(No Model.) 2 Sheets—Sheet 1.

K. GIRVIN.

CARPET CLEANER.

No. 585,843. Patented July 6, 1897.

FIG. 1.

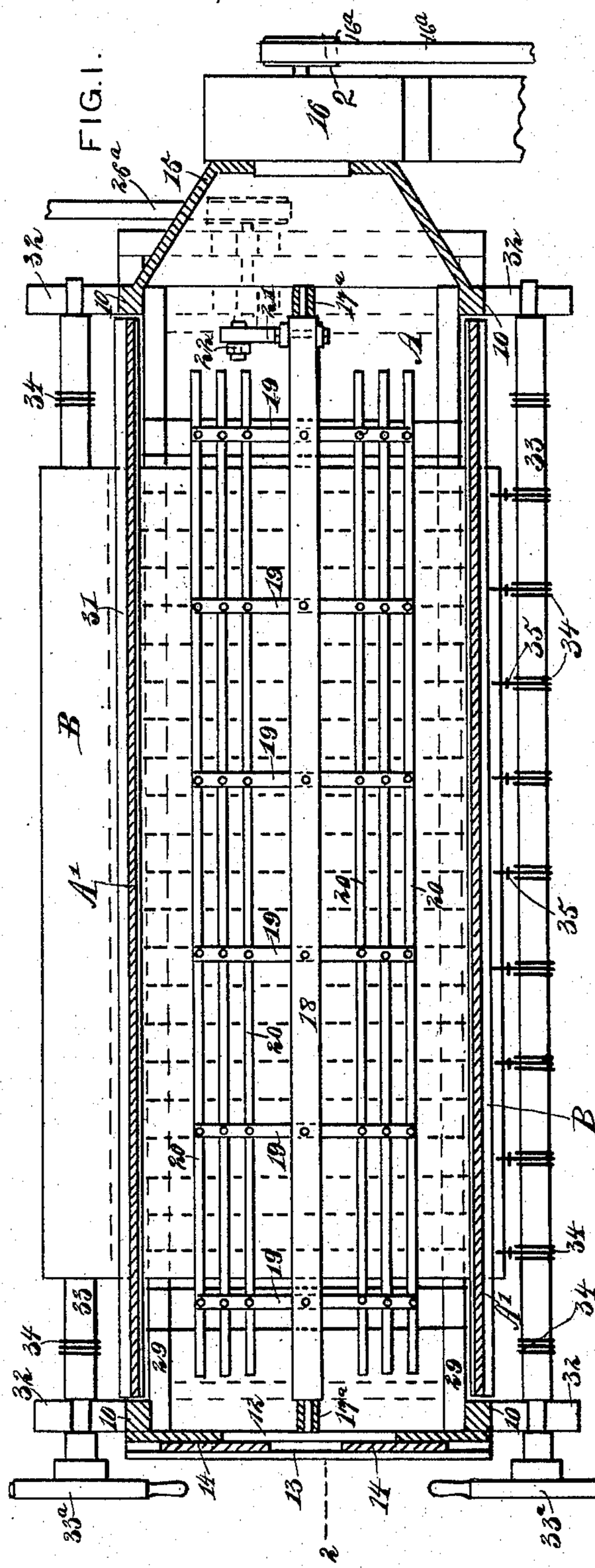
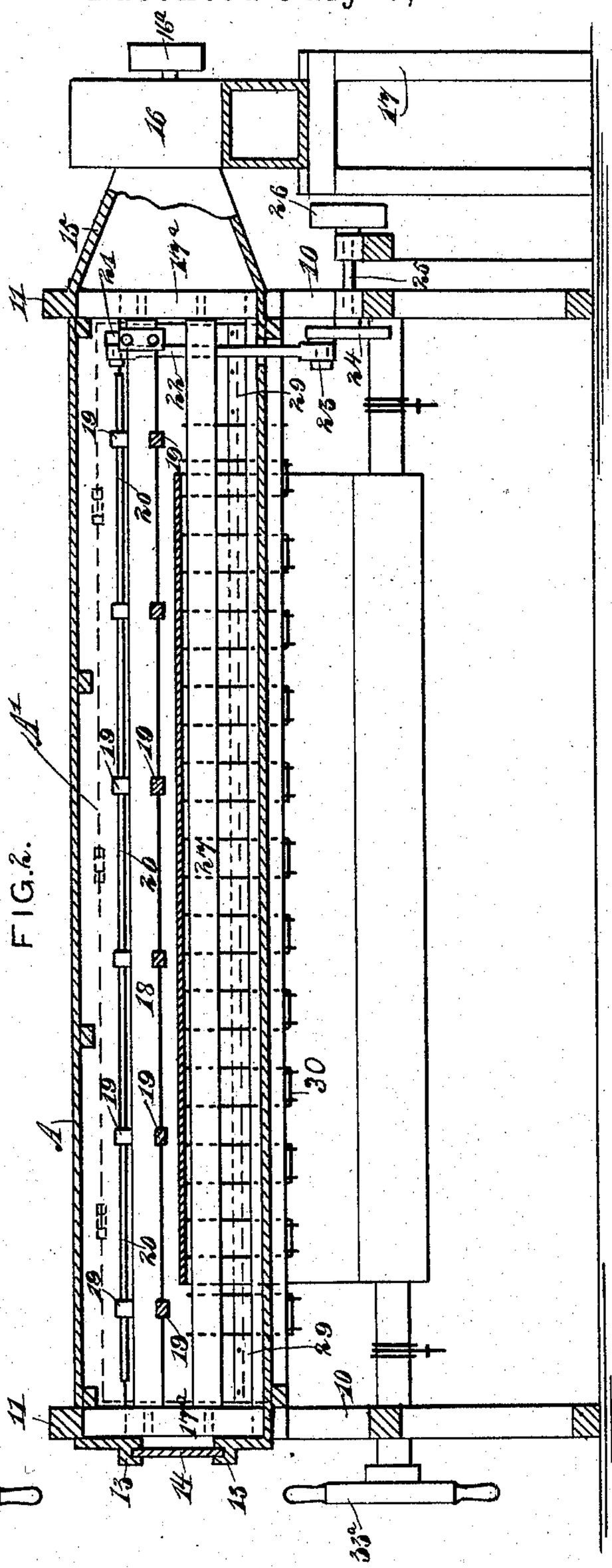


FIG. 2.



WITNESSES:

Donn Twitchell

J. Fred. Acker.

INVENTOR

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BY Munn & Co

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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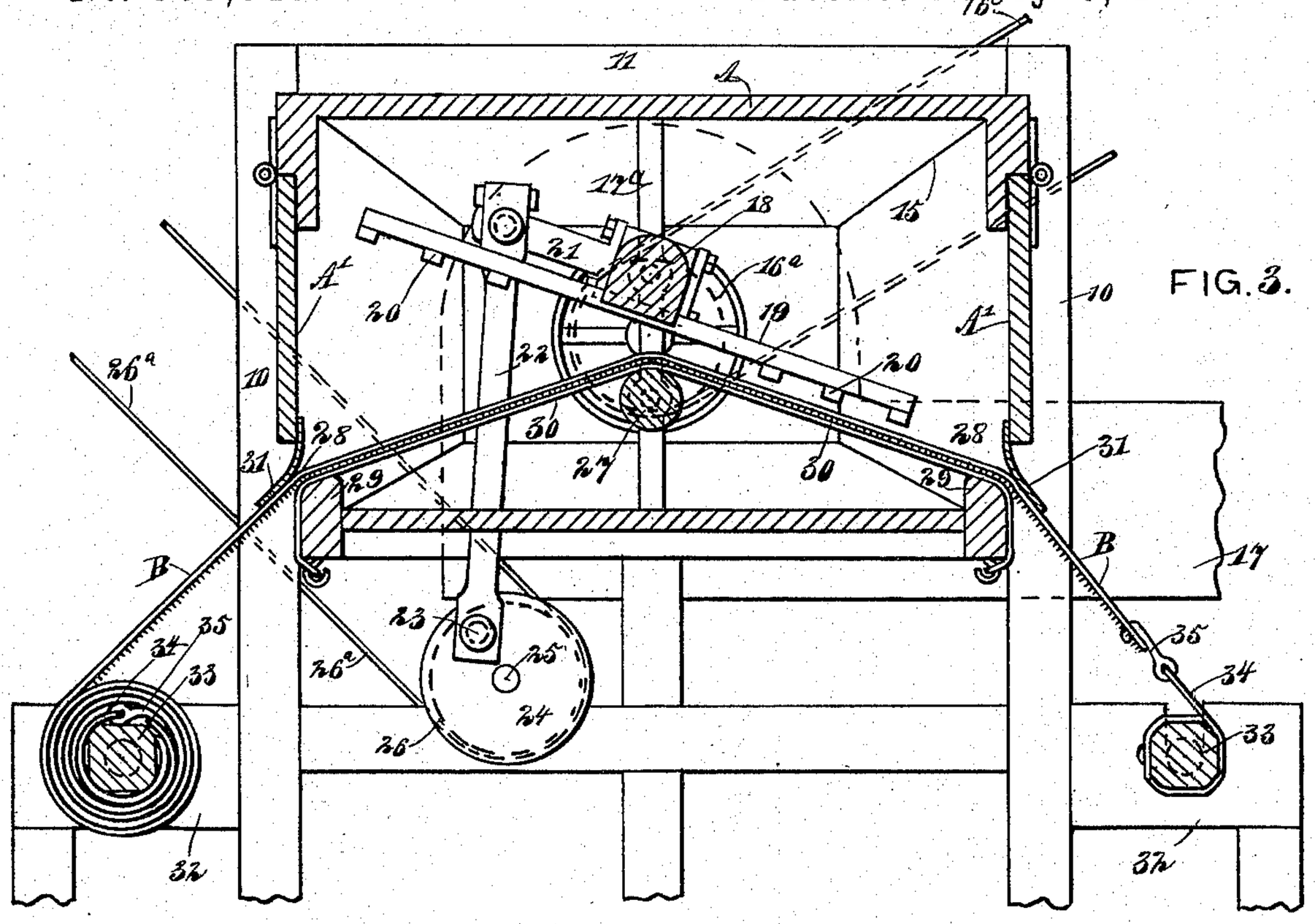
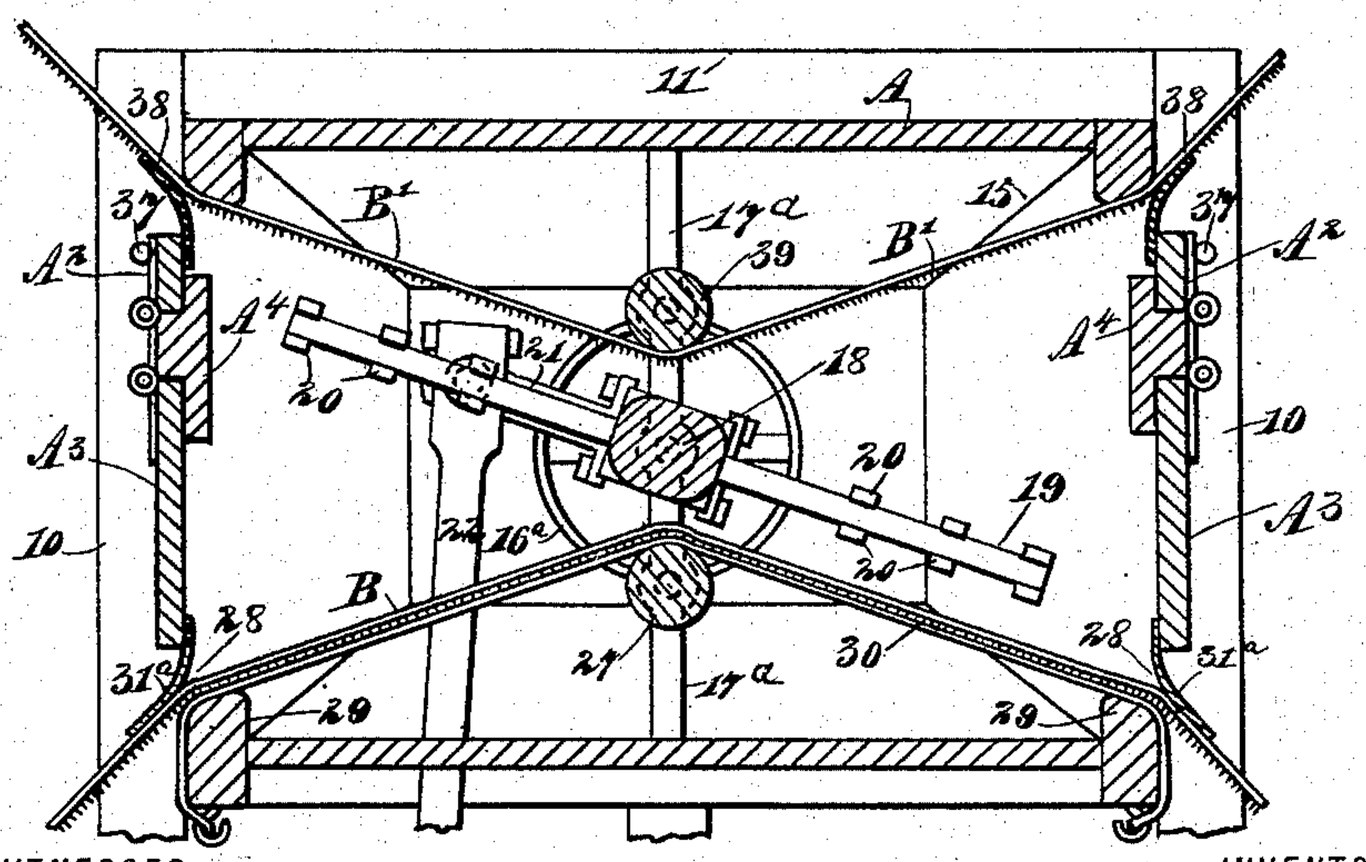


FIG. 3.

FIG. 4.



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UNITED STATES PATENT OFFICE.

KELLY GIRVIN, OF BROOKLYN, NEW YORK.

CARPET-CLEANER.

SPECIFICATION forming part of Letters Patent No. 585,843, dated July 6, 1897.

Application filed May 8, 1896. Serial No. 590,706. (No model.)

To all whom it may concern:

Be it known that I, KELLY GIRVIN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Carpet-Cleaning Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a carpet-cleaning machine constructed in an exceedingly simple and durable manner and so that a carpet may be expeditiously and conveniently fed through the machine and beaten and thoroughly cleaned without injury to the pile of Brussels or like carpets and without tearing or injuring ingrain or similar carpets.

A further object of the invention is to provide a machine so constructed that the dust incident to beating and cleaning will be removed from the body of the machine, and consequently from the portion of the carpet being cleaned, as soon as the dust has been extracted from said carpet.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a horizontal section through the machine. Fig. 2 is a vertical section taken about centrally through the machine on the line 2 2 of Fig. 1. Fig. 3 is a transverse section through the machine at a point near its center, and Fig. 4 is a transverse section slightly modified in its construction from that shown in the other figures.

In carrying out the invention a box-body, forming a chamber A and made of any suitable material, is supported ordinarily by uprights 10, connected at the top by cross-bars 11, and the said uprights below the box or chamber may be connected and braced in any suitable or approved manner. At what may be termed the "front end" of the box or chamber A an opening 12 is made, and at the top and bottom of said opening slideways 13 are formed, in which gates 14 are held to travel, the said gates being adapted to entirely or partially close the opening 12, as shown in Figs. 1 and 2. The opposite or outer end of the box or chamber A is open and is provided with a tapering or substantially conical extension 15, having an opening in its end wall in communication with an exhaust-fan 16, which is driven from a suitable pulley 16^a by means of a belt 16^b, carried to any source of power, and the exhaust-fan is supported upon a base 17 of any approved construction.

Uprights 17^a are located at the central end portions of the chamber or body A, as shown in Figs. 1 and 2, and in these uprights the trunnions of a shaft 18 are journaled, the said shaft extending the entire length of the chamber. This shaft is ordinarily made polygonal in cross-section, as shown in Fig. 3, and a number of beater-arms 19 are secured to the bottom of the shaft, extending beyond both sides thereof, and the various beater-arms are connected by slats 20, or their equivalents, the said slats being in suitable number and preferably equally distributed at each side of the shaft.

The shaft 18 is given a rocking motion, preferably through the medium of a crank-arm 21, placed ordinarily near its rear end, the said crank-arm being pivotally connected with a pitman 22, which pitman is pivoted upon a crank-pin 23, located on a crank-disk 24, placed upon a shaft 25 and driven by a pulley 26, connected by a belt 26^a with suitable power. Immediately below the rock-shaft 18 a roller 27 is journaled in the aforesaid uprights 17^a, as shown in Figs. 2 and 3, and at each side of the box or chamber A a door A′ is located, having a hinge connection with the upper portion of the said chamber or box, as shown in Fig. 3, and these doors extend practically from end to end of the chamber, but are of such width that an opening 28 is provided between their lower ends and the lower bottom side wall 29 of the chamber, which latter side wall has a curved or beveled upper edge. Cords, ropes, or cables 30 are preferably detachably secured to the bottom of the chamber or box A at each side and are carried inward over the inclined surfaces of the bottom side walls 29 and over the roller 27, as is particularly shown in Fig. 3, the spaces 28 being normally closed by strips 31 of cloth or like yielding material attached to the inner faces of the said doors A′ and extending sufficiently far downward therefrom

to engage with and extend downward alongside of the bottom side walls 29 when the machine is not in use.

At each side of the bottom portion of the supporting-framework of the box or chamber A an extension-frame 32 is constructed, and in each extension-frame a shaft 33 is journaled, preferably polygonal in cross-section except where it enters its bearings. Chains, cables, or ropes 34 or the equivalents of the same are attached to the shafts 33 at given intervals in their length, and each chain or cable 34 is provided with a hook 35 or other form of clamp at its free end. These hooks or clamps are engaged with the ends of the carpet B to be cleaned, the carpet being rolled upon one shaft and then passed pile downward through the opening 28 on that side into the box or chamber between the flexible extension 31 of the door at that side and the adjacent bottom side wall 29, over the cords or cables 30, and consequently over the roller 27, thence out through the opposing space 28 in similar manner as when entered to an attachment to the opposing shaft 33, as shown in Fig. 3. The winding-shafts 33 are provided with hand-wheels 35^a at one or both of their ends, in order that they may be manipulated by hand, if desired, but they may be operated by power.

In the operation of this form of the machine, the carpet being passed through the body or chamber of the same, as shown in Fig. 3, when the rock-shaft is in motion the beater-arms and connecting-rails will alternately engage with the carpet at opposite sides of the roller 27 and will force the dust and foreign matter out therefrom, and this motion is continued throughout the entire cleaning of the carpet, and when one section has been cleaned the said cleaned section is rolled upon the winding-shaft 33, to which the outer end was attached, bringing another surface under the action of the beaters, but as soon as the dust is driven from the carpet it is carried out from the box or chamber by the exhaust-fan sucking the air from the opening 12, regulated by the gates 14.

Instead of cleaning one carpet only at one operation, two carpets may be cleaned at the same time, as shown in Fig. 4. In this form of the machine two doors are employed at each side of the chamber or box A, an upper small door A^2 and a lower small door A^3, both being attached to a longitudinal support A^4, and a space 28 is made to intervene the upper door and the upper portion of the box and the lower door and the lower portion of the box. The upper spaces, however, are normally closed by strips 38, of rubber or a like material, secured to the upper door, while a fabric or similar substance 31^a normally closes the lower spaces, being attached to the lower door. One of the carpets, B, is passed through the machine in the manner heretofore described and the other carpet, B′, is passed through the machine at the upper side openings and over a second roller 39, located over the rock-shaft, the pile or wearing surface of the carpet facing downward, and the beater-arms 19 are in this instance provided with slats 20 at both top and bottom.

In the operation of this form of the machine the two carpets will be simultaneously struck by opposing beater-arms, and the dirt from the upper carpet will fall upon the back of the lower carpet, and all of the dirt will be drawn out by the exhaust-fan. The cables 30 within the body or chamber are really supporting-cables and prevent the carpet from sagging under the influence of the blows it will receive from the beaters. When the upper carpet B′ has been introduced into the machine, the upper doors A^2 may be kept in closed position by means of pins or bolts 37.

It will be seen that by providing a supporting-surface inclining toward the axis of the beaters the beaters will have greater throw and thus deliver a more effective blow in a chamber of given size than would beaters operating in conjunction with a horizontal supporting-surface.

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

1. A carpet-cleaning machine, comprising a casing having an inlet and outlet for the carpet at opposite sides, a support for the carpet of yielding material arranged within the casing, said support inclining from a central rest downwardly to the inlet and outlet of the casing and having its edges secured to the sides of the said casing, and a rocking beater mounted adjacent to the center of the said support, substantially as described.

2. A carpet-cleaning machine, comprising a casing, having an inlet and outlet for the carpet at opposite sides, a support for the carpet formed of a plurality of ropes or cables inclining from a central rest downwardly to the inlet and outlet of the casing and having their ends passed through said openings and secured to the sides of the said casing, and a rocking beater mounted adjacent to the center of the support, substantially as described.

3. A carpet-cleaning machine comprising a casing, upper and lower interior surfaces over which the carpet is adapted to pass, said surfaces diverging from their centers toward inlets and outlets formed in the sides of the casing, respectively above and below the centers of the carpet-receiving surfaces and a rocking beater mounted between the upper and lower surfaces at their centers, substantially as described.

4. A carpet-cleaning machine comprising an elongated casing providing a chamber having inlet and outlet openings at the sides, a carpet-support ranging transversely between said openings, a rock-shaft having beater-arms at opposite sides, the carpet-support inclining from each side toward the rock-shaft, and an exhaust-fan located at one end of the casing and acting to draw air longitudinally

of the casing and transversely of the carpet passing over the support, substantially as described.

5. A carpet-cleaning machine having a chamber for receiving the carpet, a rocking beater, and a carpet-support, said support inclining toward the axis of the beater and comprising a roller adjacent to the axis of the beater, and a yielding surface for the major portion of the support, substantially as described.

6. In a carpet-cleaning machine, a carpet-receiving chamber having openings at its sides, a roller located above the plane of the said openings within the said chamber, supporting-strands having their outer ends secured to pass through the openings in the chamber over the aforesaid roller, a reciprocating shaft located above the roller, and beater-arms secured to the shaft, extending beyond opposite sides of the same, opposite ends of the beater being adapted for alternate engagement with the carpet when the aforesaid shaft is rocked, substantially as set forth.

7. In a carpet-cleaning machine, a cleaning-chamber, doors located at the sides of the said chamber, a space intervening the free ends of the doors and the adjacent portions of the chamber, flexible shields attached to the doors and normally covering the said spaces, the spaces constituting inlets for the carpet, a support for the carpet within the chamber, oscillating beaters also located within the said chamber adjacent to the said supports, and winding-shafts adapted to receive the ends of the carpet and located one adjacent to each carpet-receiving space, as and for the purpose specified.

KELLY GIRVIN.

Witnesses:
J. FRED. ACKER,
A. A. HOPKINS.