

No. 859,104.

PATENTED JULY 2, 1907.

C. PEASE.  
BEADING MACHINE.  
APPLICATION FILED SEPT. 20, 1906.

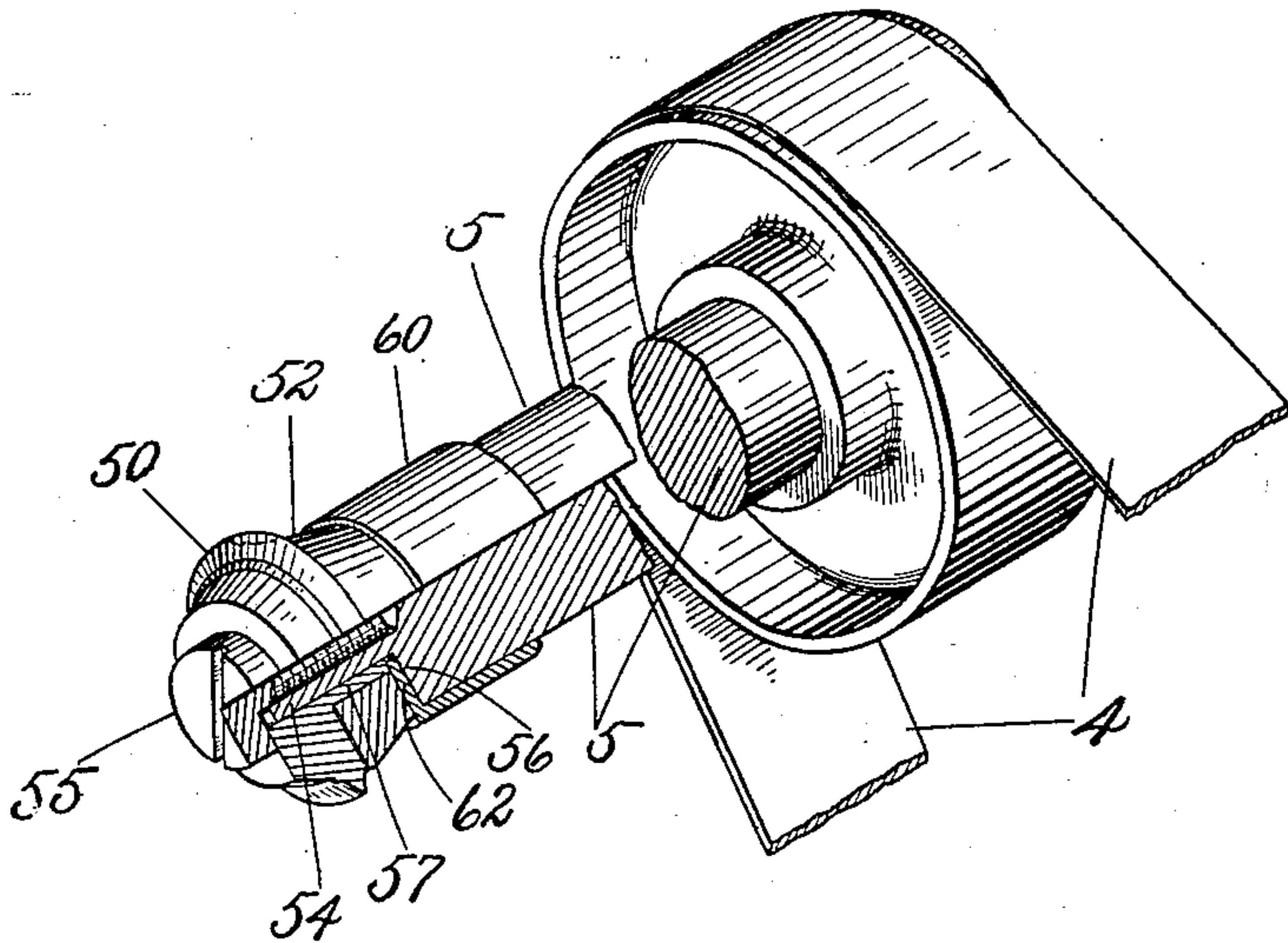


Fig. 1.

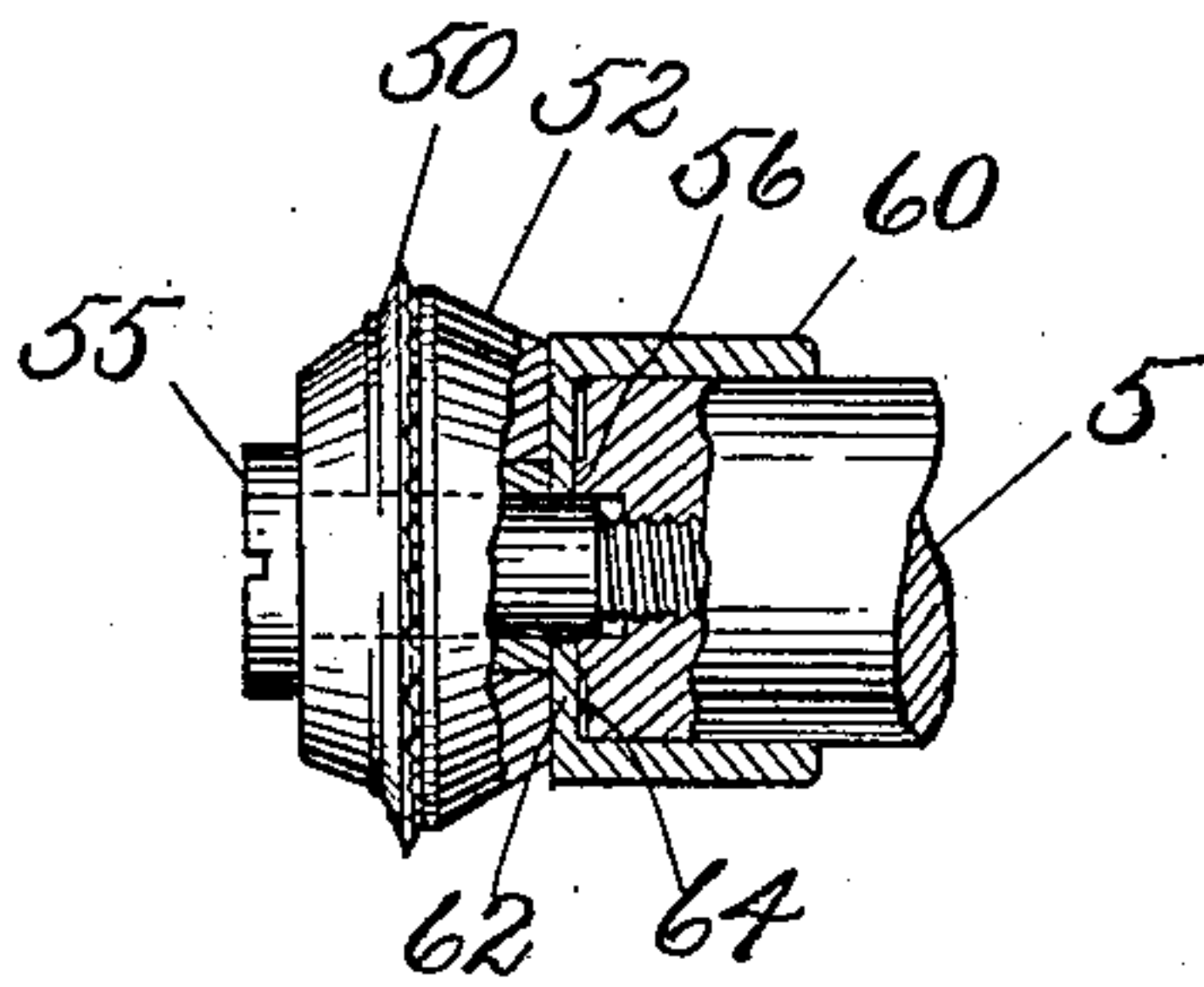


Fig. 2.

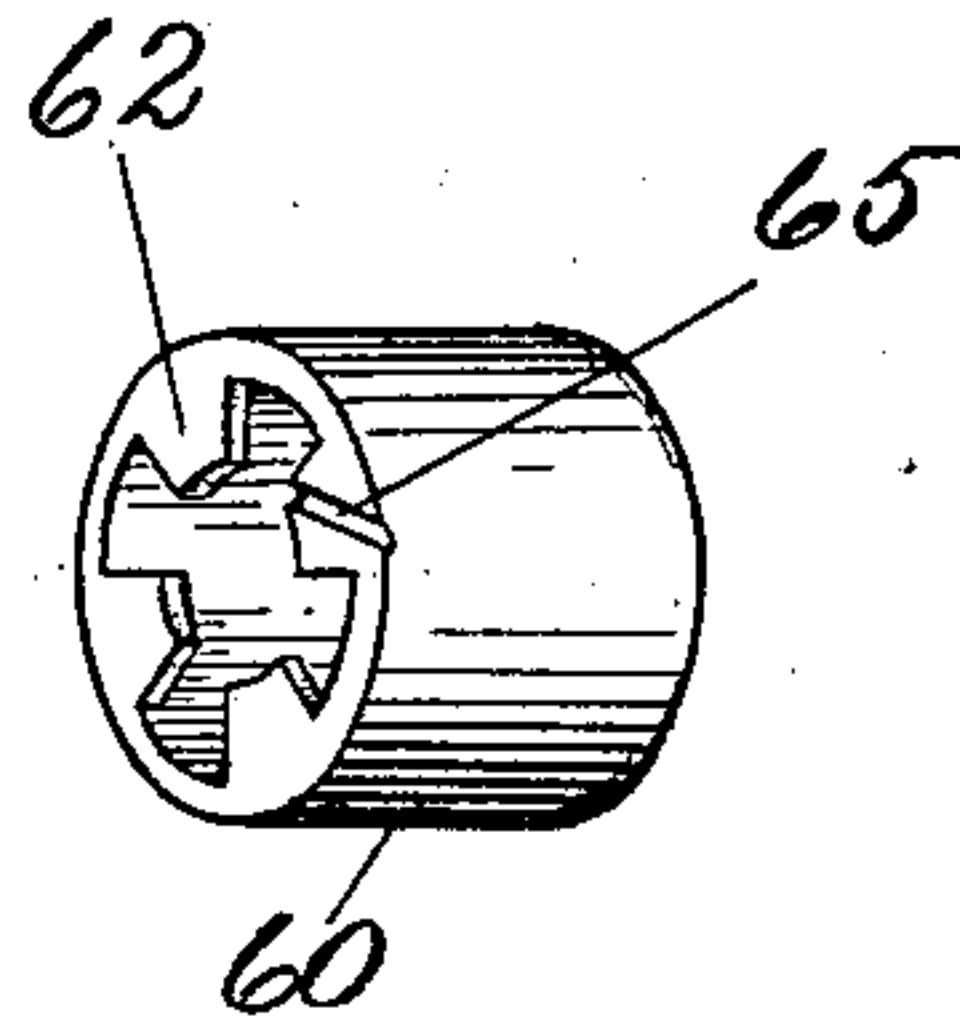


Fig. 3.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

CHARLES PEASE, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED-XPEDITE FINISHING COMPANY, OF BERWICK, MAINE, A CORPORATION OF MAINE.

## BEADING-MACHINE.

No. 859,104.

Specification of Letters Patent.

Patented July 2, 1907.

Original application filed March 8, 1906, Serial No. 304,949. Divided and this application filed September 20, 1906.  
Serial No. 335,443.

*To all whom it may concern:*

Be it known that I, CHARLES PEASE, a citizen of the United States, residing at Salem, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Beading-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

10 This invention relates to machines for use in finishing boots and shoes and particularly to machines for beading the edges of the heels of shoes, this present application being a division of an application Serial No. 304,949, filed March 8, 1906.

15 In the use of machines of usual type, in which the beading tool comprises a beader fast on a rotating shaft and adapted to shape the edge of the heel at the heel seat end thereof forming what is called the "bead" of the heel, and a milled roll loose on the shaft for ornamenting the edge of the heel adjacent to the bead, serious difficulty has been experienced because of the rapid wear of the portion of the supporting shaft engaged by the milled roll. It is necessary to harden the milled roll to make it durable but it is impractical to  
25 harden the shaft to a similar extent and it frequently occurs that the wear between the roll and the shoulder or end face of the shaft against which the roll contacts is so rapid that only a short period of use is had before the roll begins to have loose lateral movement on the shaft and thereafter the roll does not produce a perfect line of ornamentation on the heel. This necessitates the frequent renewal of the relatively expensive shaft. An important feature of this invention consists in a device by which this rapid wear of the beader shaft may  
35 be prevented, which device may also be applied to shafts that have already become worn for overcoming loose lateral movement of the milled roll on such shafts. The usual construction of beading tools and shafts, in connection with which this invention will be herein explained, comprises a shaft provided near its end with a bearing for the beader and with a shoulder or other end face. The beader is provided with a laterally extending sleeve or hub adapted to be mounted on said bearing and to be clamped endwise against the end face  
45 of the shaft so that the beader rotates with the shaft. The milled roll has a bore large enough to fit upon the laterally extending hub of the beader and is of the same width as the hub so that it rotates freely on said hub but has no lateral movement.

50 When the parts are accurately formed the roll runs steadily and produces a line of indentations parallel with or having other predetermined relation to the

bead. The constant friction between the rapidly turning shaft and the slowly turning hardened roll soon wears the shaft and permits the roll to have lateral play 55 on its bearing so that the line of ornamentation produced on the heel is not straight or has not the desired relation to the bead. For the purpose of obviating this wear and for refitting shafts that have already become worn I have provided, in accordance with this invention, an attachment to be applied to the shaft to protect it from wear by the milled roll and to furnish a perfect bearing face against which the roll may turn. This attachment consists in a positioning portion which comprises a sleeve which is formed to fit the exterior of 65 the shaft accurately and is of a length to prevent any tendency of the attachment to cant on the shaft. The attachment further consists of a bearing portion for the milled roll. This is formed as a member or members extending inwardly from the positioning portion, and 70 forming on the outer side a surface against which the milled roll turns. This attachment preferably will be of hardened metal so that it will not wear rapidly and as it is small and can be manufactured at small cost it can be replaced at trifling expense as compared with 75 the cost of a new shaft.

Preferably provision is made for securing the attachment against rotation with the shaft so that there is no wear between it and the shaft. As herein shown the inwardly extending flange of the attachment 80 reaches to, or substantially to, the bearing or reduced portion of the shaft on which the hub of the beader is mounted and it is clamped between the hub of the beader and the shoulder of the shaft. This construction has the advantage that when the attachment is 85 applied to a worn shaft the flange is positioned in bearing with a portion of the shoulder of the shaft which has not been worn by the milled roll and which is therefore of normal shape. The attachment may for this reason be accurately positioned and clamped in place 90 and presents a proper lateral bearing for the roll so that the roll will run steadily even though the shaft may have been so badly worn as to be unfit for further use without the attachment.

A construction embodying the invention will be 95 herein fully explained in the following description and the features of the invention definitely pointed out in the claims.

Figure 1 is a perspective view partly in section; Fig. 2 is a side elevation, partly in section, illustrating a feature hereinafter described; Fig. 3 is a detail 100 view showing one form of the new attachment.

The beading tool is carried by the shaft 5 and comprises a beader 50, for shaping and hardening the angu-



lar edge or bead at the upper end of the heel, and a milled roll 52, for forming a line of indentations or other ornamental marks upon the edge of the heel adjacent to the bead. In the construction herein shown for the purpose of illustrating the invention the beader shaft 5 has a reduced portion 54, see Fig. 1, and a shoulder presenting an end face 56. The beader is mounted on the reduced portion of the shaft and provided with a rearwardly extending hub 57. The beader is secured in place so that it rotates with the shaft by means of a screw 55 which clamps the rear end of the hub 57 referred to against the end face 56, or, as herein shown, against a part interposed between said end face and said hub. It is obvious that the reduced portion of the shaft may be dispensed with and the beader and its hub be applied directly to the shank of the securing screw 58 as shown in Fig. 2. It will, therefore, be understood that it is not important whether the end face 56 which extends transversely of the axis of rotation of the shaft is at the extremity of the shaft or formed back of the extremity of the shaft. The milled roll 52 is adapted to rotate upon the hub of the beader and is of a width to extend from an abutment formed by the rear face of the beader to the end of the hub 57 so that when the hub is clamped against an end face of the shaft the milled roll may turn freely, but may not have any lateral movement. With this construction the milled roll will form in the edge of a heel a line of indentations extending parallel with or having other predetermined relation to the bead which is formed by the beading tool. In this operation the milled roll turns only so fast as is required in rolling over the surface of the work, while the beading tool is rotated rapidly.

It is necessary to harden the milled roll in order that its milled surface may not readily become defaced or worn by use. It is, however, impractical to harden the beading tool shaft to a similar extent and the friction caused by the relative movement of said roll and the shaft causes the end face of the shaft to wear away rapidly so that after a short period of use the milled roll begins to have some lateral play which causes it to form an imperfect line of ornamentation on the heel. Another difficulty occasioned by this wear is that the space thus formed between the roll and the end face of the shaft permits particles of dirt to get between said surfaces which sometimes interfere with the free rotation of the roll and cause it to scratch the heel instead of rolling freely over it. To overcome this wearing of the shaft an attachment is provided which is herein shown as comprising a sleeve 60 fitting closely the exterior of the beader shaft 5 and preferably of sufficient length to prevent any possibility of its canting on the shaft. The sleeve 60 is provided with an inwardly extending portion or portions 62 adapted to be positioned between the end face 56 of the shaft and the milled roll 52 and to present an abutment or superposed end face in contact with which the milled roll will turn. The attachment may be hardened to the same extent as the milled roll, if desired, so that the wear between the two parts will be slight. The attachment, however, can be formed at small cost so that it may be cheaply replaced when it is worn out. The attachment is preferably secured to the beader shaft 5

to rotate with said shaft to that there is no wear upon the end face 56 of said shaft. The attachment may be secured to the shaft in any desired way, but as herein shown the inwardly extending portion or portions 62 are long enough to be clamped between the end face 56 and the rear end of the hub of the beader.

The described attachment may be used not only for the purpose of preventing wear of the end face of a new shaft, but it may also be employed to advantage in refitting a machine the beading tool shaft of which has become worn so that the milled roll does not run steadily. This latter use of the attachment is illustrated in Fig. 2 in which is shown a beading tool shaft which is so badly worn upon the end face 56, as indicated by the space 64, that the milled roll would have too much lateral play to permit of its further use. The attachment is shown as applied with its inwardly projecting portions 62 located between the rear end of the hub 57 and an unworn portion of the end face 56 previously engaged by said hub. The worn shaft equipped with this attachment forms precisely as good a mounting for the beading tool and milled roll as a new shaft would do and is more durable because the attachment will not wear as rapidly as would the end face of a new shaft if the attachment were not used. While the attachment may be formed with a continuous inwardly projecting flange it will preferably be formed with a notched flange, or with inwardly projecting fingers 62 which form the bearing for the rear end of the milled roll, and the inner ends of which are clamped between the hub of the beader hub and the end face of the shaft. The spaces between the fingers 62 present recesses into which oil may be introduced through an oil channel 65 to lubricate the contacting surfaces of the roll and attachment. In beading a heel upon this tool the shoe will be positioned with the beader 50 in the rand crease and will be turned to present the different portions of the heel to the action of the tool. The milled roll will turn with the surface speed at which the work is moved and will produce a line of ornamentation in the desired relation to the bead formed on the heel. The relative movement of the milled roll and the shaft 5 will cause no wear on the end face 56 of the shaft because that face is protected from wear by the inwardly projecting portions 62 of the attachment hereinbefore described.

Having explained the nature of this invention and described a preferred construction embodying the same, I claim as new and desire to secure by Letters Patent of the United States:—

1. In a machine of the class described, the combination with a rotatable shaft, of a tool secured to the shaft for rotation therewith, a roll arranged to turn independently of the shaft between said tool and the end face of the shaft, and a closely fitting sleeve mounted on the shaft adjacent to said end face and having an inwardly extending member arranged between the independently turning roll and the end face of the shaft.

2. In a machine of the class described, the combination with a rotatable shaft, of a member mounted on the shaft to turn independently thereof between an end face of the shaft and a lateral abutment, and a closely fitting sleeve surrounding the shaft to turn with it and having an inwardly extending portion arranged between said independently turning member and the end face of the shaft.

3. In a machine of the class described, the combination with a rotatable shaft provided with a shoulder, of a beader secured to the shaft for rotation therewith, a



milled roll loose on the shaft and arranged to turn between the beader and the shoulder on the shaft, and a sleeve secured to the shaft adjacent to said shoulder and having an inwardly extending member arranged between said roll and shoulder and presenting a lateral bearing for the roll.

4. In a machine of the class described, the combination with a rotatable shaft having a reduced end portion and a shoulder, of a beader mounted on said reduced end portion and having a sleeve extending toward said shoulder, a hardened milled roll mounted on the sleeve and free to turn independently of the shaft, a lateral bearing member arranged between the shoulder of the shaft and said milled roll, and means for clamping the beader and bearing member against the shoulder of the shaft.

5. In a machine of the class described, the combination with a rotatable shaft, of a tool secured to the shaft for rotation therewith, a roll arranged to turn independently of the shaft between said tool and the end face of the shaft, and a closely fitting sleeve mounted on the shaft

adjacent to said end face and having inwardly extending members arranged between the independent turning roll and the end face of the shaft, and spaced apart.

6. In a machine of the class described, the combination with a rotatable shaft having an end face, of a beader secured to the shaft for rotation therewith, a milled roll arranged to turn freely between the beader and the end face of the shaft, and a device arranged between the roll and the shaft to protect the end face of the shaft from wear by the roll, said device comprising inwardly extending members spaced apart and having provision for the introduction of lubricating material between said members.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES PEASE.

Witnesses:

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ARTHUR L. RUSSELL.