

Dec. 29, 1925.

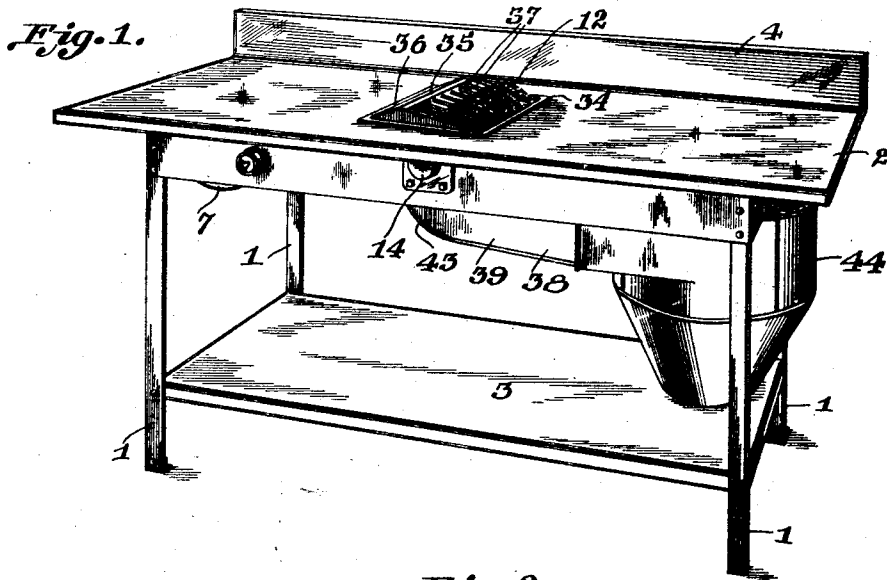
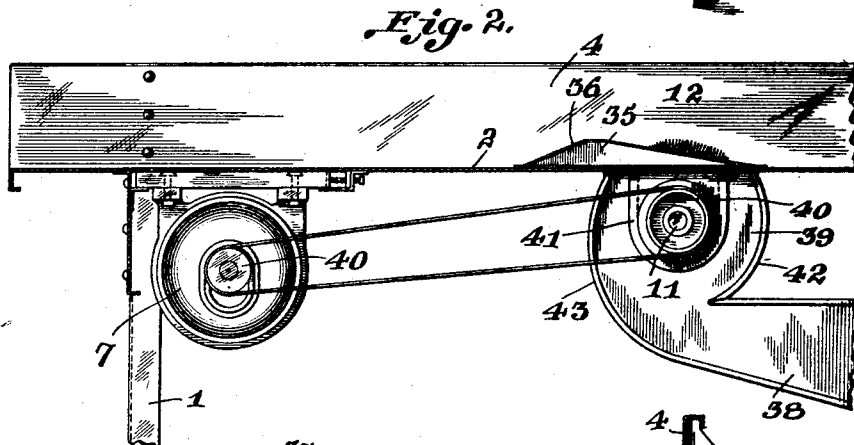
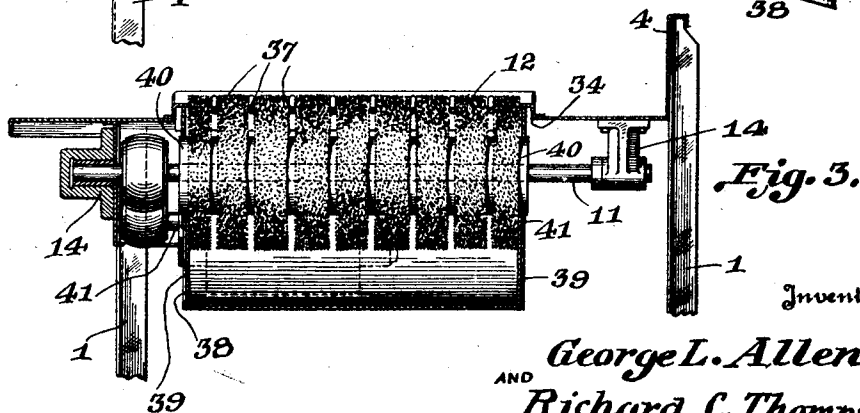
1,567,693

G. L. ALLEN ET AL

CLEANING MACHINE

Original Filed May 29, 1922

3 Sheets-Sheet 1



Inventors

George L. Allen
AND
Richard C. Thompson
Parker Corp. Attorney

Dec. 29, 1925.

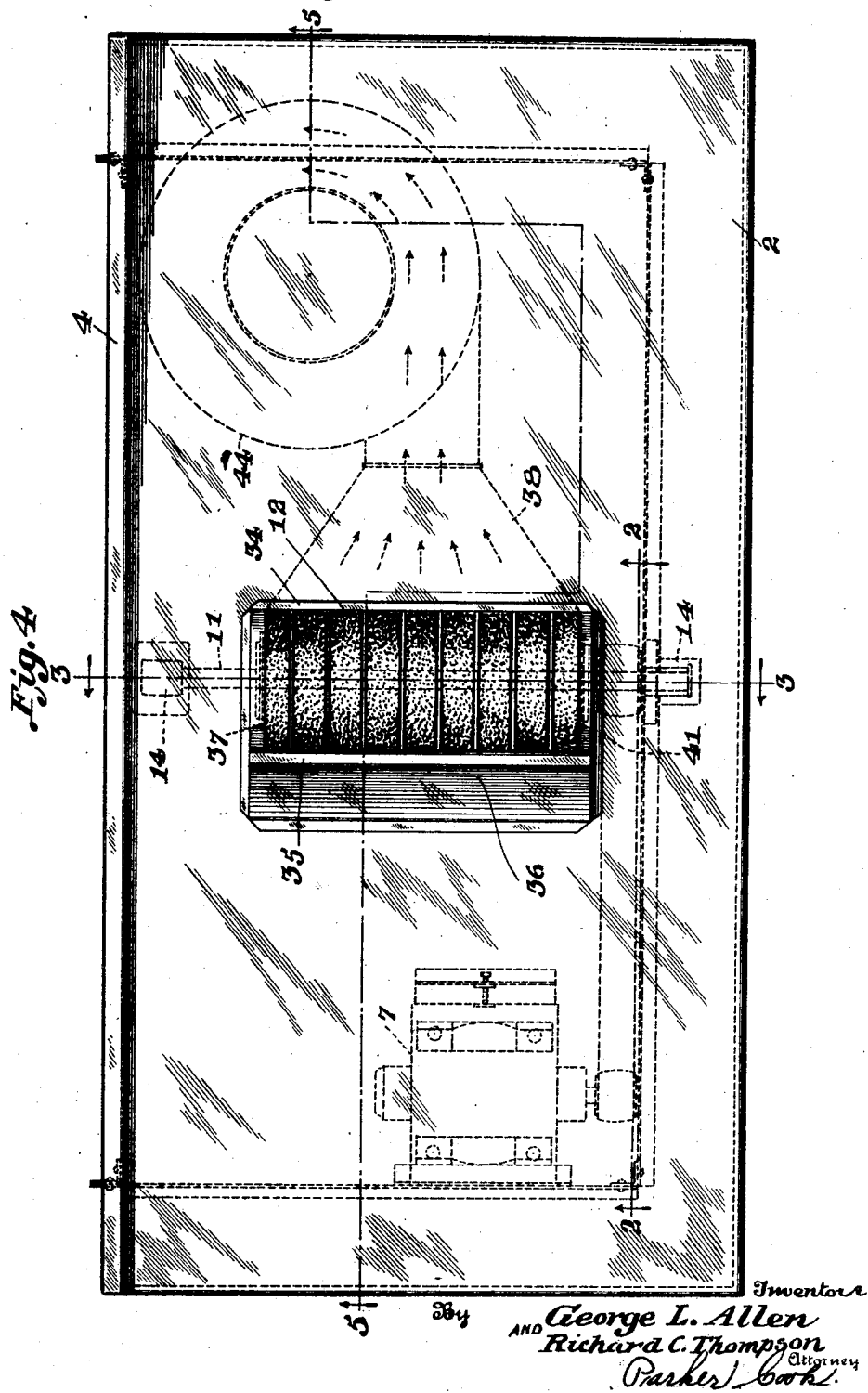
1,567,693

G. L. ALLEN ET AL

CLEANING MACHINE

Original Filed May 29, 1922

3 Sheets-Sheet 2



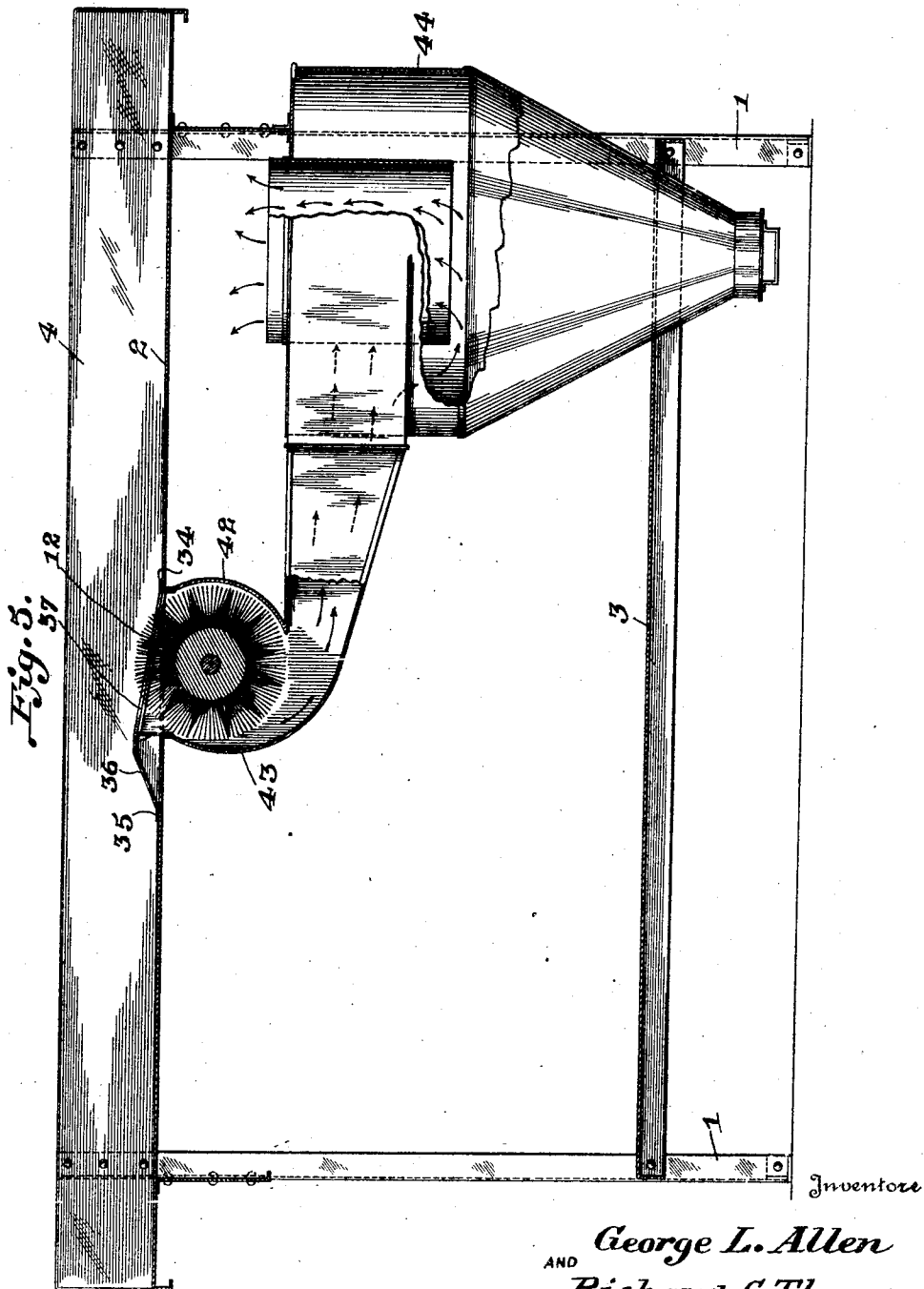
Dec. 29, 1925.

1,567,693

G. L. ALLEN ET AL

CLEANING MACHINE

Original Filed May 29, 1922 3 Sheets-Sheet 3



AND

George L. Allen

Richard C. Thompson

Barber & Cook

Attorney

UNITED STATES PATENT OFFICE.

GEORGE L. ALLEN AND RICHARD C. THOMPSON, OF SAVANNAH, GEORGIA, ASSIGNORS
TO THE ALLEN ENGINEERING AND MANUFACTURING COMPANY, A PARTNERSHIP
COMPOSED OF GEORGE L. ALLEN, WARREN BUTLER, AND J. J. WEIGLAND, OF
SAVANNAH, GEORGIA.

CLEANING MACHINE.

Original application filed May 29, 1922. Serial No. 564,323. Divided and this application filed October 2, 1923. Serial No. 686,089.

To all whom it may concern:

Be it known that GEORGE L. ALLEN and RICHARD C. THOMPSON, citizens of the United States of America, residing at Savannah, in the county of Chatham and State of Georgia, have invented certain new and useful Improvements in Cleaning Machines, of which the following is a specification.

Our invention relates to new and useful improvements in cleaning machines, and the present application is a division of the application filed by us on May 29th, 1922, Serial No. 564,323, Patent No. 1,476,133, December 4, 1923.

One of the principal objects of the present invention is to provide a table beneath the lower surface of which is a rotary cleaning brush, a portion of the brush, however, extending above the surface of the table, so that the articles to be cleaned may be freely passed along the top of the table, contact with the ends of the revolving bristles or other material of which the brush may be made, and thus be vibrated to quickly loosen the dust and dirt.

In its broadest aspect, the machine is similar to the cleaning machines described in the patent to A. L. Hildreth and A. M. McLendron, No. 1,381,553, June 14, 1921, but different in its mechanical construction, and also evolving a principle far different from the principle used in the forementioned machine.

Another one of the objects of the present invention is to provide a table and the revolving brush, the brush contacting and vibrating the material to loosen the dust and dirt in the material, and at the same time, so encase the brush that it will produce a partial vacuum in the casing to thereby draw the dust into a centrifugal separator, the dust then dropping to the bottom of the separator and the clarified air passing upwardly through the separator and through the room.

Still other objects of the invention is to provide a cleaning machine which is very efficient in service, economical in construction, the cleaning brush acting as a prime mover, it vibrating the cloth to be cleaned and also forming a vacuum; thus, although eliminating the ordinary suction fan, a vacuum is formed and the dust directed to a centrifugal separator. The necessity of an

exhaust pipe is dispensed with, thus making the cleaning machine a mobile article.

With these and other objects in view, the invention consists in certain new and novel combinations and arrangements of parts as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawings showing a preferred embodiment of the invention,

Fig. 1 is a perspective view of our improved cleaning machine,

Fig. 2 is an enlarged longitudinal section taken on line 2—2 of Fig. 4,

Fig. 3 is a vertical sectional view taken on line 3—3 of Fig. 4,

Fig. 4 is a top plan view of the table, the dotted line showing the arrangement of the motor and the hood for the brush as well as the centrifugal separator, and

Fig. 5 is a longitudinal section taken on the line 5—5 of Fig. 4.

Referring to the drawings more in detail, there is shown a table comprising the legs 1, the top 2, the shelf 3, and the raised back 4, all of which may be made of metal and enameled or otherwise finished to provide a pleasing appearance.

Suitably mounted beneath the table, and near one end thereof is a motor 7 which drives the shaft 11 on which shaft is secured the dusting brush 12, the shaft being mounted in suitable bearings 14.

A rectangular opening 34 is formed in the top of the table in which fits the small rectangular frame 35 which is slightly elevated at 36 near its rear end, the top portion thereof being substantially in a plane with the top of the bristles of the brush 12. The frame may be provided across its face with guard wires 37 or may be otherwise substantially divided into compartments so that the bristles of the brush which also may be divided into sections will fit within the compartments or between each of the guard wires.

The diameter of the brush and the location of the shaft is such that the brush protrudes above the top of the table as may be seen in the several figures to contact with and vibrate the material to be cleaned, as the material is moved across the top of the table.

Referring now to the important feature of the invention, there is shown a hood 38

which encloses the greater part of the dusting brush 12, the hood comprising two end plates 39, which plates may have the U-shaped openings therein through which the ends 40 of the core of the brush may pass, and over these U-shaped openings are secured the cover plates 41 to encircle their ends 40. This arrangement is to provide an air-tight covering or encasement for the portion of the brush which is below the surface of the table.

A front and rear plate 42 and 43, respectively, of the hood are shown the front plate 42 being concentric with the brush, while the contour of the latter plate 43 is in the arc of a circle eccentric with the brush and in such a position as to produce a narrow opening at the top and widening to the maximum extent at the bottom. The object of this construction is to create a high velocity of air at the point where the brush comes in contact with the fabric. From here the air and dust continues into the centrifugal dust separator 44 securely mounted beneath the table.

The advantages of a construction of this form are apparent; in the first place the addition of a separate suction fan is done away with; second, there is a lessening of expense and also lessening in the cost of operation of the machine.

It will be noted that the brush is located inside the air passage, it acting as a rotor to form the vacuum, and also functioning as a vibrator to loosen the dust from the clothes to be cleaned. In this way, it is different from the patent to Hildreth, et al, mentioned, and to any other form of cleaning machines of which we are aware.

One form of centrifugal separator is shown, and it is to be understood that any other suitable form might be used, the object to be obtained being that the dirt and dust from the clothes, together with the air carrying the dust will be passed through the separator, the dust collecting at the bottom, and the air being clarified and liberated into the room.

Many slight changes might be made without in any way departing from the spirit and scope of the invention.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:—

1. A cloth cleaning machine comprising a table, a brush rotatably mounted beneath the top of the table and a portion of the same extending above the table, means for rotating said brush, a casing for the brush enclosing that part of the brush that is be-

neath the surface of the table, the axis of said brush being disposed concentrically with one portion of the casing and eccentrically to another portion thereof, the shape of the casing and the disposition of the brush being such that the rotation of said brush forms a vacuum in said casing to thereby direct the dust through the casing.

2. A cloth cleaning machine comprising a table, a brush rotatably mounted beneath the top of the table and a portion thereof extending above the table, a hood enclosing the major portion of said brush, one portion of the hood being concentric to the axis of the brush, the upper edge of the latter part being substantially in contact with the ends of the bristles of said brush and the lower part being spaced from the bristles of said brush, means for rotating said brush in a downward direction with reference to the upper edge of the eccentric portion of the hood, the brush acting in its capacity as a brush and also as a rotor to form a partial vacuum, the greatest velocity of the air being at a point where the brush comes in contact with the fabric and the resistance to the travel of the air being lessened near the bottom of the brush, and said hood being formed for connection with an outlet for dust.

3. A cloth cleaning machine comprising a table, a brush rotatably mounted beneath the top of the table and a portion thereof extending above the table, means for rotating said brush, a hood enclosing the major portion of said brush, one portion of the hood being concentric to the axis of the brush and another portion of the hood being eccentric to the axis of the brush, the upper end of the latter being substantially in contact with the ends of the bristles of said brush and the lower portion being at a maximum distance from the ends of the bristles of said brush, and the brush revolving in a direction to approach downwardly the upper end of the eccentric portion of the hood, the said hood having a curved neck and a bell mouth, the brush acting in its capacity as a brush and also as a rotor to form a partial vacuum, the greatest velocity of the air being at a point where the brush contacts with the fabric and the resistance to the travel of the air being lessened near the bottom of the brush and said bell mouth being formed for connection with an outlet for dust.

In testimony whereof we affix our signatures.

GEORGE L. ALLEN.
RICHARD C. THOMPSON.