

UNITED STATES PATENT OFFICE

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WORK SUPPORT FOR FASTENING-INSERTING MACHINES

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This invention relates to fastening inserting machines and particularly to improvements in work supports adapted for use in the presentation of shoes to metallic fastening inserting machines.

In a shoe repairing shop the same fastening inserting machine is frequently used both to attach whole and half soles to shoes and to attach top lifts to heels of varying heights. Since the fastenings, for example staples, used to attach soles are driven completely through the layers of the sole of the shoe operated upon, the work support is commonly providing with a clenching cavity, the work support being adjusted horizontally so that the center of the clenching cavity is slightly out of alinement with the line of drive of the fastenings. Thus each fastening as it comes through the shoe bottom will strike an inclined portion of the wall of the clenching cavity and will be clenched toward the center of the clenching cavity. The position of the clenching cavity, in order that the direction of clench will be properly controlled, is critical and it is accordingly necessary that the position of the clenching cavity should not be disturbed. It is necessary, however, frequently to adjust the height of the work support, for example when passing from the attaching of soles to the attaching of top lifts to heels or vice versa, and the adjusting of the height of the work support is likely to disturb the relation of the clenching cavity to the line of drive of the fastenings.

It is accordingly an object of the present invention to provide fastening inserting machines with an improved work support of such a character that its height can be conveniently adjusted without danger of disturbing the relation of the clenching cavity of the work support to the line of drive.

The illustrated machine is provided with a work support, herein for convenience spoken of as a horn, carried by a supporting member with relation to which it is adjustable horizontally as well as vertically in a well-known manner. In accordance with my invention, the horn and the supporting member are each provided with a stop, the two stops being illustrated as being held yieldingly in engage-

ment with each other by a spring in such a manner as to maintain the horizontal adjustment of the horn relatively to its supporting member without interfering with vertical adjustment of the horn. Means is also provided for clamping the horn in adjusted position relatively to the horn supporting member. Thus when the horn is to be unclamped to permit its vertical adjustment, the operator may manipulate the clamping means with one hand while he raises or lowers the horn (either with or without a shoe upon it) with the other hand, the contacting stops insuring that the horizontal adjustment, and, accordingly, the relation of the clenching cavity of the horn to the line of drive, is not disturbed.

With the above and other objects and features in view, the invention will now be described with reference to the accompanying drawings and pointed out in the claims.

In the drawings,

Fig. 1 is a front elevation of a fastening inserting machine provided with the novel work support of this invention;

Fig. 2 is a plan view, partly in section, of the work support and associated parts of the machine; and

Fig. 3 is a perspective view of a horn and stops comprising part of the work support.

The invention is illustrated herein as embodied in a fastening inserting machine having staple-forming and inserting instrumentalities of the character disclosed in United States Letters Patent No. 1,016,930, granted February 13, 1912 on an application filed in the name of William H. Borden, to which reference may be had for a full disclosure of parts of the machine which it is not necessary to describe or illustrate herein. In brief, this machine comprises a column 10 carrying at its upper end a head 12 provided with wire feeding rolls 14 from which a wire 16 is fed to a pair of knives 18 which sever from it suitable lengths for the formation of staples. The staples formed from the wire 16 are driven through a nozzle 21 by a driver 20.

The machine is provided with a horn post 22 mounted for vertical movement in a bracket 24 under the control of a spring 25 and a

lever 26 fulcrumed at 28 to the column of the machine and controlled by a treadle 29 through a treadle-rod 30 and a spring 31 in a well-known manner. Mounted for rotary movement at the upper end of the horn post 22, about an axis in alinement with the line of drive, is a bracket 32 provided with a vertical hole 34 for the reception of a depending cylindrical portion 36 of a horn 38 of any usual form and provided at its upper end with a clenching cavity 40. The horn post 22 is provided with a collar 42 and a cap 44 to prevent the bracket 32 from downward or upward movement respectively relatively to the horn post. One of the walls of the hole 34 is split as indicated at 46 in Fig. 2, and a hand-operated clamping screw 48 is provided by which the horn 38 may be clamped rigidly to the bracket 32. When the clamping screw 48 is released, however, the horn 38 may be adjusted vertically relatively to the bracket 32 and is also capable of rotary adjustment.

The bracket 32 is provided with an upstanding rod 50 which serves as a stop normally engaging an adjustable stop 52 illustrated as a screw threaded in a hole extending horizontally through the horn 38 and locked in adjusted position by a lock nut 54. The screw 52 is adjusted so that when its left-hand end is in engagement with the rod 50, the clenching cavity 44 has the desired relation to the line of drive so that staples driven completely through the sole of a shoe on the horn will hit the inclined surface of the clenching cavity 40 and will be deflected and clenched toward the bottom of the cavity. To maintain this relation when clamping screw 48 is released, the horn 38 is provided with a hole through which passes the shank of a hook-shaped member 56 the left-hand end of which is located upon the side of the rod 50 remote from the horn and the right-hand end of which carries a collar 58 secured thereto in any suitable manner and serving as an abutment for a spring 60, the other end of which bears against the horn 38. This serves yieldingly to hold the stop screw 52 in engagement with the stop rod 50 when the clamping screw 48 is released and permits the operator to manipulate the hand screw 48 with one hand while he holds the upper end of the horn 38 and a shoe mounted on the horn with the other hand so that he is free to adjust the horn vertically in accordance with the thickness of the part of the shoe to be operated on without danger of disturbing the position of the clenching cavity. Since in shoe repairing work it is customary to use the same machine for inserting sole attaching fastenings about the forepart of a shoe and for attaching top lifts to heels, it is necessary to adjust the position of the horn support many times each day and the facility with which this construction permits the adjustment to be made results in the saving of a great amount of time and the

elimination of difficulties arising out of losing the correct position of the clenching cavity while vertical adjustment of the work support is being made.

While the member 38 of the work support of the illustrated machine is spoken of in this specification and the accompanying claims as a horn, it should be understood that this is merely as a matter of convenience and is not intended as a limitation. Obviously, the invention is not limited in its scope to constructions in which the work-carrying member is of a curved shape of the general character herein disclosed, and it is not intended that the claims shall be construed as limited to such a construction.

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

1. A fastening inserting machine having a horn, a support for the horn relatively to which the horn is mounted for vertical and horizontal adjustment, means for holding the horn against downward displacement from adjusted position, an upstanding rod carried by the horn support, and means carried by the horn and co-operating with the rod to prevent disturbance of the horizontal adjustment of the horn.

2. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried by the upper end of the horn post, a horn carried by said bracket and mounted for vertical and horizontal adjustment relatively thereto, means for holding the horn against downward displacement from its adjusted position, and means carried by the horn and the bracket, respectively, adjustable to vary the horizontal position of the horn relatively to the bracket and arranged to prevent inadvertent displacement of the horn horizontally with respect to the bracket.

3. A fastening inserting machine having a horn, a support for the horn relatively to which the horn is mounted for vertical and horizontal adjustment, a pair of stops carried by the horn and the horn support respectively, one of said stops being adjustable so that when the horn and the support are positioned with said stops in engagement with each other the horn will be properly positioned horizontally relatively to the fastening instrumentalities of the machine, and means for clamping the horn rigidly to the horn support.

4. In a fastening inserting machine having a driver, a work support arranged to present a work piece to the driver for insertion of fastenings therein comprising a horn, a support therefor relatively to which the horn is mounted for rotary adjustment about an axis out of alinement with the line of drive, a pair of stops carried by the horn and the horn support respectively and arranged so that when the stops contact with each other

the horn is properly positioned relatively to the driver of the machine, and means for clamping the horn rigidly to the horn support, the releasing of which does not release the horn from the stop carried by the horn support.

5. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for horizontal and vertical adjustment relatively thereto, a pair of cooperating stops carried by the bracket and the horn respectively to facilitate adjustment of the horn, one of said stops being adjustable, and means for clamping the horn rigidly to the bracket.

6. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for horizontal and vertical adjustment relatively thereto, an upstanding rod carried by the bracket, a stop carried by the horn and arranged for engagement with the rod to facilitate adjustment of the horn, and means for clamping the horn rigidly to the bracket.

7. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod to facilitate adjustment of the horn, and means for clamping the horn rigidly to the bracket.

8. A fastening inserting machine having a horn, a support for the horn relatively to which the horn is mounted for vertical and horizontal adjustment, means for clamping the horn rigidly to the horn support, a pair of stops carried by the horn and horn support respectively, and means tending yieldingly, when said clamping means is released, to hold the horn and horn support in such position that the stops contact with each other.

9. In a fastening inserting machine having a driver, a work support arranged to present a work piece to the driver for the insertion of fastenings therein comprising a horn, a support therefor relatively to which the horn is mounted for vertical adjustment and for rotary adjustment about an axis out of alinement with the line of drive, means for clamping the horn rigidly to the horn support, a pair of stops carried by the horn and the horn support respectively, and means tending yieldingly, when said clamping means

is released, to hold the horn in such position that the stops contact with each other.

10. In a fastening inserting machine having a driver, a work support arranged to present a work piece to the driver for the insertion of fastenings therein comprising a horn, a support for the horn rotatable about an axis in alinement with the line of drive of the fastenings and relatively to which the horn is mounted for vertical adjustment and for rotary adjustment about an axis out of alinement with the line of drive, a pair of stops carried by the horn and the horn support respectively, means tending yieldingly to hold the horn in such position that the stops contact with each other, and means for clamping the horn rigidly to the horn support.

11. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for horizontal and vertical adjustment relatively thereto, a pair of stops carried by the bracket and by the horn respectively, and means tending to hold the horn in such horizontal position that the stops contact with each other.

12. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for horizontal and vertical adjustment relatively thereto, means for clamping the horn rigidly to the bracket, a pair of stops carried by the bracket and by the horn respectively, one of said stops being adjustable, and means tending, when said clamping means is released, to hold the horn in such horizontal position that the stops contact with each other.

13. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, an upstanding rod carried by the bracket, a stop carried by the horn and arranged for engagement with the rod, and means tending to hold the stop in engagement with the rod.

14. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, and means tending to hold the set screw in engagement with the rod.

15. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by the bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, means for clamping the horn rigidly to the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, and means tending yieldingly, when said clamping means is released, to hold the horn in such position that the set screw engages with the rod.

16. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by the bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, a hand screw for clamping the horn rigidly to the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, and means tending, when said hand screw is loosened, yieldingly to hold the horn in such position that the set screw engages with the rod.

17. A work support for fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, means for clamping the horn rigidly to the bracket, an upstanding member carried by the bracket, an adjustable stop arranged to limit movement of the horn toward said member, and a spring tending, when said clamping means is released, to hold the horn in the position relatively to said member determined by the stop.

18. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, means for clamping the horn rigidly to the bracket, an upstanding member carried by the bracket, a set screw carried by the horn and arranged for engagement with said member, and means tending, when said clamping means is released, yieldingly to hold the horn in position with the set screw engaging said member.

19. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket

and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, a screw for clamping the horn rigidly to the bracket, an upstanding rod carried by the bracket, a set screw arranged to limit movement of the horn toward the rod, and a spring tending, when said screw is loosened, to hold the horn in the position relatively to said rod determined by the set screw.

20. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, means for clamping the horn rigidly to the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, and a spring tending, when said clamping means is released, to hold the horn in position with the set screw engaging the rod.

21. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, a hand screw arranged to clamp the horn rigidly to the bracket, an upstanding member carried by the bracket, a set screw carried by the horn and arranged for engagement with the upstanding member, a member carried by the horn and engaging the upstanding member at the side thereof remote from the set screw, and a spring tending, when the hand screw is loosened, to hold the set screw and the horn-carried member both in engagement with the upstanding member.

22. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, a hook-shaped member carried by the horn and engaging the rod at the side thereof remote from the set screw, and a spring tending to hold the hook-shaped member and the set screw both in engagement with the rod.

23. A work support for a fastening inserting machine comprising a horn post, a rotatable bracket carried at the upper end of the horn post, a horn carried by said bracket

and mounted for vertical adjustment relatively thereto and for rotary adjustment about an axis out of alinement with the axis of rotation of the bracket, a hand screw arranged to clamp the horn rigidly to the
5 bracket, an upstanding rod carried by the bracket, a set screw carried by the horn and arranged for engagement with the rod, a hook-shaped member carried by the horn and
10 engaging the rod at the side thereof remote from the set screw, and a spring tending, when said hand screw is loosened, to hold the set screw and the hook-shaped member both in engagement with said rod.
15 In testimony whereof I have signed my name to this specification.

JOHN L. JONES.

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