No. 862,824. PATENTED AUG. 6, 1907.

L. O. HOWELL.

PNEUMATIC CLEANING DEVICE.

APPLICATION FILED OCT. 17, 1906.

Fig. 1.

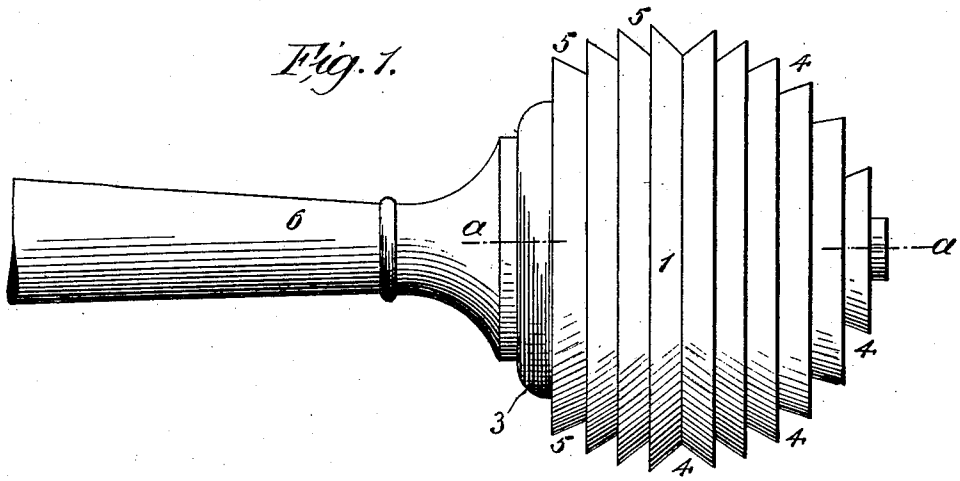


Fig. 2.

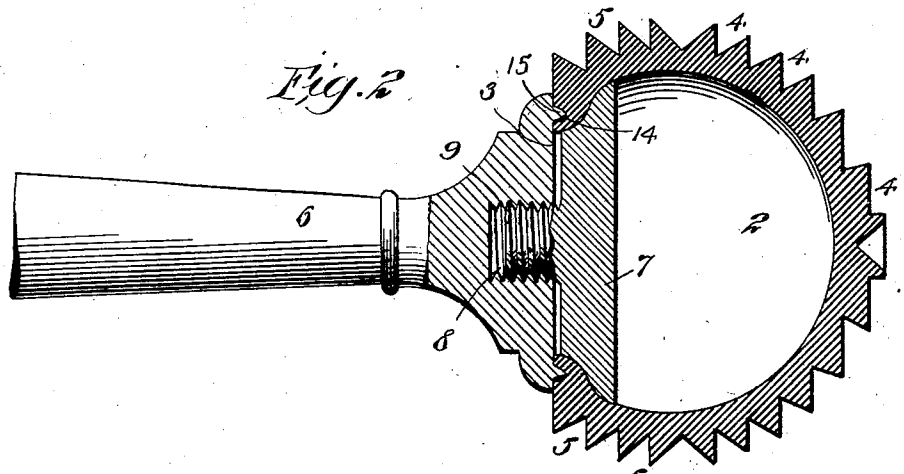
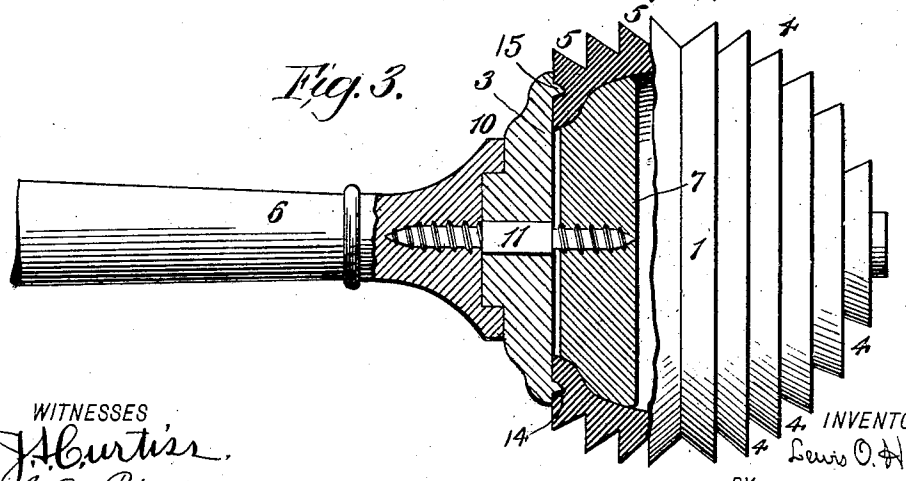


Fig. 3.



WITNESSES

J. A. Curtiss.

C. A. Pierce

INVENTOR

Lewis O. Howell

BY

A. M. Pierce,

ATTORNEY.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEWIS O. HOWELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO SANITARY APPLIANCE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PNEUMATIC CLEANING DEVICE.

No. 862,824. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed October 17, 1906. Serial No. 339,325.

To all whom it may concern:

Be it known that I, LEWIS O. HOWELL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic Cleaning Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates especially to devices employed for cleaning the bowls of water closets, and the like, and has for its object the provision of a pneumatic cleaner wherewith every portion of the interior of the bowl can be reached, my present invention being an improvement on the device patented to me October 3, 1882, No. 265,319.

To attain the desired end, my invention consists in certain novel and useful combinations or arrangements of parts, and peculiarities of construction and operation, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawing, Figure 1 is a side elevation of a pneumatic cleaner embodying my invention. Fig. 2 is an axial, sectional view at line *a*—*a* of Fig. 1. Fig. 3 is a like view of a modified form of construction.

Similar numerals of reference, wherever they occur, indicate corresponding parts in all the figures.

The body 1 of the device is hollow, preferably spherical in shape and made of compressible material, preferably rubber. The wall of this body portion is made sufficiently thick to give it some little rigidity, to enable it to oppose undue exterior compression and to provide corrugations of some depth which may thus have a movement independent of the wall of the body when brought into contact with a closet bowl by an up and down movement for cleaning purposes. The exterior of the body 1 is provided with two sets of a series of circumferential and concentric corrugations, those of one set 4 facing in the opposite direction to those of the other set 5, the dividing line between the two sets being at about the center of the spherical body; the flat faces of the lower corrugations 4 and the inclined faces of the upper corrugations 5 being away from the manipulating handle of the device, and substantially at a right angle thereto. By this construction of the corrugations and their relative arrangement, the device, in use, is capable of reaching and thoroughly cleansing beneath the flushing rim of a closet bowl, as well as the bottom and sides, and moreover the device is self-cleaning, as the corrugations, in a series, rub against each other, when the device is applied to use, thus producing a much more cleanly and useful article than that described in my aforesaid earlier patent 265,319 wherein a hemispherical body is shown which permits the cleaning of the bottom and sides only, of the bowl, there being no means provided therein for reaching beneath the flushing rim.

Continuing the description of the body 1, it will be observed that it is substantially spherical save for a segment which leaves the edge wall flat, surrounding a central aperture. The retaining washer of the manipulating handle is inserted, through this aperture, into the interior of the hollow body, and the flat edge of the wall surrounding the aperture is recessed to provide an annular groove 14 to receive a corresponding rib 15 on the enlarged basal end 3 of the handle 6 and said basal end may be integral with the operating portion 6 of the handle, as shown in Figs. 1 and 2, or separate therefrom as shown in Fig. 3.

In order to secure the manipulating handle 6 firmly in the body 1, and at the same time make such body air-tight, or hermetically sealed, I employ an inner washer 7, preferably made of wood. This washer may be provided with a screw-threaded extension 8, to engage a correspondingly threaded perforation 9 in the material of the handle 6, as shown in Fig. 2. or an outer separate washer 10 may be used, and a double-pointed metal screw 11, which engages the inner washer 7, and handle 6, as shown in Fig. 1 of the drawing; these being equivalent for the purposes of my invention. The enlargement of the handle 6, as in Fig. 2, or the inner face of the washer 10, is provided as above stated with a projecting annular rib which enters a corresponding annular depression on the flat meeting face of the compressible body 1, and the whole is cemented together, making a rigid union of all the parts and hermetically sealing the compressible body.

Having now fully described my invention what I claim as new therein and desire to secure by Letters Patent, is:

1. A pneumatic cleaning device in which is comprised a hollow and compressible body substantially spherical, provided with exterior corrugations arranged in two sets or series, one set facing in one direction, and the other set facing in the opposite direction, in combination with a manipulating handle mounted at a right angle to both series of corrugations, substantially as shown and described.

2. A cleaning implement of the class recited comprising a hollow compressible body apertured at one end and having on its exterior two oppositely-disposed series of corrugations substantially concentric and of a depth sufficient to make them independently flexible, and a manipulating handle mounted over said aperture in the body portion of the implement and in a plane substantially at a right angle to said series of corrugations thereon.

3. A cleaning implement of the class recited comprising a hollow compressible body apertured at one end and having exterior corrugations flat on one side and inclined on the opposite, said corrugations being substantially concentric and arranged in two sets or series, the flat faces of

each set facing in opposite directions, in combination with a manipulating handle and with means to fixedly mount it in the aperture of said hollow body.

4. A cleaning implement of the class recited comprising a hollow compressible body substantially spherical in form, but segmentally sectioned to provide a circular aperture with a flat annular lip, a series of corrugations on the exterior of said body concentric with each other and with said aperture, a manipulating handle having a basal portion the underface of which is adapted to rest upon and register with said flat annular lip, with means to fixedly secure said handle to the body portion of the implement.

5. A cleaning implement of the class recited comprising a hollow compressible body substantially spherical in outline but segmentally sectioned to provide a flat annular lip surrounding the segmental opening, the face of said lip being annularly grooved, a manipulating handle having an enlarged basal portion the flat face of which is provided with an annular rib adapted to register with said groove, a washer bearing against the underface of said lip, and means to unite said washer and the basal portion of the handle against said interposed lip of the segmental opening in the body of the implement.

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

LEWIS O. HOWELL.

Witnesses:
RAYMOND MICHEL,
CHARLES H. ORTT.