F. A. HOWARD & J. W. SMITH.

DUSTER.

APPLICATION FILED MAY 1, 1912.

1,033,175. Patented July 23, 1912.

Fig. 1.

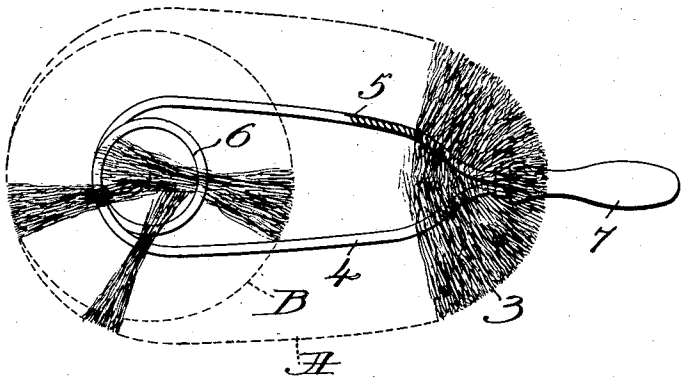


Fig. 2.

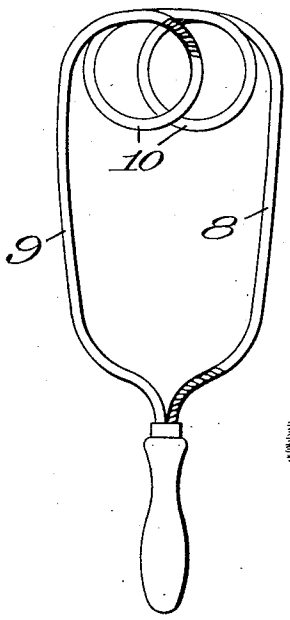


Fig. 3.

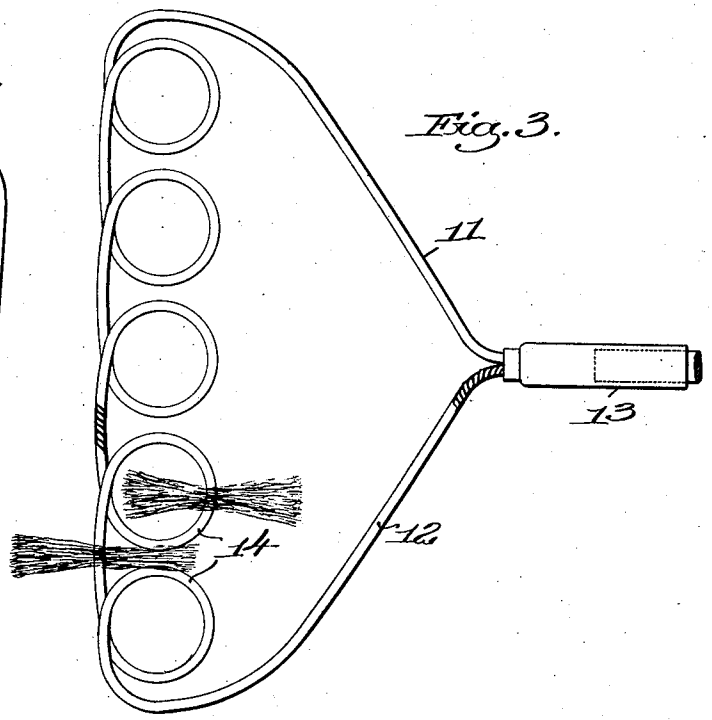
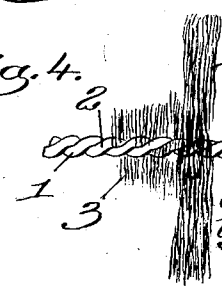


Fig. 4.



Witnesses:
Fred. S. Gleason.
Joseph M. Ward.

Inventors.
Fred A. Howard,
Jesse W. Smith,
by Edmund Howard Smith,
Attys.

UNITED STATES PATENT OFFICE.

FRED A. HOWARD, OF SOUTH EASTON, AND JESSE W. SMITH, OF SOUTH BOSTON, MASSACHUSETTS, ASSIGNORS TO HOWARD DUSTLESS DUSTER CO., OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

DUSTER.

1,033,175. Specification of Letters Patent. Patented July 23, 1912.

Application filed May 1, 1912. Serial No. 694,469.

To all whom it may concern:

Be it known that we, FRED A. HOWARD, a citizen of the United States, and resident of South Easton, county of Bristol, State of Massachusetts, and JESSE W. SMITH, a citizen of the United States, and resident of South Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Dusters, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of an improved duster or dust-brush, and it pertains to that type of dusters the body portion of which is composed of a mass of cotton or other fibrous strands secured to a twisted wire frame having an attached handle. In the manufacture of such brushes it is the usual practice to lay the middle portions of the fibrous strands between a plurality of wires, which are twisted together to tightly hold the strands while permitting the ends thereof perfect freedom of movement, the twisted wires being bent into an elongated oval frame, the free ends of the wires being brought together and made fast in a suitable handle. The duster so made is soft and fluffy and well adapted for dusting and cleaning purposes, but as the frame sides are in the same plane the fibers at the tip end of the duster are comparatively thin. Our present invention obviates this fault and provides for a very material increase of the fibers or strands at the end of the duster, where a great deal of the wear comes, and a better and more durable article is produced.

In accordance with our invention the twisted wires carrying the transversely laid strands of fibrous material are bent as before to form the sides of the frame, but at the outer end or tip thereof said wires are bent to form one or more reëntrant coils or loops. By the term "reëntrant" we mean that the coil, or coils, will be positioned to extend inward between the sides of the frame, as will be clearly apparent hereinafter. As the strands extend transversely from the wire forming the frame throughout its length we thus provide an added quantity of such strands at the coiled portion of the frame, so that the duster or brush is thickened at such portion, giving an increased body thereat.

The novel features of our invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a plan view of a duster embodying one form of our invention, a portion only of the fibrous strands being shown for the sake of clearness of illustration, the outline of the complete duster being indicated and completed by dotted lines; Fig. 2 in plan shows the twisted wire frame and attached handle, with a plurality of reëntrant coils at the outer end or tip of the duster frame; Fig. 3 is a view similar to Fig. 2, but showing a form of frame adapted to the formation of a duster having a very broad outer end, such form of duster being particularly adapted for cleaning or polishing hard-wood floors; Fig. 4 is a detail on an enlarged scale showing the twisted wires of the frame and the attached fibrous strands.

In constructing the duster two pieces of wire 1, 2, Fig. 4, of suitable length and diameter, are assembled with the strands 3 between them, and are tightly twisted together to hold the strands in place, and usually the strands, which in practice are made of soft fibrous material such as loosely twisted cotton string, are grasped about midway between their ends. The twisting of the wires causes the strands to assume a loose, soft and fluffy body surrounding the wires, as will be apparent, and we make no claim to this construction *per se*. The wires carrying the transversely laid strands are then bent into an elongated form, to make the opposite sides 4, 5 of the frame, Fig. 1, and at the outer end said wires are bent to form a single reëntrant coil 6, Fig. 1, extended inward between the sides of the frame. As a result the duster body is formed by the strands having in general the outline indicated by the dotted line A, while the strands in the coil 6 make a substantially circular enlargement indicated by dotted line B. Thus the body of the duster is thickened and amplified at and about its outer end or tip, as will be apparent, giving a better and more durable article. The free

ends of the wire forming the frame are brought together and suitably attached to a convenient handle 7, and the duster is completed.

In Fig. 2 we have shown the twisted wire frame only, omitting the strands, the sides 8, 9 being farther apart to enable a plurality of reëntrant coils 10 to be formed at the outer end of the frame, said coils being shown as overlapping each other. By this construction the tip of the duster is broadened somewhat and the body made much thicker thereat by the massing of the additional strands provided by the coils.

In the construction shown in Fig. 3 the frame is particularly adapted for large dusters, such as are used for cleaning and polishing hard-wood or waxed floors, etc., the general outline being triangular, the sides 11 and 12 diverging from the handle 13, while the outer end is formed by bending the frame wires to form a series of reëntrant or inwardly extending coils or loops, 14. In making up such a duster the fibrous strands may be attached to the frame sides throughout their length, or for a portion thereof adjacent the outer ends, as may be desired, but the strands will be attached to the entire length of the twisted wires forming the coils or loop.

By our invention a duster having a soft, fluffy surface is produced, with a thick and durable outer end, well adapted for the purposes designed.

Changes or modifications may be made by those skilled in the art without departing from the spirit and scope of our invention as set forth in the claims hereto annexed.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a device of the class described, an open frame of wire having attached and laterally extended flexible strands constituting the body, the outer end of the frame being bent upon itself to multiply the number of strands and thereby increase the thickness of the body thereat.

2. In a device of the class described, a handle, a connected open frame of wire having attached and laterally extended flexible strands constituting the body, the frame at its outer end being bent to form a reëntrant coil, to multiply the number of strands and thereby increase the thickness of the body thereat.

3. A duster comprising an open frame of twisted wires having attached thereto transverse strands of soft and fibrous material constituting the duster body, the frame being bent upon itself at its outer end and extended inward between its sides, to multiply the number of strands thereat and increase the thickness of the body.

4. A duster comprising an open, twisted wire frame having attached thereto strands of soft and flexible material constituting the body of the duster, and a handle attached to one end of the frame, said frame at its opposite end being bent to form a plurality of coils inwardly extended between the sides of the frame toward the handle, to multiply the number of strands at such coiled portion.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

FRED A. HOWARD.
JESSE W. SMITH.

Witnesses:
D. R. KINSLEY,
J. M. HALLIGAN.