(No Model.) 2 Sheets—Sheet 1.

D. S. HALL.

METHOD OF AND APPARATUS FOR MAKING LEATHER WASHERS.

No. 263,896. Patented Sept. 5, 1882.

Fig. 1.

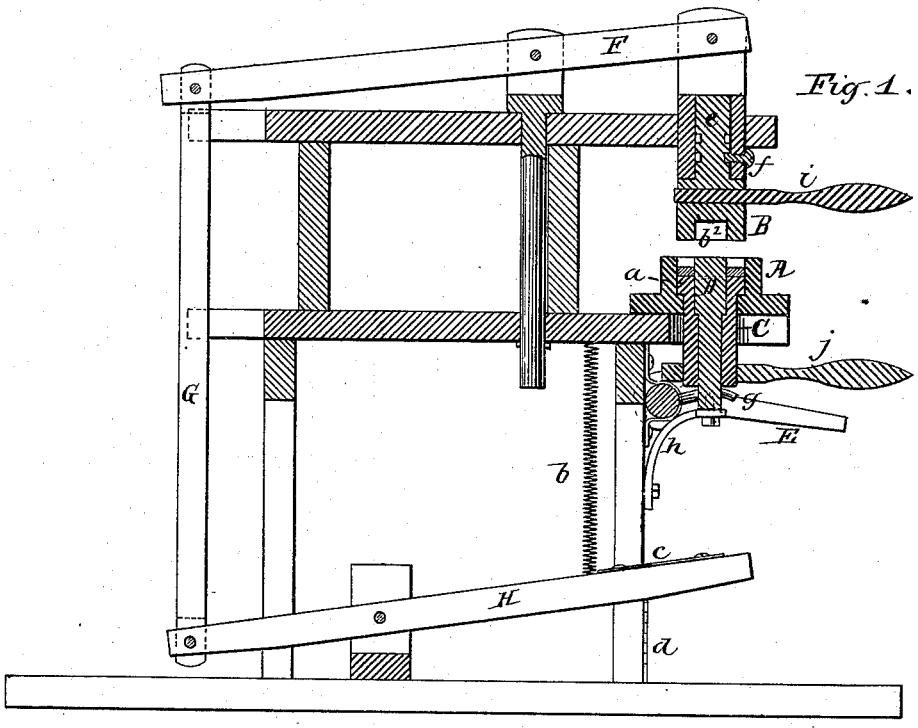
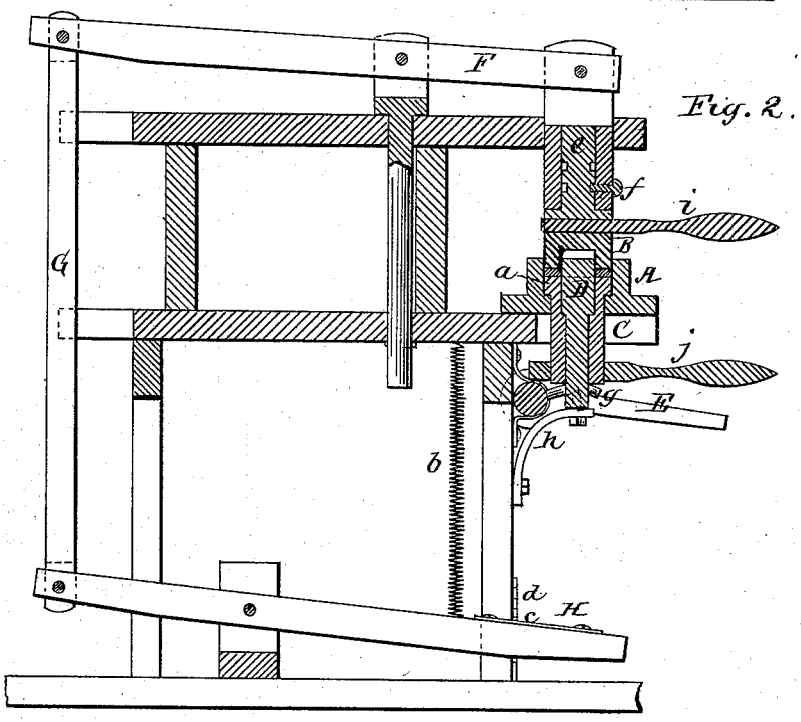


Fig. 2.



Witnesses:-
Edmund Burdhag
Howell Battle.

Inventor:
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Johnson & Johnson
Attys

(No Model.) 2 Sheets—Sheet 2.

D. S. HALL.

METHOD OF AND APPARATUS FOR MAKING LEATHER WASHERS.

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Fig. 3.

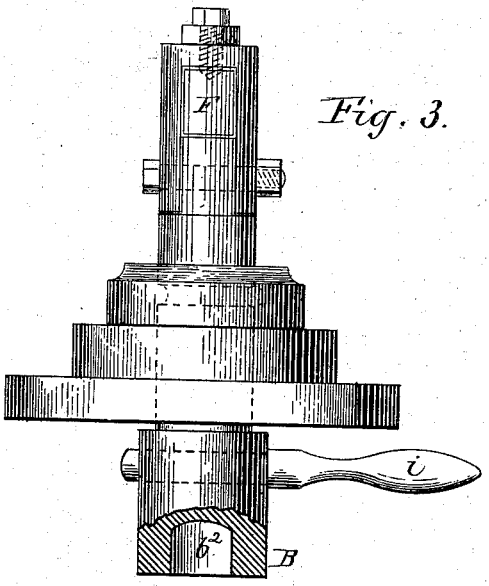


Fig. 4

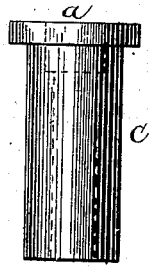
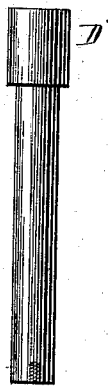


Fig. 5.



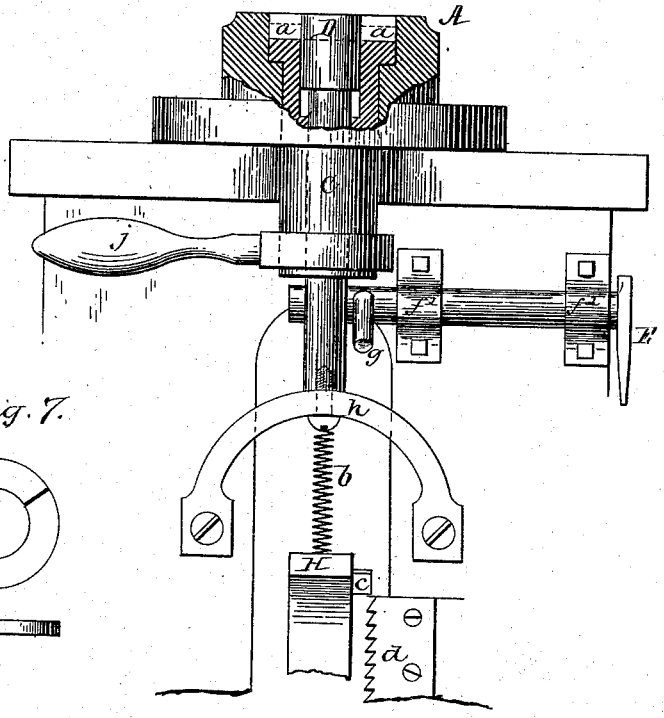


Fig. 7.

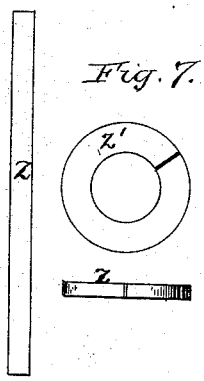
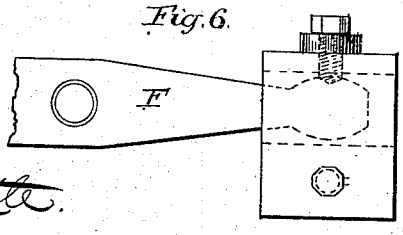


Fig. 6.



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Inventor:
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Johnson and Johnson
Attys

UNITED STATES PATENT OFFICE.

DAVID S. HALL, OF STOUGHTON, MASSACHUSETTS.

METHOD OF AND APPARATUS FOR MAKING LEATHER WASHERS.

SPECIFICATION forming part of Letters Patent No. 263,896, dated September 5, 1882.

Application filed July 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. HALL, a citizen of the United States, residing at Stoughton, Norfolk county, State of Massachusetts, have invented new and useful Improvements in Method of and Apparatus for Forming and Burnishing Leather Washers, of which the following is a specification.

The object of the invention is to compress cut strips for forming washers into proper shape within a confining-socket and to polish or burnish the wearing surface or surfaces; and I have produced a machine for that purpose.

Although I do not confine myself to the production of pressed and polished washers of leather, I shall herein describe my method and machine merely with reference to its construction and use as regards the manufacture of washers made of cut strips of leather pressed upon the cut sides exposing the fiber and having those sides polished while under such compression. It is a fact well known to the trade that when the cut part or that part exposing the fiber is presented as the wearing-surface the durability is largely increased. This is especially so when the fibers are confined in such manner that when direct pressure is applied to the cut ends or parts such pressure shall force the mass into a solid association of fibers, there being no lateral escape from the force of the direct pressure. In addition to this I burnish these pressed sides and produce a substantial and perfectly-true wearing-surface.

My machine is hereinafter described, and is illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of a machine embracing my invention, showing the parts in position to receive the washer in the forming-chamber; Fig. 2, a similar section, showing the washer confined and under pressure; Fig. 3, a front elevation; Fig. 4, the revoluble sleeve; Fig. 5, the stationary guide post or former; Fig. 6, a detail showing in side view the manner of connecting the pivoted beam which carries the follower with the coupling; and Fig. 7 shows the blank strip and the washer produced from it.

Referring to these drawings, I arrange, in a suitable frame, a fixed collar or socket, A, for receiving the cut strip into a chamber in which at one end enters a chambered follower, B, while at the other end of said collar is contained a headed sleeve, C, around a stationary post or former, D. A reciprocating or rotary motion may be imparted to both sleeve and follower by means of levers or steam-power, or in any suitable mechanical way. The chamber of the collar A receives the cut strip of leather upon the rim or head *a* of the sleeve C, to take the impact of the follower B for the purpose of compressing the fibers within the confined space of the collar, and around the former, the central chamber, b^2, of the follower receiving said former. The reciprocating or rotary motion of which both sleeve and follower are capable is for the purpose of burnishing the wearing-surfaces thus compressed. This burnishing is effected by the action of the levers by hand or otherwise, as above stated, after the compression has been effected by the impact of the follower, which first operation may be carried out by any suitable mechanical appliance to operate the follower, as in treadle-operating presses. The sleeve is adapted to move vertically also by means of a lever, E, to eject upwardly the finished washer, the follower being adapted to rise by a spring or otherwise out of the receiving-collar chamber to permit such ejection. In the example shown the follower B, above referred to, is operated through a proper guide-opening in the frame, as shown by a walking or pivoted beam, F, properly pivoted and connected by rod G with a suitably-pivoted treadle-bar, H, which, being adapted to be lifted automatically by a suitable spring, *b*, to release the compressing and polishing follower from the receiving-collar, is controlled by a suitable grip, *c*, matching, as the operator desires, into a rack, *d*, to be held against the action of said spring *b* while the process of burnishing is taking place.

In this process of burnishing or polishing I provide a revoluble impact portion to the follower, carried therein by a post, *e*, with a proper holding-pin, *f*, placed in a groove, and cause the same to move in one direction to polish one surface of the washer under pressure, while the other surface is polished by the head of the sleeve above mentioned moving in an opposite direction when these polishing-surfaces are continuously revolved. The stationary guide-post D or former within the sleeve, for

convenience, is supported upon a bowed buttress, *h*, of the frame, as shown. Hand-levers *i* and *j* may operate the aforesaid-moving polishing parts back and forth, or their movement may be caused by bands connecting with a shaft from steam-power. A suitable lever, E, actuated in bearings f^2 f^2 and provided with a lifting arm or arms, *g*, is used to lift the sleeve vertically in the collar to eject the finished washer.

It is plain that I may use various mechanical modifications, as circumstances and good mechanical judgment may dictate, for operating the hereinbefore-described principal and necessary parts of the machine. I desire it also to be understood that I may make the follower come within a collar receiving the washer-strip and having a stationary bearing-part, and that the polishing may be done by a subsequent operation; but it is eminently more desirable that both the compressing and the polishing be done by the same machine.

To form and complete a washer according to my plan, I first place or bend a strip of material, *z*, of suitable dimensions inside the chamber of said collar and around the upper end of said former D, and by means of the lever walking-beam said follower is made to enter said collar-chamber over the former until said washer is firmly compressed therein between the ends of said follower, the rim-head of the sleeve and the inner walls or sides of said collar-chamber. Said follower and sleeve are then made to reciprocate or revolve in opposite directions until the two faces of said washers *z'* are sufficiently polished. The follower is then withdrawn, and said sleeve made to upwardly eject the finished washer by the aid of the lever above described. I am thus enabled to utilize scraps of leather (of a size which are entirely useless for any other purpose) for the production of leather washers.

I claim—

1. That improvement in the art of manufacturing leather washers consisting, first, in placing or wrapping the prepared blank around a suitable former and then applying pressure to its cut edge while the blank is held from lateral displacement, thus solidifying the fibers of the blank, all substantially as set forth.

2. That improvement in the art of manufacturing leather washers which consists in first solidifying the blank by pressure upon its cut edges, as set forth, and burnishing the fibrous cut edges while under pressure, all substantially as set forth.

3. In a machine for forming washers, a receiving-collar chamber or socket-collar, A, in combination with a follower, B, and a receiving-surface adapted to eject the formed washer, substantially as herein set forth.

4. In a machine for forming washers, a receiving collar or socket, A, with a bottom surface, in combination with a reciprocating revoluble follower, a former-post, D, and operating means, substantially as set forth.

5. In a machine for forming washers, a receiving-collar chamber or socket, A, in combination with a reciprocating or revoluble follower, B, a reciprocating or revoluble sleeve, C, rim-headed, as set forth, a stationary post, D, or former, and a lever for giving an upward movement to said sleeve and means for lifting said follower, all substantially as and for the purpose described.

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

DAVID S. HALL.

Witnesses:
ELLIS DRAKE,
WILLIE W. SAVELS.