Sept. 15, 1931. J. E. PETERSON 1,823,627

BUTTON BREAKER ROLLER

Filed July 10, 1930

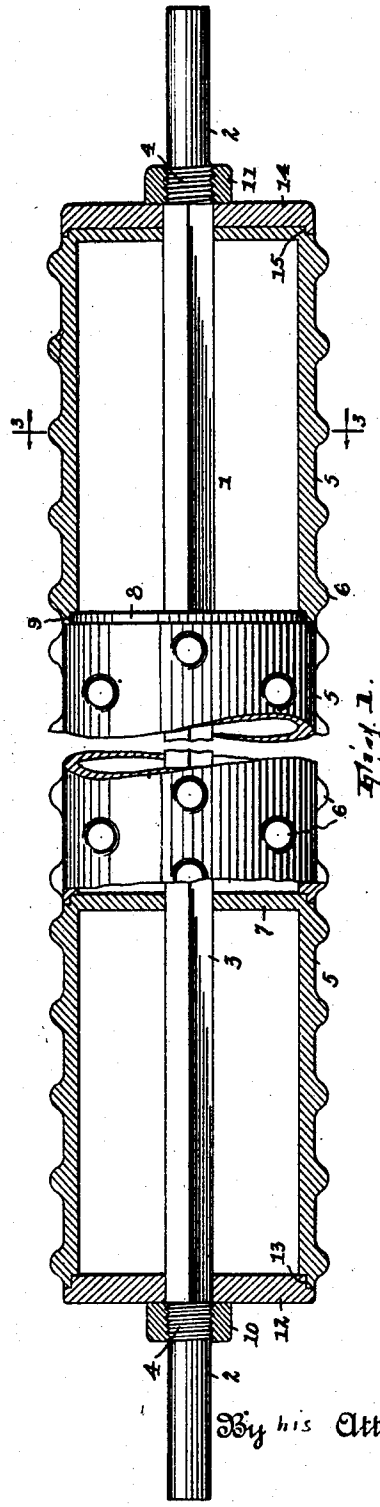


Fig. 1.

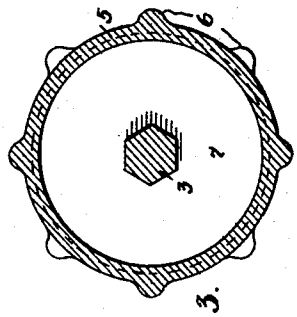


Fig. 3.

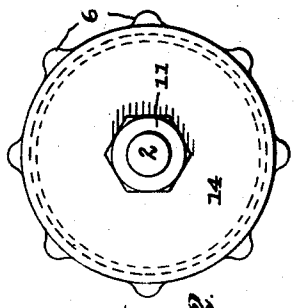


Fig. 2.

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UNITED STATES PATENT OFFICE

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BUTTON BREAKER ROLLER

Application filed July 10, 1930. Serial No. 467,011.

This invention relates to rollers, known as "button breaker rollers", employed for softening fabrics, the fabrics being passed in contact with the peripheries of the rollers and their fibers thereby kneaded or worked by the buttons arranged thereon. Such rollers are usually formed of wood into which the buttons, which are headed nails, are driven, but the button-heads wear or break away from their shanks, which are left protruding so as to injure the cloth, and frequently they fall out entirely. My principal object is to form the buttons integral with the body of the roller itself which requires a casting operation in order to form the buttons uniform in size, shape and spacing without undue expense of time and labor, and since it would not be possible, due to the considerable length of the rollers in proportion to their diameters, to cast them consistently or so that some in a run of the rollers would not be in some respect malformed, I cast each in sections and then secure these sections rigidly together on a single shaft which affords the trunnions of the completed roller. In the best form each of these sections, while having support on its neighbor or neighbors against radial displacement, also has support on the shaft.

In the drawings,

Fig. 1 is a view showing the improved roller in part in side elevation and in part in longitudinal section;

Fig. 2 is an end elevation thereof; and

Fig. 3 is a section on line 3—3, Fig 1.

1 designates a shaft which has cylindrical ends 2 to form the trunnions or bearing portions of the completed roller, but between its ends is non-circular in cross-section, as at 3, and between the portions 2 and 3 is provided with screw-threading 4.

Each of the mentioned sections 5 (they are all counterparts of each other) is cast hollow and cylindrical and with knobs 6 on its periphery of proper size and in proper arrangement to constitute the said buttons. One end of each section preferably has a transverse wall 7, making the section cup-shaped. One end of each section, as that having the wall 7, is formed with an external rabbet 8 and the other with an internal rabbet 9. If the walls 7 are present they have holes 10 to the portion 2 of the shaft.

The sections are to be arranged on the shaft as in Fig. 1 with the ends having the rabbets (8 or 9) of the same class all faced in the same direction, whereby they will telescope each other; in fact, each rabbet of one class is formed to fit the rabbet of the other class snugly, so that each section is held by its neighbor against radial displacement in all directions. Thus each section is supported on the shaft by its wall 7 at one end and at the other end by the neighboring section. The sections abut end to end squarely all around so as to leave no external crevice in which threads of the goods being treated might catch, and they are clamped in this relation as will appear.

On the threaded portions 4 of the shaft are arranged clamping nuts 10 and 11. The nut 10 outwardly abuts a disk or wall 12 which closes and is externally rabbeted at 13 to fit the rabbeted open end of the adjoining section. Another such disk 14 in effect internally rabbeted at 15 by having on its inner face a circumferential bead receives the section at the other end of the roller and it is outwardwardly abutted by the nut 11. These disks of course have holes 12*a* and 13*a* fitting the portion 2 of the shaft. When the nuts are screwed up tight the entire structure becomes practically a unitary body having ample strength to resist all strains to which it is subjected when in use.

The sections, in order to secure perfect accuracy and regularity in forming them, are preferably produced by die-casting.

One additional advantage of my construction is that the sections can be left in stock and rollers made up in any desired length as required, it being only necessary to provide shafts 1 of proper length according to the length of roller required in any particular case.

Since the object of forming the portion 3 of the shaft non-circular is to provide against rotative displacement of any section thereon, in other words, to spline it thereon, I use the term "spline" to include any cross-sectional form of the shaft and of the openings

in the section walls 7 and in the disks 12 and 13 which, by the fitting of such openings to the shaft, holds the shaft on the one hand and the sections and disks on the other against rotation relatively to each other.

Having thus fully described my invention what I claim is:

1. A button breaker roller including cup-shaped cylindrical alined cast sections having their closed ends all facing in the same direction and the adjoining ends of each two adjoining sections engaged one in the other with a snug fit, said sections having buttons cast on their peripheries and being rigidly held together.

2. A button breaker roller including cylindrical alined hollow cast sections each having buttons cast on its periphery and each also having a transverse interior wall and abutting the adjoining section end to end and means clamping said sections together and including a shaft extending axially through the several sections and penetrating and snugly fitting said walls thereof.

3. A button breaker roller including cylindrical alined hollow cast sections each having buttons cast on its periphery and each also having in one end portion thereof a transverse interior wall and its other end held by the adjoining section against radial movement in any direction, and means clamping said sections together and including a shaft extending axially through the several sections and penetrating and snugly fitting said walls thereof.

4. A button breaker roller including cup-shaped cylindrical alined cast sections having their closed ends all facing in the same direction and the adjoining ends of each two adjoining sections engaged one in the other with a snug fit, said sections having buttons cast on their peripheries, and means, including a shaft extending axially through the several sections and snugly fitting the closed ends thereof, for clamping said sections rigidly together.

In testimony whereof I affix my signature.

JOHN E. PETERSON.