No. 661,797. Patented Nov. 13, 1900.

J. M., J., A. J. & S. A. GIMSON.

TACK OR NAIL DRIVING MACHINE.

(Application filed Nov. 14, 1898.)

(No Model.)

FIG. 3.

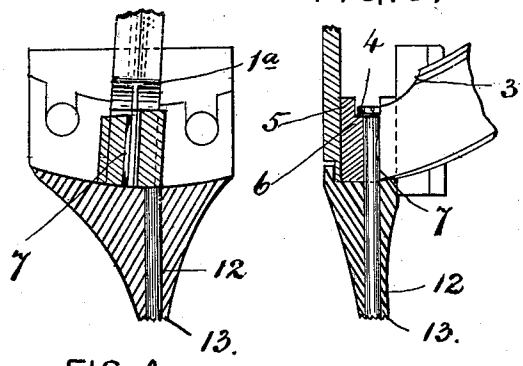


FIG. 6.

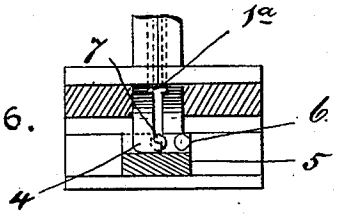


FIG. 5.

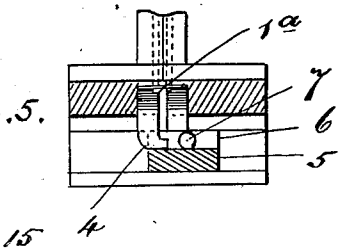


FIG. 4.

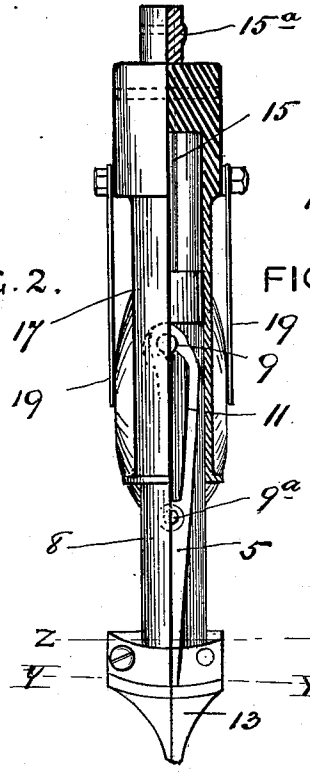
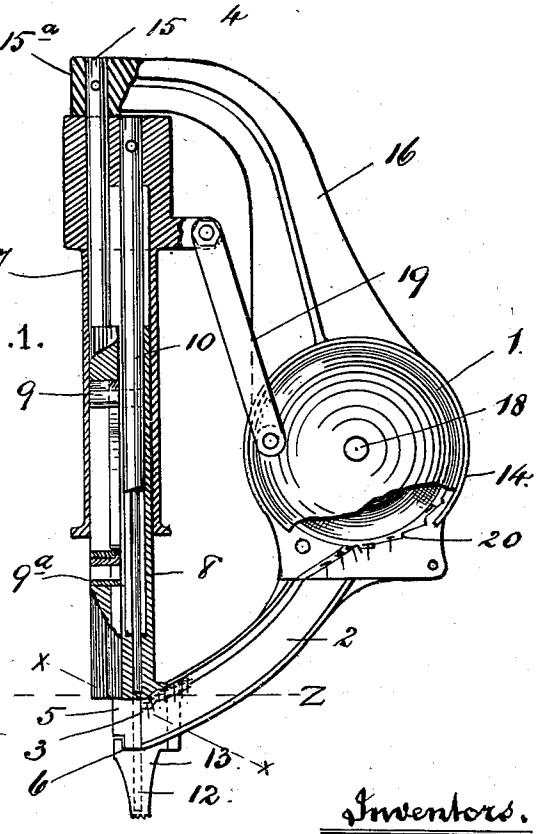


FIG. 2.

FIG. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSIAH MENTOR GIMSON, JOSIAH GIMSON, ARTHUR JAMES GIMSON, AND SYDNEY ANSELL GIMSON, OF LEICESTER, ENGLAND.

TACK OR NAIL DRIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 661,797, dated November 13, 1900.

Application filed November 14, 1898. Serial No. 696,487. (No model.)

To all whom it may concern:

Be it known that we, JOSIAH MENTOR GIMSON, a resident of No. 100 New Walk, JOSIAH GIMSON, a resident of No. 14 Highfield street, ARTHUR JAMES GIMSON, a resident of No. 54 Highfield street, and SYDNEY ANSELL GIMSON, a resident of No. 20 Glebe street, Leicester, in the county of Leicester, England, engineers, have invented certain new and useful Improvements in Tack or Nail Driving Machines; and we 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 the same or make and use the same.

This invention relates more particularly to that class of hand-tackers or self-feeding tack or nail driving apparatus or instrument in which the tacks are fed from a reservoir, carrier, or holder along tack slides or raceways into their upright position to be driven home by a rod and plunger.

In the drawings accompanying this specification, Figure 1 is a side view, partly in section, of the instrument. Fig. 2 is a half-sectional front elevation of same. Fig. 3 is a section through the forward end of the tack-carrying slides and nail-carrying device on line X, Fig. 1. Fig. 4 shows the tack-delivering contrivances with the nozzle in section on line Y, Fig. 2; and Figs. 5 and 6 are sectional views of the carrying-lever in its two positions for receiving and delivering the tacks or nails ready to be driven down the delivery-nozzle on line Z of Figs. 1 and 2.

Similar figures of reference represent like parts in the several views.

The principal objects of this invention and for which the instrument is designed are as follows: to provide efficient means for controlling the delivery of the tacks, to cause the driver-rod to be raised by the upward movement of the driver, and to provide for the tacks or nails falling directly down the driving-tube onto the work, with their points always in the vertical position in advance of the driver-rod.

The general arrangement and simplicity of the mechanical parts in the construction of the instrument make it strong, so as better to withstand the shock and vibration it is always subjected to in continuous working of the machine.

In carrying out our invention we construct the nail or tack driving instrument so as to obtain the following results: The tack slides or raceways are fixed at an inclination from the vertical position of the body of the tool to allow the nails or tacks to run down in a way that is usual, whereas the nails or tacks are generally fed directly into the space where they are acted upon, and various contrivances of a more or less complicated character are used for dividing, positioning, and controlling their single delivery.

According to this present invention the tack-slides are set out of the center line of the driver-rod, so that the tacks run down the inclined raceways not directly into and under the center of the driver's path, but a distance preferably of about the width of the heads of the nails or tacks by providing at the bottom (see Fig. 3) a rapid dip which guides and carries the heads of the nails or tacks. Said dip is followed by a flattened portion, (see Figs. 1 and 3,) these two portions serving to separate the tacks. From out of the nail carrier or holder 1 the nails or tacks fall one after the other into a T-formed groove in and down the tack-slides 2, having, as above stated, at the bottom a rapid dip 3, Figs. 1 and 3. The end of one of the slides is elongated at 4, Fig. 3, sufficiently to enable one tack to be forced forward, which hangs by its head and its under portion free to be caught by the swinging movement of the carrying-lever 5 and carried forward by the foot 6, set out from the said lever 5, provided with the vertical hole 7, containing the nail or tack to be driven. The face of this projecting piece or foot 6 is resting and turned at right angles to and against the raceway 2 (see Figs. 5 and 6) for arresting the further movement of the tacks. The cylindrical body or inner portion 8 guides the pin 9, that is carried by the driver-rod 10, said pin fitting within the elongated slot or cam-groove 11, made in the upper part of the carrying-lever 5. Said groove is curved, as shown in Fig. 2, and is cut to the length of the vertical movement of the hand-grip or handle 17

and driver-rod 10. Said lever 5 is fulcrumed to the cylindrical body or inner portion 8 by the fulcrum-pin 9^a and is caused to swing from side to side on the upward-and-downward movement of the driver-rod 10. The first position of the lever 5 is shown in Fig. 4 of the drawings ready for receiving the nail. The driver-rod 10 being at its highest point allows the foot 6 to take a nail by reason of its being cut out at one side opposite the end of the raceways. (Seen in Figs. 3 to 6.) The hand-grip or handle 17 in moving down causes the driver-rod 10 to swing the lever 5 across to the right and the nail is carried over the tube or hole 12 in the nozzle 13, so that the nail is free to fall. The aforesaid swinging lever 5 is guided by the cover 8, slotted to receive the pin 9, in which it is guided. The guide-rod 15 is connected to the cover and also to the top 15^a of the arm of the bracket 16, the lower portion of which is rigidly connected to the tack-slides 2, Fig. 1. The before-mentioned cover 8 also serves as a guide for the hand-grip or handle 17, which is suitably shaped so that it can be firmly gripped by the hand of the operator.

The nail-holder or tack-box 1 is formed or constructed from or by two dished-out disks or cups fitted circularly into the frame 14 of the bracket 16 and movable therein on the central screw or pin 18. The disks are connected with the handle 17 by the spring-links 19, so that upon the upward or downward movement of the handle the said disks will move partly around and back again and so cause the nails or tacks to be distributed.

It will be observed in Fig. 1 that part of the nail-holder or tack-box is cut away to show the internal arrangements, which consist of a groove around the periphery of the disks set apart and forming a channel for the tacks to fall, the steps 20 retarding the back movement of the tacks, so providing a central path in the ring of the frame 14 and which admits the stems of the nails or tacks to have an uninterrupted passage down the tack-slides upon, as before stated, the partial turning of the disks forming the nail-holder or tack-box 1, ready to be operated upon by the driver 10.

The aforesaid arrangements will be more clearly understood by reciting the operations necessary to satisfactorily drive a nail or tack home by a hard tool.

The instrument is grasped by the handle 17 in a vertical or nearly vertical position, when the body 8 will fall by its own weight and the pin 9 and driver-rod 10 causing the tack-carrying lever 5 to move into the position as before mentioned to receive a tack. The nozzle 13 of the instrument is placed with its teeth upon the material where it is desired to drive the nail or tack and the handle 17 is given a sharp downward thrust during the first part of its movement, causing the carrying-lever to place a tack in position immediately under the driver-rod 10, the latter portion of the movement serving to drive the tack right into the material.

Access to the tack or nail box 1 is obtained for placing the tacks or nails therein through a hole cut out of one of the cups covered by a spring door or trap. (Not shown.)

The operator in using the herein-described implement will obtain relief from any sudden jar to the muscles upon making the downward thrust, inasmuch as parts of the machine which it is not absolutely necessary to make of steel are made of the lighter metals, and therefore will not occasion fatigue.

In using the instrument the person grips the tool opposite the tack-feeding device by the handle and upon making the downward movement the mechanism is set in motion, which feeds the tacks one at a time, and immediately a tack is driven completely into the material.

Having now particularly described the invention and in what manner the same is to be performed, what we desire to secure by Letters Patent and claim is—

A hand tack or nail driving implement comprising a curved bracket 16, a circular frame attached thereto, and a raceway 2 attached to and depending from the circular frame, a tack-box or nail-driver 1 in the form of two dished-out disks or cups, their outer edges fitting within the said circular frame, the curved bracket having a top portion 15^a from which depends a guide-rod 15, a cylindrical body 8 upon which slides a handle 17, spring-links secured to the handle 17 and connected with the said disks, a driver-rod 10 attached to the handle, a swinging carrying-lever 5 having a foot 6, vertical hole 7, a cam-groove 11, the said lever being fulcrumed to the cylindrical body 8 by a pin 9^a, a pin 9 attached to the driver-rod 10 and engaging the cam-groove of the lever 5, and a nozzle 13 provided with a tubular opening 12, substantially as described.

In witness whereof we hereunto affix our signatures in presence of two witnesses.

JOSIAH MENTOR GIMSON.
JOSIAH GIMSON.
ARTHUR JAMES GIMSON.
SYDNEY ANSELL GIMSON.

Witnesses:
FRED FELLOWS WIGGINS,
GEORGE WILLIAM COLTMAN.