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UNITED STATES PATENT OFFICE.

JAMES HOTHERSALL, OF BROOKLYN, NEW YORK.

CARPET-BEATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 455,017, dated June 30, 1891.

Application filed October 24, 1890. Serial No. 369,162. (No model.)

To all whom it may concern:

Be it known that I, JAMES HOTHERSALL, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Carpet-Beating Machines, of which the following is a specification.

My present invention is designed as an improvement upon the device shown and described in Letters Patent granted to me January 4, 1876, No. 171,727.

In the machine of my former patent the beaters received a movement only equal to a quarter-revolution, and the mechanism operating the beaters was of a rigid and unyielding character that forbade adjustment and change of position.

My present invention relates to the peculiar construction of the beaters and to the mechanism for operating the same. The beaters are so constructed that they strike the carpet at each blow along their entire length, and a backward-and-forward movement is imparted to said beaters through a half-revolution upon their shafts, and the mechanism I employ for operating the beaters is capable of being adjusted to take up wear or slack, and the same permits the beaters to be varied or adjusted in their positions at either side of the machine in case they bind or are not set to run in unison. I also employ a brush-roller, wherein the bristles are formed into narrow oblong brushes arranged parallel with the axis of the roller and alternating circumferentially with intermediate spaces instead of in the form of tufts of bristles, as in my former patent.

The details of the mechanism are hereinafter set forth.

In the drawings, Figure 1 is an elevation of my machine. Fig. 2 is a cross-section of the same at $x x$ of Fig. 1. Fig. 3 is a sectional plan of the beater-operating mechanism at one side of the machine on the line $y y$, and Fig. 4 is a plan view of the brush-roller.

A (see Fig. 2) represents the carpet to be beaten, which is connected up into an endless band by the two ends of the carpet being fastened together, the object being the same as in my former patent, and said endless band of carpet is passed over bars $B B B' B'$ and between rollers $C D$ in the same manner as

set forth in my former patent. I also employ at each side of the machine cords $F F'$, which extend between the horizontal bars $B B'$, passing up and down over metal pins fastened into said bars, one end of each of these cords being permanently fastened and the other connected to any adjustable take-up device capable of tightening the same. These cords are also similar to those set forth in my said patent, except in the fact that they run vertically instead of horizontally.

The rollers C and D are connected at one end of the frame of the machine by toothed wheels $V W$, and they are driven by the toothed wheel S , which is driven by a toothed wheel R upon a shaft R' , which receives motion from the belt Q and its pulleys and the main or driving shaft P and a power-pulley P' , and these devices are also like those set forth in my former patent. The brush-roller E is revolved by a toothed wheel T , which meshes with the toothed wheel S , said brush-roller revolving in the opposite direction to the roller D to sweep the carpet against its line of travel, and I also employ a bottom plate Y to receive the dust beaten and swept out of the carpet, and I provide a door W' in one end of the frame of the machine by which access is provided to remove the dust from the plate Y . The bristles of the brush-roller, as will be seen from Figs. 1 and 2 of the drawings, are formed into hollow oblong brushes arranged parallel with the axis of the roller and in alternating groups, the brushes being arranged with their intermediate spaces in circumferential sets around the roller. This form of brush-roller I prefer to that set forth in my former patent, as it is capable of doing more efficient work and positively sweeping the entire surface of the carpet, the spaces between the brushes providing for the movement and clearance of the bristles in doing their work, which would not be the case if the bristles were arranged in a solid mass.

At each side of the machine, and between the horizontal frame portions $a a' a^2$ and in suitable bearings fastened to said frame portions, I provide vertical shafts $b b' b^2$, which shafts carry the beaters $c c' c^2$, and these beaters, as hereinafter described, receive a half-revolution, and they strike the carpet at the end of each movement, and the cords F

F', heretofore described, act as the yielding support to the carpet as the blows of the beaters are given. From the plan view, Fig. 3, it will be seen that these beaters are composed of the rods or strips 1 2, which are riveted to the arms 3 4 upon the shafts $b b' b^2$, and said strips 1 2 converge or are brought together at their outer ends or points, and between said points I prefer to fasten pieces of heavy leather o , rivets being used for this purpose that pass through the points of the beaters, and it will be apparent that as each blow is given upon the carpet the beater strikes along its entire length, the striking-surface of the beater being parallel with the carpet. The parts 1 2 of the beater I prefer to make of wood, the parts 3 4 and the shafts being of metal.

At the base of the shafts $b b'$ and the top of the shaft b^2 I form upon or connect to such shafts worm-spools $d, d',$ and d^2 , and a heavy cord or small rope e passes around the pulley e' and takes a turn around each worm-spool in succession, one end of the cord e being fastened to the eye of a bar f and the other end to the eye of the bar f' . The shafts g and h pass across the machine at one end in suitable bearings, and the shafts g and P are driven by any suitable power.

The shaft g at each side of the machine carries the heart-cams $i i'$, and the shaft h at each side of the machine has connected to it vertically-placed levers $k k'$, and I provide rollers 5 6 upon said levers, which rollers coincide with the heart-cams $i i'$, and to the upper end of the lever k is connected the aforesaid rod f' .

To the upper end of the lever k' is connected a toothed bar m , and the rod f is also connected to a toothed bar m' , the teeth of which bars run in the opposite direction, so that they are adapted to come together and be locked; and I provide a sleeve at n with a set-screw which is adapted to surround said bars $m m'$ and secure the same, the object of these bars being to keep the cord or rope e tight and to take up slack. These beaters and their operating mechanism are duplicated at each side of the machine, and the endless band of carpet A as it is revolved around the machine by the action of the rollers $c d$ is beaten at each side of the machine against the cords $F F'$ and is swept by the brush-roller E , the dust and pieces removed remaining inside the band of carpet and falling

upon the plate Y , where they can be removed through the door W' .

I claim as my invention—

1. The combination, with the beater-shafts in a carpet-beating machine, and mechanism for giving to such shafts a half-rotation first in one direction and then in the other, of beaters each formed of two strips united together at their outer ends and diverging and attached at opposite sides of the shaft, substantially as specified.

2. In a carpet-beating machine, the combination, with the frame-pieces $a a' a^2$, of the beater-shafts, the beater-strips mounted upon such shafts and coming together at their outer ends and adapted to strike flatwise along their entire length, worm-spools upon said shafts, a cord passing around said worm-spools, and mechanism, substantially as specified, for moving said cord first in one direction and then in the other to operate said beaters, substantially as specified.

3. In a carpet-beating machine, the combination, with the frame-pieces $a a' a^2$, of the beater-shafts having arms 3 4, the wooden strips 1 2, connected therewith and joined at their outer ends to form beaters, worm-spools upon the beater-shafts, a cord e , passing once around each worm-spool, the pulley e' , rods $f f'$, the heart-cams $i i'$, levers $k k'$, and a power mechanism for operating the same, substantially as set forth.

4. In a carpet-beating machine, the combination, with the frame-pieces $a a' a^2$, of the beater-shafts having arms 3 4, the wooden strips 1 2, connected therewith and joined at their outer ends to form beaters, worm-spools upon the beater-shafts, a cord e , passing once around each worm-spool, the pulley e' , rods $f f'$, the heart-cams $i i'$, levers $k k'$, the toothed bars $m m'$, and sleeve n for taking up the slack, and a power mechanism for operating the same, substantially as set forth.

5. In a carpet-beating machine, the combination, with the beater-shafts having arms 3 4, of the strips 1 2, connected to said arms, and the strips of leather o at the outer ends, the parts being brought together and riveted, substantially as set forth.

Signed by me this 13th day of October, A. D. 1890.

JAMES HOTHERSALL.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.