

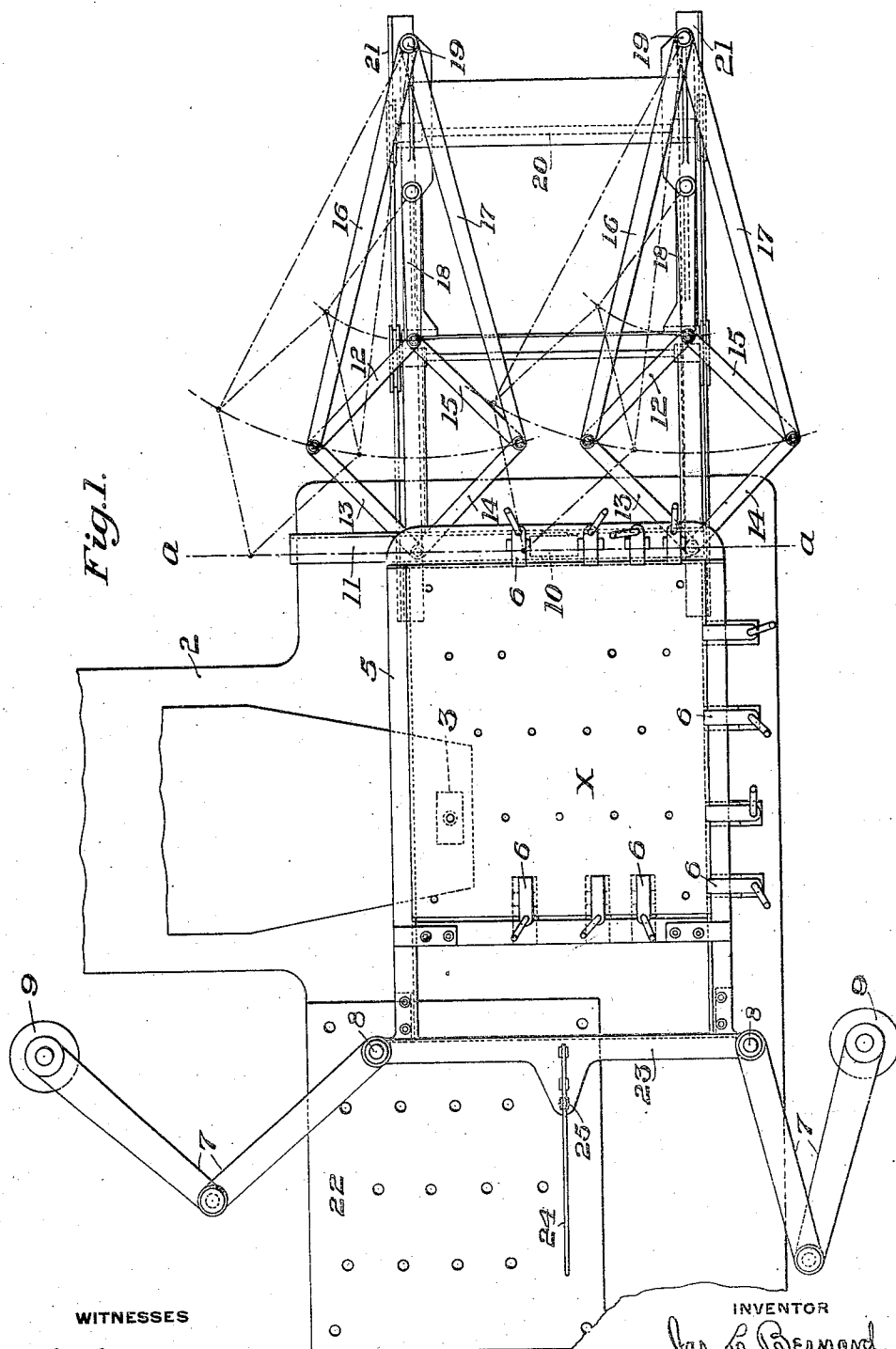
No. 895,944.

PATENTED AUG. 11, 1908.

J. L. BERNARD.
PUNCHING MACHINE.

APPLICATION FILED SEPT. 19, 1907.

2 SHEETS—SHEET 1.



WITNESSES

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No. 895,944.

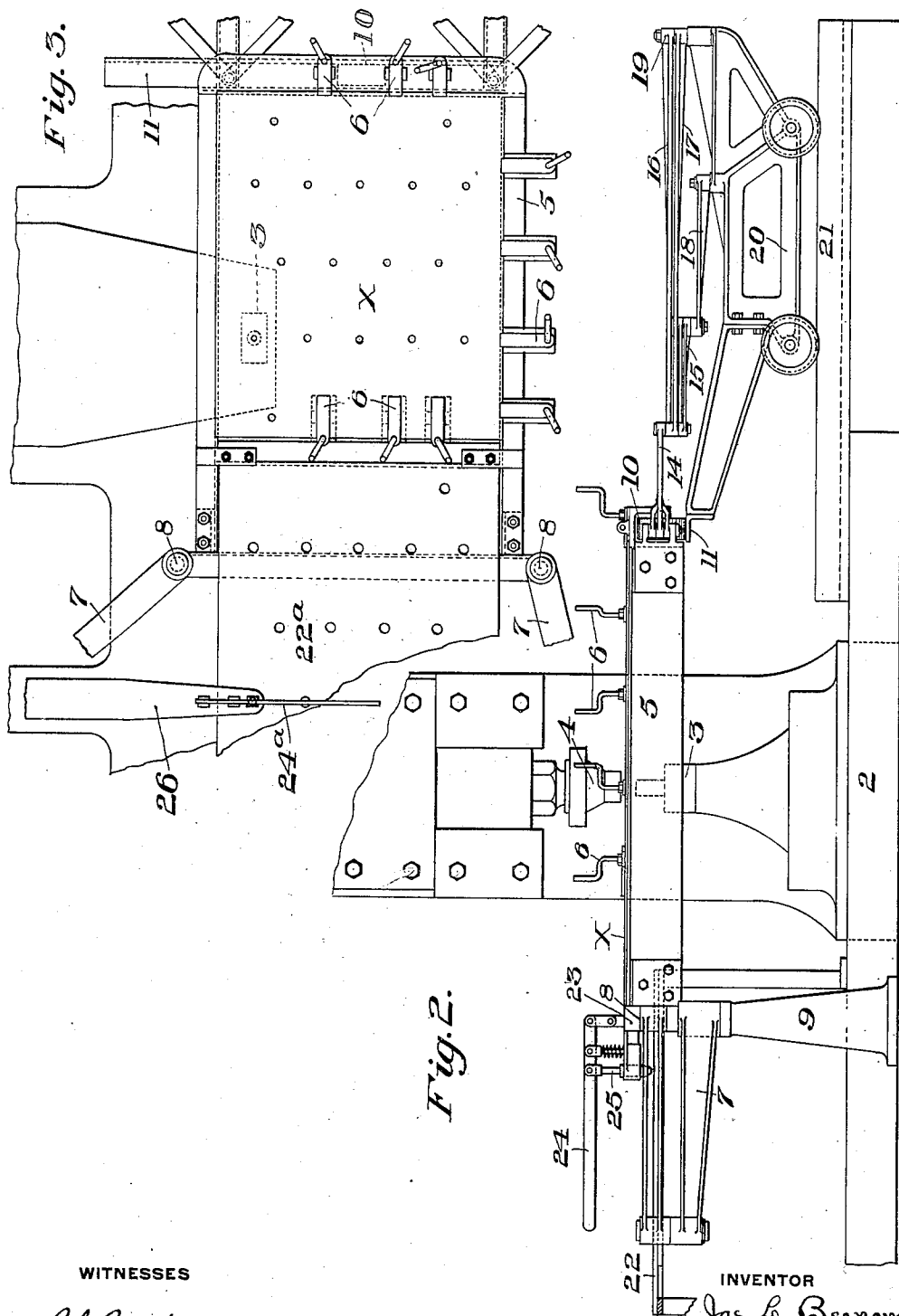
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

JAMES L. BERNARD, OF AMBRIDGE, PENNSYLVANIA.

PUNCHING-MACHINE.

No. 895,944.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed September 19, 1907. Serial No. 393,751.

To all whom it may concern:

Be it known that I, JAMES L. BERNARD, of Ambridge, Beaver county, Pennsylvania, have invented a new and useful Improvement in Punching-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a punching machine and illustrating the application of my invention thereto; Fig. 2 is a side view of the same; and Fig. 3 is a plan view showing a modification.

My invention has relation to a punching machine of the class described and claimed in the patent to Weatherson, No. 823,148, dated June 12th, 1906. In machines of this character, there is a support for the plate or other object to be punched, which is universally movable in a single plane, and which may be so positioned with reference to a templet that the punching or pattern of the latter can be accurately reproduced in the plate or other object on said support.

The present invention is designed to provide an improved construction and arrangement of the universal movable work-support, whereby the double tables shown in the Weatherson patent above referred to may be dispensed with.

My invention also provides machines whereby the templet may be carried either by the universally movable support, or may be fixedly supported independently thereof.

The precise nature of my invention will be best understood by reference to the accompanying drawings, which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement by those skilled in the art, without departing from its spirit and scope as defined in the appended claims.

In these drawings, the numeral 2 designates a portion of the frame of the punching machine which may be of any suitable character, such as that shown in the Weatherson patent referred to.

3 designates the anvil of the machine towards and away from which the punch 4 reciprocates.

5 designates the universally movable work-support, which is shown in the present instance as consisting of a rectangular frame provided with any suitable clamping or securing devices 6, by means of which the plate

or other object to be punched can be fastened thereto. This frame is supported at one end by the jointed arms 7, which are pivoted to the front corner portions thereof at 8, and which are also pivoted to the supporting posts 9. The other end of the support carries a roller 10, which is adapted to travel upon a straight transverse track bar 11.

Attached to the rear corner portions of the table are two straight-line motions, which consists each of a parallelogram formed by the four links 12, 13, 14 and 15, and the guiding links 16, 17 and 18. Each parallelogram is connected to a corner portion of the support at the junction of the links 13 and 14, and to its opposite angle is connected the relatively short guiding link 18. The links 16 and 17 are connected at their forward ends to the other angles of the parallelogram and converge to the center 19, upon which they are pivoted. These straight-line motions are mounted upon a truck or carriage 20, which reciprocates upon the longitudinal track 21, and the forward end of the truck or carriage 20 is extended to carry the transverse track 11 above referred to.

22 designates the templet, which in the construction and arrangement shown in Fig. 1 is fixedly secured either to the bed or table of the punching machine, or to some other adjacent support. Mounted on the forward bar 23 of the universally movable support is a centering lever 24, which carries a depending pin 25 which is adapted to enter in one of the perforations in the templet.

The operation is as follows:—The support 5 can be movable longitudinally to any desired point with relation to the punch by moving the truck or carriage 20 on the track 21, the jointed link 7 permitting this movement. Said support may also be moved transversely with respect to the punch by means of the straight-line motions before described. By reason of the relatively short guiding links 18, and the guiding links 16 and 17, it will be readily seen that when the support is moved transversely in either direction from the position shown in Fig. 1, the parallelograms formed by the links 12, 13, 14 and 15 will be changed in shape to increase their longitudinal dimensions and decrease their transverse dimensions, their points of attachment to the support remaining always in the straight-line *a—**a* passing through the track rail 11. This will be readily apparent from Fig. 1, and it will be further seen that in

this manner the support 5 is capable of a universal movement to bring any portion of the plate X to be punched underneath the punch. When the pin 25 carried by the lever 24 is inserted in any one of the holes of the templet, the plate X will be in position to have a corresponding hole punched therein. In this manner, any design which has been previously laid off or scribed upon the templet, may be duplicated on the plate X or other object.

In the modification shown in Fig. 2, the templet 22^a instead of being fixed, is carried by the universally movable support, and the centering lever 24^a is pivoted to a fixed portion 26 of the frame.

The operation is precisely the same as that described in connection with Figs. 1 and 2, since it is obviously immaterial whether the templet be fixed relatively to the universally movable support which carries the centering lever, or whether the latter be relatively fixed with reference to said support and the templet carried by the support.

The advantages of my invention result from the simplicity of the universally movable support and from the facility and accuracy to which said support can be manipulated for the purpose of duplicating or reproducing the design previously described or laid off upon the templet.

It will be obvious that the work-supporting frame or table may be of any suitable construction, that it may be supported in various other ways than that shown, and that various other changes may be made in the details of construction and arrangement.

What I claim is:—

1. In a machine of the character described, a table, a work-supporting means for one end of the table arranged to permit universal movement of the table in its own horizontal plane, a support for the opposite end of the table also arranged to permit universal movement of the table in said plane, actuating connections for the table, and a templet support and index device in operative relation to the table; substantially as described.

2. In a punching machine, a work-support consisting of a single table or frame, and a system of links connected to opposite end portions of the table or frame and permitting universal movement thereof in a single plane together with a punch relatively to which the table or frame is movable, and means for holding the table or frame in a plurality of different positions relatively to the punch; substantially as described.

3. In a punching machine, a work-support consisting of a single table or frame, jointed arms connected to and supporting one end

portion thereof, a pair of straight-line motions connected to the opposite end thereof, and a movable carriage or truck upon which the straight-line motions are mounted; substantially as described.

4. In a punching machine, a work-supporting frame or table, a support upon which said table is universally movable, guiding link motions connected to the frame or support, a templet, and a centering device coöperating with the templet; substantially as described.

5. In a punching machine, the combination of a punch, a support for the material to be punched, universally movable in a single plane, a templet, a centering device arranged to coöperate with the templet to determine the positions of the support relatively to the punch, and link motions for controlling the movement of said support; substantially as described.

6. In a punching machine, a work-holder, a floating support for one end of the holder, a track upon which its other end is mounted, a system of guiding links connected to said table, and a movable support for the guiding links; substantially as described.

7. In a punching machine, the combination of a punch, a support for the material to be punched, universally movable in a single plane, a templet carried independently of the support and a centering means carried by the support and arranged to coöperate with the templet, and connections for controlling the movement of the support; substantially as described.

8. In a punching machine, a work-holder comprising a single support or frame which is itself mounted to move universally in its own horizontal plane, a system of guiding links connected to the support or frame, and a longitudinally movable support for the guiding links together with a punch relatively to which the table or frame is movable; substantially as described.

9. In a punching machine, a work-holder consisting of a single table, a system of guiding links connected thereto to permit both lateral and longitudinal movement of the work holder in a single plane, a floating support for one end of the work holder, a track, and a support movable on the track and to which said guiding links are connected; substantially as described.

In testimony whereof, I have hereunto set my hand.

JAS. L. BERNARD.

Witnesses:

ARTHUR P. HUME,
LEE C. JONES.