No. 897,199. PATENTED AUG. 25, 1908.

H. A. FEINDT, JR.

SPACING TABLE.

APPLICATION FILED FEB. 15, 1908.

2 SHEETS—SHEET 1.

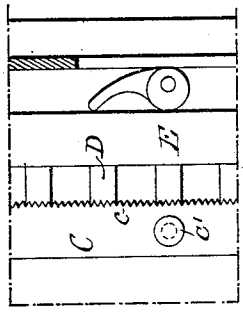

Fig. 7.

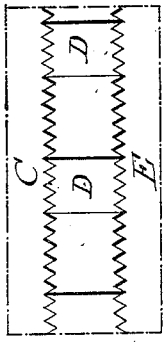

Fig. 8.

Fig. 1.

Fig. 2.

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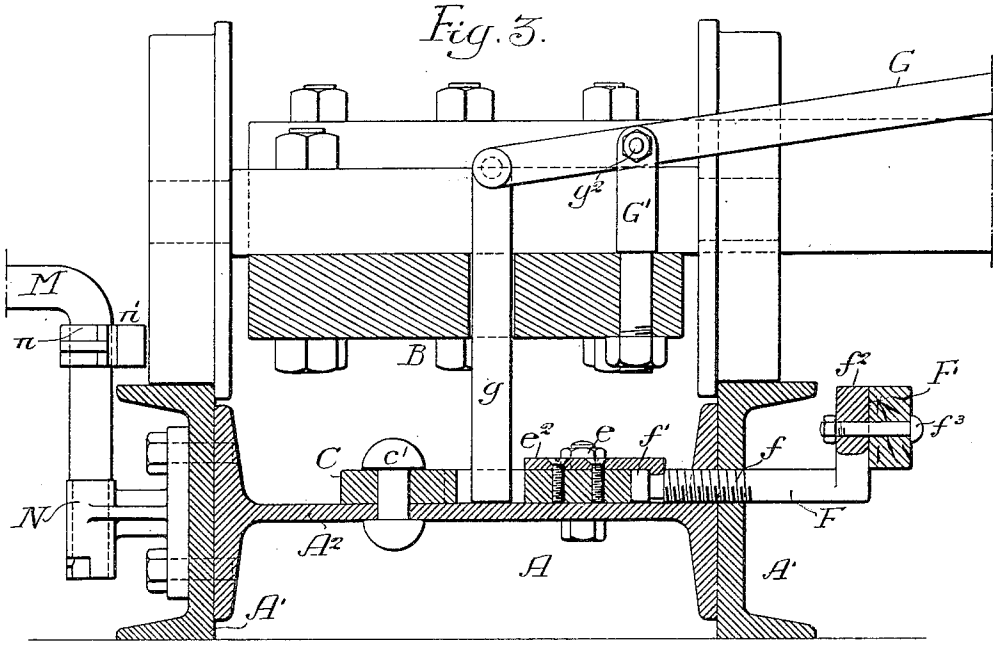
2 SHEETS—SHEET 2.

Fig. 3.



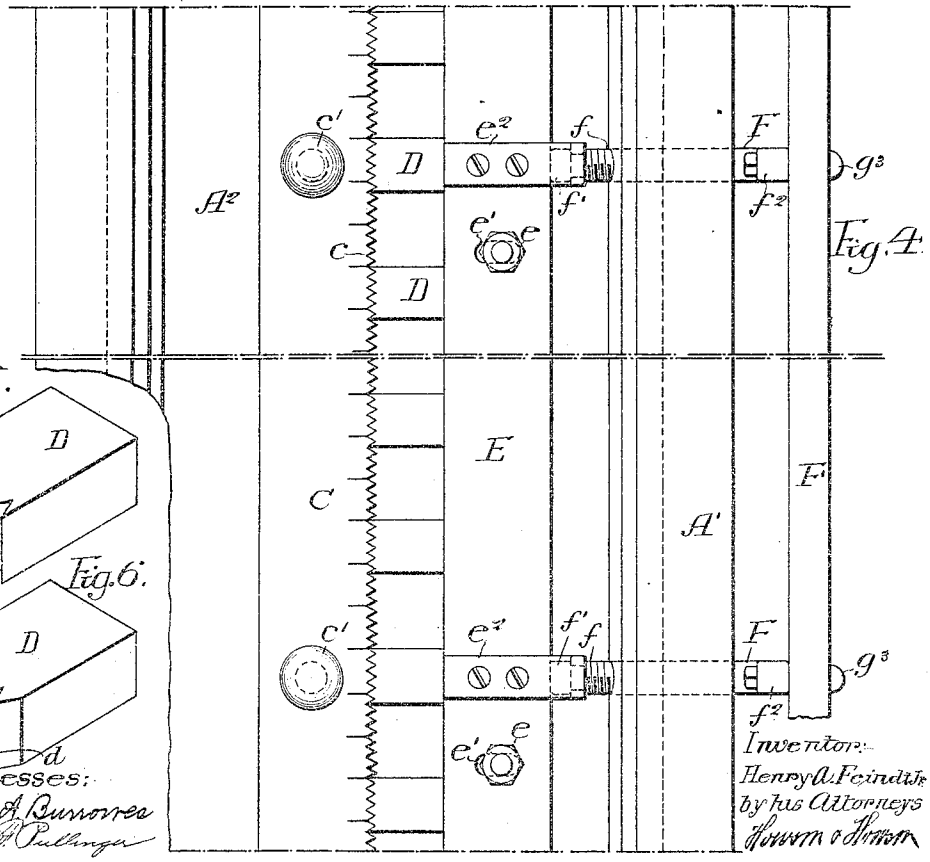


Fig. 4.

Fig. 5.

Fig. 6.

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SPACING-TABLE.

No. 897,199. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed February 15, 1908. Serial No. 416,044.

To all whom it may concern:

Be it known that I, HENRY A. FEINDT, Jr., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Spacing-Tables, of which the following is a specification.

My invention relates to certain improvements in spacing tables for punching machines used for punching holes in plates, bars or other shapes. These holes can be accurately punched at given distances apart and it is the usual practice to provide elaborate mechanism for this purpose.

The object of my invention is to simplify the mechanism and to provide adjustable blocks which can be quickly mounted in position upon the table and so arranged that they will limit the movement of the carriage which feeds the plate to the punching machine.

In the accompanying drawings:—Figure 1, is a longitudinal sectional view of sufficient of a spacing table and its carriage to illustrate my invention; Fig. 2, is a plan view of Fig. 1; Fig. 3, is an enlarged transverse sectional view on the line 3—3, Fig. 1; Fig. 4, is a plan view of the spacing table illustrated on the same scale as Fig. 3, with the carriage removed. Figs. 5 and 6 are views of two blocks which are used in connection with my invention, and Figs. 7 and 8 are views of modifications of the invention.

In the drawings I have not shown the punch as any suitable punch may be used in connection with my improvements which simply relate to the mechanism for causing the carriage to stop at given points.

A is the table made in the present instance of two side channel members A′ and a cross member in the form of an I-beam A^2, although the table may be of any form or may be of any material desired.

B is the carriage having the axles *b*—*b* on which are mounted flanged wheels *b′* adapted to travel on the channel bars A′ which act as rails for the carriage.

C is a bar having a toothed edge *c* and this bar is secured in the present instance to the table by rivets *c′*. The teeth *c* are spaced a given distance apart and preferably divided in fractions of an inch and the scale is marked on the bar C as indicated in Fig. 4, although this is not absolutely necessary.

D, D are blocks clearly shown in Figs. 5 and 6 having teeth *d* arranged to mesh with the teeth of the bar C and these blocks are held in place against the toothed surface of the bar C by a sliding plate E. This plate is held to the table A by screw bolts *e* adapted to slots *e′* in the plate. Means may be provided for moving the plate E towards and from the plate C so as to lock the blocks D in position and in the present instance I have shown a series of screws F having threaded portions *f* adapted to threaded openings in the table and reduced at one end forming a head *f′* with which engages the forked end of a plate e^2, which is secured to the clamp plate E. These screws F have arms f^2 to which is pivoted an operating bar F′ by means of bolts f^3. On moving the bar longitudinally the bolts F are turned slightly causing the clamp plate E to move towards and from the bar C. This movement is sufficient to give clearance for the removal of the blocks D when required.

On the carriage is a plunger *g*, the lower end of which engages the blocks D and this plunger is forced down onto the table by a spring *g′*. Attached to the upper end of the plunger is a lever G pivoted at g^2 to an upright G′ secured to the carriage B. On operating the lever G, the plunger can be raised clear of the blocks on the table and when released the springs *g* will force it into position again and the movement of the carriage stopped by the plunger coming in contact with one of the blocks D.

In some instances, instead of the operating bar F′ and the screws F, the clamp plate E may be moved by a series of cams F^2, Fig. 7, but I prefer the construction shown in Figs. 3 and 4, as a number of the screws can be operated simultaneously. The table can be divided into any of a number of sections from six to ten feet and each section may have an independent clamping plate so that each set of blocks can be clamped to the notched bar independently of the other sets.

In order to secure the plate to the carriage I provide a clamp H secured to one end of the carriage and this clamp has a lower jaw *h* and an overhanging portion *h′* in which is a flange I carrying an adjustable head *i* which clamps the plate *x*, Fig. 1, onto the lower jaw *h*. The clamp is operated by a cam *i′* forming part of a lever I′. Other forms of clamps may be used without departing from my invention.

In order to properly support the plate and yet allow the carriage to have free movement over the table I provide a series of roll-

ers m which are supported on arms M adapted to vertical bearings N secured to the side of the table and on these arms are tappets n n' which are in the path of a striker p secured to the table so that as the carriage is moved over the table in one direction the projection p will come in contact with the tappet n' moving the rollers m out from under the plate x allowing the carriage to pass clear of the rollers. When the carriage is moved in the opposite direction the projection p will strike the tappet n throwing the rollers in under the plate.

In order that the blocks may be spaced at varying distances I provide two sets of blocks as shown in Figs. 5 and 6 and one set of blocks has the teeth differently arranged from the teeth on the other set of blocks so that when it is desired to set the blocks on the table to punch the holes a given distance apart either one or both sets of blocks may be used depending upon the distance desired between the punched holes. In some instances the teeth may be so arranged on a block that the block can be inverted when desired to adjust the block a fraction of a tooth.

The operation of the apparatus is as follows:— If, for instance, it is desired to set the table so that the holes will be punched in a plate, say three inches apart on the table, the teeth of the blocks engage the teeth of the notched bar. When the blocks of a certain series are in position then the clamp screws F are operated and the clamp plate E moved against the blocks forcing the blocks firmly against the notched bar, thus confining the blocks rigidly in position so that they will not be disturbed by the flange on the carriage coming in contact with them. The plunger on the carriage is operated by the lever G after each hole has been punched and the operator forces the plunger g against one of the blocks by bearing upon the projecting arm B′ secured to the carriage so as to insure the proper location of the plate in respect to the punch.

While I prefer to make the teeth V-shaped, it will be understood that they may be made square or there may be holes formed in one of the parts and pins carried by the other parts adapted to the holes, but I prefer the construction shown in Fig. 4.

In Fig. 8, I have shown the blocks having teeth on both sides and in this instance the fixed bar is not only notched but also the movable bar E so that both bars give an absolute support for the block against longitudinal movement of the table but in most cases the notch on one side will be sufficient and in some cases instead of the fixed bar being notched the movable plate may have the notches engaging with the notches of the block.

I claim:—

1. The combination of a spacing table having a fixed and a movable bar, one of said bars being notched and a loose block notched on one side only to engage the notched element, the other side being plane, with means for forcing the movable plate and block against the fixed bar confining the block in position.

2. The combination in a spacing device, of a table, a series of blocks adapted to engage the notched bar, and a sliding plate, screws secured to the plate, and means for operating the screws so as to move the plate towards and from the notched bar, thus clamping or releasing the blocks.

3. The combination in a spacing device, of a table, a notched bar secured to the table, a series of loose blocks having teeth on one side only adapted to engage the notches in the bar, a sliding plate, screws secured to the plate, each screw having an arm, and an operating bar pivoted to the arms of the screws so that on moving the operating bar longitudinally the screws will be turned and will force the plate and the blocks against the fixed bar.

4. The combination in a spacing table, of a table having blocks fixed a given distance apart, a carriage, means on the carriage engaging the blocks, an arm pivoted to the table and carrying a roller for supporting the plate, tappets on the arm arranged to be actuated by the projection on the carriage so as to throw the arm and the roller out of the path of the carriage.

5. The combination in a spacing table, of a toothed bar secured to the bed of the table, the teeth of the bar being V-shaped and the bar having graduations, a series of blocks having V-shaped teeth at one edge only and arranged to mesh with the teeth of the bar, means for locking the blocks to the bar, and a carriage, said carriage having means for engaging the block whereby movement of the carriage is limited, and pivoted means for supporting the plate being punched and so arranged as to be thrown out of the path of the carriage as the carriage is moved forward.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HENRY A. FEINDT, Jr.

Witnesses:
Wm. E. Shupe,
Wm. A. Barr.