H. G. WICKHAM.

DRIVING TOOL.

APPLICATION FILED MAY 13, 1916.

1,250,741. Patented Dec. 18, 1917.

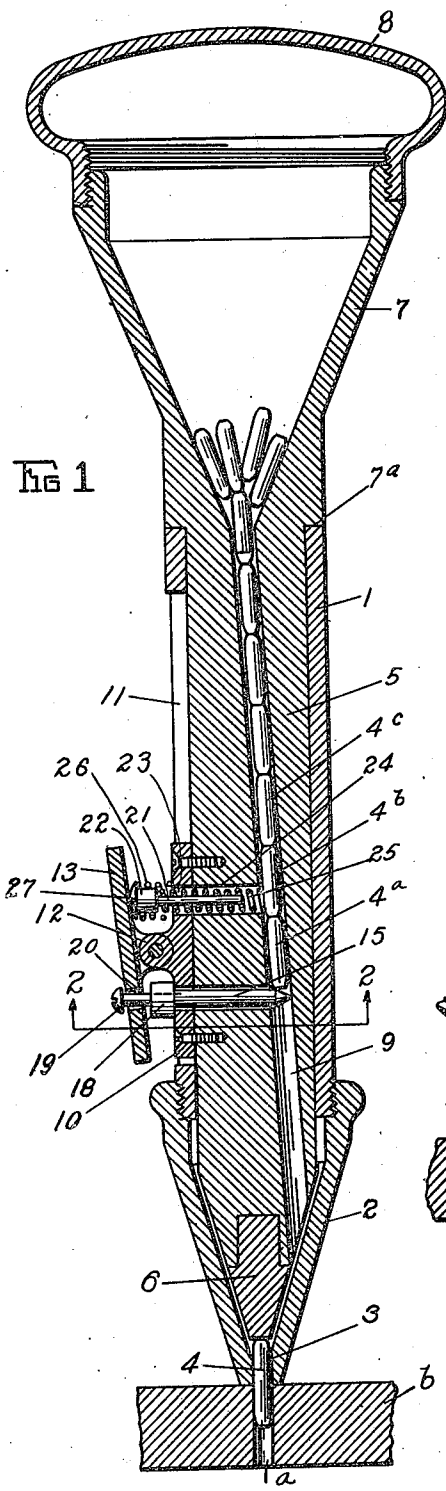


Fig 1

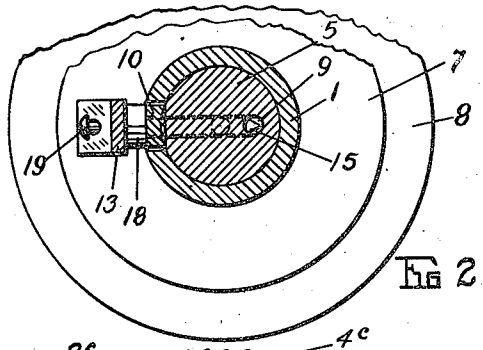


Fig 2

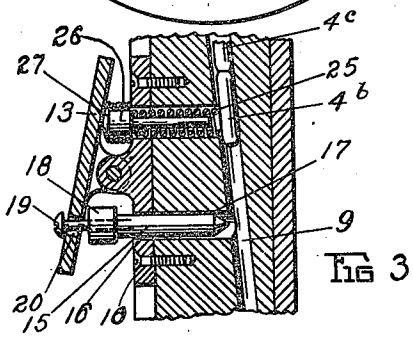


Fig 3

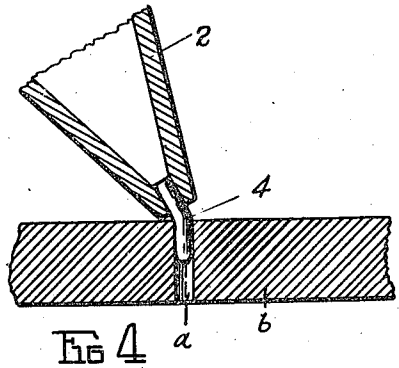


Fig 4

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DRIVING-TOOL.

1,250,741. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed May 13, 1916. Serial No. 97,385.

To all whom it may concern:

Be it known that I, HENRY G. WICKHAM, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Driving-Tools, of which the following is a specification.

My invention relates to improvements in tools for driving pins, brads and the like, the tool being one especially designed for driving what are known as the hitch and bridge pins into piano plates, or into the wooden sub-bridge thereof on the sounding board.

Heretofore it has been the practice to drive these pins in the plates with an ordinary hammer, requiring considerable skill upon the part of the workman. The object of this invention is to devise a tool for the purpose stated which will drive the pins into the plate in a uniform manner without any particular skill being required and which will enable the workman to drive the pins with greater rapidity than by the old method.

A further object of the invention is to provide a tool which will not only drive the pins but which will impart to them the final bending operation required.

A further object of the invention is to simplify the construction and make more effective the operation of tools of this character, the use for which need not necessarily be limited to the specific purpose stated.

In the accompanying drawings:—

Figure 1 is a longitudinal section of a tool embodying my improvements.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a longitudinal section of a portion of the device showing the parts in a different position.

Fig. 4 is also a longitudinal section of a portion of the device showing the manner of bending the pins after being driven.

Referring to the drawings, 1, represents a barrel or cylinder, to the lower end of which is threaded a cone-shaped or pointed cap 2, the point of which is provided with an opening 3 of a size just sufficient to allow for the passage therethrough of the pins, several of which are represented by 4, 4^a, 4^b and 4^c. Slidably mounted in this barrel is a plunger 5, the lower end of which is pointed to conform to the shape of the interior of the cap 2 and may be provided with a hardened nose 6. The upper end of the plunger is enlarged to form a cone-shaped hopper 7 which is closed by a screwthreaded cap 8, and leading from this hopper through the plunger is a channel or chute 9. The channel terminating at a point on the side of the pointed end of the plunger.

Secured to the side of the plunger is a plate 10 arranged to slide in a slot 11 in the wall of the cylinder 1. Pivoted to ears 12 on this plate is a lever 13. At one side of the pivotal point of this lever is a pin 15 which extends through a perforation 16 in the plate 10 and also into a lateral channel 17 which communicates with the chute 9; the pin having a head 18 and being pivotally connected to the lever 13 by a screw 19 which extends loosely through a perforation 20 in said lever. On the opposite side of the pivotal point of the lever is a second pin 21 having a head 22, this pin also extending through a perforation 23 in the plate and into a lateral channel 24 which also communicates with the chute 9. A spring 25 is placed about the pin 21 and is located in the channel 24, and a second spring 26 is interposed between the plate 10 and a flange 27 formed on the outer end of the head 22, this spring 26, tending to hold the parts in the position shown in Fig. 1 in which it will be seen that the end of the pin 15 extends across the chute 9 and forms a cut-off or stop for the hitch or bridge pins which have been placed in the hopper 7 and found their way into the chute 9. In this position of the parts, also, the spring 25, which is a comparatively light one, has been relieved of all tension so that it is placing no pressure upon the hitch pin marked 4^b.

Starting with this position of the parts, the operation of the device is as follows:— It will be seen that the pin 4 has been driven into the opening *a* of the piano plate *b*. The operator, then, by turning the tool to an angular position as indicated in Fig. 4, bends the pin to the position shown in that figure. The operator then removes the tool to the next opening in the plate, presses in on the upper end of the lever 13, which withdraws the cut-off 15 and allows the hitch pin 4^a to drop to the lower end of the chute and at the same time puts the spring 25 under compression so as to hold the pin 4^b from dropping, by pressing it against the wall of the chute. The spring 26 has likewise been put under compression, as indi-

cated in Fig. 3, so that when pressure is removed from the lever 13, that spring will throw the lever back to the normal position shown in Fig. 1, but complete tension will not be taken from the spring 25 until the cut-off 15 has again entered the chute 9. So soon as the tension of the spring 25 is released, however, the pin 4^b will be permitted to drop onto the cut-off 15, which will cause the successive pins to likewise drop, the one 4^c dropping to a position to be engaged by the spring 25 when the cut-off is again operated by pressing in the lever. The operator then raises the plunger, which permits the pin 4^a to drop down into the opening 3 in position to be driven into the opening in the piano plate. The operation of driving and bending is then completed in the manner before described.

In the driving operation the shoulder 7^a formed between the plunger proper 5 and hopper 7, striking the end of the cylinder, forms a stop so that all the pins will thus be driven to a uniform depth. It will also be noticed that the length of the opening 3 is substantially equal to half the length of one of the pins so that when the pin drops into this opening it will be held in upright position so as to properly receive the blow of the plunger in the driving operation. It will also be seen that the inclined or cone-shaped cap 2 insures the pins being guided to the opening 3 and the inclined walls of the hopper 17 also properly guide the pins into the chute 9, the operation of raising and dropping the plunger serving to agitate the pins in the hopper and thereby prevents clogging.

Having thus described my invention I claim:—

1. In a device of the character described, a cylinder, a plunger slidably mounted therein, said plunger having a chute for the articles to be driven, and a cut-off carried by the plunger arranged to release the lowermost pin and at the same time engage the next succeeding one.

2. In a device of the character described, a cylinder, a plunger slidably mounted therein, said plunger having a chute for the articles to be driven, and a cut-off device carried by said plunger, said device consisting of a member normally standing in the path of the said articles together with means for withdrawing the same to release the lowermost article, and a second member for at the same time engaging the next succeeding article until said first member has assumed its normal position.

3. In a device of the character described, a cylinder, a plunger slidably mounted therein, said plunger having a chute for the articles to be driven, and a cut-off device carried by said plunger, said cut-off device consisting of a pivoted lever, a lower pin connected with said lever and normally lying in the path of said articles, and yielding means operated by said lever for engaging one of said articles when said pin has been withdrawn by said lever.

4. In a device of the character described, a cylinder, a plunger slidably mounted therein, said plunger having a chute for the articles to be driven, and a cut-off device carried by said plunger consisting of a pivoted lever, a spring operating on said lever, a pin connected with said lever and normally held in the path of said articles by said spring, and a second spring arranged to be put under tension, when said lever is operated to release the lowermost pin, and to engage the next succeeding article until said cut-off pin has been restored to normal position.

5. In a device of the character described, a cylinder having a longitudinally extending slot, a plunger slidably mounted therein, said plunger having a conduit for the articles to be driven, a plate connected with said plunger and arranged in the slot in said cylinder, a pivoted lever on said plate, a cut-off pin connected to said lever on one side of the pivotal point thereof, a spring on the opposite side of the pivotal point of said lever for normally holding said pin in the path of said articles, and a second spring arranged to be put under tension, when said lever is operated to withdraw said pin, and to engage the article next succeeding the one released by said pin.

6. In a device of the character described, a cylinder having a pointed lower end provided with a perforation, a plunger slidably mounted in said cylinder also having a pointed lower end, said plunger having a longitudinally extending chute terminating above the lower point thereof, and a stop for said plunger to arrest the driving movement thereof to permit a portion of the driven article to remain in the opening in the end of the said cylinder.

7. In a device of the character described, a cylinder having a pointed lower end provided with an opening, a plunger also having a pointed lower end and slidably mounted in said cylinder, the upper end of said plunger being provided with an inclined hopper, a chute extending from the lower end of said hopper to a point in proximity to the lower pointed end of said plunger, a stop for limiting the driving movement of said plunger to permit a portion of the driven article to remain in the opening in the lower end of said cylinder, and a cut-off carried by said plunger for dropping the driven articles one by one from said chute.

8. In a device of the character described, a cylinder having a pointed lower end pro-

vided with an opening, a plunger having a close sliding fit in said cylinder also provided with a pointed lower end to conform to the shape of the lower end of said cylinder, and an inclined hopper at the upper end of said plunger and connected therewith, said plunger having a chute leading from said hopper to a point on the side of the lower pointed end of said plunger, the lower end of said plunger and the opening in said cylinder being in line with each other.

In testimony whereof, I have hereunto set my hand this 11th day of May 1916.

HENRY G. WICKHAM.

Witness:

CHAS. I. WELCH.