

L. GODDU.
 MACHINE FOR BEATING OUT WELTS.
 APPLICATION FILED AUG. 31, 1900. RENEWED JULY 5, 1910.
 989,346. Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

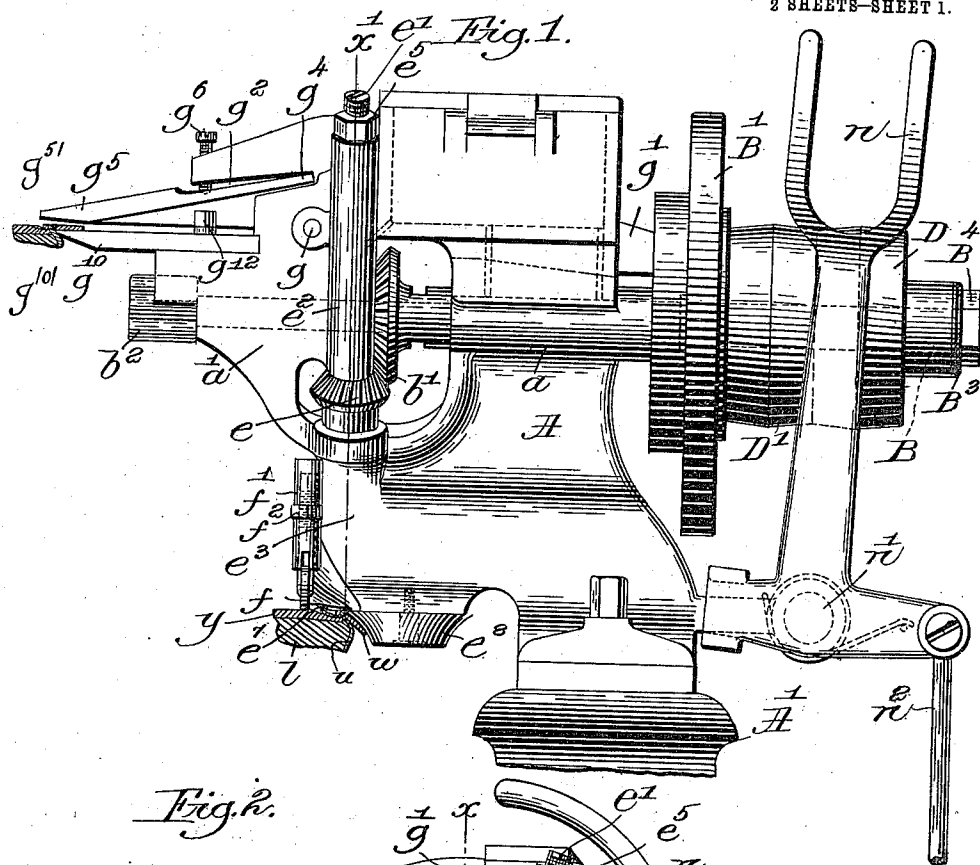
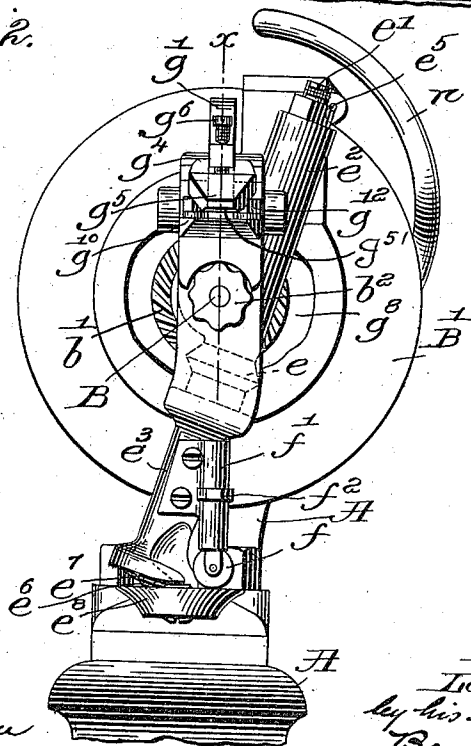


Fig. 2.



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 Fred O. Fish
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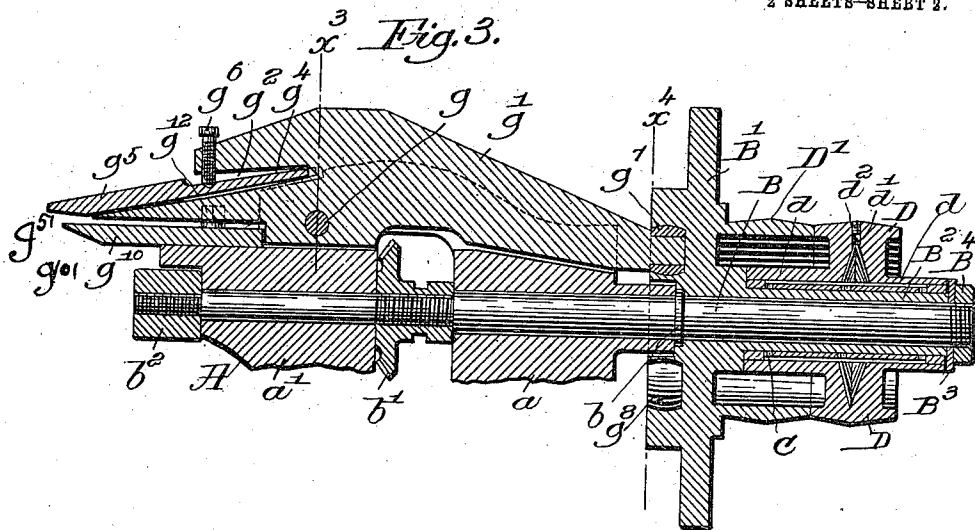


Fig. 5.

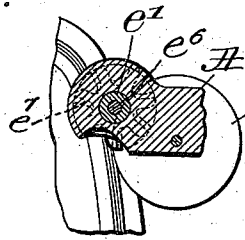


Fig. 6.

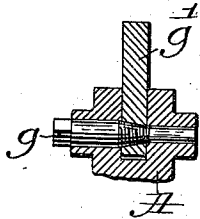


Fig. 7.



Fig. 4.

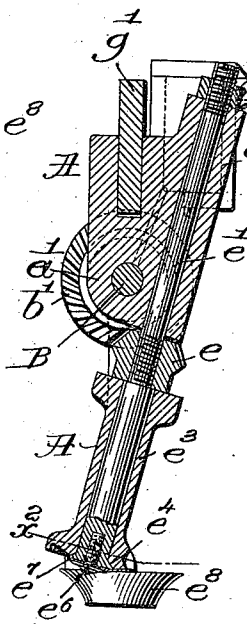


Fig. 7.

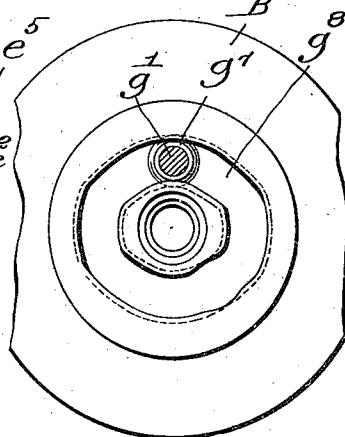
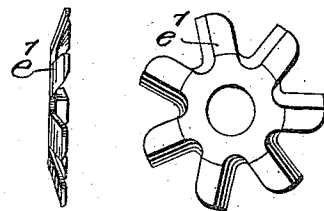


Fig. 8.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR BEATING OUT WELTS.

989,346.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed August 31, 1900, Serial No. 28,628. Renewed July 5, 1910. Serial No. 570,240.

To all whom it may concern:

Be it known that I, LOUIS GODDU, a citizen of the United States, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Beating Out Welts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to machines for beating out welts of boots and shoes preparatory to the laying on of the outer sole.

The object of the present invention is to provide a machine of the class referred to of simple and improved construction, and with this object in view the invention consists in the devices and combinations of devices hereinafter described and claimed.

In the drawings accompanying this application, I have illustrated my invention in connection with certain other devices with which it is actually used in practice, the whole forming a combination machine whereby several operations may be performed upon a shoe by a single operator without loss of time, and a separate machine for each operation is dispensed with.

In the drawings which illustrate a preferred embodiment of my invention, Figure 1 is a view in side elevation of a machine embodying the same and also embodying a seam rubbing and a seam trimming mechanism; Fig. 2 is a view in end elevation of the machine illustrated in Fig. 1; Fig. 3 is a sectional view on the line x , Fig. 2, showing the construction of my improved welt beating out mechanism; Fig. 4 is a sectional view on the line x' , Fig. 1; Fig. 5 is a sectional detail view on the line x^2 , Fig. 4; Fig. 6 is a detail sectional view on the line x^3 , Fig. 3; Fig. 7 is a sectional view on the line x^4 , Fig. 3, with the driving shaft omitted; Fig. 8 illustrates in plan and side view the seam trimming knife detached, and Fig. 9 is a perspective view of the seam rubbing roller.

Referring to the drawings in which like characters of reference indicate like parts, A designates the frame of the machine of any suitable construction for supporting the operating parts and A' a base upon which the frame is mounted.

B is a driving shaft journaled in the bearings a , a' of the frame, and having rigidly mounted thereon the bevel gear b' , the seam rubbing roller b^2 and the cam disk B'. The disk B' has rigidly secured thereto or formed integral therewith a driving pulley D' and the hub of the disk is extended as a sleeve to form a bearing for a loose pulley D.

As shown in Fig. 3 the pulley D is made hollow to form a receptacle for the lubricating fluid, perforations C being provided to allow the escape of the fluid to the bearing.

The hub of the pulley is extended at each side as at d to increase the length of the bearing and an opening d' closed by means of a set screw d^2 is provided whereby the lubricating fluid may be supplied to the interior of the pulley. A washer B³ and screw nut B⁴ serve to press the disk B' against a flange b on the shaft B to secure the disk to the shaft, the projecting edge of the washer also serving to prevent endwise movement of the loose pulley D on the sleeve B².

The welt beating out mechanism comprises a lever g' pivoted at g on the frame and provided at its forward end with a notch g^2 forming a seat or socket for the welt beating hammer g^5 . The lower surface of the notch g^2 is concaved whereby the hammer rests on said surface at points near its ends only.

The shank g^4 of the hammer is reduced in thickness to render it resilient, the shank being in effect a leaf spring attached to the hammer. For holding the hammer in position and for regulating the tension of the spring shank an adjusting clamping screw g^6 is provided passing through the portion of the lever g' forming the upper portion of the notch g^2 , and bearing against the hammer g^5 about midway between its points of support. The end of the hammer is beveled as shown to form a surface on the under side of the hammer for engaging the welt. The hammer in effect forms a flexible extension of the lever g' , the flexibility of which may be adjusted by means of the screw g^6 . The lever g' is actuated to give a rapid vibratory movement to the welt beating hammer by means of a cam groove g^8 formed in the disk B' with which a friction roll g^7 at the end of the lever engages. A plate g^{10} secured to the frame by bolts g^{12} serves to support and guide the welt under the action of the hammer.

It will be noted from an examination of Figs. 1 and 3 that the hammer g^5 is so held in its socket g^2 that the beveled operating face g^{51} of the hammer is not parallel to the welt supporting surface g^{101} of the plate g^{10} . These two surfaces maintain an angular interval between each other at the time the hammer strikes the welt, the angle being such that the distance between them is greatest at the entrant end where the nip or bend of the welt rests. This construction provides for the desired heavy beating of the welt at its outer margin, which is the portion of the welt where the beating is most needed, but for a lighter beating of the welt at the in seam where the blow should not be of such a strength as to break the seam or otherwise injure the welt.

The in seam trimming mechanism comprises the shaft e' supported in bearings e^2 , e^3 of the frame and driven from the shaft B by the intermeshing gears b' and e . The lower end of the shaft is flanged as at e^4 and is held in its bearings between this flange and a screw nut e^5 at the upper end of the shaft.

The seam trimming knife e' is secured to the lower end of the shaft by means of the screws e^6 and coöperates with the roller e^8 journaled in the frame in trimming the seam. A roller f at the lower end of a rod mounted in a bracket f' secured to the frame and vertically adjustable by means of a nut f^2 engaging a thread on the rod is adapted to bear against the sole of a shoe and serve as a gage during the trimming operation. As shown in Figs. 4 and 8 the trimming knife e' consists of a disk with a series of radially projecting cutting blades. These blades are arranged at an angle to the shaft e' and the shaft e' is arranged at an angle to the plane in which the work moves during the trimming operation whereby all of the blades except the one in engagement with the material are out of the plane of the work and damage to the work by such blades is prevented.

As a guard for the blades not in engagement with the work the lower end of the bearing e^3 is provided with a groove into which the blades project the bearing being cut away to allow the edge of the roll e^8 to coöperate with one of the blades as clearly shown in Figs. 4 and 5. The roll e^8 is conoidal in shape and acts as a guide and support for the work as shown in Fig. 1.

As a convenient means for throwing the machine into and out of operation, I provide a belt shifting lever n pivoted at n' and actuated by means of a spring coiled about the pivot as shown in dotted lines Fig. 1 and by a rod n^2 pivoted to the lever and connected to a treadle or other suitable mechanism.

In using the machine above described for

operating upon shoes in which the insole, the welt, and the upper have been stitched together, the shoe is first subjected to the action of the seam trimming mechanism as shown in Fig. 1 in which l represents the last, u the upper, w the welt and y the insole. After the seam trimming operation is completed the shoe is passed beneath the corrugated roller b^2 which exerts a rubbing action on the seam to compress the parts into the plane of the bottom of the insole. The shoe is then subjected to the action of the welt beating out mechanism as shown in Fig. 1, the plate g^{10} entering the crease between the upper and the welt to act as a guide as the shoe is fed along by the operator and supporting the welt under the action of the hammer. The force of the blow delivered by the hammer is easily regulated by means of the adjusting screw g^3 .

It will be seen that the welt beating out mechanism which I have disclosed in this application and which I desire to claim herein is of extreme simplicity and of great durability. By providing the hammer with a spring shank and supporting it on a concaved seat I secure an adjustable yielding hammer without multiplying the parts over what would be necessary if the hammer were rigid.

In practically operative welt beating machines it is necessary that the welt beating hammer be vibrated at an extremely high rate of speed, it being desirable that the welt beating hammer make upward of fifteen hundred beats a minute. It is also necessary that the welt beating hammer be mounted so as to strike a yielding blow on the welt in order to prevent injury to the welt. This necessitates a yielding connection between the hammer and its actuating mechanism which will allow the hammer to yield and at the same time enable it to be vibrated at the required rate of speed. In the welt beating out mechanism disclosed in the present application the welt beating hammer g^5 is comparatively light and is mounted upon the forward end of the lever g' by means of the resilient shank g^4 so that when the lever g' is vibrated at a high rate of speed the hammer is vibrated in unison therewith but is allowed to yield each time it contacts with the welt.

Although I have illustrated and described in this application seam trimming and seam rubbing mechanism with which the beating out mechanism may be conveniently associated in practice I do not desire to claim these mechanisms herein but

What I do desire to claim and secure by Letters Patent is:—

1. A machine for beating out welts, having, in combination, a welt support shaped to enter the crease between the upper and welt, a welt beating hammer provided with

a resilient shank, a lever provided with a socket, means for securing the resilient shank of the hammer in said socket and for adjusting the flexibility of the shank, and means for actuating the lever, substantially as described.

2. A machine for beating out welts, having, in combination, a welt support, a lever provided with a socket having a concaved surface, a welt beating hammer provided with a resilient shank seated on said surface, a clamping screw bearing on the hammer between its points of support, and means for actuating the lever, substantially as described.

3. A machine for beating out welts, having, in combination, a welt support, a welt beating hammer provided with a resilient shank, a lever provided with a socket constructed to support the hammer at two points, means for adjusting the flexibility of the shank of the hammer comprising a clamping device bearing on the hammer between its points of support and means for actuating the lever, substantially as described.

4. A machine for beating out welts, having, in combination, a welt support shaped to enter the crease between the upper and welt, a lever, a welt beating hammer provided with a resilient shank mounted upon one end of the lever, means for adjusting the flexibility of the shank, and means for actuating the lever, substantially as described.

5. A machine for beating out welts, having, in combination, a welt support shaped to enter the crease between the upper and welt, a lever, means for rapidly vibrating the lever, a welt beating hammer mounted upon the lever and wholly supported thereby so that the movements of the hammer are wholly controlled by the lever, and a yielding connection between the hammer and lever constructed to cause the hammer to vibrate with the lever and permit the hammer to strike a yielding blow upon the welt, substantially as described.

6. A machine for beating out welts, having, in combination, a welt support shaped to enter the crease between the upper and welt, a lever, a pivotal support for the lever located intermediate its ends, a welt beating hammer mounted on one end of the lever and wholly supported thereby so that its movements are controlled entirely by the lever, a yielding connection between the hammer and the lever constructed to cause the hammer to vibrate with the lever and permit the hammer to strike a yielding blow on the welt, and mechanism connected with the other end of the lever for rapidly vibrating the lever, substantially as described.

7. A machine for beating out welts, hav-

ing, in combination, a welt support shaped to enter the crease between the upper and the welt, a lever, means for rapidly vibrating the lever, and a welt beating hammer provided with a resilient shank secured to one end of the lever, said shank being constructed to cause the hammer to vibrate with the lever and permit the hammer to strike a yielding blow on the welt, substantially as described.

8. A machine for beating out welts, having, in combination, a welt support shaped to enter the crease between the upper and the welt, a lever, a pivotal support for said lever located intermediate its ends, a welt beating hammer mounted upon one end of the lever and wholly supported thereby so that the movements of the hammer are controlled entirely by the lever, a yielding connection between the hammer and lever arranged to cause the hammer to vibrate with the lever and permit the hammer to strike a yielding blow on the welt, and means for rapidly vibrating the lever, comprising a cam directly engaging the other end of the lever, substantially as described.

9. A machine for beating out welts, having, in combination, a plate shaped to enter the crease between the upper and welt having a flat welt supporting surface g^{101} , a welt beater having an operating face g^{51} supported at an angle to the welt supporting surface g^{101} whereby flattening of the welt is effected without injury to the nip of the welt, and means for operating the beater, substantially as described.

10. A machine for beating out welts, having, in combination, a welt beater, means for operating the beater, means for holding the beater in a position to maintain an angular interval between its working face and the welt support whereby flattening of the welt is effected without injury to the nip of the welt, and means for operating the beater, substantially as described.

11. A machine for beating out welts, having, in combination, a plate to support the welt, and a welt beating hammer above the plate having portions of its operating face at different distances from the supporting face of said plate, said distance at the outer end of the hammer face being greater than at the inner end whereby the nip of the welt receives a lighter blow from the hammer than the outer margin of the welt, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

LOUIS GODDU.

Witnesses:

HORACE VAN EVEREN,
ALFRED H. HILDRETH.