

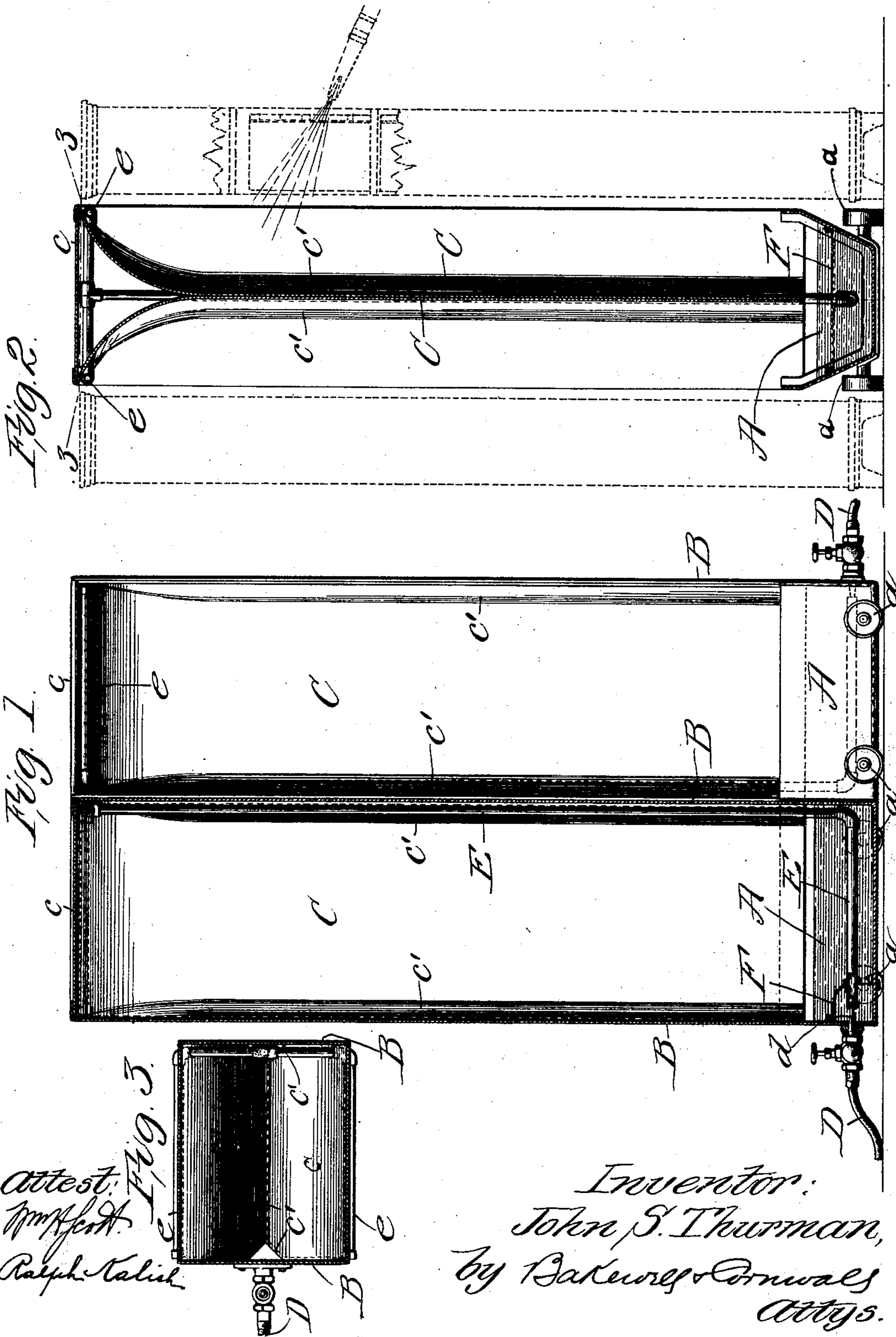
No. 697,567.

Patented Apr. 15, 1902.

J. S. THURMAN.
HYDROPNEUMATIC RENOVATOR.

(Application filed June 22, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN S. THURMAN, OF ST. LOUIS, MISSOURI.

HYDROPNEUMATIC RENOVATOR.

SPECIFICATION forming part of Letters Patent No. 697,567, dated April 15, 1902.

Application filed June 22, 1901. Serial No. 65,703. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. THURMAN, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Hydropneumatic Renovators, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view, partly in section, of my improved hydropneumatic renovator. Fig. 2 is a vertical sectional view through the same; and Fig. 3 is a horizontal sectional view taken on line 3 3, Fig. 2.

This invention relates to a new and useful improvement in hydropneumatic renovators, designed particularly for use in libraries and other places where the accumulated dust when dislodged is to be collected.

The objects of my present invention are to construct in a simple and cheap manner a device of the character described which will enable the renovation of libraries without necessitating the removal of the books from the shelves.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings I have shown in dotted lines in Fig. 2 tiers of shelves upon which books are arranged, the nozzle of a flexible hose emitting a blast of compressed air being also illustrated. This blast of air is of sufficient strength to dislodge and carry before it particles of dust, and, as will be obvious, said blast can be directed between the books and in corners and in crevices without requiring the handling of the individual books for purposes of renovation. So far as the use of a nozzle on the end of flexible hose leading from some suitable source of compressed-air supply for the purpose of dislodging dust is concerned such a construction has been heretofore employed, and therefore I do not herein claim the same, except in combination with my improved apparatus, as will hereinafter be specified in the claims.

I have shown between the two tiers of bookshelves, to which I have before referred, my improved apparatus, into which dust dislodged from either tier may be received and collected. It is, however, obvious this apparatus can be constructed so as to have but one side into which the dust-laden air is directed instead of the two sides shown.

In the drawings, A indicates a trough-shaped receptacle containing a suitable liquid, and which for purposes of easy transportation is preferably mounted on rollers *a*.

B indicates the end walls, which extend upwardly a suitable distance. Said end walls in addition to confining the dust-laden air also form supports for a curtain wall or walls C. As shown in Figs. 2 and 3, where two of these curtain-walls are employed, they are arranged back to back and extend upwardly above and centrally with respect to the trough-shaped receptacle A. The upper ends of these curtain-walls are curved outwardly and support a top cover-plate *c*.

D indicates a flexible pipe leading from a source of compressed-air supply, which pipe is provided with a nozzle *d*, introduced into the receptacle A at some point below the line of the level of the liquid contained therein.

E indicates a pipe having one end surrounding the nozzle *d*, said pipe extending along one of the end walls to the top of the apparatus, where it divides into branches, said branches having perforated or slotted members *e*, located at the outer edges of the curved upper ends of the curtain-wall. The openings or slots in these members *e* form a discharge for the liquid therefrom and are so arranged as to direct the liquid forced thereinto by the action of nozzle *d* inwardly toward and against the curtain-wall C, as shown in Fig. 2. In this manner the blast of dust-laden air directed into the apparatus will strike against the sheet of falling liquid on the curtain-wall, the particles of dust carried thereby being caught by the liquid. The dust caught by the falling liquid is carried down into the receptacle A, and in order to prevent the same entering the pipe E, I protect the open end of said pipe, into which the nozzle *d* is introduced, by a fine-mesh wire-gauze F.

As shown in Fig. 3, there are spaces provided between the edges of the curtain-wall by

providing fillet-walls *c'* near the end walls B, whereby pipe E is practically housed throughout its length. In Fig. 3 it will also be seen that the construction there illustrated is in the form of a unit, and by referring to Fig. 1 it will be observed that there are two of these units arranged end to end. This is to enable the apparatus to make the short turns necessary in passing in and out of the spaces between the tiers. The two units illustrated in Fig. 1 are employed together, and it is obvious that by connecting the pipe D at the sides instead of at the ends of the receptacle A any number of these units may be arranged end to end. The construction of all of the units is substantially the same, and, if desired, means may be provided for connecting them together, so that they will remain stationary and close to each other.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my renovator may be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the combination with a curtain-wall, of means for projecting liquid against the front face thereof, substantially as described.

2. In an apparatus of the character described, the combination with a curtain-wall, of end walls, and means for projecting liquid against the front face of said curtain-wall, substantially as described.

3. In an apparatus of the character described, the combination with a receptacle, of a curtain-wall extending thereabove, end walls coincident in height with the curtain-wall, and means for projecting liquid against the front face of the curtain-wall, substantially as described.

4. In an apparatus of the character described, the combination with a receptacle whose end walls are projected upwardly, of curtain-walls located centrally with respect to said receptacle and extending from end wall to end wall to the top thereof, the upper ends

of said curtain-walls being curved outwardly, and means for projecting liquid from the top edges of said curtain-walls downwardly in front thereof, substantially as described.

5. In an apparatus of the character described, the combination with a receptacle containing a liquid, of a curtain-wall, a nozzle entering said receptacle below the line of the level of the liquid therein, a pressure-supply pipe connected to said nozzle, and a pipe for receiving liquid injected thereinto by the blast from said nozzle, said pipe leading to the upper edge of the curtain-wall where it is provided with a discharge for directing the liquid in front of the curtain-wall and into the receptacle, substantially as described.

6. In an apparatus of the character described, the combination with a receptacle containing a liquid, of a curtain-wall, a pipe leading from said receptacle to the upper edge of the curtain-wall, the upper end of said pipe being formed with a discharge for directing liquid downwardly in front of the curtain-wall and into said receptacle, and means for forcing the liquid from said receptacle up into and through said pipe, substantially as described.

7. In an apparatus of the character described, the combination with a receptacle, of a curtain-wall, a nozzle entering said receptacle below the line of the level of the liquid contained therein, a pipe in line with said nozzle for receiving liquid forced thereinto by a blast emanating from said nozzle, said pipe extending to the upper edge of the curtain-wall where it discharges said liquid, and a screen around the nozzle, substantially as described.

8. An apparatus for collecting and precipitating dust from air comprising a housing open at one side, the back wall of said housing having a sheet of water constantly traversing the same, substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 20th day of June, 1901.

JOHN S. THURMAN.

Witnesses:

GEORGE BAKEWELL,
RALPH KALISH.