

No. 875,171.

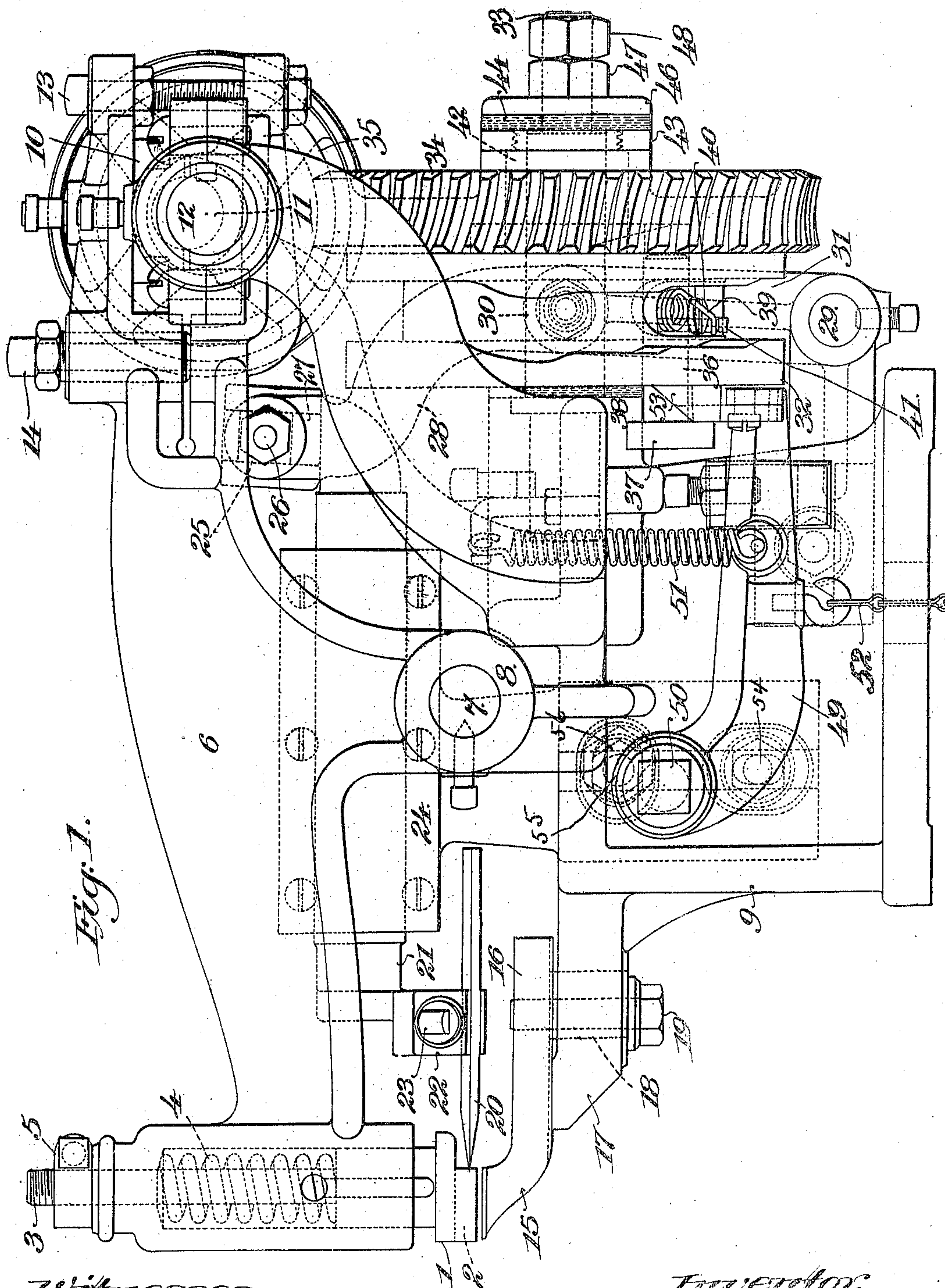
PATENTED DEC. 31, 1907.

J. B. HADAWAY.

MACHINE FOR OPERATING ON WELTS.

APPLICATION FILED OCT. 10, 1903.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

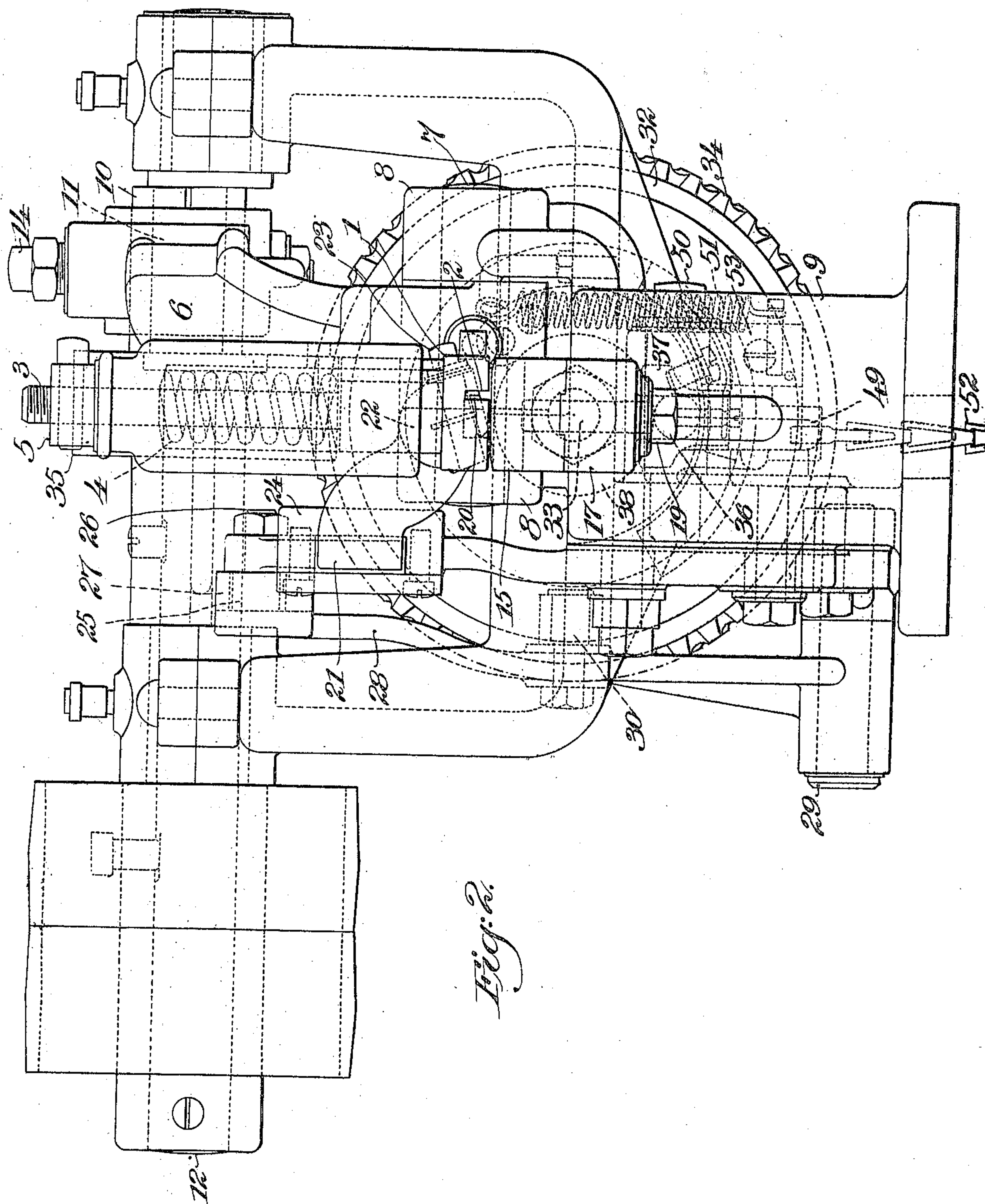


Fig. 2.

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3 SHEETS—SHEET 3.

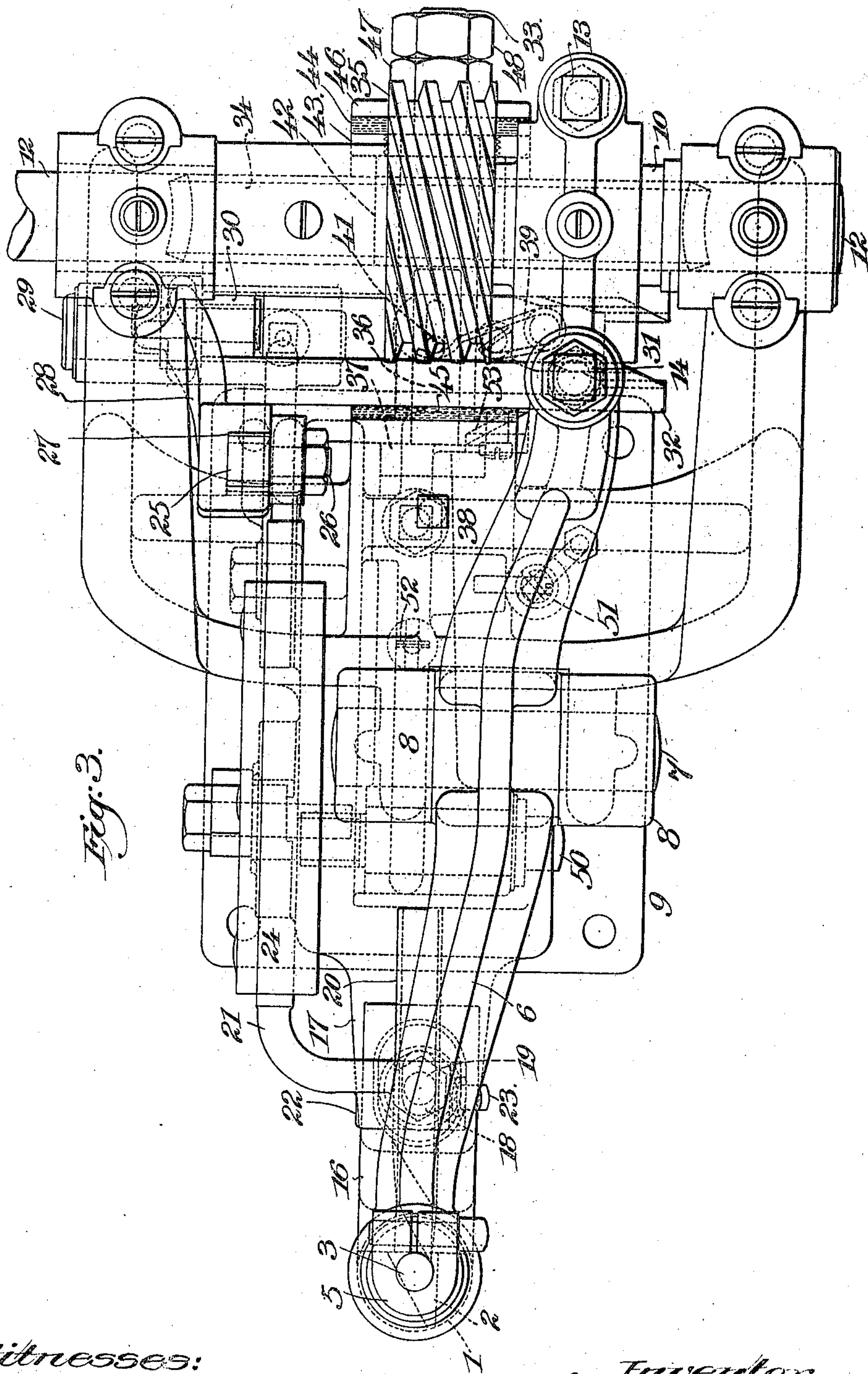


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR OPERATING ON WELTS.

No. 875,171.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed October 19, 1903. Serial No. 177,557.

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Machines for Operating on 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 operating upon welts of boots and shoes. In the manufacture of a welted boot or shoe the welt after being sewed to the upper and insole is subjected to a beating out operation to cause it to lie in substantially the plane of the insole. Before the beating out operation, the outer and inner edges of the welt are of the same length, and in order to cause the welt to lie in the plane of the insole the outer edge must be stretched considerably. To accomplish this result it is necessary to subject certain portions of the welt and especially the portion at the toe of the shoe to the action of the instrumentalities of the welt beating out machine a number of times, and in many instances to slit the welt at the toe portion of the shoe, the slits, which extend partially through the welt from the flesh or under side toward the grain or upper side, being usually formed by the operator with a hand knife. For these reasons the operation of beating out the welt often consumes considerable time and requires care and skill on the part of the operator. Also the strain put upon the outer edge of the welt during the beating out operation tends to compress the welt laterally and make it thicker and narrower especially at the toe portion of the shoe, and in case the slits in the welt are not made deep enough or are not properly spaced the welt at the toe portion of the shoe is often left thick enough to form a bunch on the sole of the completed shoe.

The object of the present invention is to provide a machine for operating upon the welts of welted shoes comprising means for automatically slitting the welt so that the beating out operation can be quickly performed without any special care or skill on

the part of the operator and without narrowing or thickening the welt at the toe portion of the shoe.

The invention is intended primarily as an improvement in welt beating out machines and is embodied in its preferred form in a machine comprising a welt beating hammer and a welt slitting knife. Certain features of the invention, however, are not limited to a machine comprising means for beating out the welt.

In carrying out the present invention, a machine has been provided comprising a welt beating hammer, a knife and means for actuating the knife and hammer to slit and beat out the welt. The slitting and beating out of the welt can thus be performed by subjecting the welt to the operation of a single machine and this work can be performed more rapidly than has heretofore been possible. The knife automatically forms slits in the welt which are of uniform depth and prepares the welt so that it is easily and quickly beaten out by the hammer, it being unnecessary to subject any portion of the welt to the action of the welt beating hammer repeatedly as has heretofore been necessary. Also the strain on the outer edge of the welt at the toe portion of the shoe is relieved and this portion of the welt is not narrowed or thickened by the beating out operation.

It is believed that in carrying out the present invention the first machine for operating upon a welted boot or shoe has been produced which comprises means for beating out the welt and means for forming in the welt a series of slits extending partially through the thickness of the welt, and while in the drawings accompanying this application this feature of the invention is illustrated as embodied in a machine provided with a welt beating hammer for beating out the welt and with an independently operated knife for slitting the welt, which machine possesses advantages which will be obvious to those skilled in the art and constitutes the most perfect and efficient embodiment of the invention that has yet been devised, this feature of the invention in its broader aspects contemplates the combination of welt beating means and means for forming in the welt a series of slits extending partially through

the thickness of the welt regardless of the particular mechanism employed to embody such means.

It is believed that by the present invention the first machine for operating upon welts after attachment to the shoe has been produced which comprises means for supporting the welt, means for beating out the welt, and means for slitting the welt constructed and arranged to allow the shoe to be moved to present successive portions of the welt to the beating out and slitting means, and it is therefore considered that a feature of the invention consists in a machine for operating upon the welts of welted shoes comprising these instrumentalities.

Preferably the welt slitting knife or knives will be arranged to form in the welt slits extending partially through the welt from one surface towards the other obliquely disposed to the surface of the welt, as thereby more of the material of the welt is cut than is the case when the knife or knives are arranged to form slits extending at right angles to the surface of the welt and the welt is more easily beaten out by the hammer. Also the stretching of the welt does not widen the slits to form slots in the welt, the portions of the welt on each side of the slits sliding over each other as the welt stretches without widening the slits. This arrangement of the welt slitting knife or knives is believed to be broadly new and it is therefore considered that a feature of the invention consists broadly in the combination of means for supporting the welt of a welted shoe and means for forming in the welt a series of slits extending partially across the welt and partially through the welt from one surface toward the other and obliquely disposed to the surface of the welt. It is necessary that the slits extend only partially through the welt as otherwise they would appear upon the upper or grain side of the welt and mar its appearance in the completed shoe. In this connection it may be said, however, that if desired the slits may extend completely through the welt at the extreme outer edge of the welt as this portion of the welt is trimmed off in finishing the shoe, and such a form of slit is considered as being within the purview of the invention and included in the expression "slits extending partially through the welt".

The only portion of the welt of a welted shoe which it is necessary to slit in order to allow the welt to be beaten out flat is that portion at the toe of the shoe, it being unnecessary and undesirable to provide the other portions of the welt with slits. The machine in which the present invention has been embodied is accordingly provided with means whereby the welt slitting knife can be thrown into and out of operation and slits formed at any desired portion of the welt and omitted at other portions at the will of the operator.

A machine capable of this mode of operation is broadly new, and it is accordingly considered that a feature of the invention consists in providing a machine which comprises means for slitting the welt of a welted shoe, and a work-support shaped to support the projecting edge of the welt and allow the shoe to be moved to present successive portions of the projecting edge of the welt to the slitting means, with means for throwing the welt slitting means into and out of operation. It is also considered that a feature of the invention consists in providing a machine comprising means for beating out the welt, means for slitting the welt and a work-support, such as above referred to, with means for throwing the welt slitting means into and out of operation during the continued operation of the welt beating means.

In the machine in which the present invention has been embodied, the welt slitting knife is arranged to reciprocate transversely across the welt in substantially the plane of the welt and to make its welt slitting stroke while the welt is clamped between the welt beating hammer and the work-support. The hammer of a welt beating machine is vibrated at an extremely high rate of speed, the hammer of the machine in which the present invention has been embodied being vibrated at the rate of approximately 2,000 beats per minute. In order to enable the welt slitting knife to make its welt slitting stroke while the welt is clamped between the hammer and the welt support without imparting to the knife an exceedingly rapid movement, which would impose sudden strains upon the machine and impair its durability and interfere with its successful operation, the welt slitting stroke of the knife is divided up into a series of steps extended over a plurality of strokes of the hammer, the advancing movements of the knife occurring during the successive times during the cycle of operations of the machine when the welt beating hammer is in contact with the welt. Since the advancing movements of the knife occur during successive beats of the hammer, the complete cutting stroke of the knife is performed in such a short interval of time that the operator will not sensibly move the shoe and thereby change its position during the time the complete cutting movement of the knife is taking place. An operator soon learns to suit the feed movements imparted by him to the shoe to the motion of the slitting knife, and unconsciously holds the shoe stationary during the time a slit is being cut in the welt. The knife is withdrawn from the welt by a continuous movement and remains out of contact with the welt during a plurality of beats of the hammer, the time during which the knife remains out of contact with the welt being sufficient to allow the operator to feed the shoe the desired dis-

tance beneath the hammer so that the slits are located upon the welt the required distance apart. This manner of actuating the welt slitting knife so that it makes its welt
5 slitting stroke in a series of steps during the operation of the welt beating hammer is considered to be a feature of the present invention and also the manner of operating the knife by which it is caused to cut a slit in the
10 welt and then remain out of contact with the welt during a plurality of beats of the hammer.

In addition to the features of invention above referred to the present invention also
15 consists in certain devices, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

20 The various features of the present invention will be clearly understood from an inspection of the accompanying drawings illustrating the preferred form of the same, in which

25 Figure 1 is a side elevation of a welt beating and slitting machine, Fig. 2 is a front elevation, and Fig. 3 is a plan.

The illustrated embodiment of the invention comprises a welt beating hammer 1 having a cavity 2 cut in its face to permit the access of the knife to the welt while under compression by the hammer, the said hammer being mounted upon the shank 3 carried by the hammer lever of the machine. A spring
35 4 received within the head of the hammer lever engages a shoulder on the hammer and normally operates to move the hammer to the limit of its downward movement determined by the adjustable stop collar 5 which
40 consists of a split nut screwed upon the shank 3 of the hammer. The hammer 1 is prevented from turning in the head of the hammer lever by a spline and groove connection. The hammer lever 6 intermediate its ends
45 carries the short shaft 7 which is received within journals 8 affording a pivotal support therefor, the journals 8 being mounted upon the frame 9 of the machine. The rear end of the hammer lever is forked and receives within
50 in the fork the block 10 carried by the eccentric 11 upon the main shaft 12 of the machine. The forked end of the hammer lever 6 is made adjustable to take up wear by providing the bolt 13 by means of which the two
55 ends of the fork may be drawn toward each other and secured in place by nuts thereon.

Another bolt 14 is provided by means of which two forks may be separated if desired. Occasion for adjustment of the fork of the
60 hammer lever would arise when the faces of the arms or the block 10 or both had become worn which wear would be taken up by tightening the bolt 13, or in case a new block 10 was inserted in the machine the separating
65 bolt 14 would be used to separate the

arms somewhat so that the new block could be inserted and accurately fitted between the two arms of the fork. It is especially important in machines intended to operate at extremely high speed, as in the present machine, that there should be the least possible backlash and therefore these adjustments are of practical value.

A work support 15 is provided which is projected from a body 16 secured by tongue
75 and groove connections to the forwardly projected knee 17 from the frame 9 of the machine. The forward end of the work support is shaped to enter the crease between the upper and the welt of a welted shoe and
80 to support the welt on its upper surface, the forward end of the work support by contact with the bottom of the crease between the upper and the welt serving as a guide for the shoe being operated upon. The knee 17 is
85 slotted at 18 and receives the bolt 19 by means of which the work table 15 is secured in place, the said bolt passing through the slot and screwing into the said work table thereabove. By this means the work table
90 may be adjusted forward and back to bring it to proper cooperative relation with the hammer 1.

The welt slitting knife 20 is supported by the knife carrier 21 being held within the
95 holder 22 mounted upon the forward end of the said knife carrier. The knife is dovetailed in cross-section and the knife holder 22 is slotted, referring particularly to Fig. 2, so that the knife may be clamped by the bolt
100 23 and held in adjusted position. The knife carrier 21 is mounted to reciprocate in a guideway on a plate 24 secured to the frame of the machine. Upon its rear end the knife carrier is provided with a slide block 25
105 mounted upon the stud 25 secured in the said carrier 21 and said block 25 engages a groove 27 in the upper end of the knife actuating lever 28, which is pivoted at 29 upon a stationary part of the machine and carries
110 a cam roll 30 which engages a cam path 31 in the cam disk 32 mounted upon a stud 33 projected rearwardly from the frame of the machine. The arrangement of the knife 20 and carrier 21 is such that the knife reciprocates
115 transversely to the line of feed in substantially the plane of the welt and the cutting blade of the knife is so arranged with relation to the upper surface of the work support 15 upon which the welt is supported that the
120 slits formed in the welt by the knife extend partially through the welt from one surface towards the other and are obliquely disposed to the surface of the welt. In order to vary the depth of the slits the knife 20 is adjusted
125 vertically and as a means for effecting such adjustment the plate 24 in which the carrier 21 is mounted is provided with a guide groove which is engaged by a guiding projection on the frame of the machine and is
130

also provided with slots, the lower of which is arranged vertically and the upper of which is arranged horizontally. Through the lower of these slots a bolt 54 passes and screws into the frame of the machine. Through the upper slot a similar bolt 55 passes and screws into the frame of the machine, and upon this bolt is rotatably mounted an eccentric 56, which engages the upper and lower edges of the slot. The plate 24 is clamped to the frame by means of the bolts 54 and 55 and by loosening the bolts and rotating the eccentric 56 the plate can be raised or lowered to adjust the knife to cut slits of any desired depth.

The cam disk 32 is rotated from a worm-wheel 34 which is driven from the worm 35 mounted upon the main shaft 12 of the machine. As is clearly shown in Fig. 1, the cam path 31 of the cam disk 32 is formed to advance the welt slitting knife to cut a slit in the welt in three steps and then to withdraw the knife at one step and hold it withdrawn during a plurality of beats of the welt beating hammer. The rotation of the cam disk is so timed with relation to the rotation of the eccentric 11 on the shaft 12 and the shape of the cam path 31 is such that the forward steps of the welt slitting knife take place during successive beats of the hammer, and while the welt is held clamped between the hammer and the welt support, the knife remaining stationary after each forward movement to allow time for the hammer to rise and fall to again engage the welt. The entire welt slitting stroke of the knife takes place during three beats of the hammer and the knife is then withdrawn and held out of contact with the welt for a sufficient length of time to enable the operator to move the shoe a sufficient distance to cause the slits to be spaced the required distance apart on the welt.

In order to allow the welt slitting knife to be thrown into and out of operation so that slits may be formed at any desired portions of the welt and omitted at other portions at the will of the operator, the machine illustrated in the drawings is provided with means whereby the cam disk 32 can be clutched to the worm-wheel 34 so as to rotate therewith or be unclutched therefrom and held stationary during the continued rotation of the worm-wheel. The illustrated means employed for this purpose is described as follows:—The worm wheel is provided with a segmental slot in the lateral face adjacent to the cam which is adapted to receive the clutch bolt 36 which is slidingly mounted in a hole in the cam disk. The head 37 of the clutch bolt 36 has a portion which fits the housing 38 which supports the stud 33 so that the said bolt is held from rotation with relation to the cam disk. A spring 39 is secured to the cam by a screw 40 and hav-

ing one end in engagement with the pin 41 projecting from the bolt normally tends to move the bolt to the right as shown in Fig. 1. The right-hand end of the bolt when it is moved to its right hand position is adapted to enter the segmental slot in the face of the said worm wheel 34 and to engage the end of said slot and thereby to be actuated by the said gear to drive the cam. The worm wheel 34 is mounted upon the hub 42 of the cam disk 32 and is freely revoluble thereon, except when the clutch bolt 37 is moved to the right so as to couple the cam disk and worm wheel together. A collar 43 screwed on the end of the hub 42 serves to hold the worm wheel in place thereon. Friction washers 44, 45 are mounted upon the stud 33 and engage the said collar 43 and front face of the cam disk 32 respectively, and pressure may be exerted upon these washers by means of the collar 46 and set nuts 47 and 48. When the clutch is open the friction of these washers brings the cam immediately to rest, the worm wheel still continuing to rotate. When the clutch is closed the cam disk and worm wheel rotate together, overcoming the friction of the said washers thereon. Means are provided for withdrawing the clutch bolt 36 from engagement with the worm wheel 34, comprising a lever 49 pivoted at 50 upon a portion of the frame of the machine and normally held in its uppermost position by a spring 51, and capable of being depressed by a chain 52 connected with a foot treadle. The rear end of the lever 49 carries a wedge 53 which is tapered at one end and is extended in the arc of a circle around the center of the stud 33 so that when permitted to rise to the position shown in the drawings it operates to engage the head of the clutch bolt 36 and withdraw it from engagement with the worm wheel. After the clutch bolt 36 is withdrawn by the wedge 53 the head 37 of the clutch bolt rides along the surface of the said wedge, whereby time is given for the cam disk to come to rest and the clutch bolt is maintained in its retracted position.

The operation of the machine will be apparent from the description given above, it being understood that the shoe is moved by the operator to present successive portions of the welt to the action of the welt beating hammer and to the action of the welt slitting knife when said knife is in operation, and that the mechanism for actuating the welt slitting knife is thrown into operation by the operator when the toe portion of the welt is reached, and is thrown out of operation as soon as this portion of the welt has been beaten out. The slits formed in the welt by the slitting knife extend through that portion of the welt which would otherwise resist the strain to which the welt is subjected during the beating out operation. The grain side of the welt which is not cut is easily stretched

so that the beating out operation is performed in a satisfactory manner by subjecting the welt but once to the operation of the machine.

5 The present invention is not limited to the embodiment therewith illustrated in the drawings as it may be embodied in other forms without departure therefrom.

10 Having thus described the invention, what is claimed is:

1. A machine for operating upon welts, having, in combination, means for beating out the welt after attachment to the shoe, and means for simultaneously forming in the welt a series of slits extending partially through the thickness of the welt, substantially as described.

2. A machine for operating upon welts, having, in combination, a work support shaped to support the welt after attachment to the shoe, a vibrating welt beating hammer, means for actuating the hammer to beat out the welt, and means for simultaneously slitting the welt, substantially as described.

25 3. A machine for operating upon welts, having, in combination, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife arranged to reciprocate transversely across the welt in substantially the plane of the welt provided with a cutting edge shaped to cut a slit in the welt extending partially through the thickness of the welt, and means for actuating the welt slitting knife, substantially as described.

35 4. A machine for operating upon welts, having, in combination, a welt beating hammer, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife, and means for actuating the hammer and knife arranged to impart to the hammer a plurality of welt beating movements while the knife is out of engagement with the welt, substantially as described.

45 5. A machine for operating upon welts, having, in combination, a welt beating hammer, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife, means for actuating the hammer, and means for actuating the knife arranged to impart a welt cutting stroke to the knife while the welt is clamped between the hammer and work support and hold the knife out of engagement with the welt during a plurality of welt beating movements of the hammer, substantially as described.

55 6. A machine for operating upon welts, having, in combination, a welt beating hammer, means for actuating the same to beat out the welt, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife arranged to reciprocate transversely across the welt in substantially the plane of the welt provided with a cutting edge shaped to cut a slit in the welt extending partially therethrough and obliquely

disposed to the surface of the welt, and means for actuating the knife to slit the welt while the welt is clamped between the hammer and work support, substantially as described.

70 7. A machine for operating upon welts, having, in combination, a welt beating hammer, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife, arranged to cut a slit in the welt extending partially through the thickness of the same, and means for actuating the hammer and knife, substantially as described.

8. A machine for operating upon welts, having, in combination, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife arranged to reciprocate transversely across the welt provided with a cutting edge shaped to cut a slit in the welt extending partially therethrough and obliquely disposed to the surface of the welt, and means for actuating the knife, substantially as described.

9. A machine for operating upon welts, having, in combination, means for supporting the welt after attachment to the shoe, and means for forming in the welt a series of slits extending partially across the welt and partially through the thickness of the same and obliquely disposed to the surface of the welt, substantially as described.

10. A machine for operating upon welts, having, in combination, a welt slitting knife arranged to reciprocate transversely across the welt, a welt beating hammer provided with a recess to receive the knife, a work support shaped to support the welt after attachment to the shoe, and means for actuating the hammer and knife, substantially as described.

11. A machine for operating upon welts, having, in combination, a welt beating hammer, means for actuating the same to beat out the welt, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife arranged to cut a slit in the welt extending partially through the thickness of the same, and means for actuating the knife to slit the welt while the welt is clamped between the hammer and work support, substantially as described.

12. A machine for operating upon welts, having, in combination, a welt beating hammer, means for actuating the same to beat out the welt, a work support shaped to support the welt after attachment to the shoe, a welt slitting knife, and means for actuating the knife to slit the welt while the welt is clamped between the hammer and work support, substantially as described.

13. A machine for operating upon welts, having, in combination, welt beating means, welt slitting means, and a work support shaped to support the projecting edge of the welt after attachment to the shoe and allow

the shoe to be moved to present successive portions of the projecting edge of the welt to the welt beating and welt slitting means, substantially as described.

5 14. A machine for operating upon welts, having, in combination, a work support shaped to support the welt after attachment to the shoe, and means for forming in the welt a series of slits extending partially
10 through the thickness of the same and obliquely disposed to the surface of the welt, substantially as described.

15 15. A machine for operating upon welts, having, in combination, a work support shaped to support the welt after attachment to the shoe, a vibrating welt beating hammer, a welt slitting knife, means for actuating the hammer to beat out the welt, and means for actuating the knife to slit the welt,
20 substantially as described.

16. A machine for operating upon welts, having, in combination, means for beating out the welt after attachment to the shoe, means for slitting the welt, and means for
25 throwing the welt slitting means into and out of operation during the continued operation of the welt beating means, substantially as described.

17. A machine for operating upon welts,
30 having, in combination, welt beating means, welt slitting means, a work support shaped to support the projecting edge of the welt after attachment to the shoe and allow the shoe to be moved to present successive portions of the projecting edge of the welt to the
35 welt beating and welt slitting means, and means for throwing the welt slitting means into and out of operation during the continued operation of the welt beating means, substantially as described.
40

18. A machine for operating upon welts, having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, means for actuating the
45 hammer and welt slitting means operating to make a single slit in the welt during the time a plurality of blows of the hammer are taking place, substantially as described.

19. A machine for operating upon welts,
50 having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, and welt slitting means operating to make a single cut in the welt by a plurality of forward steps, substantially
55 as described.

20. A machine for operating upon welts, having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, and means for advancing the
60 knife to make a single cut in the welt by a plurality of forward steps, substantially as described.

21. A machine for operating upon welts,
65 having, in combination, a welt beating ham-

mer arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, and means for advancing the knife to make a single cut in the welt by a plurality of forward stops, each forward movement of
70 the knife being timed to take place while the hammer is in contact with the welt, substantially as described.

22. A machine for operating upon welts, having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, welt slitting means, and means for throwing the welt slitting means into and out of operation during the continued operation of the hammer, substan-
80 tially as described.

23. A machine for operating upon welts, having, in combination, welt beating means arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, and means for throwing the welt slitting
85 knife into and out of operation during the continued operation of the beating means, substantially as described.

24. A machine for operating upon welts,
90 having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, and means for throwing the welt slitting knife into and out of operation during the continued operation of the hammer,
95 substantially as described.

25. A machine for operating upon welts, having, in combination, welt beating means arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, means for advancing the knife to make a single cut in the welt by a plurality of forward steps and means for throwing the welt
100 slitting means into and out of operation during the continued operation of the welt beating means, substantially as described.
105

26. A machine for operating upon welts, having, in combination, a welt beating hammer arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, means for advancing the knife to make a single cut in the welt by a plurality of forward steps, each forward movement of the knife being timed to take place while the
115 hammer is in contact with the welt, and means for throwing the welt slitting knife into and out of operation during the continued operation of the hammer, substantially as described.
120

27. A machine for operating upon welts, having, in combination, welt beating means arranged to act on the welt after attachment to the shoe, a reciprocating welt slitting knife, mechanism for actuating the knife and
125 a clutch for throwing said mechanism into and out of operation, substantially as described.

28. A machine for operating upon welts, having, in combination, means for slitting
130

a welt, a work support shaped to support the welt after attachment to the shoe, and means for throwing the welt slitting means into and out of operation, the welt slitting means and
5 work support being constructed and arranged to permit the shoe to be moved to present successive portions of the projecting edge of the welt to the slitting means, and also to permit the welt to be moved over the

work support while the welt slitting means 10 is out of operation, substantially as described.

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

JOHN B. HADAWAY.

Witnesses:

HORACE VAN EVEREN,
FARNUM F. DORSEY.