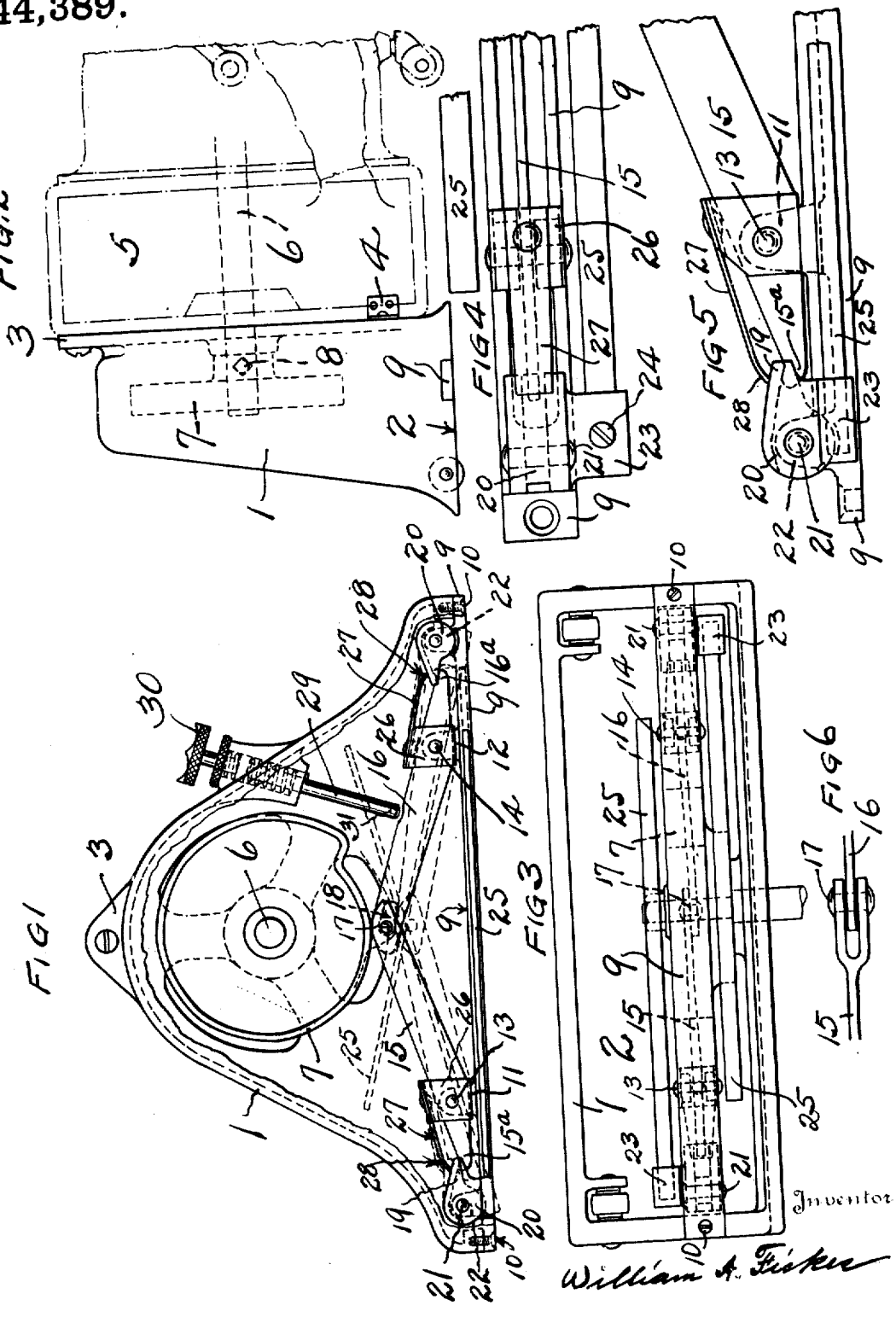
W. A. FICKES.

CARPET SWEEPER.

APPLICATION FILED MAR. 19, 1919.

Patented June 22, 1920.

1,344,389.



UNITED STATES PATENT OFFICE.

WILLIAM A. FICKES, OF ALTOONA, PENNSYLVANIA.

CARPET-SWEEPER.

1,344,389. Specification of Letters Patent. Patented June 22, 1920.

Application filed March 19, 1919. Serial No. 283,521.

To all whom it may concern:

Be it known that I, WILLIAM A. FICKES, a citizen of the United States, residing at 1105 16th avenue, Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

This invention relates to a carpet sweeper wherein the carpet is cleaned through the action of a fan rotating at high speed thus causing current of air to flow from beneath the sweeper to a receptacle or bag carried by the sweeper for the purpose of collecting the particles of dust and foreign matter picked up from the carpet by the fan, and has particular reference to an improved means of causing the particles of dirt and foreign matter to be separated from the carpet, thus enabling the sweeper to more efficiently clean the carpet or floors over which the sweeper may be operated.

The primary object of the invention is to provide an efficient carpet beating means which acts upon the carpet immediately ahead of the sweeper, in such manner as to thoroughly separate the dirt and foreign matter from the carpet to be cleaned.

Another object of the invention is to provide an efficient means for operating the beater arrangement and to provide means for disengaging the beater arrangement.

A still further object of this arrangement is to provide a housing for the beater and the cam that operates the same together with means for locking the cam out of engagement with the beaters.

With this and many other objects in view which will be more readily apparent as the nature of the invention is better understood, the same consists in the novel combination, construction, and arrangement of parts as will be hereinafter more fully illustrated, pointed out and claimed.

It will be quite readily understood by those skilled in the art to which this invention belongs that this invention is quite susceptible to a wide range of structural modification without departing from the spirit or scope of the invention but a preferred and practical embodiment of the invention is shown in the accompanying drawings in which—

Figure 1 is a front elevation of the present invention showing the beaters and cam in operative relation.

Fig. 2 is a side elevation of the parts shown in Fig. 1 together with an outline of the fan and motor housing.

Fig. 3 is an inverted plan view of the parts shown in Fig. 1.

Fig. 4 is a partial plan view of one end of the beater device showing the manner in which the beaters are attached.

Fig. 5 is an elevational view of the parts shown in Fig. 4.

Fig. 6 is a view showing the manner in which the beater links may be connected.

Like reference numerals refer to similar parts throughout the several figures of the drawings.

In carrying out this invention it is proposed to retain the essential features of the best type of modern sweepers as for instance the motor the fan the dirt receptacle and the fan and motor housings, as these are all essential to the operation of the present invention, but instead of a rapidly revolving brush, which sweeps up the dirt, I prefer to use a plurality of beaters, as it has been found that the brushes are objectionable and inefficient for the purpose intended while it has been found that by beating the carpet immediately ahead of the sweeper the particles of dirt and dust are separated from the fiber of the carpet and are each drawn out, thus leaving the carpet in a cleansed condition as compared with the same carpet over which the usual type of sweeper is operated.

As previously indicated, a rotary brush in a vacuum carpet sweeper has a more or less destructive effect on the nap of the carpet, especially if the fibers of the brush are very stiff and the brush rotates at high speed. However, the present invention proposes to retain the valuable feature of loosening the surface dirt on the carpet or floor, but without the destructive effect due to the action of the rotary brush as above set forth. Accordingly, the present invention contemplates the provision of a nozzle device which may be fitted to the usual vacuum producing instrumentalities of the apparatus, and includes means for beating the carpet for the purpose of loosening the dirt without any wearing effect on the nap or pile of the carpet. To this end it is proposed to employ a nozzle housing 1 having a mouth or intake opening 2 and provided with a flare 3 and attaching ears 4 for securing the entire nozzle to the fan housing 5

of the usual cleaner structure. This arrangement provides for conveniently utilizing the fan shaft 6 and means for effectively supporting a rotary cam 7 which constitutes a part of the present invention. This cam is clearly shown in Figs. 1 and 2 of the drawing and may be secured to the fan shaft extension by means of a suitable set screw 8 or its equivalent.

Located in the mouth 2 of the nozzle device is a novel beater arrangement, the same being carried by the nozzle device in such a way that it may be inserted and removed into the mouth of the nozzle as a unit, and when in position will be actuated by the cam shaft 7 previously referred to.

Referring to the novel features of this beater unit it will be observed that the same is mounted upon a carrier bar 9 which is adapted to be secured by means of the screws 10 or their equivalent across the mouth 2 of the nozzle. This carrier bar 9 is provided with the upstanding lugs 11 and 12 which constitute supports for fulcrum pins 13 and 14 of a link consisting of a pair of operating levers 15 and 16. The inner end of the lever 15 is preferably bifurcated as shown in Fig. 6 and carries therewith a pin 17 which is adapted to work in a slot 18 in the inner end of the lever 16 which is received in the bifurcated portion of the lever 15. This arrangement at the connected ends of the levers 15 and 16 provides for effectively holding the same in alinement directly beneath the operating surface or periphery of the cam 7, whereby as the latter rotates the said levers may be given a vertical reciprocating movement as indicated by the dotted lines in Fig. 1. The outer ends 15^a and 16^a of the levers 15 and 16 extend beyond the fulcrum pins 13 and 14 and are adapted to engage beneath the noses 19 of suitable beater carrying brackets 20, which are of duplicate construction and pivotally supported as at 21 upon the upstanding lugs 22 adjacent the opposite ends of the carrier bar 9. As will be observed from Figs. 3 and 4, these beater carrying brackets are each provided with an offset supporting flange 23, and have secured thereto by means of the fastening screw 24 or the like the spring beater fingers or strip 25. As shown in Fig. 3 the arrangement of the beater carrying brackets 20 is such that the beater fingers 25 are oppositely disposed and are located on opposite sides of the carrier bar 9.

For the purpose of maintaining the link consisting of the levers 15 and 16 in operative engagement with the surface of the cam 7, each of the supporting lugs 12 and 13 have also fitted thereto the inverted U-shaped straps 26 which straddle the levers 15 and 16 and carry therewith relatively stout flat leaf springs 27 whose free ends 28 bear on top of the noses 19 of the beater brackets. The springs 27 therefore exert a downward tension on the noses 19 of the beater brackets with the result of maintaining the beater fingers 25 in a normally horizontal position and also cause the pivotally connected ends of the levers 15 and 16 to yieldably bear against the operating surface of the cam 7, because of the fact that the noses 19 overlie the ends 15^a and 16^a of said levers.

For the purpose of rendering the beater elements inoperative when it is desired to use the cleaner without them, it is proposed to employ a resiliently mounted rod or stem element 29 whose outer exposed end is provided with a foot engaging head 30, while its inner end 31 is adapted to engage with and depress one of the levers, 16 for instance, to thereby depress both of the levers so that their point of pivotal connection will be held out of contact with the operating surface of the cam 7.

From the foregoing it will be apparent that when the cam 7 is rotated the levers 15 and 16 will be given a vibratory movement which will in turn cause the beaters 25 to be raised and lowered very rapidly owing to the construction described, thereby producing a thorough beating effect upon the surface to be cleaned.

I claim:

1. A beater unit for vacuum cleaners including a carrier bar arranged longitudinally of the nozzle mouth, beater strips located on opposite sides of the bar and rockably supported at opposite ends thereof, and cam operated lever means for rocking said beater strips.

2. A beater unit for vacuum cleaners including a carrier bar, beater strips located at opposite sides of the bar, means for pivotally securing the outer ends of the said beater strips to the bar, a jointed link for engaging said means, and a cam for engaging the said link at the joint.

3. A beater unit for vacuum cleaners including a bar having lugs at opposite ends thereof, beater strips arranged in parallel relation to the bar on opposite sides thereof, brackets carried by one end of each beater strip and pivotally attached to one of said lugs, springs carried by the bar and engaging said brackets to maintain the strips in their normal position, and cam operated means carried by the bar and adapted to engage with said brackets to operate the same against the tension of said springs.

4. A beater unit for vacuum cleaners including a bar having lugs at opposite ends thereof, beater strips arranged in parallel relation to the bar on opposite sides thereof, brackets carried by one end of each beater strip and pivotally attached to one of said lugs, springs carried by the bar and engaging said brackets to maintain the strips in their normal position, and means carried

by the bar for operating said beater elements and consisting of a link including a pair of connected levers fulcrumed on the bar and having their free ends engaging said brackets, and a cam for engaging the apex of the link formed by the connected ends of said levers.

5. A beater unit for vacuum cleaners including a bar having paired lugs adjacent each end thereof, beater strips arranged on opposite sides of the bar, brackets carrying said beater strips and pivoted on the outermost lugs on said bar, yoke members carried by the innermost lugs on the bar, springs carried by said yoke members and engaging the brackets for holding the beaters in their normal depressed position, and a link consisting of a pair of levers convergently disposed and loosely connected at their meeting ends and having their opposite ends engaging with the brackets carrying the beater strips, and a cam for engaging the loosely connected ends of the levers of said link.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM A. FICKES.

Witnesses:
N. E. GEE,
ALEX WEIR.