

No. 628,538.

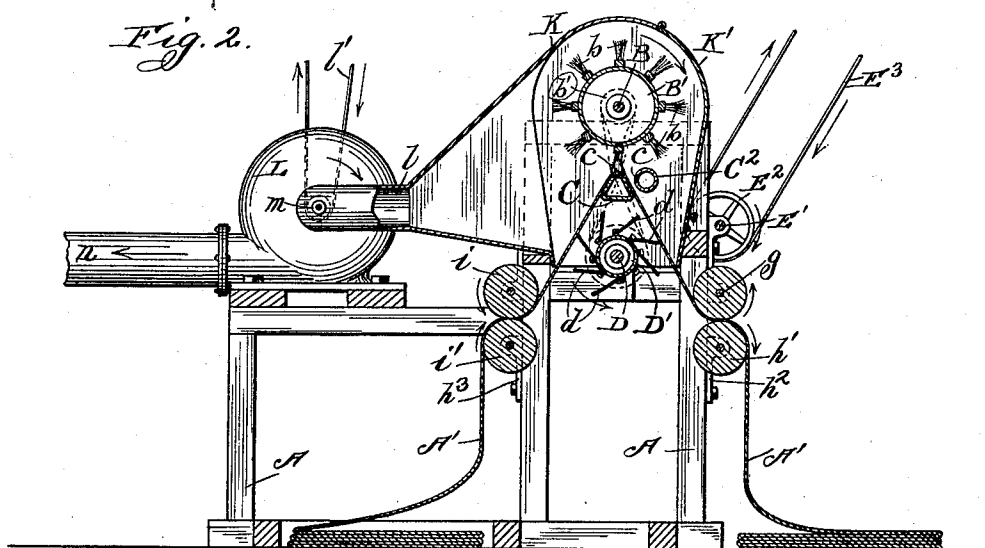
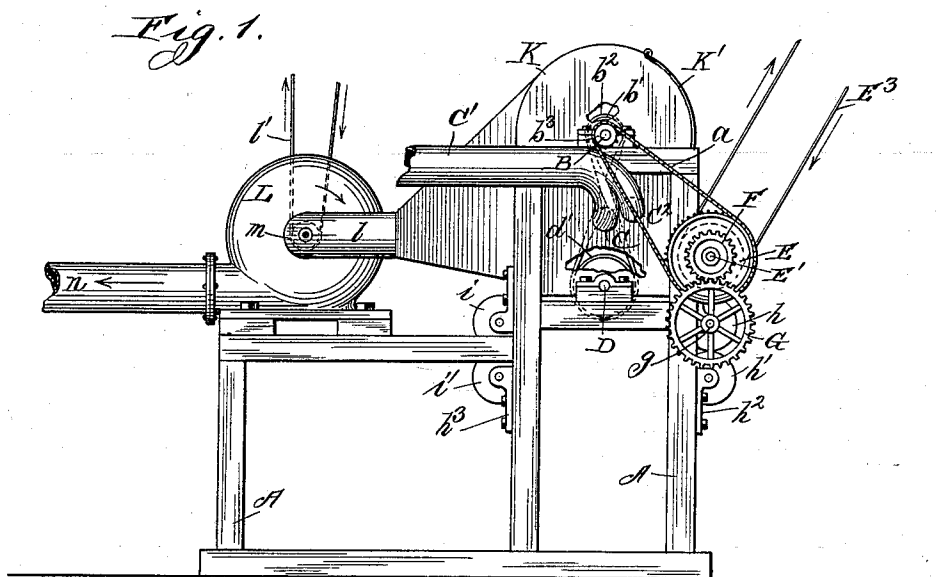
Patented July 11, 1899.

E. E. HILL.

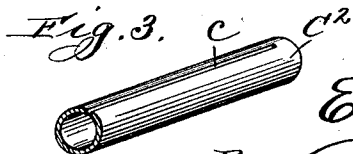
APPARATUS FOR CLEANING CARPETS.

(Application filed Sept. 17, 1898.)

(No Model.)



Witnesses:
W. J. Jaeger,
E. A. Duggan.



Inventor:
Edward E. Hill
By Chas. C. Tillman
Atty.

UNITED STATES PATENT OFFICE.

EDWARD E. HILL, OF CHICAGO, ILLINOIS.

APPARATUS FOR CLEANING CARPETS.

SPECIFICATION forming part of Letters Patent No. 628,538, dated July 11, 1899.

Application filed September 17, 1898. Serial No. 691,149. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of and Apparatus for Cleaning Carpets and the Like, of which the following is a specification.

This invention relates to improvements in the process of and an apparatus for cleaning carpets, rugs, and other fabrics or textiles; and it consists in the novel manner of treating carpets and fabrics, and in certain peculiarities of the construction, novel arrangement, and operation of the various parts of the apparatus, as will be hereinafter more fully set forth and specifically claimed.

The principal object of my invention is to afford a new method or process and apparatus for cleaning carpets and the like, which shall be effective in operation, simple and inexpensive in construction, and by means of which carpets or other fabrics may be readily and thoroughly cleaned without injury thereto and without the use of water or steam, thereby avoiding the time and delay required to dry the carpets or fabrics when so cleaned.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in side elevation of my apparatus, showing the parts in position ready for use. Fig. 2 is a central vertical sectional view, partly in elevation, showing the carpet in position in the act of being cleaned; and Fig. 3 is a perspective view of a portion of one of the jets or air-tubes.

Similar letters refer to like parts throughout the different views of the drawings.

A represents a main or supporting frame, which may be made of any suitable size, form, and material and upon which the mechanism for cleaning the carpet or fabric and for conveying the dust therefrom is mounted. On the upper portion of the main frame is journaled in suitable bearings a shaft B, on which is mounted a suitable brush-carrying device B', which I have shown in the present instance as being a cylinder. Extending crosswise of the main frame and below the brush-carrier

is a jet or air-tube C, which is substantially triangular in cross-section, and is provided at its upper apex with a longitudinal slot *c* for the passage of air. This tube or jet C communicates with a pipe C', leading to a source of air under pressure. Extending parallel with the jet or tube C and near the same is another jet or tube C², which is provided with a longitudinal slot *c* on its surface adjacent to the upper portion of the jet or air-tube C. The jet or tube C² communicates at one of its ends with the pipe C' and is designed for the discharge of air under pressure on the upper surface of the carpet or fabric. Below these air tubes or jets and journaled on the main frame is a shaft D, on which is mounted a thong-carrier D', which in the present instance is shown as a cylinder or drum, but which may be composed of a series of disks secured on the shaft. Secured to the cylinder D', at proper points thereon, are a number of thongs or straps *d*, of leather or other suitable material, which will be caused to contact with the lower surface of the carpet or fabric A' as it passes over the air tube or jet C in the process of being cleaned. On one end of the shaft B is mounted a pulley *b*', and on the corresponding end of the shaft D a pulley *d*', which pulleys are geared together by means of a crossed belt *b*² to impart a rotary motion to the brush-carrier as well as the thong-carrier.

The opposite end of the shaft B from that on which the pulley *b*' is located is provided with a sprocket-wheel *b*³, over which passes a sprocket-chain *a*, which engages the sprocket-wheel E, mounted on the shaft E', which shaft is journaled on the main frame and has at one of its ends a pulley E², to which the driving-belt E³ is applied. On the opposite end of the shaft E' is mounted a pinion F, which meshes with a gear G on the shaft *g*, journaled horizontally on the main frame some distance below the shaft E', and has mounted thereon a roller *h*. Just below the roller *h* is located another roller *h*', which is journaled in suitable bracket-bearings *h*², secured to the uprights of the main frame.

Transversely journaled on the main frame and located on the opposite side of the thong-carrier D' from the rollers *h* and *h*' are two idlers *i* and *i*', the latter of which is se-

cured to the uprights of the main frame by means of brackets h^3 or otherwise. Surrounding the brush-carrier, jets, and thong-carrier and supported by the main frame is
 5 a hood K, which communicates through a pipe l with an exhaust-fan L, of the ordinary or any preferred construction, and which fan is driven by means of a belt l' , applied to a pulley m on its shaft. The hood K is pro-
 10 vided with a door K' , which is hinged at its upper portion and is for the purpose of permitting access to the interior of the hood, which is employed for the purpose of collecting and discharging the dust through the
 15 medium of the exhaust-fan as it is expelled from the carpet or fabric.

By reference to Fig. 2 of the drawings it will be seen that the jet or air-tube C is located in such a position that the free ends of
 20 the brushes b on the brush-carrier will contact with the upper surface of the carpet A' as it is drawn over said tube, which is done by means of the rollers h and h' through the medium of their gearing. The said rollers,
 25 it will be observed, act as feed-rollers, while the rollers or idlers i and i' , between which the carpet or fabric passes, act simply to give tension to the carpet or fabric, thus holding it taut over the jet or tube C and allowing
 30 the brushes b to contact with the nap or upper surface of the carpet and to so loosen it as to allow the dust to be readily driven or disengaged therefrom by means of the jet of air which is forced through the slot c of said
 35 jet or tube. It will also be observed by reference to Fig. 2 of the drawings that as the carpet passes upwardly from the rollers or idlers i and i' , over the tube or jet C, and then down and between the rollers h and h'
 40 the thongs d on the carrier D' will contact with the ascending as well as the descending portions thereof, and as the carrier is revolved rapidly the thongs will strike the said portions of the carpet or fabric with great
 45 force, thus loosening the dust or dirt and in a measure expelling it therefrom. The air-tube or jet C^2 , which, as before stated, has its slot c in its surface adjacent to the upper portion of the tube C, will discharge air with
 50 great force against the nap or upper surface of the carpet or fabric at about the point at which the ends of the brushes contact therewith and will aid the air from the tube C in removing the dust which is collected in
 55 the hood K and withdrawn therefrom and discharged through the pipe n by means of the exhaust-fan L, which may be of any desired construction.

It is evident that the brushes and thongs
 60 as well as their carriers may be omitted, and I may use the air tubes or jets only and any desired or suitable means for drawing the carpet or fabric therebetween. Where carpets have become mildewed and molded or moist,
 65 the air introduced through the pipe C' and

the tubes or jets C and C^2 is preferably heated, as well as being under pressure, and I may use hot air at all times in the operation of cleaning. As before stated, the air-pipe C' may be connected to any suitable device which
 70 will force air therethrough under pressure, and such device may be an air-compressor, blast-fan, or other means or instrument for forcing the air through the jets C and C^2 with the desired degree of power.
 75

To carry out my process and the operation of my apparatus, the carpet or fabric, which is indicated by the letter A' , is passed through the idlers or rollers i and i' , then over the tube C, and then down and between the rollers h
 80 and h' , which are for the purpose of drawing the carpet over the tube C, while the idlers i and i' are employed for the purpose of keeping it taut. Power is applied to the pulleys E^2 and m through the belts E^3 and l' , respec-
 85 tively, which are connected to suitable power-shafts, (not shown,) and the exhaust-fan, as well as the machine, is thus driven. Through its gearing with the sprocket-wheel E on the shaft E' , on which the pulley E^2 is mounted,
 90 the brush-carrier B' will be rotated, so as to cause its brushes to strike the upper portion of the carpet or fabric, and as the thong-carrier D' is geared to the brush-carrier it will be rotated with sufficient speed to cause the
 95 thongs or straps d to strike the carpet or fabric as it passes to and from the tube or jet C, thus loosening the dust or dirt held by the carpet before it is acted on by the air-blasts and expelling the dust or dirt therefrom, if
 100 any remains, after it has passed between the air-tubes.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—
 105

1. The combination with a main or supporting frame, of two air tubes or jets located in parallelism thereon and having communication with a source of air under pressure, a brush-carrier rotatably mounted on the main
 110 frame near the said tubes, a thong-carrier rotatably mounted on the frame near said tubes, and means to draw the carpet between said tubes, substantially as described.

2. The combination with a main or supporting
 115 frame, of two air tubes or jets located in parallelism thereon and communicating with a source of air under pressure, a brush-carrier rotatably mounted on the main frame near the said tubes, a thong-carrier rotatably
 120 mounted on the frame near said tubes, a hood located over the brush-carrier, air tubes or jets and thong-carrier, an exhaust-fan communicating with the hood, and means to draw the carpet between the air tubes or jets and to
 125 hold it taut, substantially as described.

EDWARD E. HILL.

Witnesses:

CHAS. C. TILLMAN,
 E. A. DUGGAN.