(No Model.)

D. ALMOND.

HAT FORMING MACHINE.

No. 326,377. Patented Sept. 15, 1885.

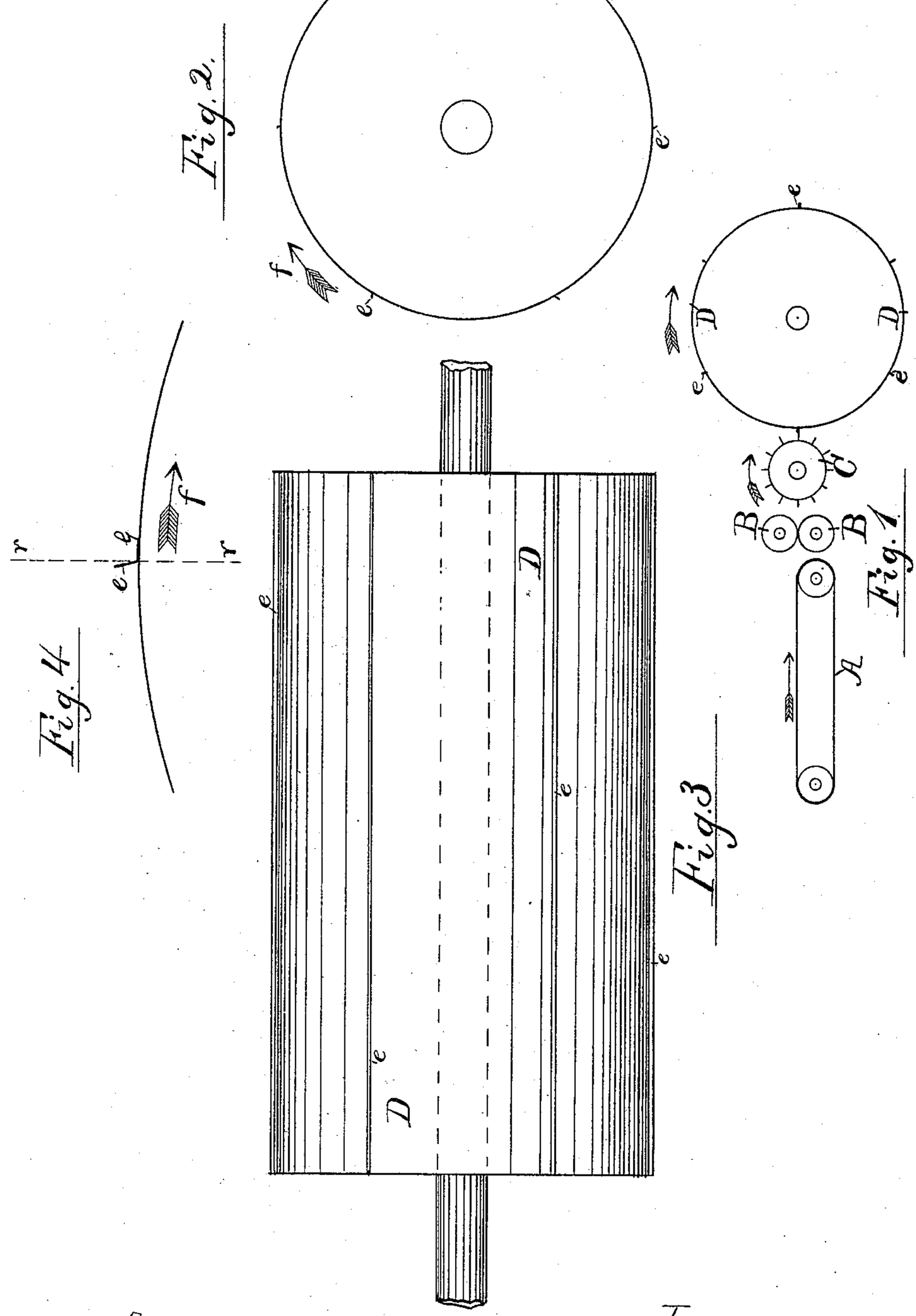

Fig. 2.

Fig. 4

Fig. 3

Fig. 1

Attest.

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UNITED STATES PATENT OFFICE.

DAVID ALMOND, OF NEWARK, NEW JERSEY.

HAT-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 326,377, dated September 15, 1885.

Application filed March 2, 1885. (No model.)

To all whom it may concern:

Be it known that I, DAVID ALMOND, a citizen of the United States, residing in Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Hat-Forming Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists in an improved rotary drum for operating in combination with a fur picker-roll, and is intended as a substitute for the rotary brushes heretofore employed to carry the fur from the picker-roll.

My improvement consists in substituting a projecting ridge or strip for the tufts of bristles heretofore placed in rows upon the brush-drum. Such ridge may be formed of any suitable material, as sheet metal, wood, or leather, and is shown in the annexed drawings as consisting in a strip of sheet metal soldered longitudinally upon the periphery of a tin cylinder, such as I have claimed in a patent, application No. 138,791, already allowed to me.

The invention is applicable to any machine containing a rotary brush operating with a picker-roll, but is intended especially for use in hat-forming machines. In such machines the fur is fed upon a traveling apron to the picker-roll, and is carried from thence by the rotary brush and discharged upon the hat-forming cone. The bristles employed in such brushes are naturally rough and splintery in structure, and are liable to catch and retain small particles of gummy matter and dust which exist among the fur fibers, and to intermittently discharge such accumulations of dirt, similar to what is known in the trade as a "blood-dag," upon the forming-cone, to the great injury of the hat-bodies. Such defects in the hat-body are termed "dags," and are not readily discovered until considerable labor has been expended upon the bodies in felting the same, when their discovery sometimes causes the rejection of the whole felt. This tendency of the bristles to attract and retain the dirt is greatly aggravated by the burning and enlarging the ends of certain of the bristles in the process of searing by means of a hot searing-iron for the purpose of equalizing their length or projection from the center of the revolving brush-drum. Such searing often forms a knob like a pin-head upon the outer end of the bristle, and leads to the formation of a great many of such dags; and my improvement is adapted to entirely obviate the use of bristles or brushes and the formation of any dags in the hat-bodies.

Figure 1 is a diagram illustrating the feed-apron, feed-rollers, picker-roll, and so-called "rotary brush." Fig. 2 is an end view of my improved rotary carrier which I employ as a substitute for the rotary brush. Fig. 3 is a longitudinal view of the same; and Fig. 4 is a diagram showing part of the periphery or shell of the carrier-drum of the natural size, with one ridge attached thereto.

A is the feed-apron, B the feed-rolls, C the picker-roll, and D the carrier. *e* are the ridges, shown in Fig. 4 as an angle-strip having one flange soldered to the shell of the drum D and the other projecting therefrom at a slight angle with the dotted radial line *r r*.

An arrow, *f*, in Figs. 2 and 4 shows the direction of the drum's rotation, and the ribs are shown in both the figures sloped backward from the radial line, so as to present an inclined surface to the atmosphere, and thereby prevent the greater part of the friction and loud humming noise which I have found by experience is produced when the ridges project in a strictly radial direction from the shell of the drum.

I have found that the projecting strips *e* effect every function of the rotary brushes heretofore used, and that they are entirely free from the objection which attaches to the use of bristles, while the expense of construction is very greatly diminished by the substitution of such strips for the numerous tufts of bristles fastened into wooden or metallic holders, such as I have described in my former application, No. 138,791. The weight of such strips or ridges of sheet metal, which in practice project but very slightly from the surface of the drum D, is also very much less than that of any brushes heretofore used, and when attached to a tin or sheet-metal drum—such as is claimed in my said application—the entire construction is very much lighter than those heretofore used, and not only requires

much less power to operate it, but is much more easily handled in constructing and repairing the machine to which it is attached.

It is obvious that such strips or ridges may be attached by means of screws or rivets, but that in view of the high speed of rotation the safest method is to solder the strips upon the drum by means of the flange *e'*, as shown in Fig. 4. The dirt and impurities in the fur do not adhere to such ridges or strips as to brushes heretofore used, especially when formed of smooth sheet metal, and my experience has shown that such latter material is cheaper than wood or leather, while it is more suitable for the purpose.

It is obvious that the strips may be disposed differently upon the drum, as in short pieces with intervals between them, or in an inclined or zigzag manner.

I have found in practice that the best angle for the ridges *e* is about fifteen degrees from the radial line, and that such angle not only greatly diminishes the noise, but prevents the deposit of dirt upon the front side of the ridge by reason of the sloping current of air induced over such inclined surface. I thus effectually obviate the tendency to form dags in the felt, and render the simple ridge a perfect substitute for the brushes heretofore used.

Having thus described the nature of my invention, I claim the same in the following manner:

1. The combination, with a rotary drum for carrying the torn fur from the fur picker-roll, of projecting ridges upon the periphery of the drum, arranged and operated substantially as herein shown and described.

2. The combination, with a carrier-drum operating to carry the fur, substantially as described, of metallic strips secured longitudinally upon the periphery of the drum, as and for the purpose set forth.

3. The combination, with a sheet-metal carrier-drum operating to carry the fur, substantially as described, of metallic strips soldered upon the drum, as described, and inclined to the radial line of the drum, substantially as and for the purpose set forth.

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

DAVID ALMOND.

Witnesses:
THOS. S. CRANE,
L. LEE.