

(No Model.)

2 Sheets—Sheet 1.

W. P. HOLMAN.
BLACKSMITH'S PUNCH.

No. 295,397.

Patented Mar. 18, 1884.

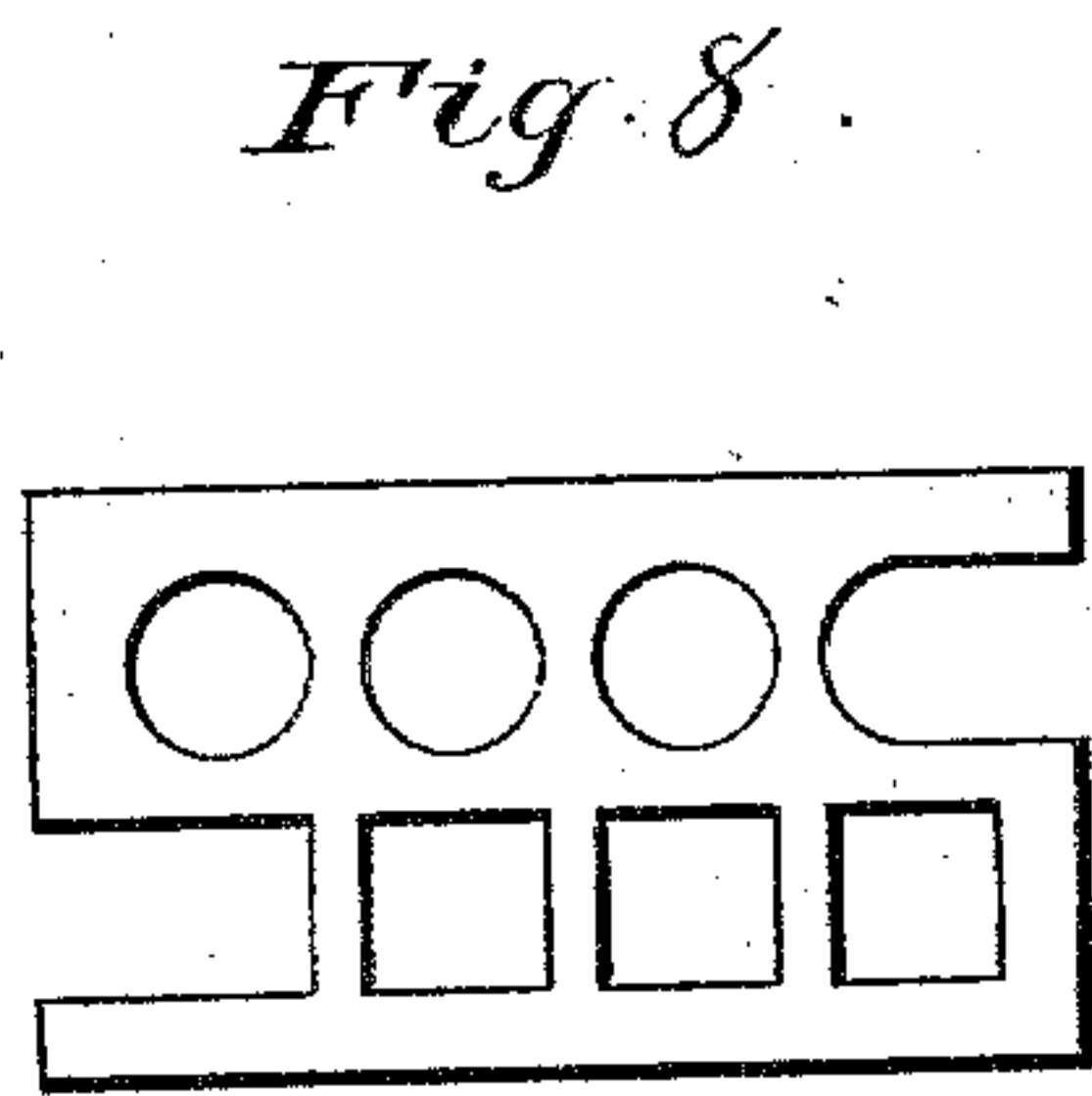
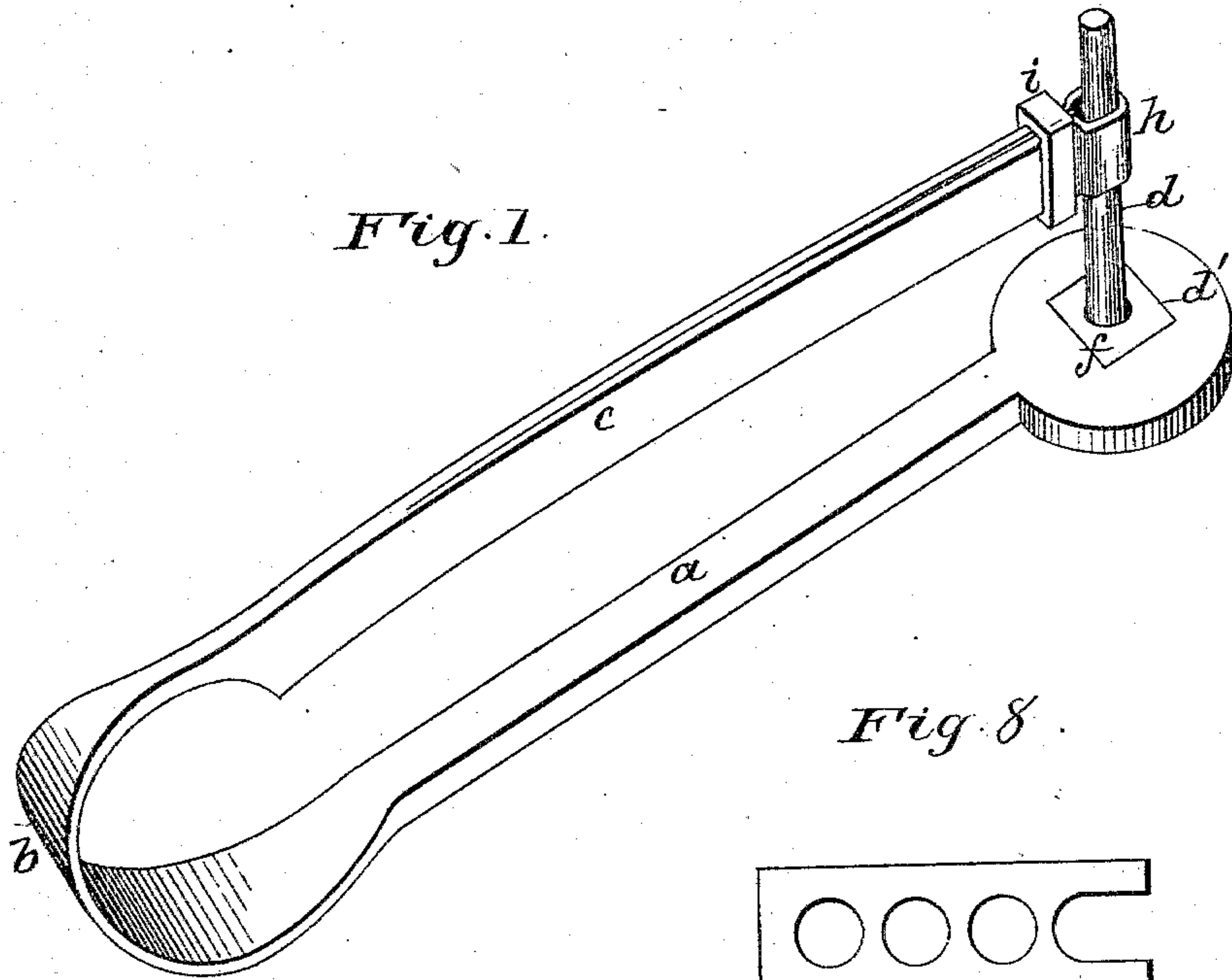


Fig. 5.



Fig. 4.

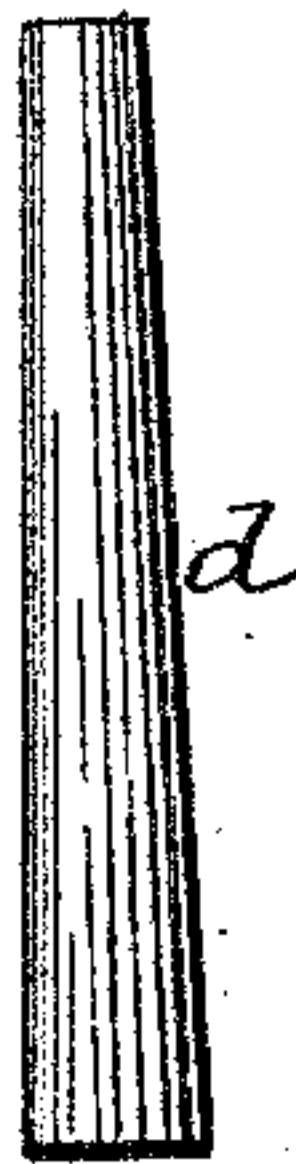


Fig. 6.



Fig. 7.



Witnesses:

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Dan. A. Castleberry

Inventor:

W. P. Holman

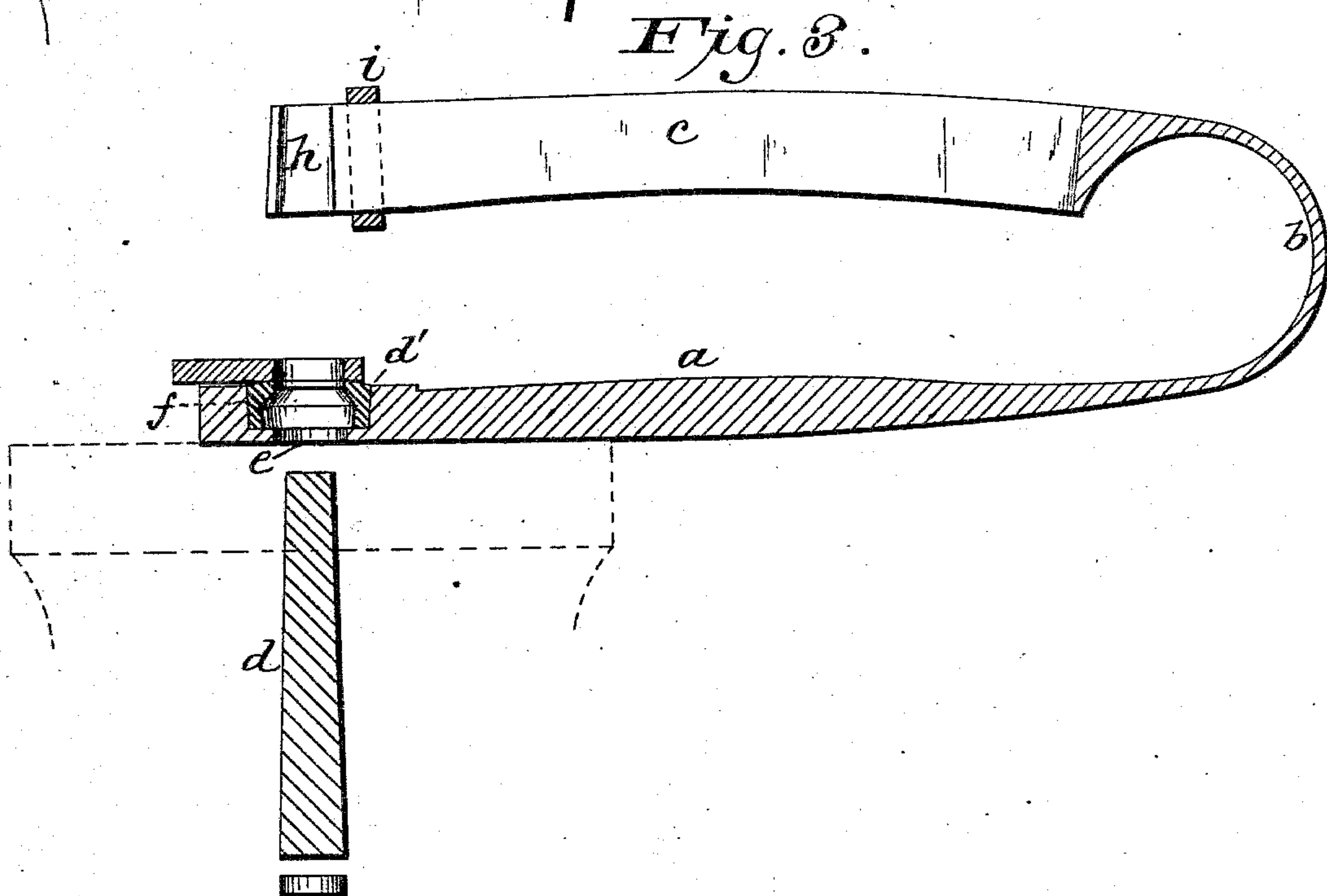
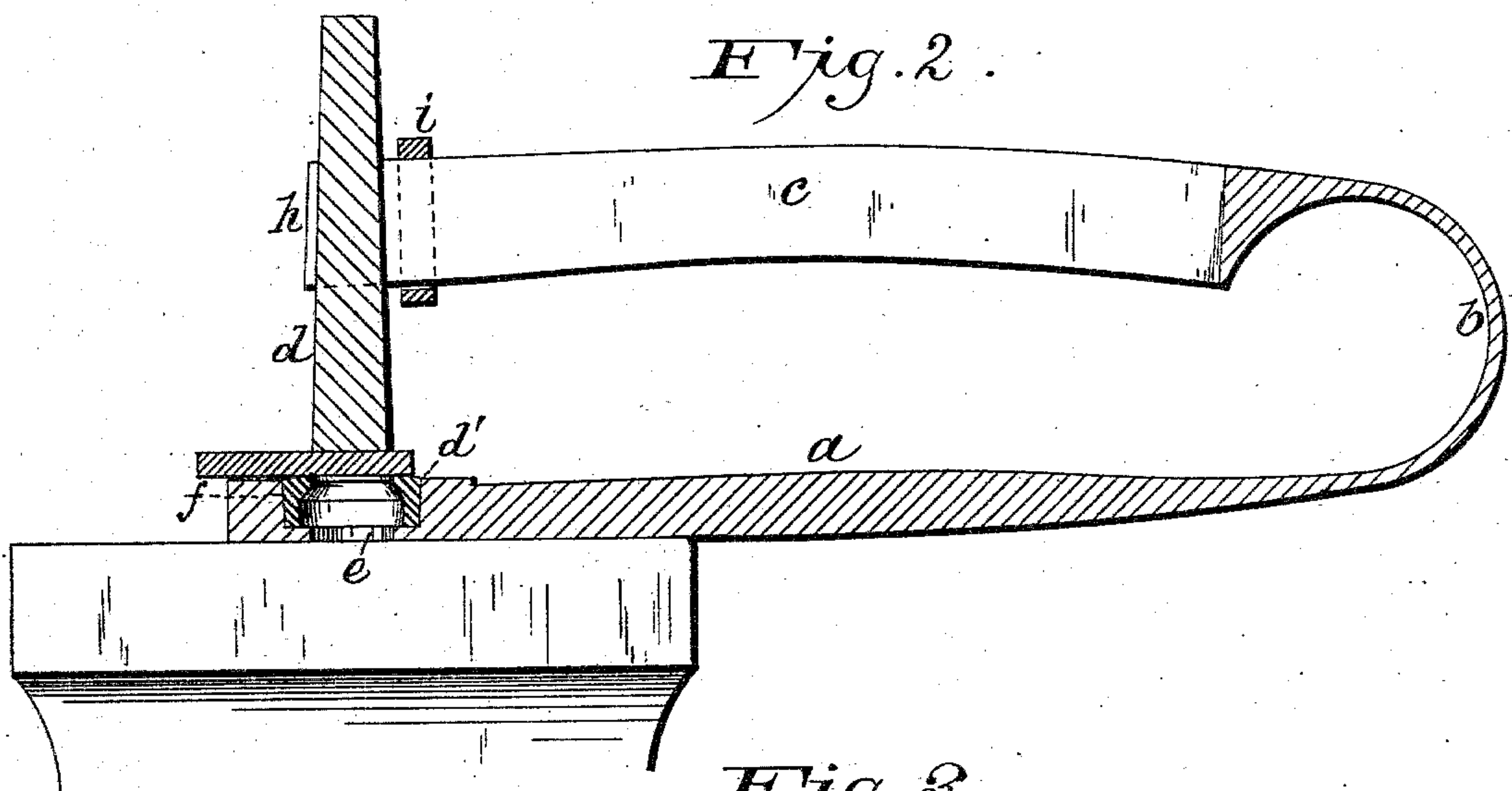
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2 Sheets—Sheet 2.

W. P. HOLMAN.
BLACKSMITH'S PUNCH.

No. 295,397.

Patented Mar. 18, 1884.



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UNITED STATES PATENT OFFICE.

WILLIAM P. HOLMAN, OF HOWARD, GEORGIA.

BLACKSMITH'S PUNCH.

SPECIFICATION forming part of Letters Patent No. 295,397, dated March 18, 1884.

Application filed July 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PATRICK HOLMAN, a citizen of the United States, residing at Howard, in the county of Taylor and State of Georgia, have invented a new and useful Improvement in Blacksmiths' Punches, of which the following is a specification.

The implement is designed for hand use with an anvil and hammer for punching holes of circular or square form in metal. It is to supersede the drill for general work; and its construction is such as to prevent the swelling or bursting of the metal in driving the punch-pin through it, and thereby permit holes to be punched quite close together and quite close to the edge of the metal, which cannot be done with the ordinary punch, especially in cast-iron. The punch-pin tapers upward from its cutting end, and is carried in a clamping-socket formed upon the end of a spring-arm, which is preferably integral with a base-arm adapted to receive a die upon which the metal is placed, so that the punch-pin is driven first through the metal and then drops through the die and an opening in the base-arm with the punched-out plug. The opening in the die flares to its bottom and opens into the opening in the base-arm, so that the punched-out plug and the tapered punch-pin will fall freely through the die. It is the taper form of the driven pin or punch, in connection with supporting the plate or bar to be punched upon the face of a die having a downward-flaring through-opening a little larger than the cutting end of the tapering punch-pin, which prevents the bursting of the metal and gives a clean cut. The clamping-socket is intended only to hold the tapering pin in position to allow it to be driven down through said socket and through and free of the die, and to allow said pin to be adjusted to suit the thickness of the metal to be punched, so that the cutting end of the punch-pin will be held upon the metal to receive the first blow, and will follow down until it is driven through the clamping-socket and falls clear of the base-arm. The driven pin is readjusted in the holding-arm by passing its small end first up through the flaring opening in the die from the bottom of the base-arm.

Referring to the accompanying drawings,

Figure 1 represents the punching implement in perspective; Fig. 2, a vertical sectional elevation, showing the plate in position to be punched; Fig. 3, a similar view, showing the driven punch falling through the die, with the plug cut from the plate. Figs. 4 and 5 are tapering punch-pins of cylindrical and square form. Figs. 6 and 7 are dies of corresponding form; and Fig. 8 shows a plate with holes punched close together without bursting.

The implement is preferably forged from a bar of steel with a flat base, *a*, formed at one end with an upturned flat spring, *b*, which terminates in a rigid arm, *c*, overhanging the flat base, and carries at its free end the tapering pin or driven punch *d*, in a vertical position within a clamping-socket. The other end of the flat base has an opening, *e*, and is formed on its upper surface with a recessed seat, *d'*, adapted to receive and hold a die, *f*, having an opening corresponding in form but a little larger than the cutting or largest end of the tapering driven pin, and opening into the said base-opening.

The tapering-pin punch *d* may be of cylindrical or square form, but tapers upward from its cutting end, so that in being driven through the metal it will make a clean cut, by means of being practically free from the walls of the opening being punched, and thereby prevent binding within the punched hole. The face of the die is flush with the upper surface of the base-arm and the opening in the die flares downward, and opens into the base-opening, so as to allow the punch-pin to be driven through the die with the punched-out plug without binding. This provision of separate dies adapts the implement for use with different-shaped punch-pins; but I may dispense with the separate dies, and form the flaring die-opening in the base itself.

The arm for carrying the punch-pin is split vertically at its free end to form a spring socket or clasp, *h*, within which the tapering punch-pin is clamped in by means of a yoke, *i*, driven over the slit arm toward the socket, so as to bind its socket end hard upon the upper or tapered end of the punch-pin, which projects above the arm to receive the blows of the hammer. The punch-pin is set so as to bear upon the article to be punched, and the spring

of its carrying-arm allows it to descend as the hole is punched.

The flat base and punch-pin-carrying arm are of suitable length, and the spring is formed
5 by a flattened, bent, or curved part.

Any suitable power may be applied for driving the punch-pin, and the latter may be secured in any suitable manner to its carrying-arm; but the clamping-socket shown is preferred, because it allows the clamp to be opened
10 to receive the punch-pin and easily bound upon and released from it.

In using the implement, the die and punch-pin to suit the desired form of hole are secured in place, and the punch-pin adjusted to
15 the thickness of the metal, the implement being held by the left hand, with its flat base upon the anvil. The plate to be punched is then held upon the die by the right hand, and
20 the punch-pin driven by an assistant workman, using a hammer. Care should be taken to raise the punch-pin-carrying arm in placing the plate upon the die, so as not to strike against the end of the punch-pin, which might
25 place it out of proper vertical adjustment; but if properly set in the clamping-socket the punch-pin will not touch the die in passing through it.

The provision described, broadly considered, for adapting the punch-pin to following
30 and be discharged with the punching through the die and through a base-opening corresponding with the die is not claimed herein, as it is not new; nor is it intended to claim,
35 broadly, a spring-sustained punch; but my invention consists of the specific implement herein described, having a punch-pin tapering from its cutting to its driving end, held upon the plate to be punched by the positive action
40 of its spring-carrying arm, from the clasp- ing end of which it is driven, and operating with a die having a downward-flaring opening, whereby to prevent the binding of the punch-

pin in the metal, and swelling and bursting of the metal in driving the punch through it, 45 and especially in punching plates near their edges. In the use of the tapered punch carried by an overhanging spring clamping-arm, the punch-pin is adjusted in its clamp upward through the base-opening in the die, and is set
50 to bear upon the plate, which is placed upon the die after the punch-pin is so set. This positive holding of the punch-pin upon the plate is important in giving a true starting-cut and holding the punch-pin firmly upon the
55 plate.

I claim—

1. The within-described punching implement, consisting of a punch-pin, *d*, tapering from its cutting to its driving end, a spring-
60 arm, *c*, having a clamping-socket, a base-arm, *a*, joined to said spring-arm, and a die, *f*, having a downward-flaring opening, the said punch-pin being clamped directly by the spring-arm and held upon the plate to be
65 punched by the positive action of said spring-arm, substantially as set forth.

2. The punch-pin *d*, tapering from its cutting to its driving end, in combination with a clamping-arm, *c*, therefor, a die, *f*, having a
70 downward-flaring opening, and a base-arm, *a*, having a spring-connection with said clamping-arm, as shown and described.

3. The punch-pin *d*, tapering from its cutting to its driving end, in combination with a
75 removable die, *f*, having a downward-flaring opening, a base-arm, *a*, having a recessed seat for the die, and an overhanging arm, *c*, having a clamping-socket for the punch-pin joined to the base by an integral plate-spring, as
80 shown and described.

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Witnesses:

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