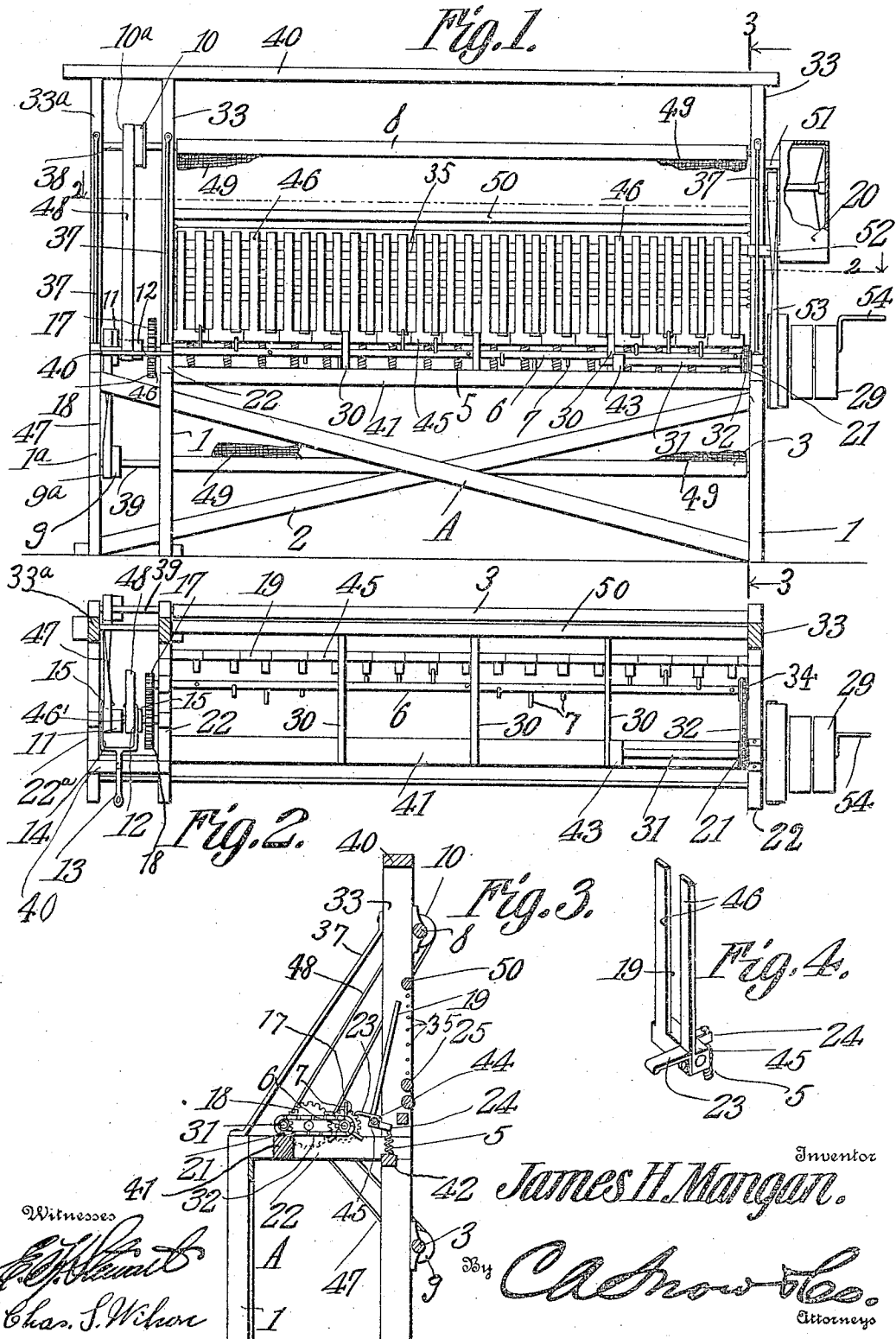


J. H. MANGAN.
CARPET BEATER.
APPLICATION FILED JULY 3, 1909.

948,592.

Patented Feb. 8, 1910.



UNITED STATES PATENT OFFICE.

JAMES H. MANGAN, OF NEW HAMPTON, IOWA.

CARPET-BEATER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES H. MANGAN, a citizen of the United States, residing at New Hampton, in the county of Chickasaw and State of Iowa, have invented a new and useful Carpet-Beater, of which the following is a specification.

My invention has reference to improvements in carpet beating machines of the type in which the cleaning of the fabric is accomplished mechanically by means of beaters before which the fabric is passed alternately in opposite directions in a vertical plane.

The invention consists in the construction, combination and arrangement of parts which will be hereinafter fully described and specifically claimed, and is illustrated in the accompanying drawing, in which—

Figure 1 is a front elevation of the present invention showing the casing of the fan broken away. Fig. 2 is a horizontal section taken along line 2—2 of Fig. 1. Fig. 3 is a vertical section taken along line 3—3 of Fig. 1, the horizontal transverse braces being omitted. Fig. 4 is a detail perspective view of one of the beaters.

Referring more particularly to the drawings, A indicates in general the frame of my machine comprising the standards 33 and 33^a held together at their upper ends by the bar 40, the secondary standards 1 and 1^a supporting, at right angles thereto between themselves and the standards 33 and 33^a, the cross bars 22 and 22^a, each cross bar braced to the standards 33 and 33^a by the brackets 37, the beam 41 arranged near the upper extremities of the standards 1 and the similar beam 42 parallel to the beam 41 and located between the standards 33. The standards 33^a and 1^a and the cross bars 22^a are located at a sufficient distance from the adjacent standards to permit the reversing mechanism to be supported therebetween, while the two remaining standards are placed at any desired distance, determined by the size and desired capacity of the machine. Extending transversely across the frame and attached at each end to the beams 41 and 42 are the braces 30 so situated that they provide bearings for the trigger shaft 6 and do not in any way interfere with the operation of the beaters 19. A short shaft 31, having the driving pulleys 29 at one end and on the exterior side of the adjacent cross bar 22, is journaled in the extreme

bar 22 and the journal box 43 on the beam 41 and is held parallel to the said beam. Provided between and parallel with the two beams or bracing members 41 and 42 is a trigger shaft 6, rotatably mounted on the cross bars 22 and the braces 30 and having a sprocket 34 on the end adjoining the short shaft 31 and a gear 17 on the opposite end. In order that the trigger shaft may be operated there is provided on the shaft 31, on the opposite side of the brace 22 to the drive pulleys, a sprocket 21 similar to that on the trigger shaft and connected with the same by the chain 32.

Located directly behind the trigger shaft is a parallel shaft 44 carrying the beaters 19 in an approximately vertical position thereon. Each beater 19 comprises two beating arms 46 rising from a base plate 45 in which the shaft 44 bears, an arm 24 on one side thereof having a coil spring 5 carried thereby, which spring is connected to the beam 42, and a trip arm 23 at the opposite side of the beater from the spring carrying arm 24 and projecting into the path of the triggers. A series of triggers 7 are provided upon the shaft 6 and radiate therefrom, the said triggers forming a spiral about the trigger shaft extending the entire length of the same. The triggers are of such a length that as the trigger shaft is rotated they will be brought successively into engagement with the respective trip arms 23 and ride past the same so as to depress said arms and thereby lift the beaters from the carpet, the springs 5 serving to return the beaters forcibly against the carpet when the triggers have cleared the trip arms.

Two rollers 3 and 8 are rotatably mounted between the standards 33 near the base and tops of the same and each of these rollers is provided with a shaft protruding through and journaled in the standards 33 and 33^a. The shaft 38 of the upper roller 8 carries a driven pulley 10 and an idle pulley 10^a, said driven pulley being approximately adjoining the standard 33, while on the shaft 39 of the roller 3 toward the standard 33^a are a pair of similar pulleys, designated 9 and 9^a, the drive pulley 9^a being arranged toward the standard 33^a.

Mounted in journal boxes on the cross braces 22 and 22^a is a shaft 46' carrying the gear 18 adapted to mesh with and be driven by the gear 17 on the trigger shaft. This gear is of much larger diameter than the

gear on the trigger shaft so that the carpet may be passed slowly before the beaters, while the beaters are very rapidly vibrated. Driving pulleys 11 and 12 are rigidly secured on the shaft 46' and are connected, respectively, with the pulleys 9 and 9^a and 10 and 10^a by the belts 47 and 48, the belt 47 being crossed so that the pulleys 9 and 10 will rotate in opposite directions. The belts 47 and 48 are simultaneously shifted by a shift bar comprising a lever 13 having its fulcrum located on the beam 40 and a fork 14 integral with the inner extremity of the lever and provided with belt engaging lugs 15. These lugs are so situated that while the belt 47 is driving the pulley 9^a, the belt 48 is operating the idle pulley 10^a. Both of the carpet carrying rollers 3 and 8 are provided with webs 49 to which the edges of the carpet are pinned or otherwise fastened before it is wrapped around the rollers. By the described arrangement of parts the entire carpet may be passed in front of the beaters and still be carried by the rollers, the carpet unwinding from one roller as it winds on the other one. In order to keep the carpet in operative position relative to the beater, a series of cross wires 35 are fastened to the prime standards 33 in such a position that the carpet is held between them and the beaters. A plurality of idle rollers are provided at regular intervals between said prime standards where the carpet bends toward or from the beaters, that is the roller 50 is provided near the top of the same where the carpet curves to pass between the beaters 19 and the retaining wires and the cooperating roller 25 at the base where the fabric is again curved to pass down to the roller 3.

On the exterior of the frame adjacent the drive pulley 29 and operated therefrom by means of the belt 53 is the fan or blower 20 provided with pipes 51 and 52 arranged at opposite sides of the center of the fan so as to lie on opposite sides of the carpet. The particles of dust and dirt loosened from the carpet by the beaters are drawn into the fan casing through these pipes by the fan and thence blown out to any convenient receptacle, as will be readily understood.

The operation of the machine is as follows: The carpet is secured to the web 49 on the upper roller 8 and the latter is rotated to wind the carpet thereon. The web on the lower roller is then brought in front of the roller 25 and between the cross wires 35 and the beaters 19 and fastened to the loose lower end of the carpet, the web being of such a length that upon operating the machine the entire length of the carpet comes in contact with the beaters and the carpet may be all wound upon one roller. The machine is then started, the roller operating belts being so adjusted that the lower roller 3 will exert the operating force and draw the fabric through the

machine and wind the same. The intermediate gearing will rotate the trigger shaft 6, and as a result bring the triggers 7 into contact with the trip arms 23 on the beaters and vibrate the beaters consecutively so that only a portion of the beaters will bear on the surface of the carpet at any one time, but there will always be a beater against the carpet. The gears 17 and 18 are so proportioned that the trigger shaft rotates faster than the carpet carrying rollers so that the carpet will move slowly past the beaters while the beaters will be rapidly vibrated. After the carpet has passed completely before the beaters, the roller or driving mechanism is reversed whereupon the upper roller 8 will wind the carpet and the lower roller will remain passive, and as a consequence the carpet may be passed before the beaters again and as many times as desired.

The power used to operate the machine can be of any convenient type and is usually determined by the size of the machine, a crank 54 being provided on the pulley shaft should it be desired to use hand power. Any number of beaters may be used, the length of the machine being increased or decreased in proportion thereto.

Having thus described my invention, what I claim is:

1. In a carpet beater, the combination of an upright frame, a trigger shaft thereon, triggers on said shaft, a fixed shaft mounted on said frame, beaters pivotally mounted on said shaft and comprising a base plate which receives the shaft, two beater arms integral with said base plate, a trip arm projecting from one side thereof in the path of the triggers, and a spring-carrying arm on the opposite side, springs carried by said arms and bearing against the frame, carpet-carrying rollers arranged above and below the beaters, and suitable operating mechanism.

2. In a carpet beater, the combination of a frame, a rotatable trigger shaft mounted thereon, a sprocket at one end of said shaft, a small gear at the opposite end thereof, a short shaft mounted on the frame and provided with a driving pulley, a sprocket on the said shaft connected with the sprocket on the trigger shaft, beaters operated by the trigger shaft, carpet carrying rollers mounted in the frame, one above the other, idle and driven pulleys carried by each of said rollers, a short shaft mounted in the opposite end of the frame from the driving pulley, a large gear on said shaft meshing with the small gear on the trigger shaft, pulleys on said short shaft, and belts connecting said pulleys with the pulleys on the rollers whereby the rollers may be rotated in opposite directions.

3. In a carpet beater, the combination of a frame supporting a pair of carpet carrying rollers, said rollers being arranged one above

the other and provided with webs to attach the carpet thereto, a trigger shaft mounted on the frame, triggers radiating from said shaft, a rigid beater supporting member
5 parallel to and in the same horizontal plane as said trigger shaft, a plurality of beaters mounted on said supporting member and each comprising a base provided with two parallel extending beater arms, a trip arm
10 projecting into the path of the triggers, and a spring pressed arm oppositely disposed to the trip arm, a bar extending across the frame and below the spring pressed arms of the beaters to support the springs extending
15 therefrom, means for rotating the carpet carrying rollers and the trigger shaft, guide rollers located between the carpet carrying rollers to facilitate the passing of the carpet before the beaters, and a plurality of retaining wires located between the guide rollers
20 in rear of the path of the carpet.

4. In a carpet beater, the combination with a frame, of a pair of carpet carrying rollers

mounted thereon and provided with carpet attaching webs, a trigger shaft journaled
25 upon the frame, triggers radiating from said shaft, a rigid support arranged parallel to the said shaft, a plurality of vibratory beaters mounted on said support and each comprising a base, two parallel beater arms ex-
30 tending from said base, a trip arm projecting to one side of the beater arms, and a spring pressed arm projecting to the opposite side of the beater arms, a series of springs supported by the frame and pressing against
35 the said spring pressed arms, and means for rotating the trigger shaft and for rotating the carpet carrying rollers to move the carpet past the beaters.

In testimony that I claim the foregoing as
40 my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES H. MANGAN.

Witnesses:

T. K. YOUNG,
JNO. R. HUSTING.