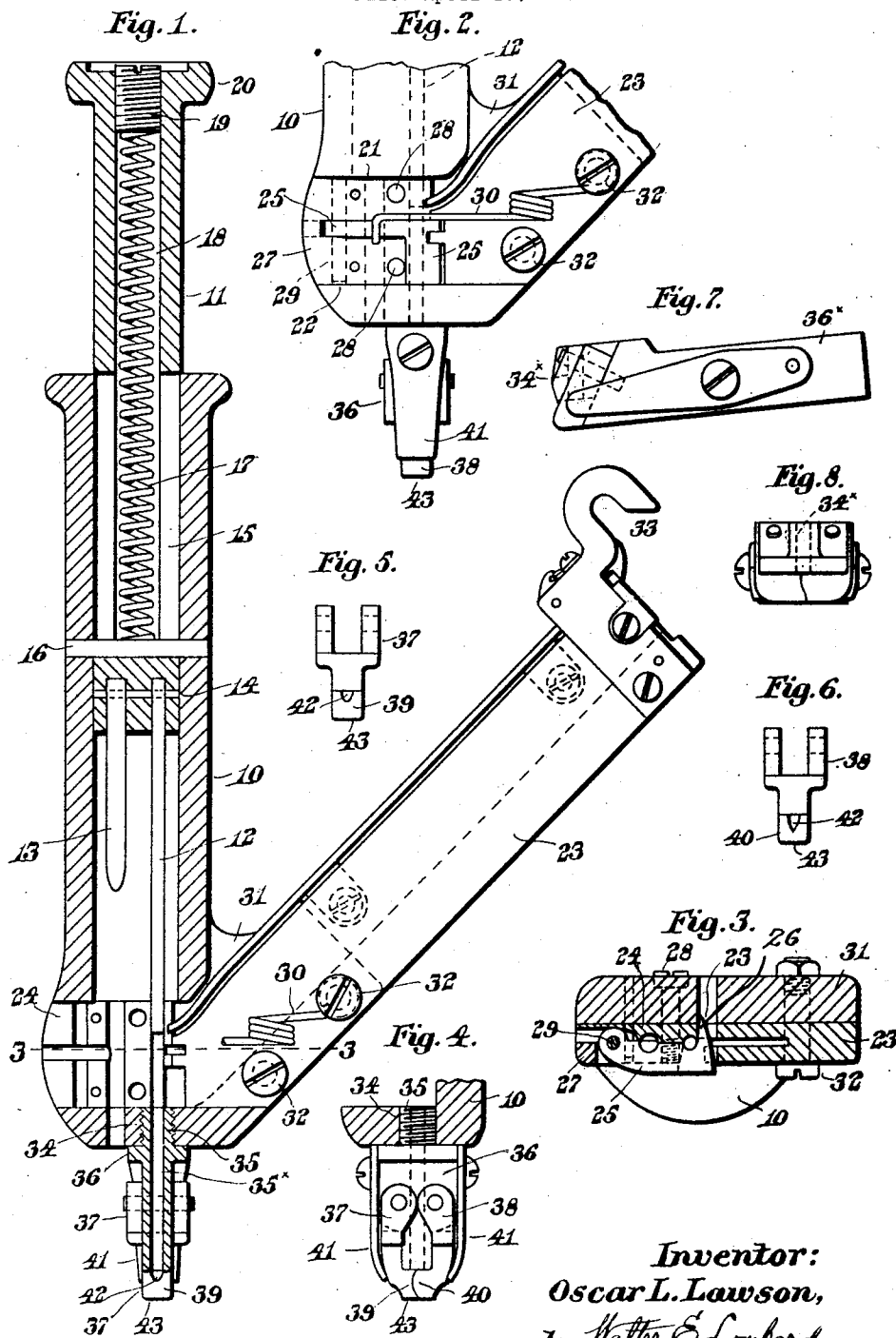


Jan. 26, 1926.

1,570,686

O. L. LAWSON
TACK DRIVING DEVICE

Filed April 15, 1925



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UNITED STATES PATENT OFFICE.

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TACK-DRIVING DEVICE.

Application filed April 15, 1925. Serial No. 23,256.

To all whom it may concern:

Be it known that I, OSCAR L. LAWSON, a subject of the King of Sweden, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Tack-Driving Devices, of which the following is a specification.

This invention relates to devices for driving tacks into the soles of boots and shoes, and has for its object the production of a device of this character in which means is provided for bending the point of the tack during the driving operation so that said point will never extend through the material.

This object is attained by the mechanism illustrated in the accompanying drawings.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawings, this form having been found to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described except as required by the scope of the appended claims.

Of the drawings:

Figure 1 represents a vertical section of a device embodying the principles of the present invention.

Figure 2 represents a side elevation of the lower end thereof.

Figure 3 represents a horizontal section on line 3, 3, on Fig. 1.

Figure 4 represents a transverse vertical section of the lower end and showing in elevation the coacting tack gripping jaws.

Figure 5 represents an elevation of the working face of one of said jaws.

Figure 6 represents an elevation of the working face of the other jaw.

Figure 7 represents a side elevation of a modified form of said device, and

Figure 8 represents an end elevation of said modification.

Similar characters indicate like parts throughout the several figures of the drawings.

In the drawings, 10 is a casing having a reciprocating cylindrical member or plunger 11 therein, to the lower end of which is se-

cured a driving member 12 and a cam member 13 by means of a pin 14.

This plunger 11 has a diametrical slot 15 therein through which extends a pin 16 anchored in the casing 10 and adapted to limit the movement of said plunger.

Above the pin 16 is a spring 17, the upper end of which is positioned in a cylindrical chamber 18 closed at its outer end by the threaded member 19.

The upper end of the cylindrical member or plunger 11 is provided with a head 20 adapted to be struck when it is desired to drive a tack.

The spring 17 normally retains the plunger 11 in its highest position as indicated in Fig. 1 with the lower wall of the slot 15 contacting with the pin 16.

The lower end of the casing 10 is cut away at one side thereof between the shoulders 21, 22, and communicating with the space thus formed is the lower end of an inclined raceway 23 adapted to deliver tacks beneath the driving member 12.

This plunger 11 as shown in the drawings is adapted to be manually operated, but it is obvious that the casing may be mounted upon a machine and the plunger 11 actuated by power.

When a tack has been driven by the downward movement of the plunger 11, it is immediately returned to its normal position by means of the spring 17.

In the space between the shoulders 21, 22, is disposed a block 24, having pivoted thereto a separator 25 provided with a V-shaped projection 26 adapted to enter between two tacks in the raceway 23 and separate one from the remaining tacks and move it immediately beneath the driving member 12.

The block 24 is made in two parts, the body portion having a cap plate 27 and both the body portion 24 and cap plate 27 are retained in position by means of the screws 28.

The contacting faces of block 24 and cap plate 27 are provided with semi-cylindrical grooves to receive the pivot pin 29 of the separator 25.

This separator 25 is normally retained in the position shown in Fig. 3 by means of the spring 30 secured to the raceway 23.

When the plunger 11 moves downwardly to drive a tack the cam member 13 moving therewith will come into contact with the

edge of the separator 25 and move it outwardly about its pivot 29 against the tension of the spring 30.

This operation will permit a tack to move
5 down the raceway 23 against the driver 12, and as soon as the driver 12 has reached its highest position as indicated in Fig. 1 it will be out of the path of the delivery end of the raceway 23 and then the V-shaped projection 26 of the separator 25 will separate
10 one tack from the remaining tacks and move it directly beneath the driver 11, the separator 25 during this operation being moved about its pivot 29 by the spring 30.

15 The raceway 23 is secured to a lateral projection 31 on the casing 10 by means of the screws 32, one of which also secures the spring 30 in position.

20 The upper end of the raceway 23 is provided with a device 33 adapted to engage with a loading mechanism of any well known construction, while the raceway is being filled with tacks.

25 This loading mechanism and the means 33 for attaching it to the raceway form no part of the present invention, and therefore require no illustration nor description.

The lower end of the casing 10 is provided with a cylindrical threaded hole 34 to receive the threaded boss 35 of a block 36 on
30 which are pivotally mounted the tack-gripping jaws 37, 38, the upper ends of which are bifurcated and straddle the block 36. This block 36 is provided with a cylindrical hole 35* through which the driving member
35 12 is adapted to move when driving a tack.

40 The lower ends of the jaws 37, 38 have contacting faces 39, 40, one of which, 39, is concave and the other, 40, is convex and fits into the concavity in the face 39.

The faces 39, 40, of the jaws 37, 38, are normally retained in contact by means of the springs 41 secured to the block 36.

45 The faces 39, 40, of the jaws 37, 38, have opposed grooves 42 therein having inclined walls at the upper end to serve as guides for the tack being driven and to facilitate the entrance of the driving member 12 between said jaws when it is moving downwardly.

50 The groove 42 in the face 40 extends downwardly a greater distance than the groove 42 in the face 39.

55 When a tack has been fed from the raceway 23 beneath the driver 12 and immediately above the hole 34, the device is ready to operate.

60 The contacting faces of the block 24 and cap plate 25 have opposed semicylindrical grooves therein forming a continuation of the hole 34.

If the lower faces 43 of the jaws 37, 38 are then positioned upon the material and the plunger 11 driven down, the downward movement of the driver 12 will force a tack
65 between the faces 39, 40, said tack being

guided and prevented from lateral displacement by the grooves 42. The jaws 37, 38 will be forced apart during this operation, moving about their pivotal connections with the block 36.

70 The continued downward movement of the driver 12 will force the point of the tack against the lower curved part of the concavity in face 39 and cause said tack to be curved as it enters the work.

75 When the driving member 12 is raised the separator 25 moves another tack into position preparatory to another tack driving operation.

80 When a tack has been driven by a device such as herein shown and described, the pointed end of the tack will be curved and as it enters the work the point will continue to follow this curve so that it will be impossible for it to pass through the material.

85 Ordinarily the block 36 is secured to the casing 10 by the threaded boss 35, but in some styles of tack driving machines the block may be made as indicated in Figs. 7 and 8, the hole 34* extending angularly through the block 36*, which block may be secured to the casing or frame by means of screws or any other well known means.

90 It is believed that the operation and many advantages of the invention will be understood without further description.

95 Having thus described my invention, I claim

1. In a device of the class described, a casing; a reciprocating member therein; a driving member secured thereto; a block secured to said casing and having a cylindrical hole therein through which said driving member is adapted to move; jaws movably mounted on said block, one of which jaws has a working face curved towards the other; means for feeding a tack into position above said opening; and means permitting said jaws to separate when the driving member is actuated.

100 2. In a device of the class described, a casing; a reciprocating member therein; a driving member secured thereto; a block secured to said casing and having a cylindrical opening therein through which said driving member is adapted to move; jaws pivotally mounted on said block; means for feeding a tack into position above said opening; means permitting said jaws to separate when the driving member is actuated; and means on said jaws whereby during the driving operation the pointed end of the tack being driven is curved.

105 3. In a device of the class described, a casing; a reciprocating member therein; a driving member secured thereto; a block secured to said casing having a cylindrical opening therein through which said driving member is adapted to move; jaws pivotally mounted on said block normally in con-
110 115 120 125 130

tack with a downward extension of said block, said jaws having opposed curved faces adapted to curve the point of a tack when driven between them; means for feeding a tack into position above said opening; and means permitting said jaws to separate when the driving member is actuated.

4. In a device of the class described, a casing; a reciprocating member therein; a spring for forcing said member outwardly; a driving member secured to said reciprocating member; a block secured to said casing having a cylindrical opening therein through which said driving member is adapted to move; a pair of jaws pivoted to said block and having curved opposed faces adapted to curve the point of a tack passing between said faces; springs normally retaining the lower ends of said jaws in contact; means for feeding a tack into the path of said driving member; and means permitting said jaws to separate when the driving member is actuated.

5. In a device of the class described, a casing; a reciprocating member therein; a spring for forcing said member outwardly; a driving member secured to said reciprocating member; a block secured to said casing and having a cylindrical opening therein through which said driving member is adapted to move; a pair of jaws pivoted to said block and having opposed curved faces adapted to curve the point of a tack passing between them, said curved faces having inclined pockets in the upper ends thereof; springs normally retaining the lower ends of said jaws in contact; means for feeding a tack into the path of said driving member; and means permitting said jaws to separate when the driving member is actuated.

6. In a device of the class described, a casing; a reciprocating member therein; a spring for forcing said member outwardly; a driving member secured to said reciprocating member; a block secured to said casing and having a cylindrical opening therein through which said driving member is adapted to move; a pair of jaws pivoted to said block and having opposed curved faces adapted to curve the point of a tack passing between them, said opposed faces having at their upper ends depressions with inclined walls; springs normally retaining the lower ends of said jaws in contact; means for feeding a tack into the path of said driving member; and means permitting said jaws to separate when the driving member is actuated.

7. In a device of the class described, a pair of pivoted jaws having opposed curved faces adapted to curve the point of a tack passing between them; means for feeding a tack into position above said jaws; and a driving member adapted to engage said tack and drive it between said jaws into the work.

8. In a device of the class described, a pair of pivoted jaws having opposed curved faces adapted to curve the point of a tack passing between them; means for feeding a tack into position above said jaws; a driving member adapted to engage said tack and drive it between said jaws into the work; and springs for normally retaining said curved faces in contact.

9. In a device of the class described, a pair of pivoted jaws, one of which has a convex inner face at its lower tack-gripping end fitting a concaved face in the other jaw; means for feeding a tack between said jaws; and a driving member adapted to be moved downwardly between said jaws and drive the tack.

10. In a device of the class described, a pair of pivoted jaws one of which has a convex inner face at its lower tack-gripping end fitting a concaved face on the other jaw, said faces having tack guiding grooves therein; and a driving member adapted to be moved downwardly between said jaws and drive the tack.

11. In a device of the class described, a casing; a driving member therein; a block mounted thereon and having a cylindrical opening therein through which the driving member is adapted to move; a pair of jaws pivoted to said block with their gripping faces in contact, one face being concaved and the other convex and fitting the concavity in the first mentioned face; and means permitting said jaws to separate when in contact with the work to permit the passage of the driving member therebetween to drive a tack and curve the point thereof by contact with said curved faces.

12. In a device of the class described, a casing; a driving member therein; a block mounted thereon and having a cylindrical opening therein through which the driving member is adapted to move; a pair of jaws pivoted to said block with their gripping faces in contact, said faces being curved and provided with tack guiding grooves; and means permitting said jaws to separate when in contact with the work to permit the passage of the driver therebetween to drive a tack, said curved faces being adapted to curve the point of said tack during the driving operation.

13. In a device of the class described, a casing; a driving member therein; a block mounted thereon and having an opening therein through which the driving member is adapted to move; a pair of jaws bifurcated at their upper ends and pivoted to said block with their gripping faces in contact, one face being convex and fitting a concavity in the other face; and means retaining said faces in contact and permitting them to separate when in contact with the work to permit the passage therebetween to drive

a tack, one jaw coacting with the other for curving the point of the tack during the driving operation.

14. In a device of the class described, a casing; a bracket extending laterally therefrom; a block on said casing having a cylindrical opening therein; a pair of jaws pivoted to said block and having at their lower ends opposed faces adapted to grip a tack; a driving member adapted to enter between said jaws and drive the tack; a raceway for tacks supported from said bracket adapted to deliver a tack above said opening and in the path of the driving member; a lever pivoted to said bracket and provided with a wedge-shaped finger extending through said raceway; a spring for normally retaining said finger in said raceway; and means movable with said driving member adapted in its movement to coact with the edge of said lever and move said finger outwardly from said raceway.

15. In a device of the class described, a casing; a bracket extending laterally therefrom;

a block screwed into the lower end of said casing and having a cylindrical opening therein; a pair of jaws having at their lower ends opposed faces adapted to grip a tack; a driving member adapted to move through said opening and enter between said jaws and drive the tack; a raceway for tacks supported from said bracket adapted to deliver a tack above said opening in the path of said driving member; a lever pivoted to said bracket and provided with a wedge-shaped finger extending through said raceway; a spring for normally retaining said finger in the path of said raceway; means movable with said driving member adapted in the movement of said driving member to coact with said lever and move said finger outwardly from said raceway; and yielding members secured to said head and normally retaining in contact the opposed faces on the lower ends of said jaws.

Signed by me at 746 Old South Bldg., Boston, Mass., this 30th day of March, 1925.

OSCAR L. LAWSON.