No. 848,974. PATENTED APR. 2, 1907.

A. CROSSMAN.

ROTARY CARPET CLEANER.

APPLICATION FILED APR. 15, 1904.

Fig. 1

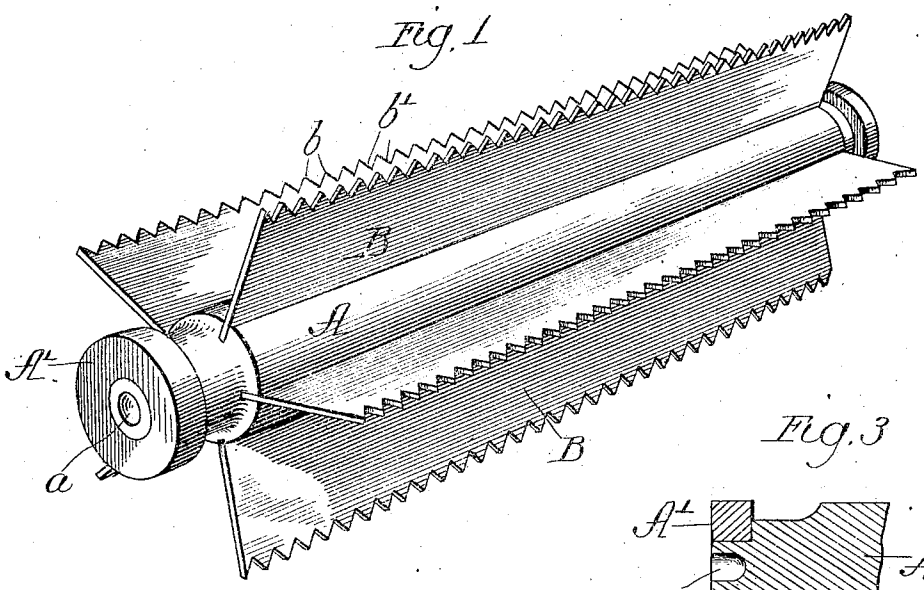


Fig. 3

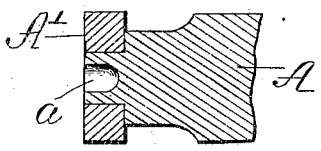
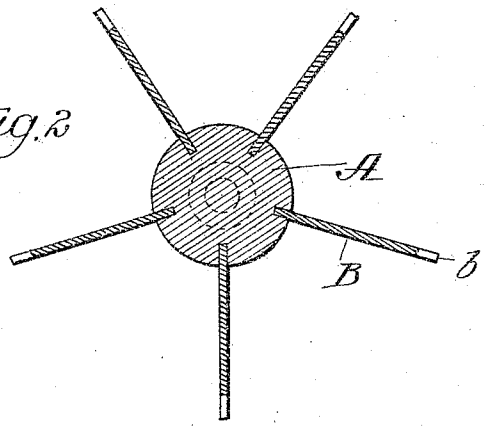


Fig. 2



Witnesses
H. G. Barrett
W. B. Hall

Inventor:
Abner Crossman
by Wooster Brown
his Attys

UNITED STATES PATENT OFFICE.

ABNER CROSSMAN, OF CHICAGO, ILLINOIS.

ROTARY CARPET-CLEANER.

No. 848,974. Specification of Letters Patent. Patented April 2, 1907.

Application filed April 15, 1904. Serial No. 203,380.

To all whom it may concern:

Be it known that I, ABNER CROSSMAN, a citizen of the United States, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Carpet-Cleaners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel rotary cleaner which is adapted to be used in an ordinary carpet-sweeping machine in place of the usual rotative hair or fiber brush.

Among the objects of the invention is to provide an efficient and durable cleaner for this purpose which is effective to remove dust, dirt, and like articles from a smooth surface, as a hard-wood or tile floor, as well as a rough surface, as a carpet, rug, or the like.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claim.

In the drawings, Figure 1 is a perspective view of a cleaner made in accordance with my invention. Fig. 2 is a cross-section thereof, taken in a plane at right angles to the axis of the core of the cleaner. Fig. 3 is a detail showing the bearing end of the core.

As shown in the drawings, A designates the core of the cleaner, and B B a plurality of radial wings affixed in any suitable manner at their inner margins to the core and adapted for engagement at their outer margins with the surface to be cleaned. The wings are herein shown as fixed in the core by being inserted at their inner margins in longitudinal grooves in the cylindric surface of the core and may be fastened in said grooves by means of a suitable cement or otherwise. Said wings are angularly separated at their bases, so as to provide considerable angular space between two adjacent wings. The core of the cleaner is provided at its ends with bearing-sockets *a* and with disks or circular flanges A′, adapted for peripheral engagement with the wheels of a sweeping-machine or other part thereof for the purpose of rotating the cleaner.

The wings B are made of a flexible material, or at least the margins thereof are so made. I have found that a relatively thin leather possesses the attributes necessary to a successful device. If the leather be found too soft or flexible after being inserted in place, it may be treated with a material, such as shellac, to somewhat stiffen the same. The wings are notched at their outer or active margins to provide a plurality of independent points of contact *b*, separated by spaces *b′*.

In the operation of the cleaner the marginal points of the wings strike the surface to be cleaned at separated points and the wings operate to carry upwardly the larger objects from said surface in the usual manner and deposit them into the sweeping-pan. The said separated contact-points also act by their conatct with said surface to loosen and throw upwardly the smaller particles, such as dirt or dust, lying on or embedded in the surface with greater efficiency than if said margins of the wings were straight and unbroken, the said particles being forced upwardly into the sphere of action of the wings and by the latter carried into the sweepings-pan. The cleaning action of the wings by contact with the toothed or broken margins thereof with the surface, as described, is also aided by reason of a certain amount of swirling action of the air, caused by the rotation of the wings as they approach the floor, and also by reason of an eddying condition of air-currents created at the lower margin of each wing at the time its marginal points or teeth are in contact with the surface to be cleaned. This latter condition is due to the fact that the rotation of the cleaner causes an increased air-pressure in front of the wings when rotating in contact with the surface to be cleaned as compared to the pressure of the air immediately in the rear thereof. By reason of the presence of the notches or spaces between the separated contact-points which are at this time in contact with the surface there is a tendency to the establishment of an equilibrium between the pressures at the front and rear face of the wing or leakage of air beneath the same. As a result there is produced at the lower margins and rear faces of the wings at the time they thus eagage said surface rearwardly and upwardly eddying currents, which act not only to sustain in suspension the dust raised by contact of the points or teeth of the wings with said surface sufficient to insure the same being thrown by the wings into the sweepings-pans, but also serves to cause light particles to raise from the floor not disturbed by such contact. In this manner the cleaner removes from the

surface to be cleaned the heavier articles and is particularly efficient in removing from such surface the finer and lighter particles of dust or dirt most difficult of satisfactory removal. The combined results of the contact of the notched wings against the surface being cleaned and of the disturbance of the air at the lower margins of the wings thus produces a cleaning device of great efficiency. Moreover, the device is simple in its structure, is durable, and is very economical to manufacture.

I claim as my invention—

A rotary cleaner for the purpose set forth comprising a core and a plurality of longitudinally-disposed wings extending radially from said core, said wings being made of flexible material and separated by substantial angular distance at their bases, and the free or active margins of said wings being notched to constitute a plurality of narrow contact-points separated by spaces.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 30th day of March, A. D. 1904.

ABNER CROSSMAN.

Witnesses:

WILLIAM L. HALL,

GERTRUDE BRYCE.