G. P. Mitchell,

Carpet Cleaner,

No. 44,210. Patented Sep. 13, 1864.

Fig. 1.

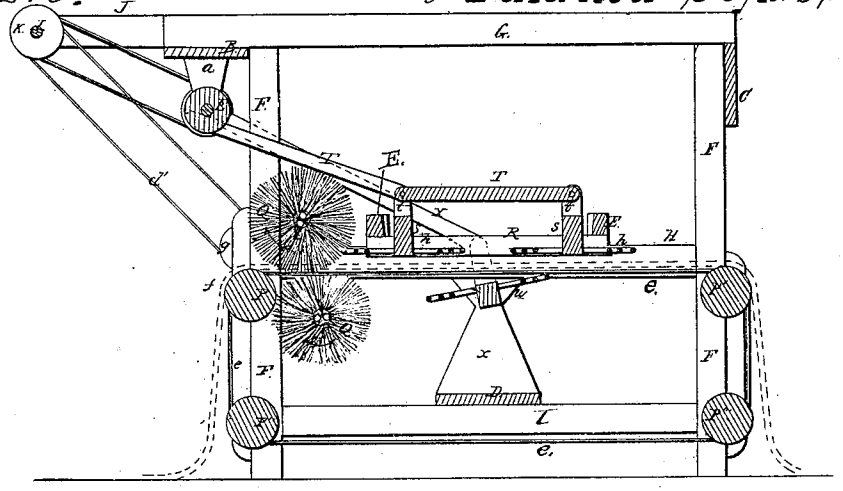
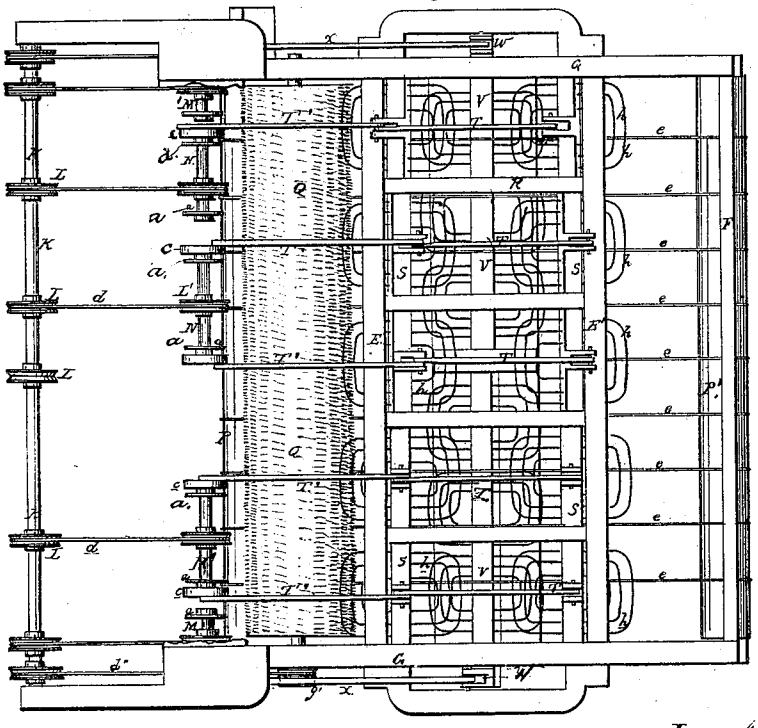


Fig. 2.



Attest:
Wm. Albert Steel
Charles Howson

Inventor:
Henry Howard
Atty for G. P. M.

UNITED STATES PATENT OFFICE.

GEORGE P. MITCHELL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED CARPET BEATER AND CLEANER.

Specification forming part of Letters Patent No. **44,210**, dated September 13, 1864.

To all whom it may concern:

Be it known that I, GEORGE P. MITCHELL, of Philadelphia, Pennsylvania, have invented an Improved Carpet Beating and Cleaning Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of certain novel mechanism and apparatus for beating and thoroughly cleaning carpets with rapidity.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of my improved carpet beating and cleaning machine, and Fig. 2 a plan view.

The stationary portion of the machine consists of two end frames, each having uprights F and F′, and longitudinal pieces G, H, and I, these end frames being connected together by the cross-pieces B, C, D, E, and E′.

In brackets J, projecting from the side pieces, A and A′, of the frame, turns a driving-shaft, K, on which are a number of grooved pulleys, L.

In suitable hangers, *a*, suspended from the cross-piece B, turn the short counter-shafts M M′, N N′, and N″, each shaft having a grooved pulley, L, round which passes a cord, *d*, to one of the pulleys L. On each side of the shafts M′ and N is a crank-wheel, *c*, the shaft N′ having a similar crank at one end only.

In suitable bearings in the end frames of the machine turn the journals of wooden rollers P, P′, P″, and P‴, two at each side of the frame, and round all the rollers extend a series of endless ropes, *e*, which fit in grooves made in the said rollers. To the end of the journal of the upper roller, P, is secured a cog-wheel, *f*, into which gears a pinion on a shaft, which carries a pulley, *g*, driven by a band or cord from a pulley on the driving-shaft K.

In suitable bearings attached to the frame of the machine turn the journals of two cylindrical brushes, Q and Q′, situated one above the other and below the ropes *e*, which are in contact with both brushes. On one end of the journal of the brush Q is a grooved pulley, *g′*, round which passes a belt, *d″*, to a pulley on the driving-shaft K.

To the under side of the cross-pieces E and E′ are attached transverse bars R, between which, near each end of the same, vibrate rock-shafts S, which have projecting arms *t*, connected together by a rod, T. To each of the arms *t* nearest the cross-pieces E is jointed one end of a connecting-rod, T′, the other end of which is attached to a pin on the face of one of the crank-wheels, *c*.

In hangers *w*, suspended from each of the pieces H of the end frames, and in frames *x* on the cross-piece D, are hung two rock-shafts, V, which are situated beneath that portion of the endless ropes *e* which pass from the rollers P to the rollers P′, each rock-shaft having an arm, W, which is connected to a crank-wheel on one of the end counter-shafts by a rod, X.

From the sides of all the rock shafts, S and V, project whips *h*, of ash or other suitable tough or elastic material.

One edge of the carpet to be beaten and cleaned is temporarily secured by cords to the ropes *e* at a point where the latter cross the upper roller, P′, the back of the carpet (if it be a pile carpet) being uppermost. Motion is then communicated to the driving-shaft K, when the operation of the parts of the machine will be as follows: The rollers P, P′, P″, and P‴ and brushes Q and Q′ revolve in the direction of the arrows, the ropes *e* with the carpet being carried toward the brushes, and a rapid vibrating motion being imparted to the rock-shafts and their whips, which strike the carpet both above and below smart and rapid blows. The heavier particles of the dirt liberated by the blows of the whips fall directly to the bottom of the machine, while the lighter particles remaining on the carpet are expelled by the action of the brushes P, the carpet being thus thoroughly cleansed. The cords which secure the front edge of the carpet to the ropes *e* are cut as the carpet passes over the upper roller, P. When, however, several carpets have to be cleaned, they are stitched together, so as to pass continually through the machine, the first carpet only being secured to the ropes *e*.

In the carpet-cleaning machines hitherto used it has been necessary to operate as many parts and expend as much power in cleaning a narrow carpet as in cleaning one the entire width of the machine. It has been customary, therefore, to sew a number of car-

pets together, and form them into one sheet approximating in width to that of the machine. In these machines, also, the carpets are first wound round a roller, and then pass beneath the beaters to another roller, round which they are wound as fast as cleaned, and from which it is necessary to unwind them after the cleansing operation is finished.

It will be apparent that much time and labor must be consumed in sewing the carpets together and in winding them on and unwinding them from the rollers. It will also be apparent that where there are no ropes or their equivalents for supporting the carpet, the tension given to the latter in order to maintain it in a condition to be operated on by the beaters will not only tend to break the fibers, but will also prevent the carpet from yielding when struck by the beaters, which are therefore liable to cut or otherwise injure the carpet.

In my improved machine the time and labor required for sewing together the carpet is avoided by suspending the operation of those whips which do not act on the carpet when the latter is less in width than the machine. The expenditure of power for driving the whips which do not operate on the carpet is is also avoided.

By the use of the ropes *e* the carpets are passed continuously through the machine without the necessity of winding them on rollers, and without being held at such a tension as would tend to break the fibers or prevent their yielding to a certain extent when struck by the whips.

Instead of two series only of rock-shafts above or below the ropes *e*, as many parallel rows of shafts as are deemed advisable may be used, and the efficiency of the machine be thereby increased. When desirable, also, the shafts may be all situated on one side of the ropes *e*.

Without confining myself to the exact form and arrangement of parts herein described, I claim as my invention and desire to secure by Letters Patent—

1. The rock-shafts S S, with their whips *h*, in combination with the endless ropes *e*, the whole being arranged and operating substantially as set forth.

2. The combination of the endless ropes *e* with the rock-shafts V and their whips.

3. The cylindrical brushes P P′ in combination with the endless ropes *e*.

4. The combination, substantially as described, of the driving-shaft K, any convenient number of counter-shafts, with their crank or crank-wheels, and the upper and lower rock-shafts, S and V, with their whips *h*.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

G. P. MITCHELL.

Witnesses:
CHARLES E. FOSTER,
JOHN WHITE.