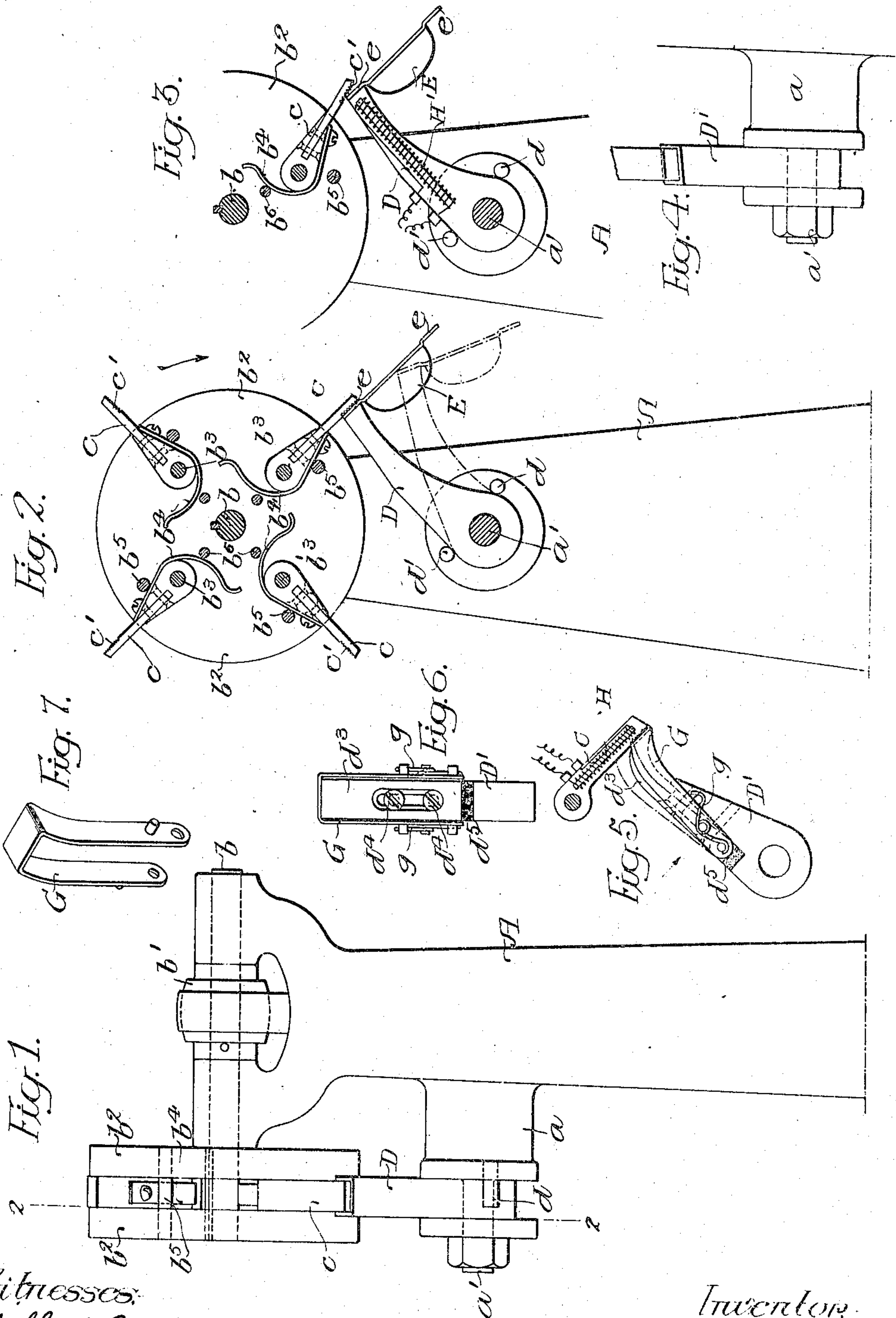


W. B. KEIGHLEY.
WELT BEATING MACHINE.
APPLICATION FILED SEPT. 17, 1908.

920,877.

Patented May 4, 1909.



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UNITED STATES PATENT OFFICE.

WILLIAM B. KEIGHLEY, OF VINELAND, NEW JERSEY.

WELT-BEATING MACHINE.

No. 920,877.

Specification of Letters Patent.

Patented May 4, 1908.

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To all whom it may concern:

Be it known that I, WILLIAM B. KEIGHLEY, a citizen of the United States, residing in Vineland, New Jersey, have invented certain Improvements in Welt-Beating Machines, of which the following is a specification.

One object of my invention is to provide a machine for beating out the welt of a shoe during the manufacture thereof with a view to not only remove any wrinkles or irregularities which may exist, but also for the purpose of stretching the welt transversely or away from the shoe and thereby increasing the width of the welt.

I further desire to provide a relatively uncomplicated and easily operated machine which shall simultaneously pound or hammer a welt and apply tension thereto in order that it may be flattened and increased in width, at the same time providing a device for supporting the welt which is capable of being moved into and out of the path of the beater arms.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a side elevation of my improved machine; Fig. 2, is a front elevation of the machine illustrated in Fig. 1, part of the same being a section on the line 2—2, of said figure; Fig. 3, is a sectional elevation illustrating one of the beating arms in the position occupied just before it is drawn off of the welt; Fig. 4, is a side elevation of a special form of anvil; Figs. 5 and 6 are respectively a front and side elevation of the preferred form of anvil employed as part of my invention; and Fig. 7, is a perspective view of the shield used as part of my invention.

In the above drawings, A represents the frame of the machine, the upper portion of which is provided with bearings for the support of a horizontal shaft *b*, and which also is provided with a forwardly extending boss *a* in which is mounted a stationary shaft or pivot pin *a'*. On the shaft *b* is mounted a pulley *b'* driven from any desired source of power and said shaft also has fixed to it a pair of parallel disks *b²* between which extend any suitable number of pivot pins or spindles *b³*. On each of these latter is mounted a beater arm *c* and each arm has fixed to it a spring *b⁴* engaging a pin *b⁵* also

extending between the disks; the arrangement being such that said springs tend to maintain said arms projecting in radial lines relatively to the shaft *b* while leaving them free to be turned on the pivot pins *b³*. At the same time these springs prevent too great a rebound of the beater arms when they strike upon a welt under treatment and said arms are held in position to deliver square flat blows by stops *b⁵* so placed as to prevent them from moving from their radial positions in one direction under the normal action of their springs. The shaft *b* is turned in a definite direction indicated by the arrow Fig. 2 and the forward faces of the beater arms are preferably roughened or toothed as indicated at *c'* so as to enable them to engage and forcibly pull a welt operated on.

Mounted upon the supporting shaft or spindle *a'* is a welt supporting arm or anvil *D* having two stops *d* and *d'* mounted upon the base *a* whereby its possible oscillation upon said shaft is limited. At one end of its arc of movement its extremity, which may be flat as shown in Figs. 2 and 3, or preferably rounded as shown in Fig. 5, comes in such position as to be engaged by the toothed or roughened ends of the beater arms *c*; while at its other extreme position it is well out of the path of said arms, so that when not in use, the machine runs noiselessly. This anvil is preferably constructed as shown at *D'* in Figs. 5 and 6;—that is, its free end is curved and extended at an angle to its length to form a sharp edge capable of engaging the welt for a maximum transverse distance. The end section *d³* is also made separate from the body of the anvil, being slotted and held to said body by screws *d⁴* passing through the slot so as to be free to move longitudinally to a limited extent. A block of rubber or other resilient substance *d⁵* is placed between the inner end of the part *d³* and the body of the anvil, with the result that blows struck on the anvil are cushioned.

A shield *G* formed of a properly shaped length of sheet material is pivoted to the movable part of the anvil so as to extend over the end thereof and directly receive the blows of the beater arms. A spring *g* normally retains this shield in the position shown in the drawings, and it is pulled by the action of the beater arms into the position indicated in dotted lines against the force of said spring, so that as a consequence a welt under treatment is further stretched.

Under operating conditions a partially made shoe E is so manipulated that its projecting welt e is caused to rest upon the flat end of the anvil D or D' which is then moved from the position shown in dotted lines in Fig. 2, to that shown in full lines to bring the welt into the path of movement of the beater arms. The shaft b and the disks b² being rapidly turned, these arms are successively brought into engagement with the welt, each arm striking said welt so as to compress it against the end of the anvil and then turning on the pivot b³ so as to pull or stretch the welt transversely away from the shoe. In so doing each arm moves from the position shown in Fig. 2 to the position shown in Fig. 3, and is finally drawn off of the welt and past the anvil. Under the action of centrifugal force as well as of its spring b⁴ each arm is immediately thereafter restored to its original radial position. The shock of the blows is taken by the resilient blocks d⁵ and as before noted the shield aids in applying tension to the welt.

When the shoe has been turned to bring all portions of the welt successively under the action of the beater arms, the anvil is again brought to the position indicated in dotted lines and the shoe removed. In order to facilitate the feeding of the welt I preferably incline the top surface of the anvil as well as that of the beater arms as shown in Fig. 4, so that their operative faces are inclined relatively to the plane of movement of said arms. By the above noted action the welt is flattened and stretched outwardly or away from the shoe to a marked extent, its width being increased to such an amount that it is possible to employ a narrower welt than would otherwise be permissible. It will be noted that the action of my improved machine is such that the welt is flattened and stretched transversely; that is to say, the pull on the welt tends to draw it away from the shoe and as a matter of fact, does increase its width.

In some cases I may heat the arms c as well as the anvil in order that the wet and pliable welt may be dried-out and hardened preparatory to its being cemented to the sole blank and for this purpose I mount in said parts suitable electrical or other heating apparatus. In the present case I have illustrated coils of wire H and H' having suitable terminals free to be connected to a source of current.

If desired, the springs b⁴ may be omitted, as in many instances the centrifugal force is sufficient to maintain the beating arms in their radial or extended position.

I claim:

1. The combination in a welt beating machine of a frame, a structure rotatably mounted thereon, and provided with a beating arm or arms, means for turning said structure, and means for supporting a welt

with its length at right angles to the plane of rotation of said arm or arms, the latter being elongated so that a side portion of each arm is capable of engaging and transversely stretching said welt.

2. The combination in a welt beating machine, of a frame, a structure rotatably mounted thereon and provided with a beating arm or arms, means for turning said structure, and an anvil for supporting a welt so as to permit said arm or arms to engage and transversely stretch said welt, with a welt engaging piece movably mounted on said anvil.

3. The combination in a welt beating machine, of a frame, a structure rotatably mounted thereon and provided with a beating arm or arms, means for turning said structure, and an anvil for supporting a welt so as to permit said arm or arms to engage and transversely stretch said welt, with a piece pivoted to the anvil so as to be capable of receiving a welt, and a spring normally holding said piece in a definite position.

4. The combination in a welt beating machine of a frame, a rotatable structure thereon having a beating arm or arms, means for turning said structure, and an anvil for carrying the welt of the shoe, said anvil being rotatably supported so as to be capable of being swung into and out of the path of movement of said arm or arms, and having a flat head arranged to be substantially parallel with the striking faces of the arms when it is engaged thereby.

5. The combination in a welt beating machine of a frame, a rotatable structure thereon having a beating arm or arms, means for turning said structure, and a pivotally mounted support for the welt of a shoe, capable of being swung on its pivot to bring its end into position to be struck by said arm or arms, said support being mounted to extend substantially tangential to the path of movement of the arm or arms when engaged by the same.

6. The combination in a welt beating machine of a frame, a beating arm or arms, means for actuating said arm or arms, an anvil, a yieldingly supported member thereon, and a shield movably mounted on said member.

7. The combination in a welt beating machine of a supporting frame, a shaft journaled therein and having driving means, a series of beating arms operatively connected to said shaft, and a welt supporting structure consisting of a pivoted anvil capable of being swung at will into a position in which its length is tangential to the path of the beating arms, and its end is placed to be engaged thereby.

8. The combination in a welt beating machine, of a frame, a shaft mounted thereon, means for driving the shaft, a supporting

structure fixed to said shaft, a plurality of beating arms pivotally carried by said supporting structure, and a pivoted arm having a flattened end for the support of a welt and
5 movable into and out of the path of the arm or arms so that its length is substantially at right angles to said arm or arms when its end is engaged thereby.

9. The combination in a welt beating machine, of a frame, a beater arm supported thereon, means for operating said arm, and
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an anvil placed to cooperate with said arm, the portion of the anvil engaged by the arm being inclined toward one side relatively to the plane of movement of said arm.

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

WILLIAM B. KEIGHLEY.

Witnesses:

W. S. DUNGAN,
H. C. DOWNS.