

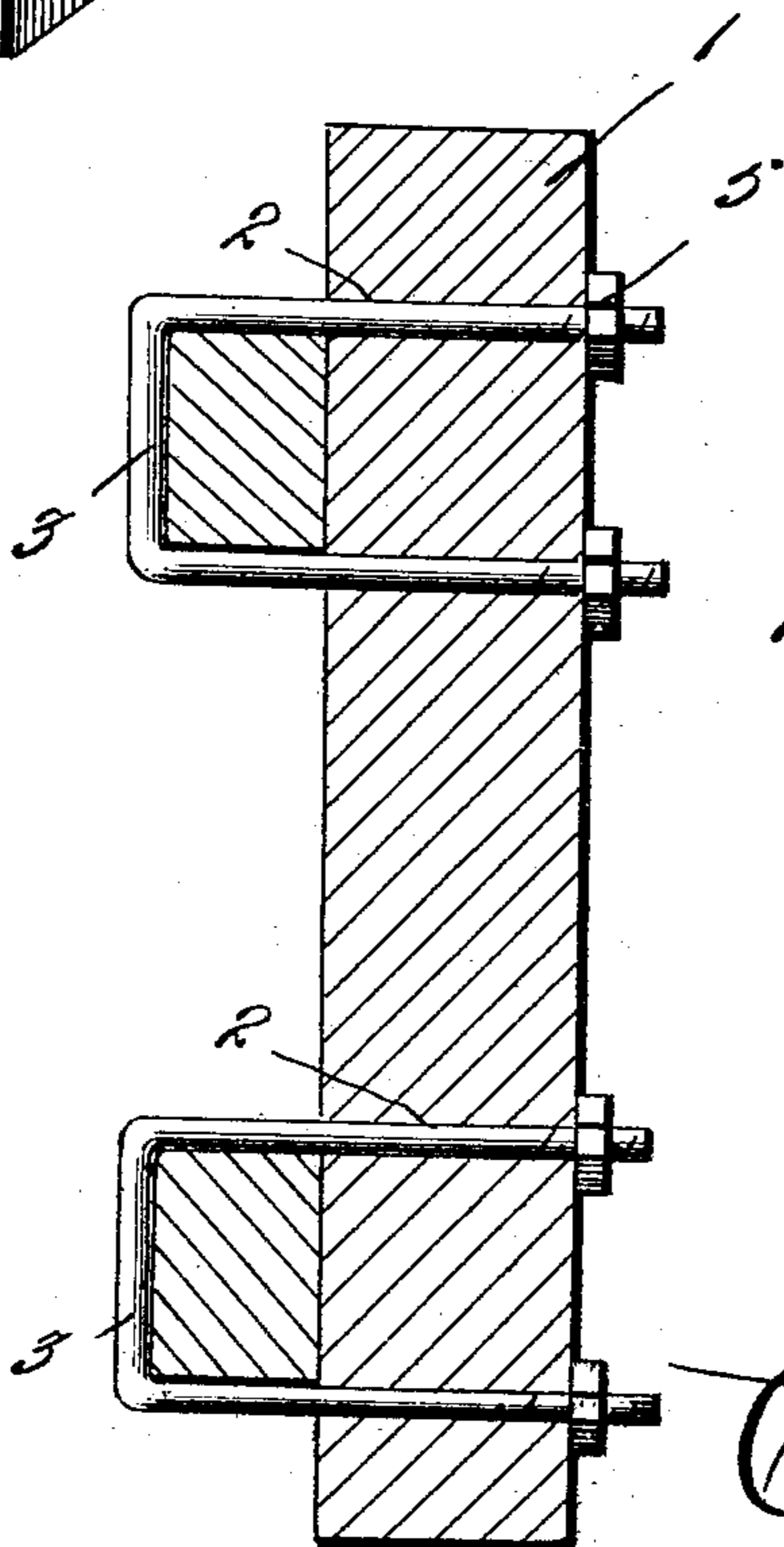
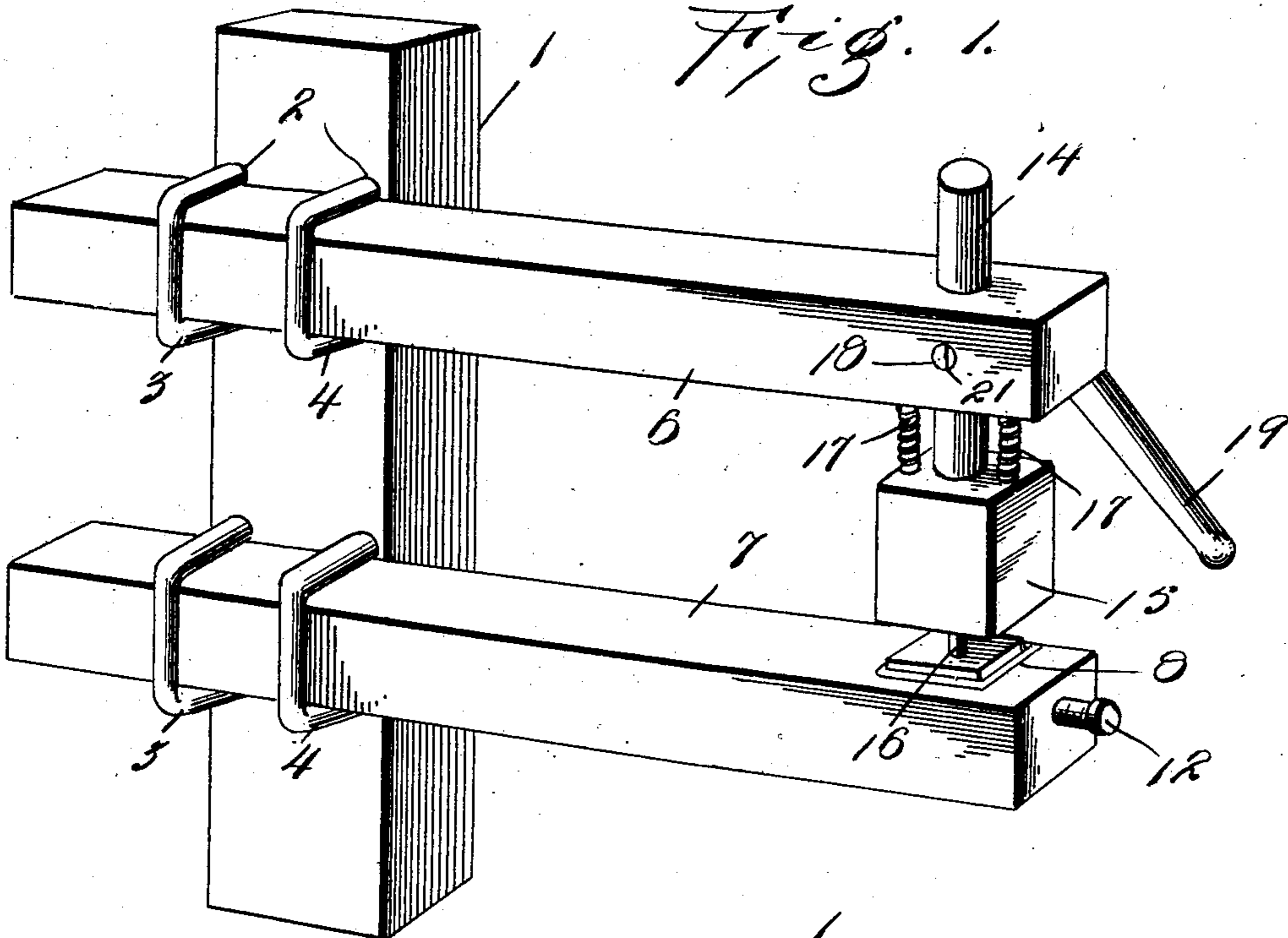
No. 771,391.

PATENTED OCT. 4, 1904.

H. RAINES.
PUNCHING MACHINE.
APPLICATION FILED JAN. 4, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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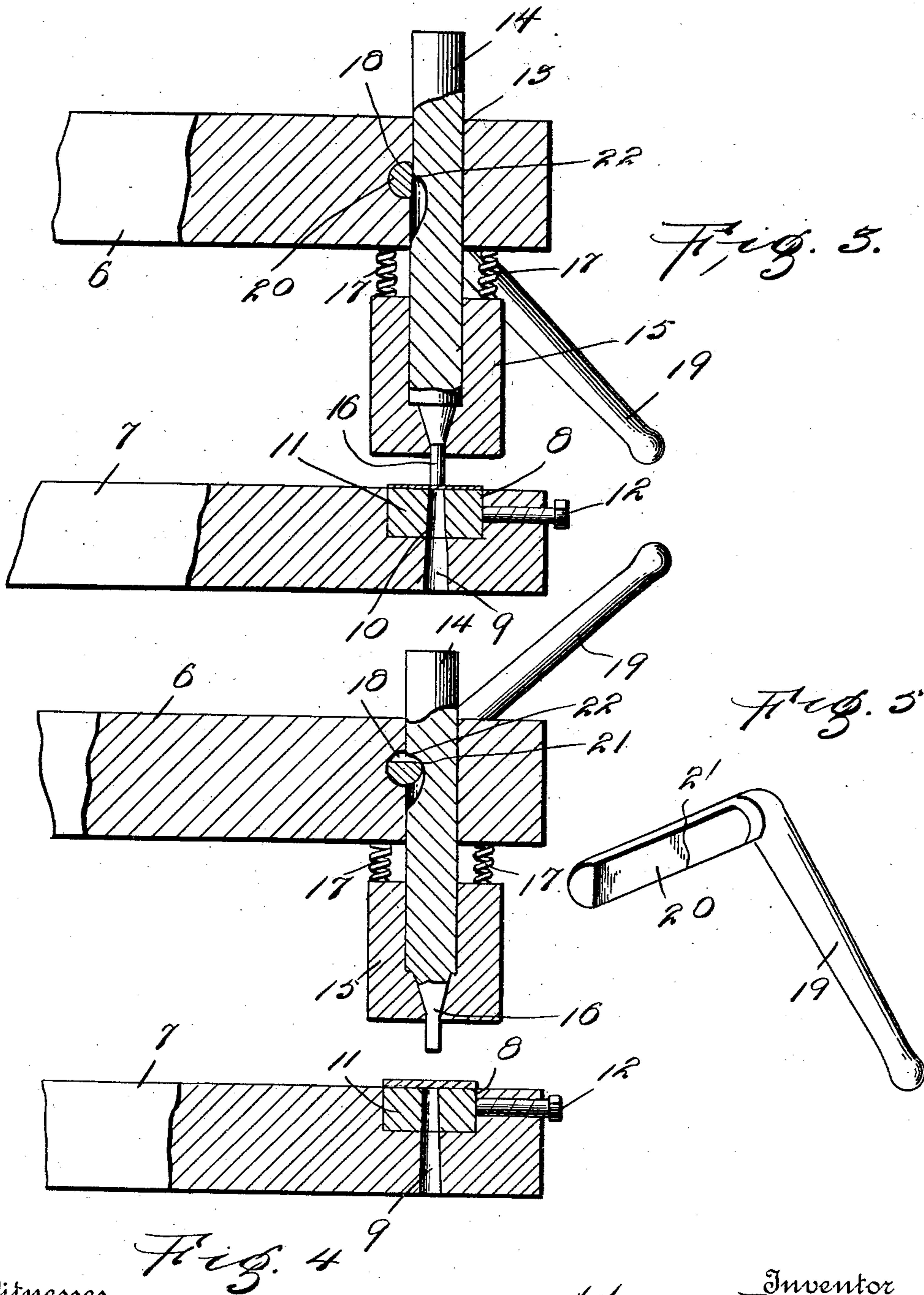
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UNITED STATES PATENT OFFICE.

HENRY RAINES, OF MASON, TEXAS, ASSIGNOR OF ONE-HALF TO HENRY J. LOWREY, OF MASON, TEXAS.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 771,391, dated October 4, 1904.

Application filed January 4, 1904. Serial No. 187,647. (No model.)

To all whom it may concern:

Be it known that I, HENRY RAINES, a citizen of the United States, residing at Mason, in the county of Mason and State of Texas, have invented certain new and useful Improvements in Punching-Machines; and I 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 and use the same.

This invention relates to punches, and has particular reference to the class of punching-machines adapted for sheet-metal-ware work.

The object resides in the provision of a simple, efficient, durable, and compact structure capable of adjustment for the accommodation of work of various dimensions.

With these and other objects in view the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of the punch. Fig. 2 is a vertical section showing the manner of securing the horizontal beams. Fig. 3 is a vertical section through a portion of the machine with the punch lowered. Fig. 4 is a section similar to Fig. 3 with the punch raised. Fig. 5 is a perspective view of the shifting lever.

Referring now to the drawings, the reference character 1 designates a frame, of wood or other suitable material, having sets of alining perforations 2 for the reception of the respective screw-threaded ends of the clamps or staples 3 and 4, respectively. These perforations 2 are not screw-threaded, but are of sufficient diameter to loosely receive the screw-threaded ends of the said clamps, the free ends of the latter receiving nuts 5, whereby the body portions of the clamps may be adjusted toward and away from the frame, as well understood.

Mounted transverse of the frame 1 and secured within the clamps 3 and 4 are disposed alining upper and lower arms or supports 6 and 7, respectively, one end of the lower sup-

port having a recess 8 in its upper face communicating with the perforation 9 of a diameter preferably the same as the central perforation 10 of the die 11, which latter is seated within the recess 8 and capable of adjustment by means of the thumb-screw 12, piercing the end of said support, as clearly shown in the drawings.

The upper arm or support 6 is provided in its end corresponding to the die part of the support 7 with the perforation or opening 13 for the free reception of the plunger 14, which is loosely and detachably supported within the follower 15, with its extreme free end or needle portion 16 piercing the lower end thereof, the follower in its turn being suspended from the lower portion of the upper arm 6 by means of the springs 17, as shown. While it is obvious that the plunger 14 and the perforation 13, in which the former has a working fit, may be of any form in cross-section, it is preferred in the present instance that both of these elements be circular in cross-section. The upper arm or support 6 is provided also with a horizontal perforation 18, preferably circular in cross-section, intersecting the vertical perforation 13, and has axially mounted therein a hand or other lever 19. The axial or pivotal part 20 of this lever is directed at a right angle to the body portion 19 thereof and has a mutilated portion forming a shoulder 21, which is adapted to engage the shoulder 22 of the plunger 14 and lift the latter out of contact with the punched material, as will be hereinafter more clearly explained.

It will now be understood that the upper and lower arms or supports 6 and 7 are detachably secured to and arranged for longitudinal adjustment with relation to the frame 1 by means of the alining staples or clamps 3 and 4, respectively. By this arrangement either or both arms may be adjusted according to the character of work involved.

After the frame 1 has been secured to any suitable support in any manner—as, for instance, by means of screws, bolts, or other elements therein—and the different parts of the machine have been assembled in accord-

ance with the foregoing description the material to be punched is placed upon the die 11, when a hammer or other power (not shown) is brought into contact with the upper end of the plunger 14, causing the end 16 to pierce the material. Usually when the needle 16 enters the material there is sufficient friction therebetween to hold the needle in engagement therewith, and as the follower 15 follows the plunger and having a broad flat bearing-surface prevents the material being marred or otherwise distorted by the punching operation. The follower remains in contact with the material until the lever 19 is turned for the engagement of the shoulder 21 thereof with the shoulder 22 of the plunger, as shown in Fig. 4, when by a further turn of the lever the plunger and follower are lifted to their normal position, the springs 17 having a cushioning effect between the arms or supports, the plunger and the follower acting also to aid the lever in the lifting of the plunger to resist the stroke of the latter, and, finally, to support the plunger in its normal position above the die, as well understood.

By reason of the mutilated portion 20 of the lever it is obvious that the same will not interfere with the downward stroke of the plunger if said mutilated portion be thrown into alinement with the vertical perforation 13 before power is brought into contact with the plunger.

It is to be understood that while I have described my invention in detail I do not limit myself to the precise construction shown, but

that I consider myself entitled to changes in form, proportion, material, and minor details which may be resorted to without departing from the spirit of the invention.

I claim—

1. A punching-machine, comprising a frame, upper and lower supports mounted for independent longitudinal adjustment upon the frame, a die adjustably carried by the lower support, a plunger slidably mounted within the upper support, said plunger having a notch therein, means disposed between the supports and pierced by the plunger for resisting the downward movement of the latter, and a lever axially mounted within the upper support for engagement with the plunger to return the latter to its normal position.

2. A punching-machine comprising upper and lower supports, a die carried by the lower support, a plunger mounted in the upper support and provided with a die disposed for cooperation with the first-named die, said plunger having a recess in the side thereof, a lever having a cam movable into and out of engagement with the upper wall of the recess to raise the plunger, supplemental means connected with the plunger for raising the latter automatically when pressure thereon is removed.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY RAINES.

Witnesses:

RUDOLPH RUNGE,
H. J. LOWREY.