The invention relates to improvements in air-way cleaning systems, in which a portable unit is provided with a floor tool, a suction handle; and more particularly to what I will term "air-way cleaner supporting ledges," by which I mean supports or ledges, one of which is adapted to receive the bottom or floor tool of the air-way cleaning unit, another shelf being adapted to serve as a support for the cleaner handle and as a connector between the cleaner handle and such extension hose or pipe as may be employed in the system. The shelf may be further employed for containing or holding the accessories for the cleaner, such as brushes, suction tools, and applicators of any description.

One of the general objects of the invention is to provide a simple and effective means for holding an air-way cleaner on a wall, a swinging door, or the like, while the cleaner is in use for service other than sweeping floors.

A further object of the invention is to provide such means as above described, suitable for attachment to closet doors, closet walls, or other walls of dwelling apartments, of a construction consisting principally of wood or other materials harmonious to the wooden finish of the apartment, so that the whole presents an attractive and pleasing appearance.

By the use of a device of this character, a portable cleaner unit may be made to serve the purpose of the stationary system, without the necessity for supporting the weight of the cleaner and handle in the hands of the user, so that the apparatus as a whole combines the advantages of both the portable and stationary systems. Furthermore, a neat, compact and attractive clothing or storage means for the entire apparatus is provided.

The invention will be more readily understood by reference to the accompanying drawings and detailed description, which, however, are intended as illustrative, rather than as limiting the scope of the invention to the particular details of construction.

In the drawings,

Fig. 1 is a front view of the assembled parts, showing an air-way or portable suction cleaner attached to a door;

Fig. 2 is a side elevation of the same;

Fig. 3 is a front view on an enlarged scale, showing a bracket-supported shelf forming part of the apparatus and provided with means for receiving the upper end of the cleaner, and operatively connecting the same to a hose pipe or other extension means;

Fig. 4 is a top view of the bracket shelf shown in Fig. 3;

Fig. 5 is an under side or bottom view of the same;

Fig. 6 is a side view on a reduced scale similar to Fig. 2, but with the portable cleaner unit removed;

Fig. 6a is a detail front view of a hook shown as one of the attachments of Fig. 6, and adapted to support a cord reel or other objects;

Fig. 7 is a side elevation on an enlarged scale, showing the bracket shelf illustrated in Figs. 3, 4 and 5, and elbow members connected thereto for attachment with the cleaner handle and hose extension respectively;

Fig. 8 is an expanded view showing the two elbow members of Fig. 7 slightly separated, the shelf and bracket being removed.

Referring generally to the apparatus disclosed in the drawings and with particular reference to Figs. 1, 2 and 5, A denotes a swinging door, wall or suitable portion of a dwelling apartment, room, closet or the like, upon which is detachably supported an air-way or other cleaner B, which may be of any suitable type, preferably similar to that disclosed in my Reissue Patent No. 16,224, dated Dec. 15, 1926, which cleaner includes a floor tool C, a suction handle D, herein shown as supported in substantially upright position, and valve means E for interchangeably directing air currents produced by a motor-driven fan through the floor tool or through the suction handle at the will of the operator.

Referring more particularly to Fig. 6, there is shown attached to the door, wall or the like A, a lower bracket-supported shelf F to receive the floor tool or bottom of the cleaner, and at a higher level, at about the
height of the top of the suction handle D, there is shown as shelf G carrying a pair of or like connector members for attachment to the top of the suction handle D and to a hose pipe or other extension member H respectively. Preferably the shelf G is provided with side and front and rear walls forming a box-like container in which brushes, applicators or other tools or accessories may be stored.

Above the bracket G is a hook or like member I adapted to support a cord reel, which may be of the type disclosed in my Patents Nos. 1,186,131 dated June 6, 1916 and 1,692,517 dated Nov. 20, 1928. The hook I is also provided with means for supporting the hose pipe H.

Referring in greater detail to the shelf F, it will be noted that it comprises a bottom or base portion 10 carried by a pair of bracket members 11, 12 secured to the door or wall A, and at the forward end of the shelf there is provided a front ledge 13 which constitutes an abutment for the rollers 14 of the floor tool, thus preventing their rolling off the front of the ledge. The bracket members 11 and 12 serve as side guides for the rollers 14.

The shelf G is shown in detail in Figs. 3, 4, 5 and 7 and is preferably of box-like construction. As shown, it includes a rear wall 15 (Fig. 7) and side walls 16 carried by bracket members 17, 17. The front wall 18 is rigidly secured to the sides. Likewise extending between the side walls 16 is a flexible or springy bottom member 19 secured at its ends only to the sides, but unconnected to the front or rear walls. This bottom or shelf member may be of wood, metal or other yielding resilient material and constitutes in effect a diaphragm having limited movement up and down, which movement is at its maximum adjacent the center of the shelf. The top of the device is open, so that the combination of front and rear walls, sides and resilient bottom constitutes a box-like construction which is adapted to store brushes, suction tools, applicators, extra dust bags and other accessories.

Centrally carried by the yielding bottom member or diaphragm 19 are a pair of L or like connector members 20, 21. The lower connector member 20, as shown, is internally threaded as at 22, while the upper member 21 is externally threaded as at 23. The connector members are adapted to be secured one into the other through a suitable opening in the flexible shelf. Flanges 24 and 25 respectively are provided on the L members and are adapted to grip the shelf member 19 when the parts are in assembled condition. As shown, the central axis of the free end of the lower connector 20 extends at an angle of approximately 45 degrees to the plane of the door A, while the axis of the free end of the upper connector member 21 extends at an angle of approximately 90 degrees with reference to the door. Both connector members may be rotated to any desired position. The two connector members 21 and 22, when assembled, may be considered as together constituting a single hollow connector. Obviously the number of sections of which the connector is composed may be varied without departing from the spirit of the invention.

Located above the shelf G is the hook I, which is likewise secured to the door or wall A in any suitable manner. This hook includes a lower hooked portion 26 which supports the cord reel 30, which in turn carries the electrical connections 31, by means of which current is supplied to the motor 29, which latter operates a fan for producing suction within the apparatus. As shown, the electrical connections include a plug or connector 32 which is adapted to be inserted in a suitable lamp or wall socket, and a separable plug 34, 35, which permits removal of the cord and cord reel. An upper hooked portion 27 is also preferably provided for receiving the hose pipe H when in stored or supported position.

If desired, a support for the wheels 28 carrying the motor 29 may be provided on the wall or door A, in which case the lower bracket or shelf F may, if desired, be omitted.

The operation of the apparatus will be readily apparent from the foregoing description and may be briefly summarized as follows:

To close the portable cleaner unit, the same may be placed with its handle in substantially upright position, the floor tool resting on the lower shelf F and the wheels 14 resting against the forward abutment 13. The top of the suction handle D may then be engaged within the lower L 20 by a snap action rendered possible by the resilience of the shelf 19 which carries the L connector 20. The angle at which the connector 20 extends is substantially that at which the end of the suction handle is inclined, so that the parts are in position for ready assembly. When assembled, an air-tight fit between the connector 20 and the suction handle is insured by reason of the resilience of the shelf. A hose or other attachments may be applied to the upper connector member 21, and may be swung at any desired angle. Any desired number of hose units, herein shown as two, connected by intermediate couplings 32, may be employed. With the hose extensions may be combined fiber handles such as disclosed in my Patent No. 1,339,791, dated May 4, 1920. Any desired form of tool or applicator member or members may be attached at the end of the extensions, one such tool being illustrated in my Patent No. 1,403,524, dated Jun. 17, 1922. The hose pipe may be of any suitable type, as for example, that shown in my Patent No. 1,508,926, dated Feb. 11, 1919.
The cord reel is then hung upon the hook 26 and serves to keep the electrical connections 31 out of the way. When not in use, the hose pipe H or other extensions may be supported on the hook 27. Tools, extra paper bags, and all accessories may be stored in the shelf or tray G. When it is desired to employ the cleaning unit for floor cleaning purposes, the suction handle may be at once detached from the connector member 21 without disturbing the remainder of the accessories. The apparatus may then be operated in the usual manner for floor cleaning purposes, and when such cleaning operation is completed, the portable unit is returned to its closeted or stored position, in which it is immediately available for use in cleaning walls or for other purposes for which stationary systems are sometimes employed.

The hose extensions and cord reel may, of course, be removed from their supported positions and stored in the shelf G, where they are invisible. The parts of the shelf attachments are preferably made to correspond with the woodwork of the room in general appearance and decorative effect. Thus the whole device has a pleasing and ornamental effect, and does not detract from the neatness of the room in which the apparatus is employed.

Obviously, while all the parts herein described cooperate in the complete combination, portions of the apparatus constituting subcombinations also form part of my invention and their use is intended to be covered by the accompanying claims. Also variations in detail may be resorted to without departing from the spirit of the invention.

What I claim is:

1. A device of the character described, a flexible shelf supported at its opposite edges and a hollow connector carried thereby having its ends extending on opposite sides of the shelf and adapted respectively for connection to the suction handle and hose extension members of an air-way cleaning system.

2. In combination with a suction cleaner having a suction handle, a resilient shelf supported at its opposite edges, a hollow connector member carried by said shelf and yieldingly engaging the top of the suction handle, a second connector member operatively and rotatively connected to the first-mentioned connector member, and an extension pipe operatively connected to said second connector.

3. In combination with a suction cleaner, including a floor tool and a suction handle, supporting means for said cleaner, including a support for the floor tool, a resilient diaphragm-like shelf supported at its opposite edges located above the floor tool support, a hollow connector carried by said shelf, detachably engaging the top of the suction handle with a downward pressure at one end, and an extension pipe detachably connected to the other end of the connector.

4. In combination with a suction cleaner, including a floor tool and a suction handle, supporting means for said cleaner, including a support for the floor tool, a diaphragm supported from at least two points on opposite sides of the diaphragm, located above the floor tool support, a hollow connector carried by said diaphragm, detachably engaging at one end the top of the suction handle with a downward pressure, and an extension pipe detachably connected to the other end of the connector.

5. A device of the character described, a diaphragm having a double support, a hollow connector carried thereby, having its ends extending on opposite sides of the diaphragm and adapted respectively for connection to the suction handle and hose extension members of an air-way cleaning system.

6. In a device of the character described, a shelf biased to one position but yielding upwardly and supported from at least two widely separated positions, and an open-ended hollow connector carried thereby, one of its ends opening on the under side of the shelf.

In testimony whereof I affix my signature.

Daniel Benson Replogle.