

(No Model.)

2 Sheets—Sheet 1.

C. S. CHAFFEE, A. S. HOFFMAN & F. A. GREEN.
CARPET BEATER.

No. 486,276.

Patented Nov. 15, 1892.

Fig. 1

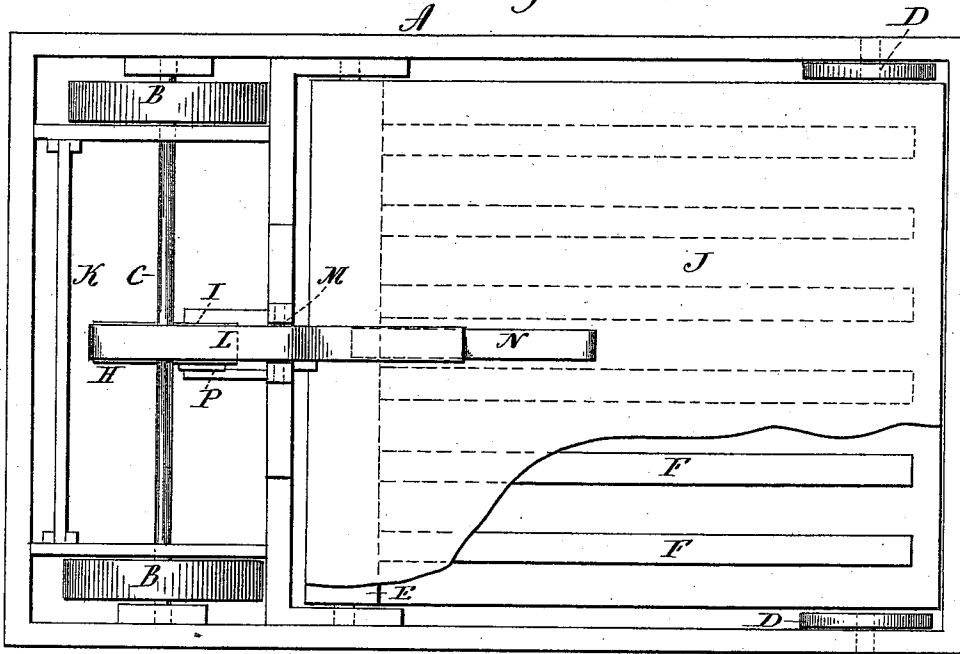


Fig. 2

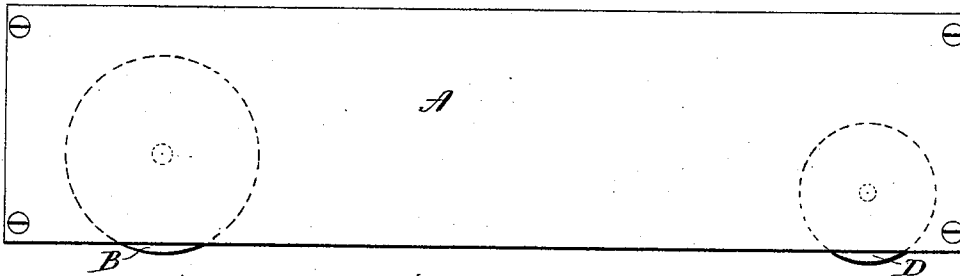
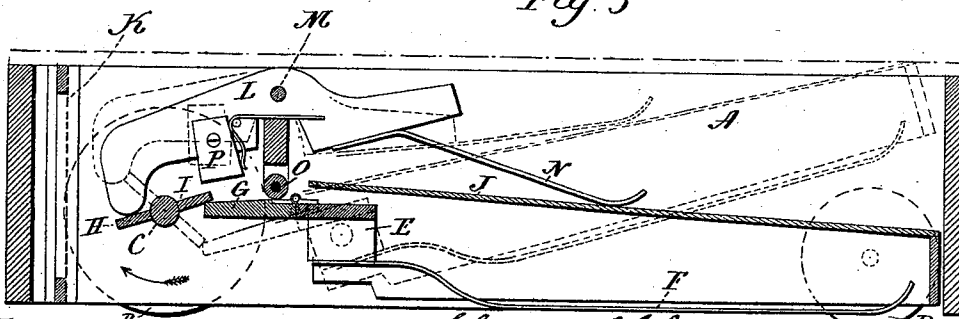


Fig. 3



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Fig 4

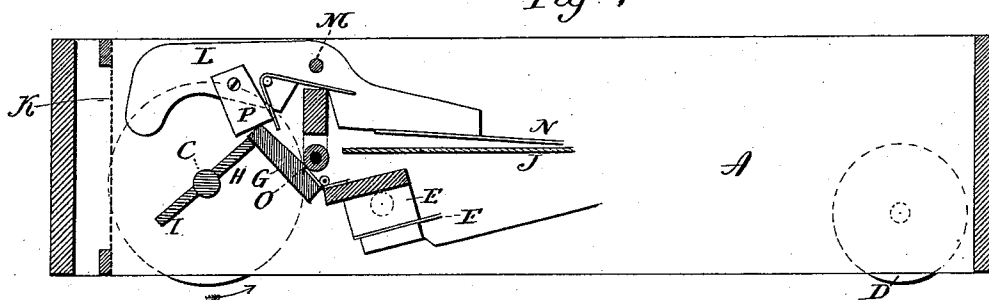
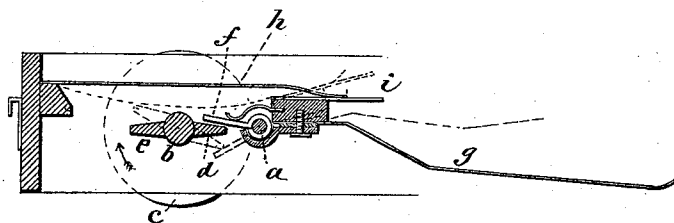


Fig. 5



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UNITED STATES PATENT OFFICE.

CHARLES S. CHAFFEE, ALVAN S. HOFFMAN, AND FRANK A. GREEN, OF
BIRMINGHAM, CONNECTICUT.

CARPET-BEATER.

SPECIFICATION forming part of Letters Patent No. 486,276, dated November 15, 1892.

Application filed June 13, 1892. Serial No. 436,508. (No model.)

To all whom it may concern:

Be it known that we, CHARLES S. CHAFFEE, ALVAN S. HOFFMAN, and FRANK A. GREEN, of Birmingham, in the county of New Haven and State of Connecticut, have invented a new Improvement in Carpet-Beaters; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top or plan view, a portion of the beater-inclosing case broken away to show the beaters; Fig. 2, a side view of the same; Fig. 3, a longitudinal section showing side view of the lever L and illustrating the operation of the apparatus in a forwardly-advancing movement; Fig. 4, the same, illustrating the operation of the apparatus in a rearward movement; Fig. 5, a modification showing a different application of the spring for the beaters.

This invention relates to an improvement in device for beating carpets, the object being an apparatus which may be run over a carpet without removing the carpet from the floor and so as to beat the carpet to raise and bring the dust upon the surface, so that it may be removed by a common carpet-sweeper; and the invention consists in the construction of the apparatus as hereinafter described, and particularly recited in the claims.

A represents a case, which is arranged upon a pair of wheels B B at the rear, hung on a transverse axle C, and preferably with other wheels D D at the front, the wheels projecting slightly below the bottom of the case, as seen in Figs. 2 and 3, and so that the case may be run over the floor in like manner as a carpet-sweeper is driven, the case being preferably provided with a suitable handle for the purpose of driving it. (Not shown.) Transversely across the case and parallel with the axle C is a shaft E, arranged to oscillate in suitable bearings, and from which project numerous beater-fingers F, more or less in number. The beater-fingers are best made from strips of flat spring-steel attached firmly by one end to the rock-shaft E and extending forward from the shaft free and independent of each other.

From the shaft E an arm G extends rearward toward the shaft C. The shaft C is made fast in one or both of the wheels B B, so as to necessarily revolve with the wheels as the apparatus is run over the floor, the friction between the wheels and the floor being sufficient to impart rotation to the wheels and to the shaft in like manner as the wheels of a carpet-sweeper are forced to revolve. On the shaft C is one or more radially-projecting arms H I, which revolve with the shaft, and the arm G, from the rock-shaft E, extends into the path of the revolving arm I. Consequently as the apparatus is advanced revolution is imparted to the shaft C in the direction indicated by the arrow, Fig. 3, thus causing the shaft C to revolve and so as to bring the arms H I upon the rearwardly-projecting arm G of the beater-shaft E and so that the arms H I will successively strike the arm G and depress that arm G until the arm I may escape therefrom, as indicated in broken lines, Fig. 3. This depression of the arm G correspondingly turns the beater-shaft E and raises the beaters, as seen in broken lines, Fig. 3. A spring force is applied to the rock-shaft E to resist the raising of the beaters and so that the reaction of the spring will impart a downward force thereto sufficient to give the required force of stroke by the beaters onto the surface of the carpet. The arms on the shaft C, which impart the rising movement to the beaters, should be sufficient in number to produce frequent operations of the beater-fingers, so that the surface over which the beaters pass may be properly struck by the beaters. The beaters are inclosed by a casing J, which forms a chamber over the beaters. This casing J is made fast to the shaft, and so as to rise and fall with the beaters, as indicated in broken lines, Fig. 3. The casing J forms a close chamber to prevent the dust from rising into the room from the blows of the beaters, the beating therefore leaving the dust principally on the surface of the carpet; but the dust cannot rise above the beaters. A portion of it may pass through to the rear below the shaft E, and to gather the dust thus passing from the beaters rearward a screen of fabric or absorbent material K is arranged in rear of the shaft C, as seen in Figs. 1 and 3,

which is moistened, and so that the dust which may pass through to the rear will lodge on this moistened screen, and because of the moisture will adhere thereto, so as to prevent its escape from the apparatus, or there may be a cover over the whole case, as indicated in broken lines, Fig. 3, to prevent possible escape of the dust. The screen K is removable, so that it may be cleansed whenever occasion requires.

Any suitable spring may be applied to the rock-shaft to impart the required force of blow; but I prefer to apply a spring which shall be increased considerably as the beaters rise. To this end a lever L is hung upon an axis M, the said axis being parallel with the axis of the shaft C, and one arm of the lever extending rearward stands in the path of the revolving arms H I or other suitable arms on the shaft, and so that as the shaft revolves, as indicated in broken lines, Fig. 3, one arm of the shaft will strike the rear arm of the lever L at about the time another arm of the shaft C strikes the arm G, which projects rearward from the rock-shaft E. To the forward arm of the lever L a spring N is attached, which bears on the top of the case J. The operation of the arms on the driving-shaft C is as indicated in Fig. 3. One arm I strikes the arm G to raise the beaters, while another arm H strikes the rear arm of the lever L, serving to turn that arm of the lever upward, as seen in broken lines, Fig. 3, and this turning upward of the rear arm of the lever produces a corresponding downward turning of the forward arm of the lever and a consequent increased force of spring N on the beaters, at the same time the beaters rising correspondingly increase the force of that spring, and so that when the arm G escapes from the operation of the shaft C the full force of the spring is applied, and after being so applied the arm of the shaft C escapes from the lever L and permits its return to relieve the force of the spring upon the beaters, so that less power is required to raise them than would be required were the force of the spring constant on the arms.

It is desirable that the apparatus shall be constructed to run either forward or backward. As thus far described, the movement of the apparatus is forward. In order that it may run backward and produce the same operation, the arm G is hinged to the shaft, so that it may swing upward when the fingers strike it upon its under side, as seen in Fig. 4, the arrow indicating the direction of rotation of the wheels in the rear movement of the apparatus. The arm G thus turned upward operates as a lever over a fulcrum O, arranged above the arm G, and so that the raising of the arm, as seen in Fig. 4, causes the shaft E to turn to raise the beaters. At the same time the arm G strikes a spring-dog P, hung on the rear arm of the lever L, which causes the rear arm of the lever to rise, as before, until the arm of the shaft C

escapes from the arm G of the shaft E. Then the beaters will return, as before, the spring having been compressed by the turning of the lever L and of the shaft E, as in the first illustration.

Instead of applying the spring through the lever L, as described, and whereby its force is relieved for the rising movement of the beaters, the spring may be applied directly to the beater-shaft, as seen in Fig. 5, in which *a* represents the beater-shaft; *b*, the driving-shaft; *c*, the driving-wheel; *d e*, the arms of the shaft; *c f*, the rearwardly-projecting arm of the beater-shaft; *a g*, the beaters. In this case, *h* represents a spring which is made fast in the case at the rear and projects forward, bears upon a forwardly-projecting arm *i* from the lever, and so that as the shaft revolves in the direction indicated by the arrow the beater-shaft will be rocked and the beaters raised, as seen in broken lines, Fig. 5, until the arms of the two shafts escape from each other, when the beaters will be returned by the action of the spring *h* with sufficient force to give the required beating effect. In this case the reverse action of the driving-shaft does not produce the rising movement of the beaters. Consequently the arm *f* is hinged to the shaft *a*, so that it may yield in the reverse direction, so that the arms of the driving-shaft may escape therefrom without action upon the beaters.

The apparatus which we have described for beating carpets may be made as an independent apparatus to be run over a carpet to beat and raise the dust upon the surface of the carpet to be subsequently removed by a common carpet-sweeper or otherwise, or, if desired, it may be attached in advance of a carpet-sweeper, so that the sweeper may follow the beater. This is too apparent an operation to require illustration, as the application of the sweeper constitutes no part of this invention.

We claim—

1. In a carpet-beater, the combination of a case, a driving-shaft C, arranged in said case and carrying wheels upon which the case may run, one or both of the said wheels made fast to said shaft, a rock-shaft E, hung in the case forward of and parallel with the driving-shaft, an arm G, extending rearwardly from said rock-shaft, the rock-shaft provided with forwardly-projecting beaters F, the driving-shaft provided with radially-projecting arms adapted to engage said arm G of the rock-shaft, and a lever L, hung above the rock-shaft upon an axis parallel therewith, one arm of the lever extending rearward over the driving-shaft and adapted to engage with a corresponding arm on the driving-shaft when an arm of the driving-shaft engages the arm of the rock shaft, the said lever projecting forward and provided with a spring adapted to bear upon the beaters, substantially as and for the purpose described.

2. In a carpet-beater, the combination of a

case, a shaft C, arranged therein carrying wheels one or both of which are made fast to said shaft, a rock-shaft E, hung in the case forward of the driving-shaft and carrying
5 beaters F, an arm G, hinged to the rock-shaft and extending rearward toward the driving-shaft, the hinge permitting the said arm to swing upward, but held against a downward
10 or more radially-projecting arms adapted to engage said hinged arm of the beater-shaft, a stationary fulcrum O in the case above the said hinged arm G, a lever L, hung in the
15 case above the beater-shaft, one arm extending rearward and adapted to engage with corresponding radially-projecting arms on the

driving-shaft, the lever extending forward and provided with a spring adapted to bear upon the beaters, and a spring-dog P, hung upon the rear arm of the said lever and with which
20 the said hinged arm of the rock-shaft is adapted to engage, substantially as and for the purpose described.

In testimony whereof we have signed this specification in the presence of two subscrib-
25 ing witnesses.

CHARLES S. CHAFFEE.
ALVAN S. HOFFMAN.
FRANK A. GREEN.

Witnesses:

WM. S. BROWNE,
S. H. SESSEY.