Jan. 16, 1945. C. G. ROWLAND 2,367,650

DABBING BRUSH

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Fig. 1.

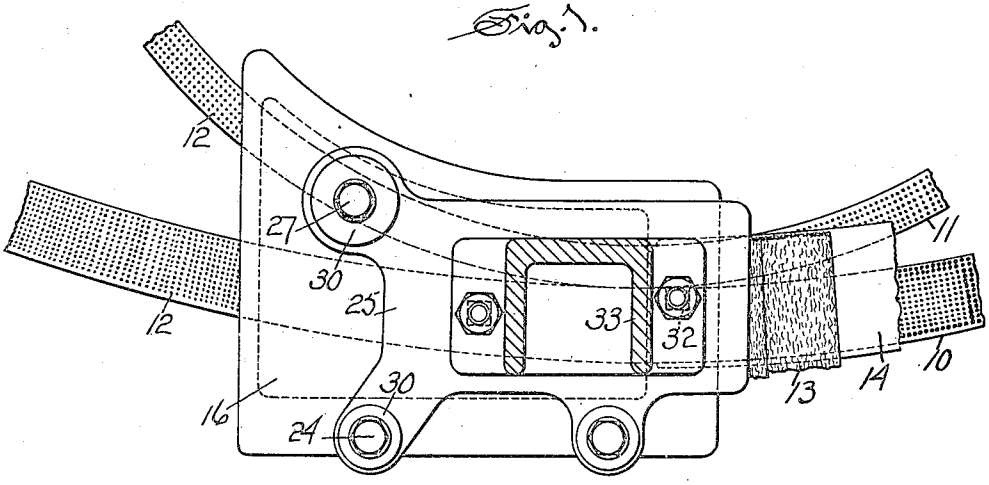


Fig. 2.

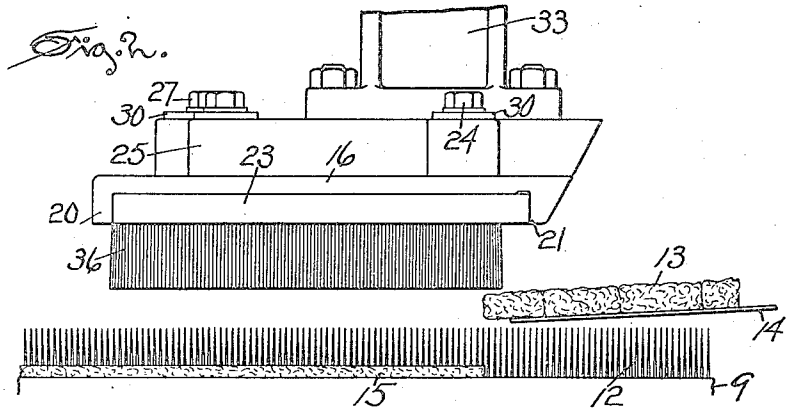
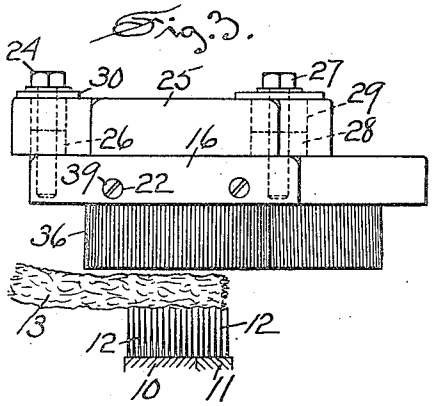


Fig. 3.



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Fig. 4.

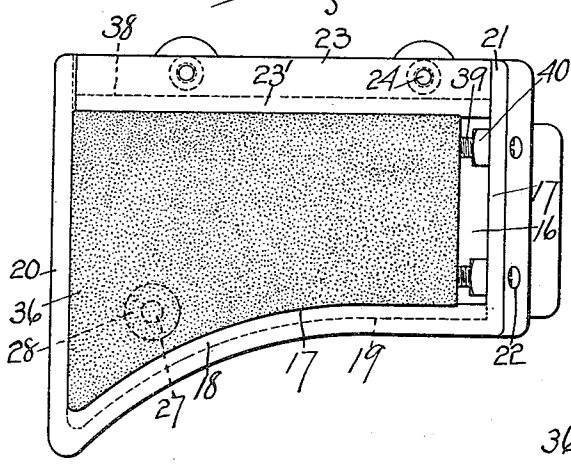


Fig. 5.

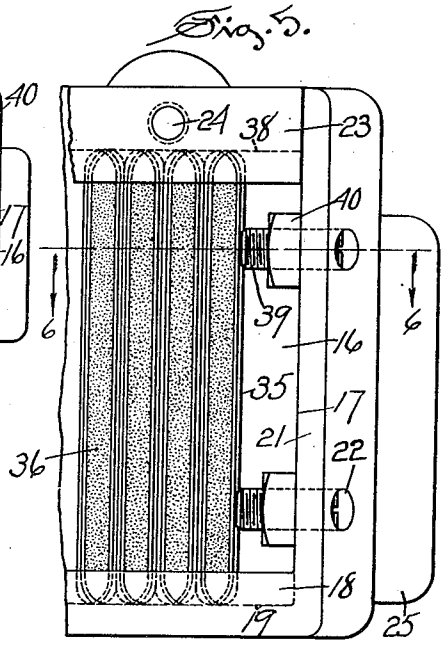


Fig. 7.

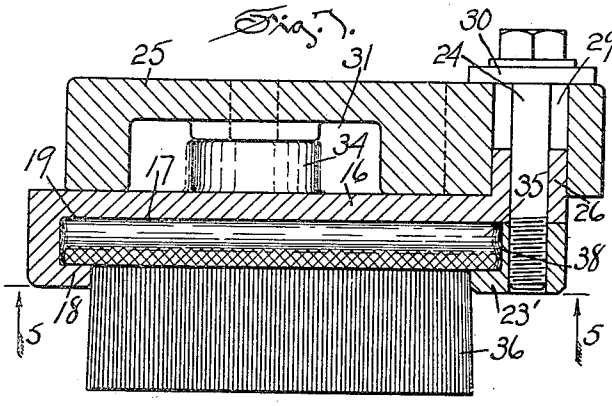


Fig. 6.

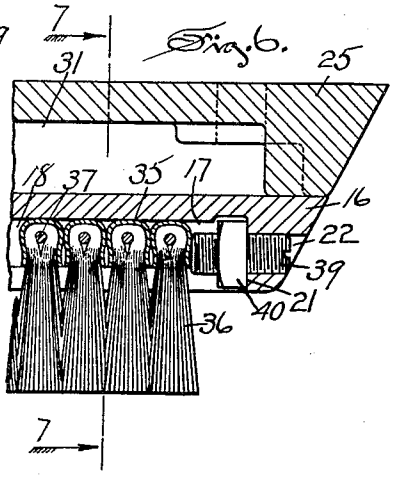
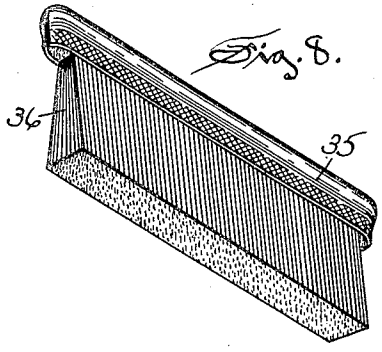


Fig. 8.



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UNITED STATES PATENT OFFICE

2,367,650

DABBING BRUSH

Clarence G. Rowland, Newington, Conn., assignor to The Fuller Brush Company, Hartford, Conn., a corporation of Connecticut

Application July 14, 1941, Serial No. 402,281

1 Claim. (Cl. 19—124)

My invention relates to the class of implements which are employed more particularly for compacting fibrous material, as wool, between the teeth of combing devices, and an object of my invention, among others, is the production of a brush of this type by the use of which most effective results may be obtained.

One form of a dabbing brush embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is an illustrative view showing the operation of a dabbing brush.

Figure 2 is an edge view of the apparatus as shown in Fig. 1.

Figure 3 is another illustrative view showing the operation of the brush.

Figure 4 is a plan view of my improved dabbing brush.

Figure 5 is a view on enlarged scale of one end of said brush, on a plane denoted by the broken line 5—5 of Fig. 7.

Figure 6 is a view in section on a plane denoted by the broken line 6—6 of Fig. 5.

Figure 7 is a view in section on a plane denoted by the broken line 7—7 of Fig. 6.

Figure 8 is an isometric view of one of the brush strips.

The operations of conditioning fibrous material and transforming it into threads for use in the manufacture of fabrics and particularly, as an example, in the manufacture of woolens and worsteds, include, among several steps, after cleaning and scouring, a series of acts of a combing nature each of which, commonly terminating in a carding process, advances the mass toward a state in which such mass assumes a soft round flabby thread technically designated as a sliver which is subsequently twisted into a harder thread-like form suitable for weaving purposes.

One form of a machine embodying a combing operation comprises a toothed ring of considerable diameter and a smaller toothed ring or rings with their edges adjacent to or in contact with the larger ring, the larger and smaller rings rotating in unison with the wool masses upon the toothed surfaces of said rings, said masses being stretched and the fibers pulled apart as the rings diverge in the rotating operation. This operation involves the use of a dabbing brush which has a reciprocating movement toward and from the material upon the toothed surfaces of said rings, this dabbing brush having a very rapid reciprocating motion and acting to thoroughly compact the material between the teeth of the rings so that as the latter separate the fibers are not only stretched and drawn but they also dispose themselves in an orderly arrangement. The dabbing brush embodying my invention and forming the subject matter of this application is designed not only to improve the effects of conditioning the fibers but also to materially increase the rapidity with which the machine may be operated.

Thus my improved brush is illustrated and described herein as operating in connection with the larger toothed ring 10 and a smaller toothed ring 11 of a combing machine, a segment only of each ring being shown herein and the ring 10 being of considerably larger size than the ring 11. These rings are each provided with teeth 12 and the dabbing brush operates to pack the ends of the strips 13 of wool downwardly into the spaces between the teeth 12 as the ends of such strips pass off from the end of a supporting plate 14, as shown in Fig. 1 of the drawings, the dabbing brush acting to condense and closely pack the wool between said teeth as shown at 15 in Figure 2. All of the parts thus far described comprise elements of a combing machine used in the manufacture of woolen and worsted threads and will be readily understood by those skilled in the art without further illustration and description, the purpose being merely to convey an understanding of the manner in which my improved dabbing brush is used.

My improved brush comprises a base plate 16 having a recess 17 in its under surface bounded on one side edge by a lip 18 forming a groove 19. The end 20 of said recess is slightly undercut for a purpose to be hereinafter described and the end 21 has threaded holes 22 the purpose for which will also be hereinafter described. The edge having the lip 18 is curved as is also this edge of the recess 17, this curve conforming more or less to the curve of the smaller ring 11, as shown in Fig. 1, and the edge of the recess 17 opposite said curved edge is closed by a bar 23 having a lip 23' oppositely disposed to the lip 18 hereinbefore mentioned. The bar 23 is secured to the base plate 16 as by means of bolts 24. These bolts are also used to secure the base plate 16 to a brush base 25 as shown in Fig. 7 of the drawings. The bolts 24 pass through lugs 26 formed on the back of the base plate 16 and a bolt 27 passing through the side of the brush base 25 opposite the bolts 24 is threaded into a lug 28 projecting from the back of the base plate 16, the bolt 27 and the lug 28 being preferably some-

what larger than the bolts 24 and the lugs 26 and the lug 28 extending into holes 29 in the brush base 25 as shown in Fig. 7, washers 30 being employed to cover the holes at the back end of the base 25. The bolt 27 and the lug 28 are of similar construction to that just described.

The brush base 25 has a recess 31 with holes 32 preferably square extending from the recess to the outside of said base, this recess and the holes being adapted to receive headed bolts by means of which the dabbing brush may be secured as to a supporting member 33 of the machine in connection with which the brush is used and in a manner that will be readily understood. The recess 31 may also have a recess 34 at one end to receive one side of the head of the bolt for securing the brush base to the member 33, but this recess is not of importance.

The recess 17 is provided for the purpose of receiving brush strips 35 of trough shape within which bristles 36 are secured and project therefrom, these bristles being held in place by compressed sides of the strips and also by cores 37 of wire as shown in Fig. 6. One end of each brush strip projects into the groove 19 and the opposite end is secured in a groove 38 formed by the lip 23', and as shown in Fig. 7 of the drawings. These strips are forced tightly into engagement with each other as by means of bolts 39 entered into the threaded holes 22 and into tightening nuts 40, as shown in Figs. 5 and 6 of the drawings. These nuts are accessible through the mouth of the recess 17 for a wrench or other tool by means of which the bolts may be tightened to firmly secure the brush strips in place, the tool being used to hold the nut when the bolt or screw is turned by means of a screw driver or socket wrench, it being contemplated that the bolt or screw may be of the socket type if desired.

It has for a long time been considered that the operations of machines used in the manufacture of woolens and worsted were too slow and that the speed of such machines might be accelerated to result in an increased production during certain intervals of time, but just where in the machine improvements could be made has not appeared. After a careful study of the problem it seemed to me that the dabbing brushes heretofore used were accountable for some if not a greater part of this fault and that this was due to the loose condition and arrangement of the bristles in the brushes and as a result of this looseness the brushes did not compact and condense the material within the toothed members of the comb at each contact thereof as much as seemed possible and I therefore set out to find means for improvement in these respects and my efforts have resulted in the dabbing brush herein illustrated and described wherein the bristles are so arranged and secured in the brush back that a very compact and condensed structure is obtained in the arrangement of the bristles. These bristles are secured in grooved brush strips which are secured in close contact so that the bristles as to the greater part thereof are in parallel relation. Endwise of the strip all of the bristles are in parallel relation and in contact from the roots to the tips. In a transverse direction while there is a little divergence along the outer sides of the strips, this is only to the extent of the thickness of the two adjoining sides of said strips and I estimate that from seventy-five to eighty per cent of the bristles within the strips will lie in close contact and be in parallelism.

As a result of this construction the greater part of the bristles are projected between the teeth of the combing members perpendicularly, and a perpendicular force is therefore applied to the mass of wool or similar material being crowded into the spaces between the teeth of the combing members and a greater degree of condensing of such material is obtained at each contact of the brushes therewith than with machines employing the form of brushes heretofore used. It has been demonstrated by actual tests that with the use of my improved brush the capacity of a machine is increased at least six fold over the capacity resulting from the use of the brushes employed up to the present time.

The brush strips are secured in close contact side-by-side and the bristles are therefore firmly supported from one end of the brush to the other, that is, laterally of the brush strips and there is therefore but a very thin fringe around the edge where the bristles have any chance to bend and the entire interior of the mass up to this thin fringe is in an extremely condensed and unyieldable form.

In accordance with the provisions of the patent statutes I have described the principles of operation of my invention, together with the device which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim:

A dabbing brush comprising a base with a recess therein, a groove formed in one wall of said recess at the bottom thereof, brush strips secured in said recess with their ends extending into and secured in said groove, a removable bar closing one side of said recess and forming a groove into which the ends of said brush strips project, and means for forcing the brush strips into tight engagement.

CLARENCE G. ROWLAND.