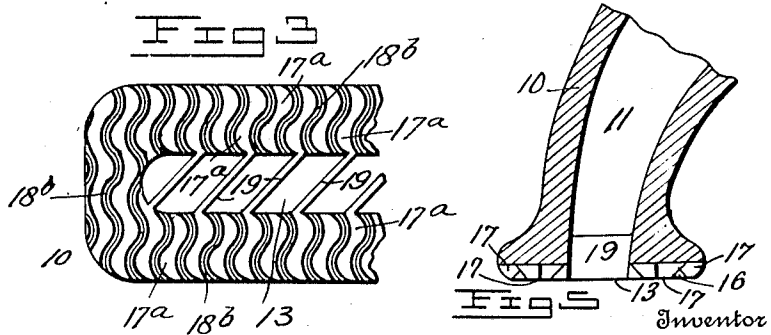
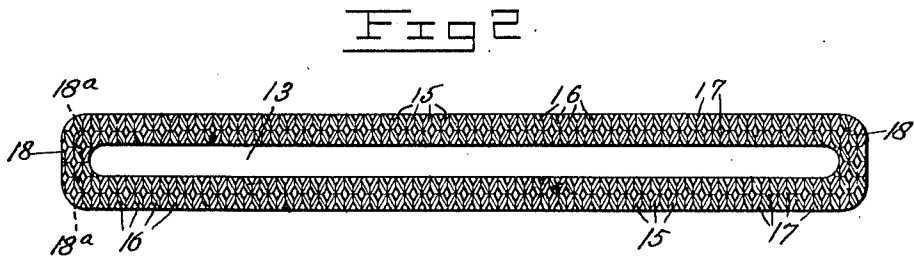
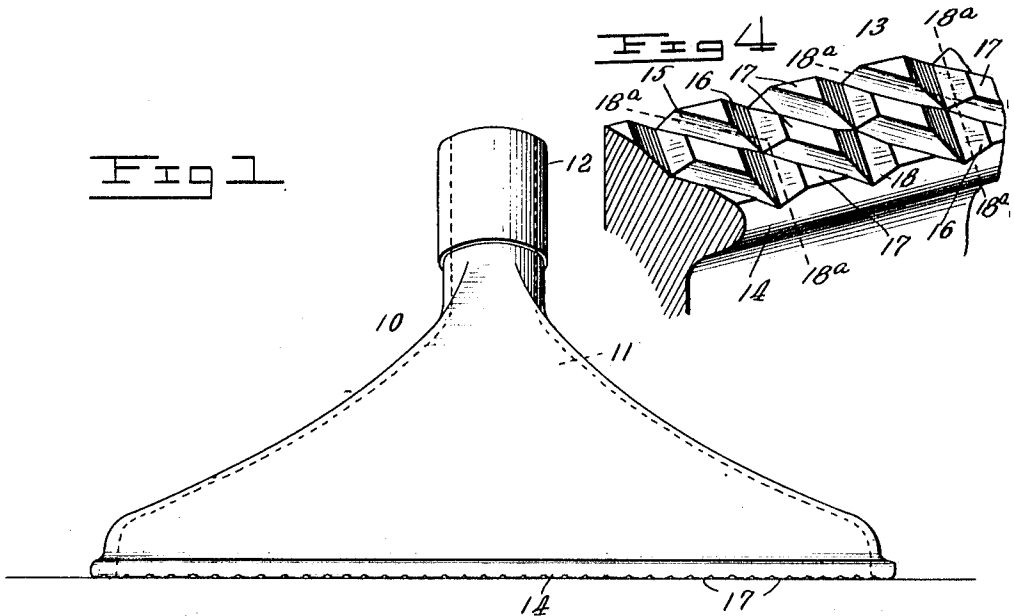


L. BRANDT.  
TOOL FOR VACUUM CLEANERS.  
APPLICATION FILED SEPT. 21, 1910.

1,035,852.

Patented Aug. 20, 1912.



Lewis Brandt

Witnesses

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# UNITED STATES PATENT OFFICE.

LEWIS BRANDT, OF PITTSBURGH, PENNSYLVANIA.

TOOL FOR VACUUM-CLEANERS.

1,035,852.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed September 21, 1910. Serial No. 583,011.

*To all whom it may concern:*

Be it known that I, LEWIS BRANDT, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Tools for Vacuum-Cleaners, of which the following is a specification.

The pneumatic tool of my invention is for use in connection with vacuum cleaning apparatus, and is devised for the purpose of cleaning carpets.

That there are, however, features of my invention which may be used with other tools, that the tool of my invention may be used to do other work, and that the tool I have devised may be given other structural form without departing from the spirit of the invention; will all be apparent upon an understanding of that invention.

For the best cleaning of carpets a tool should have two prime features in addition to giving of a good suction. The admission of a goodly quantity of air in and along the nap of the carpet is one of these features, and the agitation of the nap to loosen the dust in the depth of the nap and body of the carpet is the other.

The tool of my invention is of the usual general form comprising a main body having a passage way terminating at one end in an opening for a suction conduit, and at the other in a relatively long narrow opening defined by lips. Instead of forming these lip surfaces continuous and unbroken, I groove them, forming on them channels of reversed inclination to the direction of movement of the tool. The action of these channels is to move the nap of the carpet from side to side, and to oscillate each fiber of it back and forth as the tool is moved back and forth over the floor. The flow of air is also increased by virtue of the presence of the channels which are not entirely filled by the nap of the carpet. Furthermore the intervening projections between the channels spread the nap of the carpet and allow a full-flow of air through the passages thus formed between the nap. Preferably I form a plurality of intersecting grooves which define rows of staggered pointed projections on the mouth, the projections of successive rows being staggered with respect to those of the adjacent row. Preferably also I extend the grooves forming the zigzag channels from the outside of

the mouth to the inside or clear across each lip.

In the drawings I have shown two forms of my invention.

Figure 1 is an elevation of the tool of one form, Fig. 2 is a bottom face view of the mouth of the same, and Fig. 3 is a similar view of a portion of the tool of the other form, and Fig. 4 is a perspective view showing a portion of the under-surface of the tool on an enlarged scale. Fig. 5 is a cross sectional view of the tool on an enlarged scale.

Referring to these drawings, 10 designates the main body of the tool which is provided with an interior passage-way 11, indicated in dotted lines, as is usual. This passage-way terminates at one end of the tool in a connection 12 for a suction conduit. The other end of the passageway, however, is flared, and narrowed, terminating in a relatively long and narrow opening 13 at the inlet end of the tool.

According to my invention I form in the lips of the tool intersecting V-shaped grooves 15 and 16, the grooves 15 being inclined to the length of the mouth of the tool in one direction, while the grooves 16 are inclined an equal angular distance in the other direction. The sides of these grooves, and the lateral distance between them is made such as to form on the lips several rows of intervening pointed or lozenge and semi-lozenge shaped projections 17, the projections of each row being staggered with respect to those of the adjacent row or rows. An examination of this grooving will reveal the fact that the said grooves 15 and 16 together form a plurality of adjacent zigzag or reversely inclined grooves 18; the zigzag path of several of these grooves being indicated by dotted lines and designated 18<sup>a</sup>, Fig. 2. It is evident that channeling the under or contact surface of the tool provides means for the passage of air thereunder into the mouth 13 when the tool is being used, and further, that the intervening projections between the grooves will divide the nap of the carpet into small tufts and these tufts, as the tool is moved, follows the direction of the channels, the tufts being bent to one side by said channels until the intersection or turns therein are reached and then being temporarily relieved of pressure they are bent the other way. In other words, the nap is divided by the projections

and following the channels 18, is bent first to one side and then to the other, thus opening up the carpet so that the air flowing through said channels and the passages thus created in the nap reach the body of the carpet and clean it thoroughly. The movement of the tool dividing the nap and oscillating each fiber from side to side enables the air to reach every part of the carpet. In this embodiment I have shown such a spacing of the grooves that three rows of intervening projections 17 are formed on each lip. The tufts of the nap are thus divided and re-divided, and this together with a moderate backward and forward movement of the tool insures a most minute division and re-division of the tufts of nap so that every portion of the dust is loosened from the depths of the nap and from the body of the carpet, and may be readily removed by the inrushing air. I have found that the forming of the grooves at sixty degrees to the length of the mouth of the tool gives most efficient results.

25 In the modification of Fig. 3, the channels 18<sup>b</sup> are made sinuous, instead of being formed by intersecting straight grooves. It is to be noted that the action is substantially similar, the reverse inclination of the channels to the direction of movement of the tool

accomplishing the movement of the nap back and forth. Vanes 19 across the mouth from lip to lip at an angle and flush with the mouth further agitate the nap in the midst of the area being cleaned. These vanes preferably extend from the inner end of one sinuous projection 17<sup>a</sup> to the inner end of one on the opposite lip and are spaced to provide one for every other projection as shown. This increases the freedom of movement of the nap within the mouth.

What I claim is:

1. A pneumatic cleaning tool having on its mouth intersecting grooves forming zig-zag channels of reversed inclination to the normal direction of movement of the tool.

2. A pneumatic cleaning tool having zig-zag channels on its mouth formed by intersecting straight grooves, said grooves defining projections on the lips of the tool with forwardly and rearwardly pointed ends to engage the nap of a carpet and vibrate the fibers thereof.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEWIS BRANDT.

Witnesses:

ALICE A. TRILL,

DARWIN McC. TAYLOR.