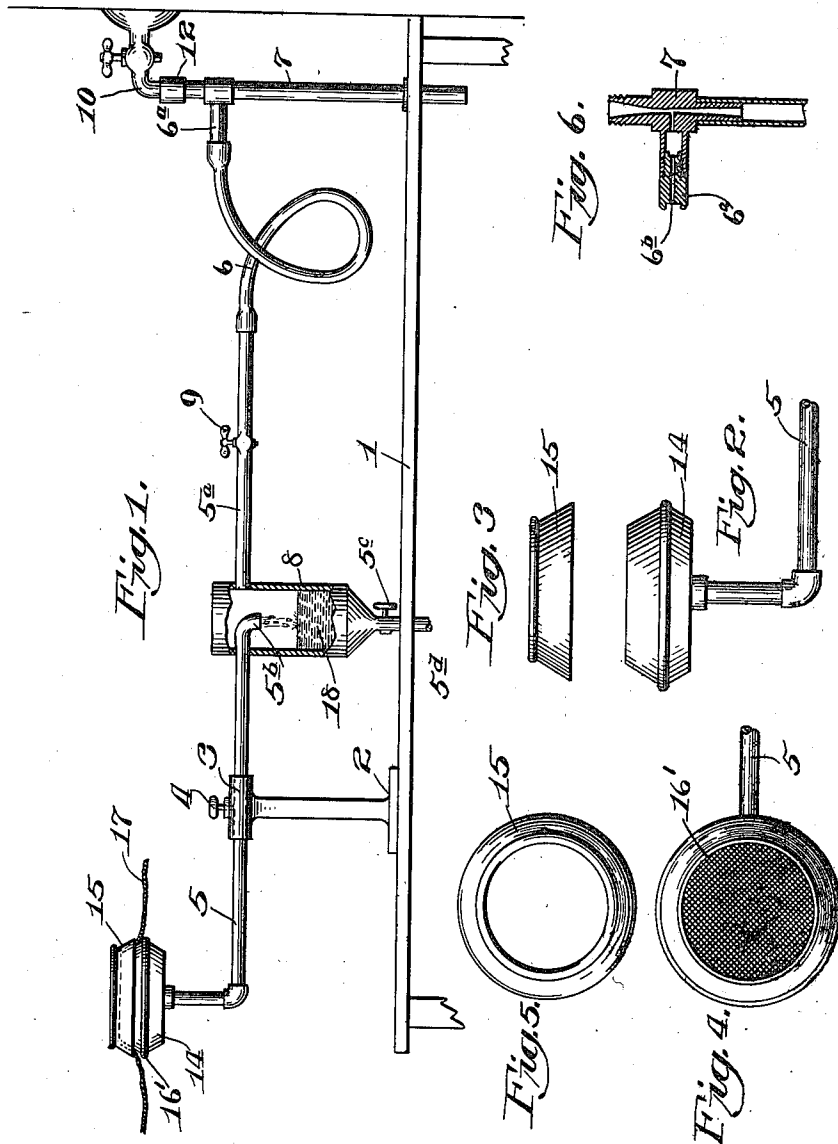


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VACUUM CLEANING APPARATUS.  
APPLICATION FILED NOV. 20, 1908.

963,723.

Patented July 5, 1910.

2 SHEETS—SHEET 1.



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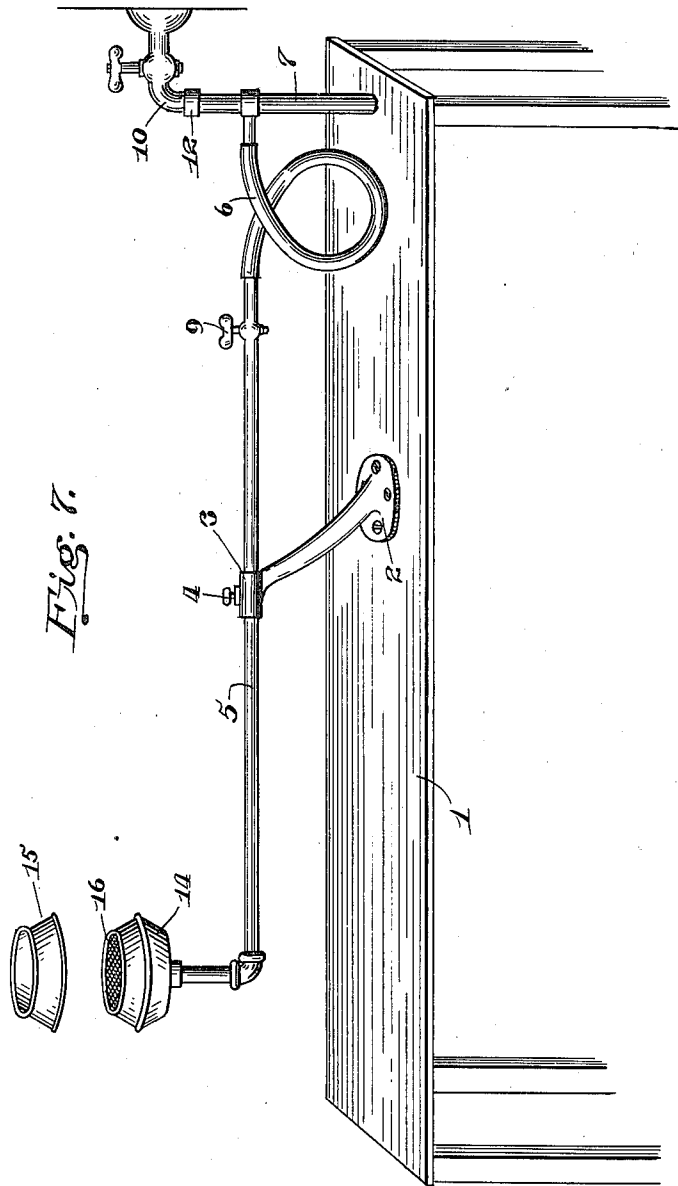


Fig. 7.

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# UNITED STATES PATENT OFFICE.

EDWARD WALLACE PIERCE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO JESSE W. STARR, 3D, OF ATLANTIC CITY, NEW JERSEY.

## VACUUM CLEANING APPARATUS.

963,723.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed November 20, 1908. Serial No. 463,554.

*To all whom it may concern:*

Be it known that I, EDWARD WALLACE PIERCE, a citizen of the United States, residing at Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Vacuum Cleaning Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to apparatus for the cleaning of fabrics and has for its object to provide a machine having a cleaning receptacle adapted in character and mounting to receive and suitably support an article of clothing to be cleaned, combined with means to create a suction or partial vacuum in said cleaning chamber, with tubular means suitably connecting said elements.

To that end my novel apparatus consists of the parts in combination, and in some of the elements thereof, as hereinafter described.

In the drawings illustrating my invention, Figure 1 is a side elevation, partly in section, illustrating the complete device in its best form. Fig. 2 is a side elevation, detached, of the cleaning receptacle, its holder ring removed therefrom, and the tubular means leading directly to the receptacle. Fig. 3 is a side elevation of the holding ring, detached. Fig. 4 is a plan view, illustrating the screen-top of the cleaning receptacle. Fig. 5 is a plan view of the holding ring, Fig. 6 is a vertical section of the vacuum-creating injector tube, and Fig. 7 is a modified form of the apparatus shown in Fig. 1.

Referring now to said drawings, 1 indicates a suitable stand or supporting platform, on which is mounted a bracket 2 having a tubular top 3, in which is a thumb-screw 4 to control a permissible lateral sliding movement in said sleeve, of a tube 5 leading to the base of the cleaning receptacle 14. This tube 5 may communicate directly, through a flexible portion 6, with the vacuum-creating device 7, as shown in side elevation in Fig. 7, but I prefer to divide the tube in two parts, 5 and 5<sup>a</sup>, as shown in side elevation in Fig. 1, so as to be able to interpose in the combined length thereof, a trap chamber 8 and the tubular discharge end 5<sup>a</sup> thereof may be conveniently supported in the platform 1; said tubular ter-

minial being governed by a stop cock 5<sup>c</sup>. If a trap 8 is used then the discharge end 5<sup>b</sup> of the tube is curved downward, as shown in Fig. 1. The portion 5<sup>a</sup> of the tubular connection between the cleaning receptacle and the vacuum-creating device, is provided with a stop-cock 9 and is connected to the injector tube 7 by a flexible tube 6. The flexible connection 6 is provided in the modified form of the apparatus shown in Fig. 7, to enable the rigid portion of the tube 5 leading to the cleaning receptacle, to be slidingly moved, for adjustment purposes, on the tubular top 3 of the bracket 2 mounted on the platform 1. Said flexible tube 6 is provided at its end with the usually needle-bored connection 6<sup>a</sup> forming part also of the transversely-disposed injector tube 7, which is the form of vacuum-creating device I prefer to use, because it is simple and effective and its screw-threaded inlet end may be provided with a union ring 12 to enable connection to be readily made to a bib or water spigot 10. The bore in the connection 6<sup>a</sup> is indicated by 6<sup>b</sup>.

The cleaning receptacle 14 is a hollow chamber of any suitable form, connected at its basal end to the curved end of tubular connection 5. I have shown it in the form of a double frustum of a cone, though the conical form of the basal portion has no utility, but making the upper half conical has utility as it enables a holding ring 15 of similar conical shape to be fitted wedge-like on the periphery thereof, the goods, indicated at 17 being interposed and stretched, in the sense of being devoid of wrinkles or looseness, in respect of the part to be cleaned, which part is arranged over a screen 16 (Fig. 4) mounted fixedly within the inner peripheral edge 16' of the receptacle 14 at the point indicated in Fig. 1.

The operation of the device can be readily understood from the foregoing description, plus the following, namely, goods to be cleaned are to be placed over the top of the receptacle 14 and over the screen thereon, and secured in place temporarily, by the holding ring. Water being turned on, to discharge through the injector tube, will create a suction through the tubular connections leading to the cleaning chamber, and in the latter. Any cleaning chemicals, soap, water or any usual solvent liquid commonly employed to remove grease, stains, &c., is then applied to that portion

of the goods held over the screen of the cleaning chamber. Ordinarily this would be drawn into and discharged through the injector tube, but to save it for re-use, I prefer to employ the interposed trap chamber 8, the cock 5<sup>c</sup> of which is normally closed during the operation, and afterward opened to allow the discharge of contained liquid cleaner 18 to any suitable bottle or other holder.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A vacuum cleaning apparatus comprising in combination a chambered receptacle having the upper portion of its periphery in the form of a frustum of a cone, a screen covering said open top, a holding ring adapted to coincide with the conical periphery of said receptacle, tubular means leading from the basal portion of said receptacle, an air-exhaust device communicating with said tubular means, and supporting means to maintain said elements in operative relation, substantially as described.

2. A vacuum cleaning apparatus comprising in combination a chambered receptacle having an open top, a screen therein, and a holding ring coinciding with the top of said receptacle, tubular means leading from the interior of the receptacle below the screen, including a terminal flexible tube, an injector tube with which said flexible tube operatively communicates, a valve-controlled source of water supply to which said injector tube is adapted to be coupled, and a supporting frame for said combined elements.

3. A vacuum-cleaning apparatus comprising in combination a chambered receptacle having an open top, means to removably maintain thereon an article to be cleaned, tubular means leading from the interior of said chambered receptacle, means communicating therewith adapted to create a partial vacuum in said chambered receptacle, a trap interposed in the length of said tubular means, and suitable supporting means adapted to support said elements in combined and operative relation, substantially as described.

4. A vacuum-cleaning apparatus comprising in combination a chambered receptacle

having an open top, means to removably maintain thereon an article to be cleaned, rigid tubular means leading from the interior of said chambered receptacle, a bracket with a sleeve in which said rigid tube is slidably mounted, a flexible tube operatively communicating with said rigid tube, and means at the opposite end of said flexible tube adapted to create a partial vacuum in said chambered receptacle, and suitable supporting means adapted to maintain said elements in operative relation, substantially as described.

5. A vacuum-cleaning apparatus comprising in combination a chambered receptacle having at its top portion an inwardly tapered peripheral edge, a screen mounted thereon, a wedge-shaped annular ring adapted to coincide with the peripheral edge of the chambered receptacle and operating to removably maintain thereon in tense condition an article to be cleaned, tubular means leading from the basal portion of said chambered receptacle and downwardly curved at its discharge end, a containing vessel having a cock-controlled outlet, and in which the curved end of said tube is mounted, means leading to said containing vessel adapted to create a partial vacuum therein, and suitable supporting means adapted to support said elements in combined and operative relation, substantially as described.

6. A vacuum cleaning apparatus comprising in combination a chambered receptacle having an open top, a screen over the same, a removable holding ring adapted to coincide with the top of said receptacle and operating to removably maintain thereon an article to be cleaned, tubular means leading from the basal portion of said receptacle, an air-exhaust device communicating with said tubular means, and suitable supporting means adapted to maintain said recited elements in combined and operative relation, substantially as described.

In testimony whereof, I have hereunto affixed my signature this seventeenth day of October A. D. 1908.

EDWARD WALLACE PIERCE.

Witnesses:

A. M. BIDDLE,  
R. A. DUNLAP.