

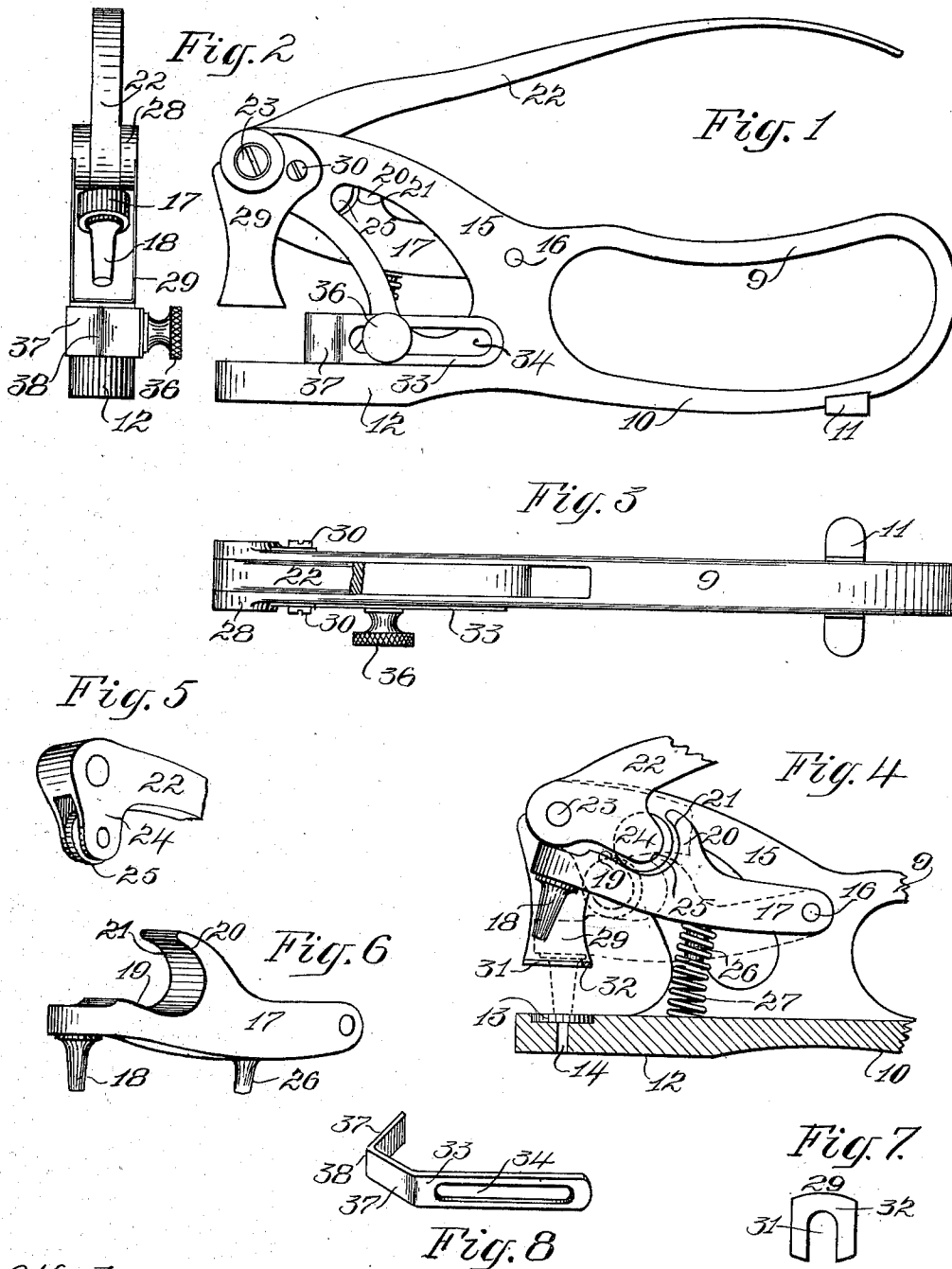
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R. HAYDEN.
HAND PUNCH.

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NO MODEL.



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UNITED STATES PATENT OFFICE.

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HAND-PUNCH.

SPECIFICATION forming part of Letters Patent No. 732,850, dated July 7, 1903.

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To all whom it may concern:

Be it known that I, RANDOLPH HAYDEN, a citizen of the United States, residing in Haddam, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Hand-Punches, of which the following is a specification.

This invention relates to punches, and has for an object to provide an improved and efficient hand-punch.

In hand-punches for punching or cutting openings in various material, such as leather or belting, it is desirable to construct the parts so as to bring to bear considerable pressure upon the work. It is also desirable in many instances that the portion constituting the anvil will remain practically stationary during the punching operation and that the punch advance toward such anvil in a substantially straight line. In many employments it is convenient to have the punch so constructed that it will rest upon a table or bench and remain in its working position without being held by outside means. In punching or cutting thick material, such as thick leather or several layers of leather at a time, the punch will not readily leave the opening it has produced, and in devices now in use it is quite customary to twist or oscillate the punch in order to free it from the work. This has a tendency to enlarge the opening and to distort it and also to distort and mar the work around such hole. To overcome this objectionable feature, it is found desirable to apply a stripper to the device and so construct the operating-lever that upon an upward movement it will pull the punch up and permit the stripper to become active to release the punch from the work.

In the drawings accompanying and forming part of this specification a form of my invention is illustrated, wherein—

Figure 1 is a side view. Fig. 2 is an end view looking at the front of the device. Fig. 3 is a top view with the handle broken away. Fig. 4 is an enlarged view of the working end of the device with the side of the frame removed to show the operating parts. Fig. 5 is a perspective view of the end of the actuating-lever. Fig. 6 is a perspective view

of the punch and the punch-carrying member. Fig. 7 is a detail of the bottom of the stripper, and Fig. 8 is a form of gage.

The operating parts are shown as mounted in a frame comprising a handle portion 9 and a base portion 10, which is shown as carrying a foot 11 and an end 12, provided with a flat face to assist, with the foot 11, in supporting the device in an upright position upon a bench or table. The end 12 is shown as having a recess in which a removable anvil 13 is seated. An opening 14 communicates with the lower part of the frame to afford access to the under side of the anvil to remove the same when it is found desirable to replace it with a new anvil. The frame is also provided with an upwardly-projecting portion 15, in which a pivot 16 is supported, upon which pivot is mounted an arm or member 17, carrying a punch 18, in the present instance shown as hollow with a circular cutting edge. The member 17 is provided with a curved bearing-surface 19 and a horn 20, having a bearing-surface 21, which in the present instance is shown as a continuation of the bearing-surface 19.

The lever or handle 22 for operating the device is mounted upon a pivot 23, in the present instance shown as a screw, to permit the ready removal of the lever or handle. The handle is provided with a transverse portion consisting of a pair of ears 24, in which is mounted for rotation a roller 25, organized to engage the faces 19 and 21.

Suitable means may be employed for normally holding the punch elevated, and, as herein illustrated, the member 17 is shown as provided with a pin 26, organized to receive and hold a spiral spring 27, resting upon the base portion 10. The end of the member 17 is stopped in its upward movement by engaging the end of the handle 22.

The frame 9 is provided adjacent to the pivot 23 with bosses or hubs 28 for the purpose of providing a more substantial bearing for the pivot 23. A stripper-frame 29 is shown as having an end portion cut away to surround such hubs and secured upon the frame by means of screws 30. A slot 31 is provided in the face 32 of the stripper-plate

for the passage of the punch, the front end of the opening 31 permitting the operator to see the punch while it descends toward its work and to see the point on the work which it is intended the punch shall engage. An adjustable gage 33 is shown as mounted upon the side of the frame and having a slot 34, through which a set-screw 36 will enter for the purpose of locking the gage at its adjusted position. The gage in the present instance is shown as provided with a pointed end, having two side faces 37 37 meeting in a point or nose 38. The point 38 will be located immediately behind the punch, so that if the work is marked off the operator can in addition to measuring from the edge to the contemplated hole by the gage also employ it as an index to properly space the holes apart, especially when the hole positions have been laid out on the work. In some instances, however, it may be found convenient for the operator to pass the work obliquely through the punch, in which case he may so adjust the gage that the edge of the work may abut one of the flat faces 37 and be passed obliquely through the punch.

The operation of the punch may be briefly described as follows: After having set the gage either for feeding the work from the nose thereof or passing the work obliquely across the same the punch will be placed upon the table and will support itself in an upright position, when the work may be passed between the anvil and the stripper-plate. Upon the depression of the lever or handle the roll will ride up the face 19 and force the member carrying the punch toward its work. As such member carries the punch at a considerable distance from its pivot, it will advance toward its work in a substantially straight line. As the punch enters the work, the roll will be acting in a position where it will have greater leverage, so that when the work is hardest the pressure will be applied to produce the best results. For light work the spring will return the parts to their normal positions; but for heavy work or work that sticks to the punch the handle may be pulled up, in which instance the roll will run upon the face 21 and pull the punch out of the work, the stripper-plate preventing the work from following the punch. When the operator is above the punch and in the position he generally will be in when using the same, the sight-slit in the stripper will enable him to see the punch as it approaches and enters the work and see the portion of the work which will be entered by the punch.

It will be readily apparent that changes may be made without departing from the spirit of the invention.

Having described my invention, I claim—

1. The combination with a frame, of a member pivoted therein; a punch carried by the member; an anvil carried by the frame for coöperation with the punch; a handle pivoted to the frame and provided with a roll; and a

pair of faces upon the punch-carrying member organized to receive the roll in producing movements of the punch into and out of its work, respectively.

2. In a hand-punch, the combination with a frame; a handle on the frame; a foot for sustaining the frame; a removable anvil in the frame; means for affording access to the rear of the anvil to remove the same; a pivoted member supported by the frame; a punch carried by the pivoted member; a pair of contact-faces carried by the member and directed toward and from the work, respectively; a hand-lever pivoted in the frame and provided with a transverse end; a roll pivoted in such transverse end and organized to embrace the faces upon the punch-carrying member; a stripper-plate mounted upon the frame adjacent to the punch and provided with an opening affording a view of the punch and work while in operation; and an adjustable index-gage carried by the frame.

3. A hand-punch embodying a perforating member, means to actuate the same, and a combined face and index-gage having oblique guiding-faces for the work and an index-point.

4. The combination with a punching member, of means for supporting the punch; means to actuate the punch embodying a roller for advancing and retracting the same; a gage embodying an index-point; and a stripper for removing the work provided with a sight upon a line with the index-point and the working point of the punch.

5. The combination with a frame, of a punch mounted therein; means to actuate the punch; a gage embodying an index-point for the work; and a stripper-plate for removing the work from the punch and provided with a sight-opening on a line with the index-point and the path of the punch to afford the operator a view of the punch and gage.

6. In a hand-punch the combination with a frame embodying a pair of rigid branches one an anvil-carrying branch and the other a handle-carrying branch projecting from the body portion of the frame, of an anvil carried by the anvil-carrying branch; an arm pivoted at one end of the body and projecting in the general direction of the branches and located therebetween; a punch carried by the free end of the arm; and a handle pivoted to the handle-carrying branch and having a transverse portion organized to engage the arm midward of its pivot and the punch and upon the actuation of the handle to move along the arm toward the free end thereof and thereby increase the leverage as the punch progresses through its work.

7. In a hand-punch the combination with a frame comprising a body portion, a handle projecting from one end of such body portion and an anvil-carrying branch and a handle-carrying branch projecting from the other end thereof, of an anvil carried by its branch; an arm pivoted at one end of the frame and

projecting in the general direction of the branches and located therebetween; a punch carried by the free end of the arm; a handle pivoted to the end of its branch, mating with
5 the handle of the frame and having a transverse portion organized to engage the arm midward of its pivot and the punch and upon the forcing of the handles toward each other to move along the arm toward the free end
10 thereof and thereby increase the leverage as the punch progresses through its work; a flat base-face upon the lower portion of the anvil-carrying branch; and laterally-projecting feet upon the handle to cooperate with the base-
15 face to maintain the punch in an upright position.

8. In a hand-punch the combination with a frame comprising a body portion a handle projecting from one end thereof, of a movable punch carried by the frame; a member coop- 20-
erative therewith projecting from the end of the body opposite the handle; a supporting-face on the base of the cooperative member; feet on the handle at a point remote from the body to assist the supporting-face to maintain 25
the device in an upright position; and means carried by the frame to actuate the punch.

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