

F. THOMPSON.
TABLE FOR PUNCH PRESSES.
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936,832.

Patented Oct. 12, 1909.

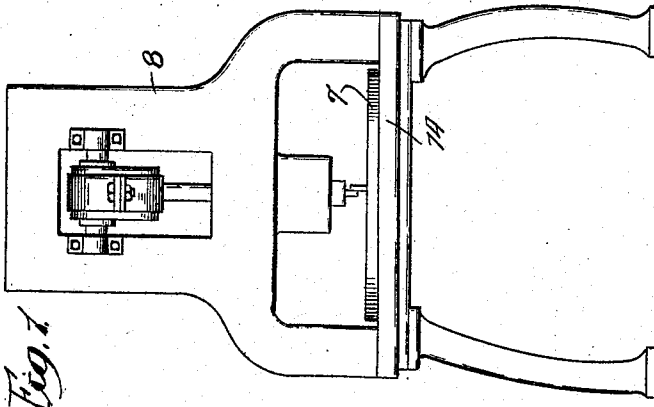


Fig. 1

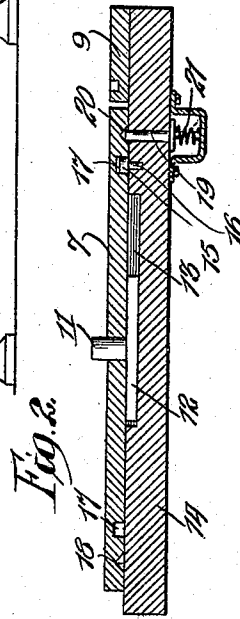


Fig. 2

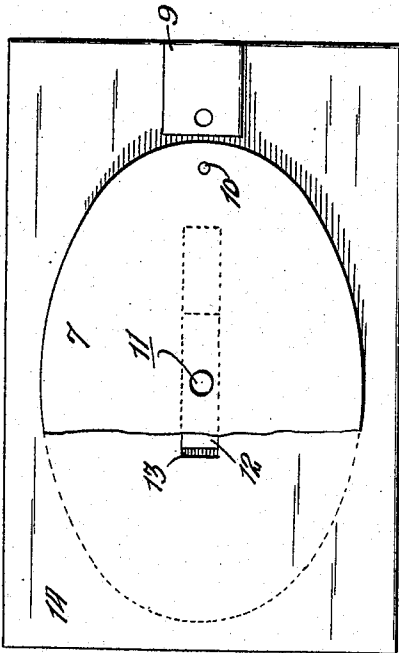


Fig. 3

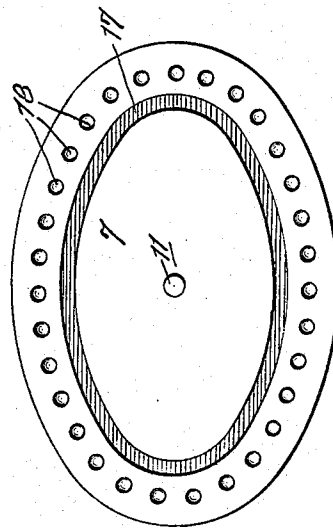


Fig. 4

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UNITED STATES PATENT OFFICE.

FRANK THOMPSON, OF CHICAGO, ILLINOIS.

TABLE FOR PUNCH-PRESSES.

936,832.

Specification of Letters Patent.

Patented Oct. 12, 1909.

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To all whom it may concern:

Be it known that I, FRANK THOMPSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tables for Punch-Presses, of which the following is a specification.

In the punching of holes in steel plates, where it is desirable to punch the holes in an elliptical line, difficulty is experienced in shifting the metal plate to its successive positions in order to bring the plate into proper position to receive the holes. In punching plates with presses of the ordinary character, especially where the plate is of large size, it requires the services of several men to shift the plate from time to time and to steady it during the punching operation; and, even under these conditions, the punching of an elliptical line of holes is a tedious and laborious operation and one which requires great care in order to obtain even fairly satisfactory results.

The object of the present invention is to obviate the difficulties above noted, by providing a table upon which the plate is supported, which table is mounted in such a way that its periphery will move in a truly elliptical path or orbit, thereby swinging the plate carried by the table in an elliptical orbit and bringing it into the desired positions for punching.

The invention further relates to stop mechanism for holding the table properly centered during each punching operation, whereby the holes punched in the plate will all be exactly positioned at points equidistant from one another, so that the punch plate, when delivered from the press, will be in perfect condition for subsequent usage.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of a punch press, employing the table of the present invention; Fig. 2 a longitudinal sectional view of the table, taken through its major axis; Fig. 3 a top or plan view of the table; and Fig. 4 a reverse plan view of the table.

The table 7 is applied to a punch press 8 of any suitable character, and the table is located upon the press in suitable proximity

to a female die member 9 of the usual character. The table is of elliptical formation and is provided, near its periphery and preferably in the line of its major axis, with a pin 10 which is adapted to be entered through a guide hole punch in the plate. The pin 10 acts in conjunction with a pivot stub 11 which is entered through and projected above the table in its exact center, and it can likewise be entered through a hole punch in the center of the plate, the two pins serving to firmly hold the plate during the operation of punching the holes in an elliptical line or orbit. Obviously, where it is not desirable to punch holes at or near the center of the plate, other means for clamping or holding the plate in position can be employed. In many cases the weight of the plate itself will be sufficient, so that clamping means will be unnecessary.

The pivot stud 11 is carried by a slide plate 12 which is entered within a slot 13 in a supporting plate 14 upon which the table rests, as best shown in Fig. 2. At the end of the slot 13, adjacent to the female die, and in direct alinement with the pivot stud, as regards the line of travel of the latter, is located a roller 15 which, as shown, is journaled on a stud 16, which roller engages an elliptical guideway 17 in the under face of the table.

In order to properly center the work from time to time during the punching operation, the table is provided, at proper points in its under face near its periphery, preferably at points equidistant from one another, with recesses 18 adapted to receive a stop tooth or dog 19 or other suitable catch device. As shown in Fig. 2 the stop tooth or dog is tapered at its upper end 20 and is normally held in engagement with a selected one of the socket recesses 18 by the action of a spring 21. It will be understood, however, that the particular method of locking the table can be changed or varied without departing from the spirit of the invention.

In use a plate of metal will be laid upon the table and held in position by the engagement of the pins 10 and 11, with holes properly punched in the plate or held in any other suitable manner; and thus held the edge of the plate will project beyond the table over the female die and in position to have a series of holes punched therein. As the plate is moved from time to time, the centering stop tooth or dog will spring suc-

cessively into the line of recesses in the under side of the table, which are formed therein with special reference to the distance between the holes intended to be punched, so that if it is desired to punch a plate with a line of holes equidistant from one another this operation can be perfectly performed by swinging the table intermittently around through a complete orbit and stopping the table every time the dog springs into one of the socket holes provided therefor. As the table is revolved around the pivot stud 11 as an axis, the slide plate will be moved back and forth, by reason of the engagement of the roller 15 with the elliptical guideway 17, so that the movement of the table will be in a true elliptical path, thereby insuring a proper positioning of the punch holes in the work carried upon the table.

What I regard as new and desire to secure by Letters Patent is:

1. In a punch press, a table adapted to support the work, means for directing the table in an elliptical path of travel, and centering devices for holding the table stationary at predetermined points, substantially as described.

2. In a punch press, a table for the work, a support on which the table rests, one of the members being provided with an elliptical guideway, and the other member being provided with a member engaging said guideway for directing the guideway through an elliptical path, substantially as described.

3. In a punch press, a table for the work, a support on which the table rests, one of the members being provided with an elliptical guideway, and the other member being provided with a member engaging said guideway for directing the guideway through an elliptical path, and centering devices for holding the table stationary at predetermined points, substantially as described.

4. In a punch press, a table for the work, means for directing the table in an elliptical path of travel, a support upon which the table rests, one of said members being provided with notches and the other member being provided with a spring tooth adapted to enter said notches for centering the table at predetermined points, substantially as described.

5. In a punch press, a table for the work

having an elliptical shape, a support upon which the table rests, a die member located adjacent to the table, an elliptical guideway on one of the first mentioned members, and a member engaging said guideway and mounted on the other member for directing the table in an elliptical orbit and holding its edge at a fixed distance from the die member, substantially as described.

6. In a punch press, a flat table for the work having an elliptical shape and being provided, in its under surface, with an elliptical guideway, a support upon which the table rests, said support being provided with a slot, a slide plate located within said guide slot, a pivotal connection between the table and the slide plate, and a member mounted upon the table support and engaging the elliptical guideway in the table, substantially as described.

7. In a punch press, a flat table for the work having an elliptical shape and being provided, in its under surface, with an elliptical guideway, a support upon which the table rests, said support being provided with a slot, a slide plate located within said guide slot, a pivotal connection between the table and the slide plate, a member mounted upon the table support and engaging the elliptical guideway in the table, and means for centering the table at predetermined points, substantially as described.

8. In a punch press, a table for the work, a support upon which the table rests, a slide plate slidably mounted in one of said members and having a pivotal connection with the other member, one of said members being provided with a guideway and the other member with a member engaging said guideway, substantially as described.

9. In a punch press, a table for the work, a support upon which the table rests, a slide plate slidably mounted in one of said members and having a pivotal connection with the other member, one of said members being provided with a guideway and the other member with a member engaging said guideway, and one member being provided with notches and the other member being provided with a spring dog engaging said notches, substantially as described.

FRANK THOMPSON.

Witnesses:

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