Sept. 12, 1939. W. C. ANDERSON 2,172,464

CUSHION BRUSH FOR NUT HULLERS

Filed Dec. 13, 1937

Fig. 1

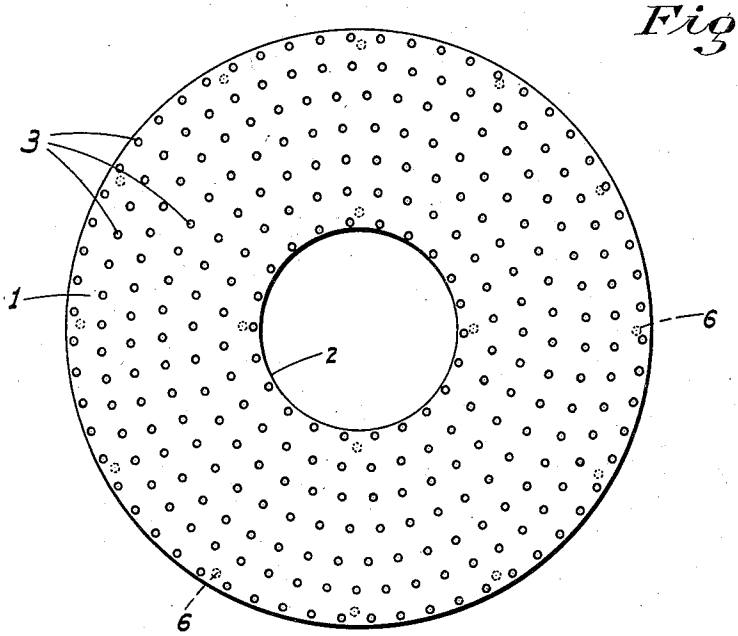


Fig. 2

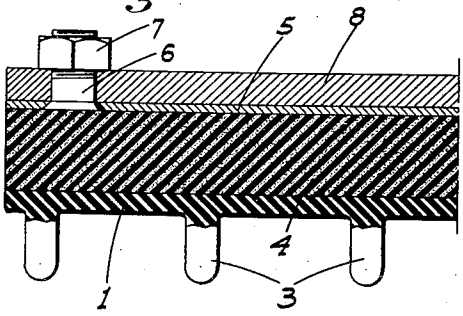


Fig. 3

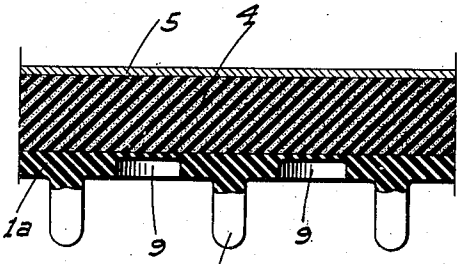


Fig. 4

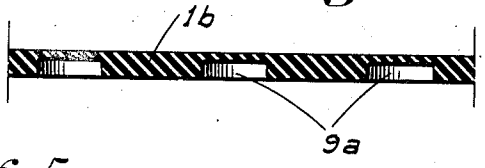
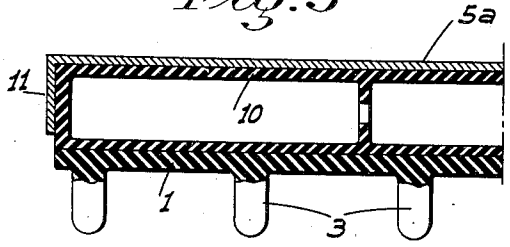


Fig. 5



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CUSHION BRUSH FOR NUT HULLERS

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Application December 13, 1937, Serial No. 179,512

3 Claims. (Cl. 83—37)

This invention relates to rotary hulling brushes for nut hulling machines wherein the nuts are confined between and engaged by a hulling plate and the brush and are hulled by reason of the abrading action caused by the rotation of the brush. Such a machine is shown for instance in my copending application Serial No. 179,514, filed December 13, 1937, for which my improved brush is particularly adapted.

The principal object of my invention is to provide a rubber-bristle brush, and a yieldable or cushion backing on which the brush is mounted.

The advantage of rubber bristles over those of steel lies in the greater durability of the rubber against wear or fracture, as well as the lack of any tendency to scratch the hulled nuts.

The advantage of the cushion backing is that with a single setting of the brush relative to the hulling plate, all nuts of different sizes within a reasonable range will be hulled with equal efficiency, if the brush is set to work on nuts of the smallest size in the run.

As a result it is unnecessary to either continually change the adjustment of the brush during a run of nuts to insure proper hulling, or by not making adjustments, run the risk of either inefficient hulling or scratching of the nuts (with a steel brush), depending on whether the brush is set too far from the hulling plate to properly engage small nuts, or too close to the plate to avoid severe scratching contact with large nuts.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a face view of my improved brush in the form adaptable for use in the aforementioned copending application.

Figure 2 is a full-size fragmentary radial section of the brush.

Figure 3 is a similar view showing a modified form of brush element.

Figure 4 is a fragmentary section of a further modified type of brush element.

Figure 5 is a fragmentary radial section of a brush showing a modified form of cushion backing.

Referring now more particularly to the characters of reference on the drawing, and particularly at present to Figs. 1 and 2, the brush disclosed comprises a base disc 1 of relatively thin, flexible, tough sheet rubber having a central opening 2. Formed with and projecting from one face of the disc over its entire area are relatively short round-ended bristles 3, preferably spaced apart a distance somewhat greater than their length.

The opposite smooth side of the disc 1 is vulcanized onto a relatively thick disc 4 of sponge or other soft rubber, which in turn is vulcanized onto a sheet metal backing disc 5. Studs 6 are secured and project outwardly from the disc 5 at suitably spaced points and with their nuts 7 serve as a means to secure the disc to a rigid back plate 8 to which the brush rotating means is connected in any suitable manner. The cushion disc 4 is of sufficient thickness to provide for a considerable amount of yielding movement of the disc 1 and teeth at any point, as the possible difference in size of the nuts during any one run may require.

In the form of brush shown in Fig. 3, I form depressions 9 (preferably circular) in the disc 1*a* between the teeth 3*a*, of greater diameter than the teeth so that nuts may project somewhat into the depressions. These depressions form in effect suction cups, while the rubber about the rims of the cups forms relatively sharp or abrupt edges which have an abrading action on any nuts contacting with and relatively rolling past such edges.

In the brush shown in Fig. 4, I employ the cups 9*a* alone in an otherwise substantially smooth surfaced disc 1*b*, since such cups as above pointed out, will also have an abrading action. Instead of cushion rubber or other relatively solid cushion material, I may employ an inflatable air bag 10 of disc form and whose opposed faces are substantially parallel. The brush disc is vulcanized against one face of the bag, while the opposite face of the bag is vulcanized against the metal backing plate 5*a*, which in this case may be provided with a rim flange 11 extending about the peripheral edge of the bag to prevent radial expansion thereof.

While being somewhat more expensive than the solid rubber cushion, the air bag has an advantage in that its cushion properties, or resistance to yielding, may be easily altered at any time, according to the requirements of any individual run of nuts, by merely altering the air pressure within the bag.

From the foregoing description it will be readily seen that I have produced such a device as

substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A cushion brush for use in connection with a metal supporting plate, said brush comprising a rigid metal base plate, a cushion pad and a flexible sheet carrying abrading elements; the plate, pad and sheet being arranged in the order named and secured together as a unit, and studs mounted in and projecting from the face of the metal plate opposite the pad and adapted to project through the supporting plate for mounting the brush on said plate.

2. A cushion brush including a flexible rubber base sheet, spaced bristles integral with the sheet, the latter being formed with suction cups between the bristles and a cushion backing for and secured against said base sheet.

3. A cushion brush comprising a rigid backing sheet, a flexible base sheet parallel to and spaced from said backing sheet and having bristles projecting therefrom, an inflatable air bag disposed between the sheets, and engaging the adjacent faces thereof for substantially their full extent and a rim flange on the backing sheet extending closely about the periphery of the air bag for the major portion of its depth.

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