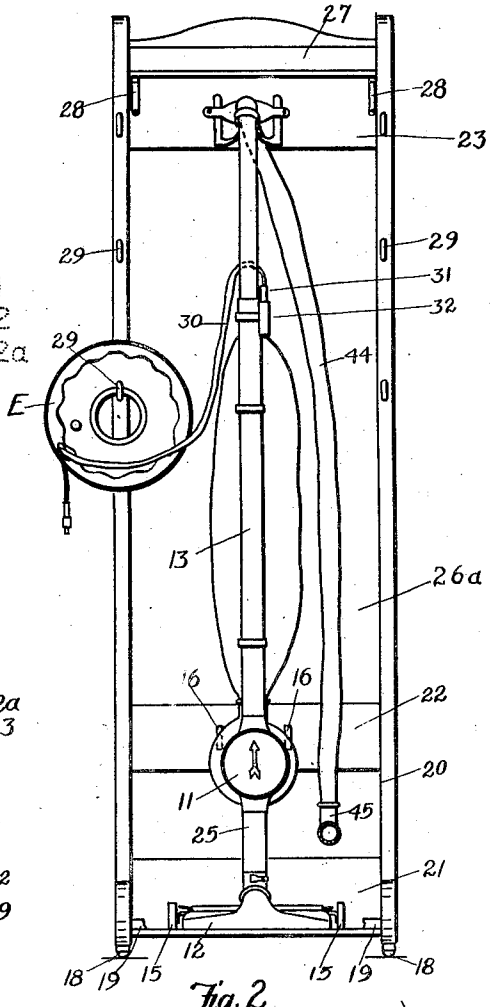


Fig. 2

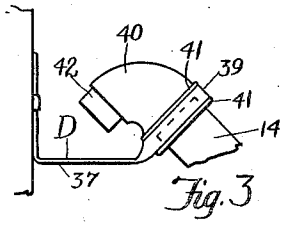


Fig. 3

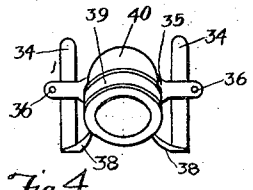


Fig. 4

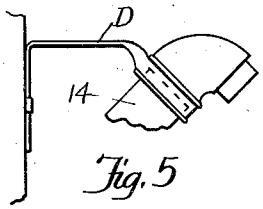


Fig. 5

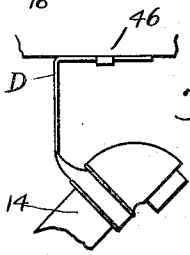


Fig. 6

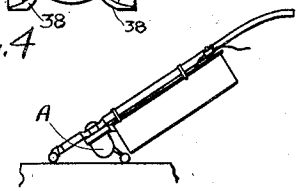


Fig. 7

By

Inventors
D.B.REPLOGLE
H.E.QUEEN

Munson H Lare.
Attorney

Aug. 21, 1934. D. B. REPLOGLE ET AL 1,970,576

SUPPORT FOR AIR METHOD CLEANERS

Filed April 9, 1932 2 Sheets-Sheet 2

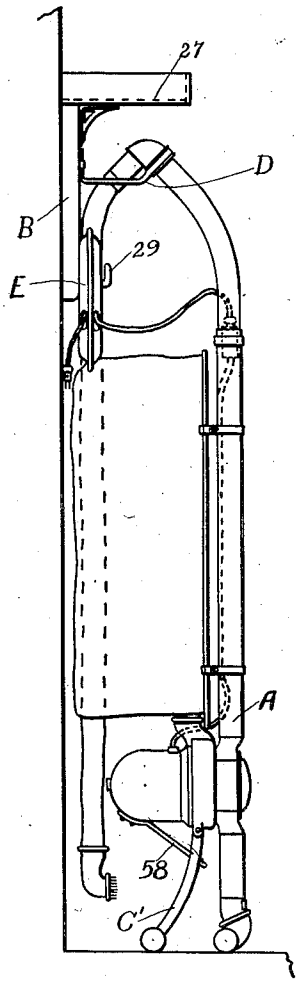


Fig. 8

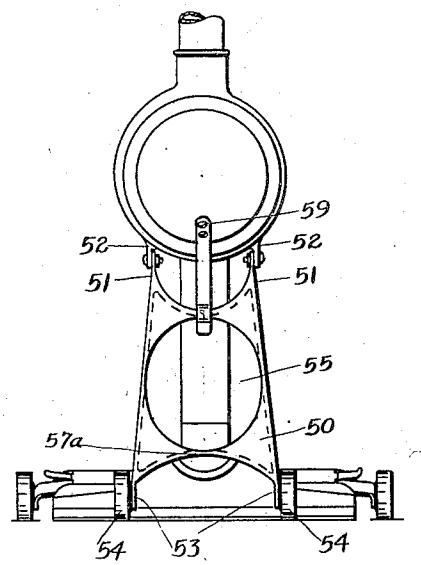


Fig. 9

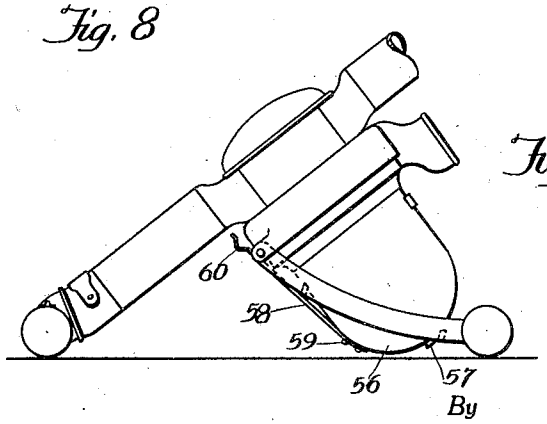


Fig. 10

By

Inventors
D.B. REPLOGLE
H.E. QUEEN
Marion H. Lane.
Attorney

Patented Aug. 21, 1934

1,970,576

UNITED STATES PATENT OFFICE

1,970,576

SUPPORT FOR AIR-METHOD CLEANERS

Daniel Benson Replogle, Berkeley, Calif., and Harold E. Queen, Washington, D. C., assignors, by direct and mesne assignments, to Citizens Trust Company, Toledo, Ohio, a corporation of Ohio, as trustee

Application April 9, 1932, Serial No. 604,246

4 Claims. (Cl. 15—1)

The invention relates to improvements in cleaning systems, in which a normally portable cleaner unit including a floor tool, a source of suction, a suction handle and means for interchangeably directing suction through the floor tool or through the handle, is provided with means whereby the portable cleaner may be converted into a semi-permanent system by supporting the portable unit with the suction handle in upright position with the upper end of the suction handle available for the attachment of extension hose or pipes, which extension pipes, when placed in communication with the source of suction, may be conveniently used for cleaning the walls or ceiling and for other purposes for which stationary suction cleaning systems may have been used in the past.

The present invention is in the nature of an improvement on the supports for "Air-Way" cleaners as set forth particularly in Replogle Patents Nos. 1,681,624; 1,834,864; 1,884,865; 1,884,866 and 1,884,870. Cleaners of this type are known commercially under the registered trademark "Air-Way".

The primary object of the invention is accordingly to provide improved supporting means for the cleaner whereby the same may be readily converted from a portable system into a semi-permanent system. Such supporting means may comprise means primarily adapted for supporting the body of the cleaner in such a position that the suction handle is upright, or it may constitute supporting means for the handle itself, but preferably our improved supporting means include a combination both of a body support and a support for the handle, since in this manner most efficient results may be obtained. It will, however, be understood that the body support and the handle support, while primarily intended for use in conjunction with each other, may also be used independently.

The invention will be more readily understood by reference to the accompanying drawings in which are shown various illustrative embodiments of our invention.

In the drawings,

Fig. 1 is a side elevation of a hall rack equipped with means for conveniently supporting the cleaner and its accessories, including a cord reel, extra bags, hose extensions and the like, and showing the cleaner supported thereby;

Fig. 2 is a front view of the same;

Fig. 3 is a detail side view of the flexible bracket shown in Fig. 1, and which carries a hollow coupling that serves to support the upper end of the suction handle and at the same time to provide means for the attachment of hose pipe extension elements and the like;

Fig. 4 is a front view of the bracket and hollow connector;

Fig. 5 is a side view of the bracket and coupler supported in a somewhat different manner than in Fig. 3, the bracket being reversed, and the coupling reversed in the bracket;

Fig. 6 is a side elevation showing the bracket supported from above;

Fig. 7 is a side elevation showing the portable cleaning unit detached from the support and in the normal position for floor cleaning purposes;

Fig. 8 is a side elevation similar to Fig. 1, but showing a modification in which the cleaner is provided with a hinged bracket which cooperates with the floor tool to support the cleaner with its handle in upright position;

Fig. 9 is a rear view of the cleaner, portions being broken away, and showing details of the hinged body support; and

Fig. 10 is a side view of the cleaner, showing the same in floor cleaning position with the hinged bracket folded up.

By referring to the drawings, A denotes generally a portable suction cleaner of the general type disclosed in the U. S. patent to Daniel Benson Replogle, Reissue 16,224. The portable unit is adapted to be retained with its suction handle in substantially upright position by means of a support generally designated by the reference character B, which as shown in Figs. 1 and 2 is illustrated as embodying the general form of a hall rack. The support B includes means C for supporting the weight of the body of the cleaner, and a flexible support D for the upper end of the hollow handle of the cleaner. A cord reel E, which carries an electrical conduction cord for supplying current to the motor of the cleaner, is shown as carried upon a hook mounted upon an upright portion of the support B.

The portable cleaning unit A includes a source of suction 10, which comprises an electric motor, and a fan operated thereby, both the motor and fan being housed in suitable casings. A valve 11 is provided for selectively directing suction either from a floor tool 12 or from an open-ended hollow suction handle 13, the upper portion of which is curved as indicated at 14. The floor tool is preferably provided with detachable rollers 15, 15 extending laterally from the body of the tool. Rollers 16, 16 are also provided for supporting the weight of the body in conjunction with the rollers 15, 15 on the floor tool when the portable cleaning

unit is in the working position illustrated in Fig. 7.

The support B serves the dual purpose of providing a convenient means for storing the cleaner when not in use, and also provides a ready means whereby the portable unit may be converted into a cleaning system of a semi-stationary type by permitting extension hose and other attachments to be secured to the upper open end of the hollow handle while the cleaner is firmly supported in upright position, thus enabling the extension hose and attachments to be used for cleaning walls, ceilings, articles of clothing and the like. As shown, the support is of the hall rack type and includes a base or floor 17 having casters, rollers, or other anti-friction means 18, which permit the rack to be moved from place to place if desired.

At the front of the base is a ledge 19 to retain the floor tool in position. The rack is provided with a pair of uprights or posts 20, 20 between which extend a number of cross pieces which serve to space the posts apart. A cross piece 21 is located adjacent the bottom and a second or intermediate cross piece 22 is located a little above the cross piece 21, and is located at a sufficient height above the base of the rack to form a rear support for the rollers 16, 16 mounted on the casing of the suction producing means. Near the upper end of the rack is a cross piece 23 which carries a flexible support D for the upper open end of the hollow handle of the cleaner.

Supported on the base of the rack is a shoe box 24 having a side 25 hinged thereto, permitting the same to be swung downwardly. Reference numeral 26 denotes a suitable foot rest at the top of the shoe box. If desired, a mirror 26*a* may be provided between the uprights 20 in the space between the two cross pieces 22 and 23. At the top of the rack a shelf 27 may be provided, suitably supported by brackets 28, one bracket being located at each end of the shelf. The shelf constitutes a receptacle for any desired articles, and may be conveniently employed to receive extension hose, extra dust collector bags and other attachments which constitute accessories of the suction cleaner. Carried on the posts 20 are a plurality of hooks 29 on which articles of clothing may be supported. Upon one of these hooks a cord reel E is mounted, which carries a conduction cord 30 for supplying current to the electrically driven motor of the cleaner. At one end of the cord 30 there is provided a detachable plug 31, which may be plugged into a wall socket or the like, and at the other end there is provided another plug 31 which may be plugged into a connector 32 carried by the handle 13 of the cleaner. From this connector another cord 32*a* extends to a connection 33 on the fan motor.

Referring now to the supporting bracket for the upper end of the suction handle, attention is called particularly to Figs. 1 to 4. The bracket is preferably formed of resilient sheet metal, and as shown comprises a pair of legs 34 adapted to engage cross piece 23 or any flat surface from which the bracket is to be suspended. For holding the legs 34 firmly against the supporting surface, a separate cross piece may be employed, herein shown as including an enlarged center 35 adapted to engage the supporting surface, from which enlarged center reduced lateral portions extend, which are apertured as at 36 to receive screws or other fastening means. Extending substantially at right angles to the surface engaging legs 34 of the bracket and formed integral therewith, are arms 37, which are curved adjacent their ends and mesh into a resilient yoke or loop 39, which is adapted to receive a hollow connector member 40, herein shown as L-shaped. The hollow connector is provided with a pair of spaced beads 41, 41 to prevent slipping after the connector is in place within the yoke 39. The hollow connector is snapped into place within the yoke and is firmly held therein due to the resiliency of the material of which the yoke is formed. It will be noted that the hollow connector is so supported that one end thereof extends at substantially the same angle as the upper open end of the suction handle. This open end is engaged within the hollow connector by forcing the bracket up slightly against the tension of the spring material of which it is composed, whereupon the hollow connector will be forced against the open end of the handle and held in position with a suction-tight fit.

As shown, one end of the hollow connector member 40 is provided with a reduced portion 42 over which a collar 43 carried by an extension hose or pipe 44 is adapted to be frictionally engaged. At the opposite end of the extension pipe 44 a suitable application tool 45 may be provided. Obviously any number of hollow extension members may be placed in operative connection with the upper end of the suction handle by means of the hollow connector carried by the flexible bracket, or if desired, one of these extension members might be directly carried by the flexible bracket without the use of the L-shaped hollow connector 40.

The operation of the device will be apparent from the foregoing description. For ordinary floor cleaning purposes the portable unit is employed, detached from its support in the manner illustrated in Fig. 7. In order to store the cleaner or to convert the same into a semi-stationary system for wall cleaning and like purposes, the floor tool may be supported upon the base 17 of the hall rack and prevented from rolling off by means of the ledge 19. The rollers 16 rest against the cross piece 22 and the upper open end of the suction handle is snapped into the hollow connector 40. In this position the cleaner is conveniently stored. When not in use the extension pipes 44 and other accessories may be placed upon the shelf 27, while the cord reel is carried upon one of the hooks 29. To use the apparatus for wall cleaning purposes, the extension hose 44 is applied to the hollow connector 40 and the cord 30 leading from the reel E is plugged into a wall socket or like source of electric current and the plug on the opposite end of the cord engages the connector 32 on the cleaner. The supported cleaner may now be moved to any convenient location owing to the presence of the rollers 18 or the like, upon which the support B is carried. As many extensions as desired may be employed, so that any parts of the room may be reached. The extensions may also be used for cleaning hats, coats and other articles of clothing hanging on the rack. As stated above, the hollow L connector may be omitted if desired and one end of the extension hose may be carried directly by the resilient bracket and engaged with the upper end of the suction handle.

As shown in Fig. 5, the bracket D may be inverted and the coupling reversed in the bracket for the purpose of receiving the cleaner handle from the direction of the wall. It will be noted that the receiving end of the hollow connector is still at the proper angle and is spaced a proper distance outwardly to receive the handle, this being due to the fact that the length of the arms

37 is properly related to the offset of the curved portion 14 of the suction handle.

If desired, the support D may be carried by a fixed member 46 located directly above. In this instance the hollow connector is still supported at the proper angle to receive the open end of the suction handle, as shown in Fig. 6.

A modification of the invention is disclosed in Figs. 8 to 10. This arrangement is similar to that shown in Figs. 1 and 2, except that the lower portion of the support B of Figs. 1 and 2 is omitted and the upper portion only is utilized. This upper portion carries the flexible support D for the hollow handle and may be provided with the shelf 27 for holding the accessories of the cleaner, and may also be provided with a hook 29 upon which is carried the cord reel E. If desired, the bracket D, shelf 27 and hook 29 may be secured at a proper location to a wall, door or other relatively fixed member, which in this instance would constitute a portion of the cleaner supporting means. In place of the lower support C, which in Figs. 1 and 2 forms part of the hall rack, the cleaner itself may be provided with supporting means C', which, with the floor tool, cooperate to carry the weight of the cleaner and support the cleaner with the suction handle in upright position.

As shown, the support C' includes a hinged bracket, generally designated by the reference numeral 50, which is of web-like form and is provided with a pair of upper extensions 51, which are hingedly secured to ears 52 carried by a frame portion of the cleaner. Extending downwardly from the bracket are similar extensions 53 upon which are mounted rollers 54. The web is cut away at 55 to lighten the bracket and also to permit the same to be swung rearwardly, as indicated in Fig. 10, wherein the lower portion 56 of the motor housing extends through the opening 55 in the web. Preferably a contact member 57 is provided at the rear of the motor for engagement with a cross web portion 57*a* at the bottom of the hinged bracket.

As shown, a yielding member or arm 58 composed preferably of resilient metal is secured adjacent the rear of the motor by suitable securing means 59, and is provided adjacent its opposite end with a hook or catch member 60. The yielding member 58 extends over the hinged bracket and normally holds the same firmly against the motor in the position shown in Fig. 10, owing to the engagement of the resilient arm with a cross web portion 61 at the bracket. When, however, it is desired to support the cleaner with its handle in upright position as indicated in Figs. 8 and 9, the bracket is swung toward the floor tool against the tension of the spring to the position shown in Fig. 8, whereupon the cross web portion 61 is engaged by the hook or catch 60 and firmly retained in this position with the handle of the cleaner upright.

The operation of the device is similar to that described in connection with Fig. 1, except that the upper bracket D cannot be moved from place to place. The lower hinged bracket may, however, be used without the upper support, and extension devices may be secured to the upper end of the handle and the device utilized for cleaning walls and the like in any convenient location by merely opening up the hinged bracket C' in such a manner as to support the handle in substantially upright position.

What we claim is:

1. In a device of the character described, a reversible flexible bracket adapted to be secured to a flat vertical or horizontal surface at about the height of the upper end of the suction handle of an air-method cleaner, and serving to detachably support the said upper end, said bracket being composed of a continuous flat strip of resilient material comprising a pair of flat parallel surface engaging members, arms normally extending substantially at right angles to said members, and a yoke connecting said arms and extending at an angle of about 45° with reference both to said surface engaging members and said arms, and comprising a U-shaped band of substantially the same width as said surface engaging members and arms, said band being twisted at its juncture with the arms so that the flat portion of the band will detachably fit a tubular connecting member inserted therein.

2. In a device of the character described, a reversible flexible bracket adapted to be secured to a flat vertical or horizontal surface at about the height of the upper end of the suction handle of an air-method cleaner, and serving to detachably support the said upper end, said bracket being composed of a continuous flat strip of resilient material comprising a pair of flat parallel surface engaging members, arms normally extending substantially at right angles to said members, a yoke connecting said arms and extending at an angle of about 45° with reference both to said surface engaging members and said arms, and comprising a U-shaped band of substantially the same width as said surface engaging members and arms, and a hollow connector releasably carried by said yoke, said band being twisted at its juncture with the arms so that the flat portion of the band will fit said hollow connector.

3. In a device of the character described, a reversible flexible bracket adapted to be secured to a flat vertical or horizontal surface at about the height of the upper end of the suction handle of an air-method cleaner, and serving to detachably support the said upper end, said bracket being composed of a continuous flat strip of resilient material, comprising a pair of flat parallel surface engaging members, arms normally extending substantially at right angles to said members, a yoke connecting said arms and extending at an angle of about 45° with reference both to said surface engaging members and said arms, and comprising a U-shaped band of substantially the same width as said surface engaging members and arms, and means for securing said arms to a flat surface, said band being twisted at its juncture with the arms so that the flat portion of the band will detachably fit a tubular connecting member inserted therein.

4. A bracket as set forth in claim 2, wherein the connector is provided with a pair of spaced peripheral beads between which the yoke fits.

DANIEL BENSON REPLOGLE.
HAROLD E. QUEEN.