J. K. WITZEL.

BOLT CLEANER.

APPLICATION FILED JULY 29, 1909.

954,237. Patented Apr. 5, 1910.

Fig. 1.

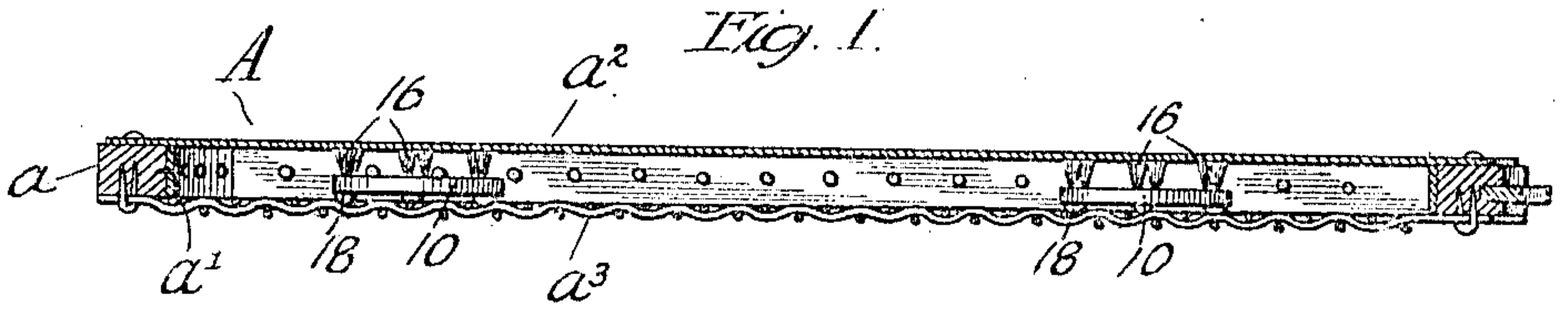


Fig. 2.

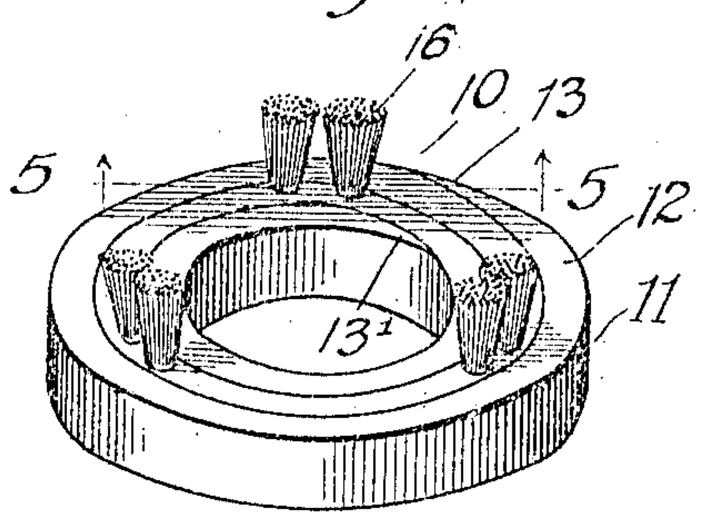


Fig. 3.

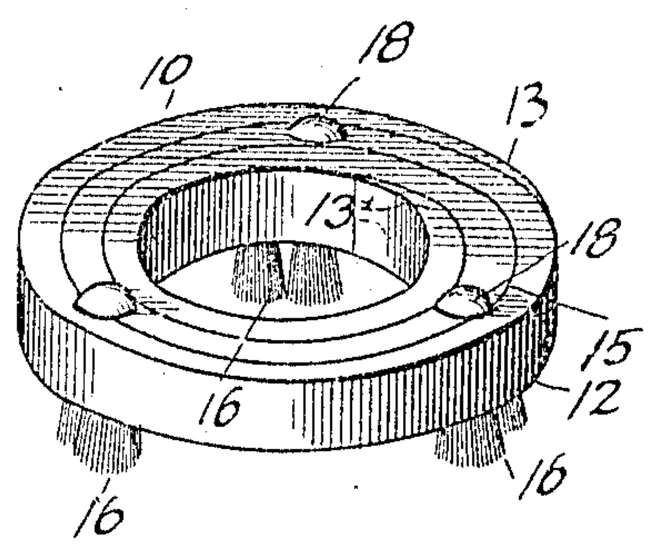


Fig. 4.

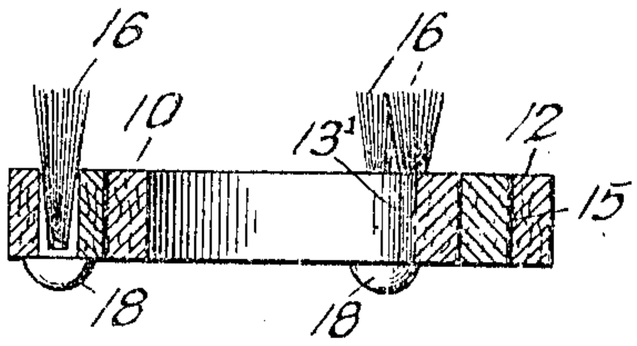


Fig. 7.

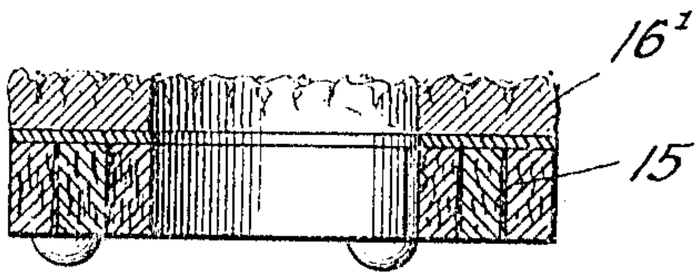
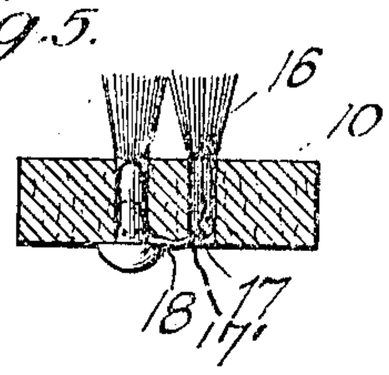


Fig. 5.



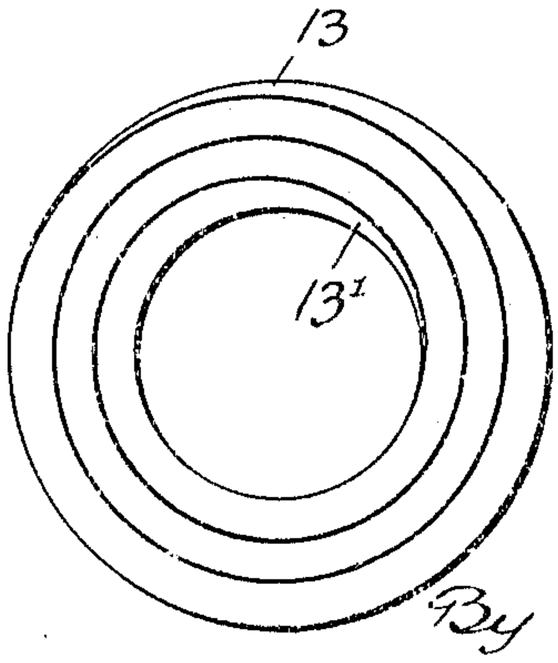


Fig. 6.

Witnesses
H. R. Dalute
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UNITED STATES PATENT OFFICE.

JOSEPH K. WITZEL, OF CHICAGO, ILLINOIS.

BOLT-CLEANER.

954,237. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed July 29, 1909. Serial No. 510,266.

To all whom it may concern:

Be it known that I, JOSEPH K. WITZEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bolt-Cleaners, of which the following is a specification.

My invention relates to improvements in bolt cleaners employed in vibrating bolts of flouring mills to cleanse the bolting cloth or silk.

In flouring mills bolts are commonly employed embodying a frame vibrated or oscillated with great rapidity, such frame carrying on its upper surface a taut bolting cloth underlain by the wire fabric spaced apart from the bolting cloth by the thickness of the frame. Brushes, free for movement in the space between the bolting cloth and the subjacent wire mesh and disposed to brush the under surface of the bolting cloth, are commonly employed, and have heretofore been provided in many different constructions. The rapid vibration or oscillation of the frame causes the free brushes to travel at random in the frame, brushing constantly changing areas of the bolting cloth to keep it clean or free from clogging. The construction of a satisfactory brush for the purpose, however, involves many difficulties, as will readily be understood when it is borne in mind that the rapid and violent movements of the frame cause the brushes to be thrown into contact with the side of the frame a vast number of times in each day's operation, and that the brush should be equally resilient in every lateral direction so as to rebound with equal facility in any direction; should be so durable as to stand the wear of constant motion and recurrent blows for a long period of time; should not have its edges distorted or spread by the myriad impacts against the frame; and should wear the frame or its lining as little as possible, and should be capable of traveling throughout all parts of the frame and yet, notwithstanding the violent activity of the agitation of the frame, should not travel at too great a rate of speed and should be light enough not to acquire a damaging momentum. These and other desiderata are attained in the brush of my invention, which is illustratively shown in the accompanying drawings, wherein—

Figure 1 is a sectional view of a bolt provided with brushes embodying my invention; Fig. 2 is a perspective top view of a detached brush; Fig. 3 is a similar bottom view; Fig. 4 is a central vertical view; Fig. 5 is a section on line 5—5 of Fig. 2; Fig. 6 is a plan detail of the brush body; and Fig. 7 is a transverse section of a modified embodiment of the invention.

My brush essentially embodies as a body a leather annulus of substantially uniform width and substantially uniform thickness formed in substantially a true circle in a single continuous strip of leather, coiled in scroll or helical form, with its ends scarfed for long smooth joints, the convolutions of said strip having their surfaces positively maintained in contact, as by gluing, so that the annulus is substantially solid throughout its width, and the strip being cut and arranged so that the faces of the leather, that is to say the hair side and flesh side of the hide, form the curving edges of the strip, and the cut edges of the leather form the planar faces of the annulus. In the complete article such annulus bears, on its upper planar face, cloth-cleaning means in appropriate form and, on its under planar face, preferably bears metallic wearing parts or shoes.

In the specific construction shown in the drawings, A indicates in general a flour bolt section, whereof a is the wooden frame, generally leather-lined, as at a', carrying and spacing apart the bolt cloth a^2 and the underlying wire cloth or fabric a^3.

10 indicates in general a brush structure whereof 11 is the base or body formed of a single leather strip, 12, having its edges scarfed, as at 13 and 13′, and rolled, preferably with the hair side outward, into a scroll forming an annulus of substantially uniform width about an axis at the middle of its open center, to present the cut edges of the strip in planar top and bottom surfaces, the several convolutions being united for effective solidity, as by glue bodies 15 joining the proximate surfaces of the several convolutions. The ring thus provided is strong yet resilient, and its resilience is equal in every direction and at every point, in a plane parallel to the planar surfaces. Furthermore, the arrangement of the leather with the hair side of the strip forming the outermost surface thereof gives it great durability to stand edge impacts, which are the only impacts that it receives in its operation,

and makes the structure of vastly greater durability than any leather body in which the cut edges of the leather form the edges of the body and the hair and flesh sides of the hide form the planar surfaces of the body.

The upper planar surface of the body bears one or more cloth-cleaning bodies, which, as shown in Figs. 1 to 5, may be a plurality of small vertical brushes, 16, inserted in apertures, 17, in the body and held in place by wires, 17′, or, as shown in Fig. 7, may be a body of wool, 16′, or any other suitable cleaning agency, which may be broadly designated a brushing medium.

The under side of the body is preferably reinforced against frictional wear by metallic shoes, which may be, and preferably are, in the form of round studs, 18, projecting from the lower surface of the brush at three or more points spaced about the annular body, and arranged in operation to ride over the metallic fabric a^3 of the bolt and keep the planar cut surface of the leather from wearing.

The brushing and wearing parts may be variously provided and arranged, and the specific constructions shown are illustrated merely for purposes of full disclosure.

What I claim is:

1. A device of the character described providing a body formed of a single strip of leather contorted to form a single annulus of substantially uniform width, circular in contour, and having the cut edges of the leather forming its planar surfaces; and brushing means secured upon said body.

2. An article of the character described providing a leather body formed of a single strip having its ends scarfed, the strip being coiled and secured in convolute form providing an annulus of uniform width including a plurality of convolutions of said leather strip, said annulus being of substantially uniform thickness and having the cut edges of the leather presented at its planar surfaces; and brushing means secured upon said body.

3. An article of the character described providing a leather body formed of a single strip having its ends scarfed, the strip being coiled and glued in convolute form providing an annulus of uniform width including a plurality of convolutions of said leather strip, said annulus being of substantially uniform thickness and having the cut edges of the leather presented at its planar surfaces; brushing means secured upon one surface of said body; and metallic wearing means secured upon the opposite surface of said body.

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

JOSEPH K. WITZEL.

In the presence of—
W. Linn Allen.
Mary F. Allen.