

W. H. SARGENT.
MACHINE FOR OPERATING ON HEELS.
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1,057,011.

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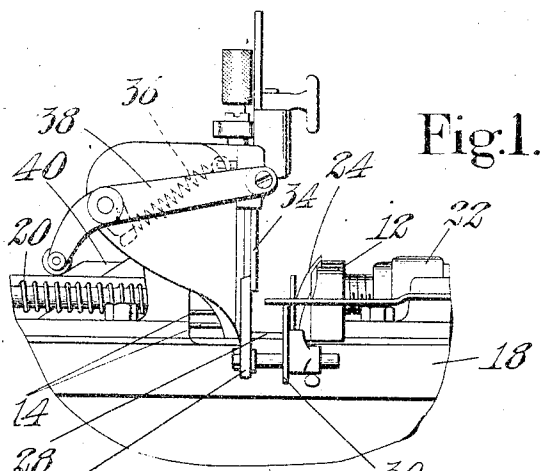


Fig. 1.

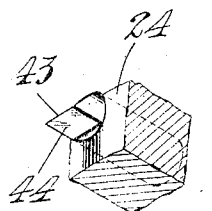


Fig. 4.

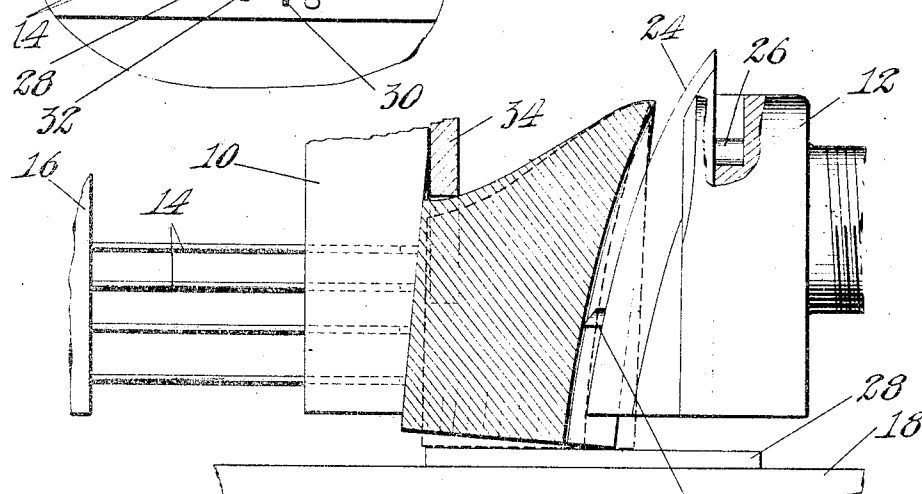


Fig. 2.

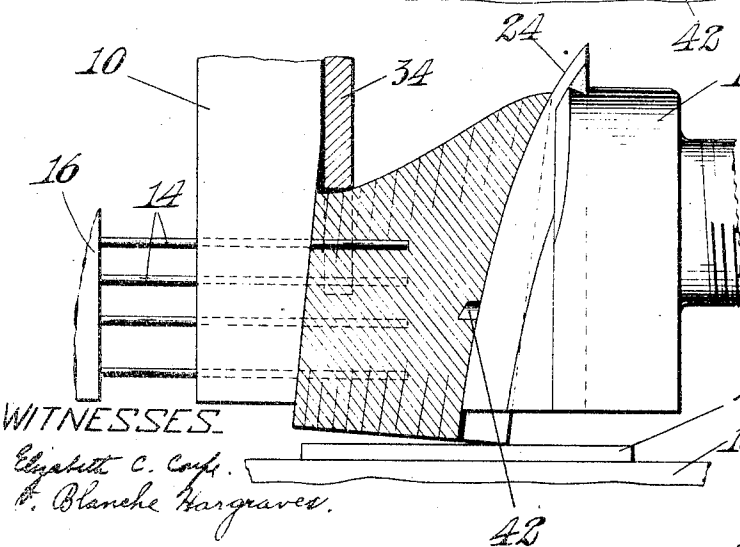


Fig. 3.

WITNESSES.

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MACHINE FOR OPERATING ON HEELS.

1,057,011.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. SARGENT, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain Improvements in Machines for Operating on Heels, 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.

This invention relates to machines for operating upon the heels of boots or shoes and is shown herein as embodied in a machine for pricking heels.

In pricking heel blanks preliminarily to inserting the attaching nails it is essential that the blanks should be located with great precision relatively to the awls and then held rigidly against transverse movement during the operation of the awls. If the blanks are not properly located in the first instance the holes pricked by the awls will not exactly register with the nail passages of the attaching or loading machine and the nails will be bent or crippled when driven, while if the blank is permitted to move transversely after the awls have entered it the awls are broken and the blank mutilated.

It is an object of the present invention to provide improved means for positioning a heel blank with relation to awls or other tools and for holding the blank rigidly in the proper position while the blank is being operated upon.

The difficulties of locating and holding a heel are increased when the opposite surfaces of the heel are not parallel as in the case of wedge heels in which there is an angle between the heel seat face and the tread face. When a heel blank of this character is subjected to pressure between the divergent faces of two work pressing members there is imparted to the blank a strong tendency to transverse slipping both at the initial engagement, when the blank is being positioned, and later when the blank is being clamped by pressure between the two members.

It is a further object of this invention to provide positioning and holding means by the employment of which wedge heels may be handled in a satisfactory manner and the possibility of slipping eliminated. As here-

in disclosed, the desired results are attained by setting in the effective face of one of the pressing members a sharpened spur which will operate in advance of the clamping action to engage one surface of the blank as the pressing members are moved relatively toward each other, pushing the heel blank into contact with the other pressing member and then penetrating into the blank and holding it rigidly against transverse movement. In the machine herein shown the spur is set in the face of the pressing member which makes the sharper inclination to the direction of pressure, as slipping is more likely to occur at this surface, and by flattening the side of the spur which faces in the direction in which the pressing faces converge, thereby increasing the holding power of the spur when it first engages the surface of the heel and also when it has penetrated into the heel.

For purposes of illustration the invention will now be described as embodied in a pricking machine substantially of the type disclosed in British Patent No. 24,743 of 1903, although the invention is not limited to this type of machine but has a more general application.

In the accompanying drawings.—Figure 1 is a view in elevation showing the operating parts of a heel pricking machine in which the invention is embodied; Figs. 2 and 3 are enlarged views, partly in section, showing the parts of the machine in two positions with the heel blank in the machine; Fig. 4 is a view in perspective, on an enlarged scale, of the spur and a fragment of the plate in which it is set.

As shown in the drawings the machine comprises oppositely disposed pressing members 10 and 12 and a gang of awls 14 arranged to work through suitable passages in the member 10, which constitutes the die plate. The awls 14 are mounted in a stationary awl block 16 which is rigidly supported on a frame 18. The pressing members 10 and 12 are also mounted upon the frame 18, the die plate 10 being held yieldingly in position by the compression spring 20 and the member 12 being threaded into a boss 22 upon a head which is reciprocated by power upon the frame 18. The pressing member 12 is provided with a follower plate 24 shaped to fit the heel seat of the heel

and removably held in vertical undercut ways by a pin 26 shaped to drop into and rest within a groove in the member 12.

A guideway along which heel blanks may be advanced to operative position in alignment with the pressing members is formed by a bottom plate 28 and vertical side plates 30 and 32. The guideway extends sufficiently on one side of the machine to accommodate several heels placed side by side so that successive heels may be brought into operative position to be pricked by pushing along the line of heels, thus rendering it unnecessary to handle directly the heel to be operated upon. In initial position the face of the die plate is substantially flush with the face of the plate 32 which forms one side of the guideway.

A positioning device is provided for engaging each heel blank prior to the pricking operation and automatically centering it with relation to the awls. This device comprises a Y-shaped slide 34 arranged to reciprocate vertically adjacent to the face of the die plate 10. The slide 34 is normally held in its elevated position by a spring 36 acting through the cam lever 38 to the end of which the slide is loosely attached by a pin and slot connection. A wedge cam 40 is arranged to reciprocate simultaneously with the member 12 and acts to swing the arm 38, through a cam roller carried thereby, to move the slide 34 downwardly for centering the heel blank.

In order to give the attaching nails an inclined direction in the heel so that the rear portion of the heel seat shall be securely nailed, the effective face of the die plate 10 is inclined longitudinally of the heel whereby the awls enter the tread face at an inclination thereto. The effective face of the follower plate 24 is similarly inclined but where wedge heels are to be pricked the inclination of the face of the follower plate is greater than that of the die plate 10, or, in other words, its inclination to the direction of pressure is sharper than that of the face of the die plate.

Projecting from the surface of the follower plate 24 at a point below the center of a heel blank resting on the plate 28 is a spur 42. The spur is formed from a cylindrical pin and has a chisel edge 43 formed by flattening the under side 44 and beveling the end of the pin on its upper side. The flattened side of the pin faces in the direction in which the effective faces of the two work pressing members converge and this side, and also the chisel edge, extend transversely to the direction in which the heel blank would tend to slip when engaged by the divergent faces of the pressing members.

In operation a heel blank is pushed into approximate alinement with the pressing members where it rests upon its breast sur-

face as indicated by the dotted line position in Fig. 2. Upon applying power to the machine the pressing member 12 is advanced toward the die plate 10, whereupon the sharpened edge 43 of the spur 42 engages the heel seat surface of the heel blank and pushes the blank into contact with the inclined face of the die plate simultaneously tilting the blank into inclined position, as indicated by the full lines in Fig. 2. During this operation the positioning slide 34 has been lowered and its arms have engaged the curved surface of the heel blank and centered the blank laterally relatively to the die plate and awl passages. The continued movement of the follower plate overcomes the resistance of the spring 20 so that the die plate 10 and heel blank are forced toward the awl block, the awls meanwhile entering the heel blank and forming holes for the attaching nails. Preliminarily to this operation, however, the spur 42 has penetrated into the heel blank, being embedded therein and positively preventing transverse slipping of the blank. The action of the spur 42 effectively prevents the inclined face of the follower plate from lifting the heel blank from the plate 28 at the initial engagement with the heel. Formerly when the rapidly moving inclined face of the follower plate came in contact with the heel seat face of the blank it had a tendency to lift the blank and this tendency could not be overcome by causing the slide 34 to operate earlier in the cycle of operations as the unbalanced pressure on the extreme end of the heel blank had a tendency to tilt the blank into a position in which its tread face was horizontal. The spur also positively prevents the heel blank from slipping upwardly while subjected to pressure between the divergent faces of the pressing members. After the follower plate has been moved to its limit it is retracted, the pricked heel blank being held in engagement with the die plate by the awls while the spur 42 is drawn out of the blank. The movement of the die plate 10 toward the right then occurs and the blank is stripped from the awls and pushed out of the machine when the succeeding blank is advanced to operative position.

It will be seen that the shape of the spur is best suited to the function it has to perform. The extended sharpened edge which first engages the surface of the heel blank offers maximum resistance to an upward movement of the blank before the spur has penetrated into it, while the flat surface 44 is most effective for preventing movement of the blank transversely to it after the spur has become embedded therein.

While the invention has been particularly described in connection with wedge heels it will be obvious that its application is not

limited to machines for operating on any particular shape or style of heel but is of a general nature.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A machine for pricking heels having, in combination, oppositely disposed work pressing members, awls arranged to reciprocate through one of said members, a holding spur projecting from the other member, and means for relatively moving said members to engage a heel and force said spur into the heel, said awls operating thereafter to prick the heel and hold the heel in contact with one of said pressing members after the pricking operation while the spur is drawn out of the heel by the movement of the other member.
2. A machine of the class described having, in combination, tools for operating upon a wedge heel, and oppositely disposed heel pressing members for engaging and holding a heel preliminarily to the operation of said tools, said pressing members having non-parallel effective faces and one of said members having a spur rigidly set in its face and arranged to penetrate into the heel from the side opposite to the tools and prevent it from slipping relatively to said pressing members.
3. A machine of the class described having, in combination, tools for operating upon a wedge heel, relatively movable pressing members comprising a die plate with tool passages and a follower, said members having their effective faces disposed at an inclination to their path of movement, means for moving said members to clamp a heel preliminarily to the operation of said tools, and a spur rigidly set in the face of the follower and arranged to penetrate into a heel when said members are moved to engage the heel.
4. A machine of the class described having, in combination, tools for operating on a wedge heel, work pressing members having convergent faces, a spur projecting from the face of one pressing member and being flattened on the side facing in the direction in which the faces of said members converge

and provided with a transversely extending chisel edge, and means for moving said members to bring the chisel edge into initial engagement with a heel and then force the spur into the heel preliminarily to the operation of said tools.

5. A machine of the class described having, in combination, a supporting plate for a heel blank, a die plate and a cooperating pressing member relatively movable across the surface of the supporting plate to engage opposite faces of the heel blank and each having its work engaging face disposed obliquely with respect to the surface of the work supporting plate, awls arranged to work in the die plate, and a spur arranged to penetrate one of said faces of the blank prior to the operation of the awls.

6. A machine of the class described having, in combination, a flat plate for supporting a heel blank resting on its breast surface, a die plate and a pressing member each having its work engaging face oblique to the plate, said pressing member having a spur set rigidly therein and being movable across the surface of the supporting plate to force the heel blank against the die plate first by the action of the spur and then by the direct action of the pressing member, and tools associated with the die plate and arranged to operate on the blank after it has been so engaged by the pressing member.

7. A machine of the class described having, in combination, means for supporting a heel blank resting upon one of its plane surfaces, tools for operating on said heel blank, a die block for the tools having an inclined face and a member having a sharpened edge constructed and arranged to engage and tilt said blank into an inclined position against the die block preliminarily to the operation of said tools.

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

WILLIAM H. SARGENT.

Witnesses:

HERBERT W. KENWAY,
ARTHUR L. RUSSELL.