

No. 748,823.

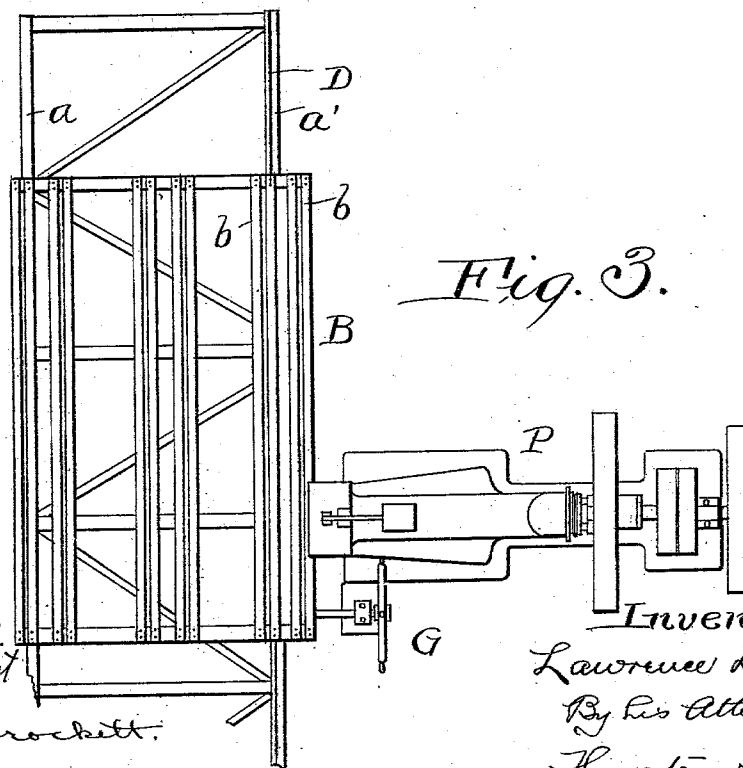
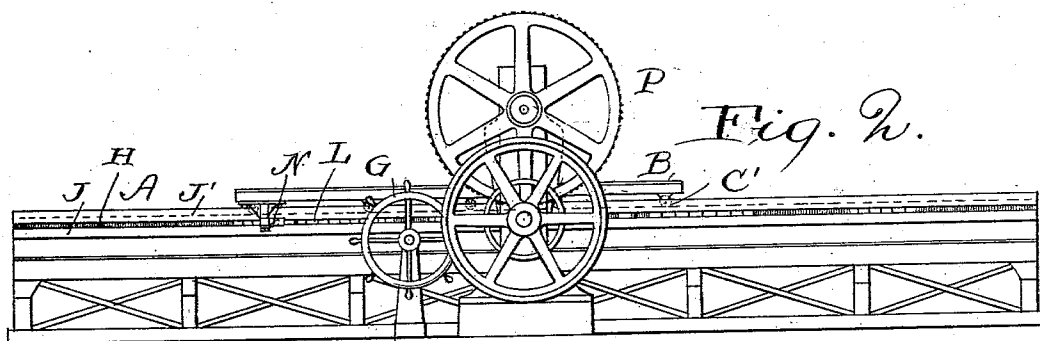
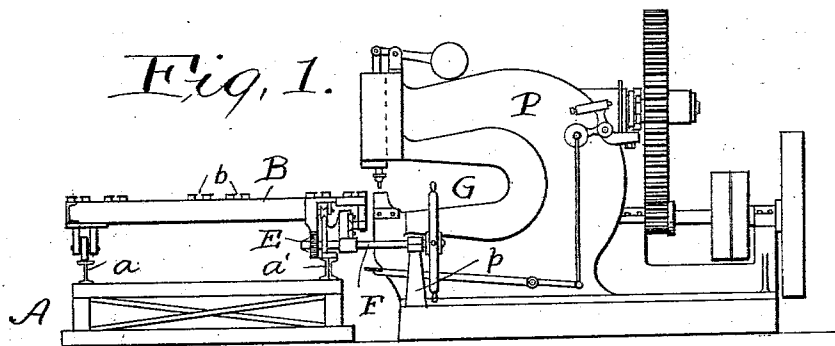
PATENTED JAN. 5, 1904.

L. D. WEANING.
SPACING TABLE.

APPLICATION FILED OCT. 20, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.

E. B. Gehring

B. W. Brockett.

Inventor
Lawrence D. Weaning
By his Attorneys,
Thurston & Bates.

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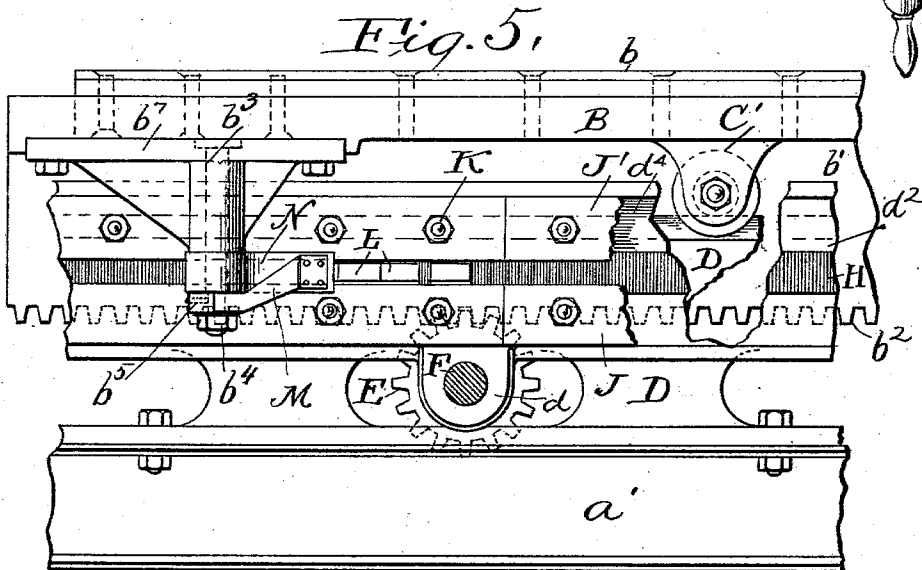
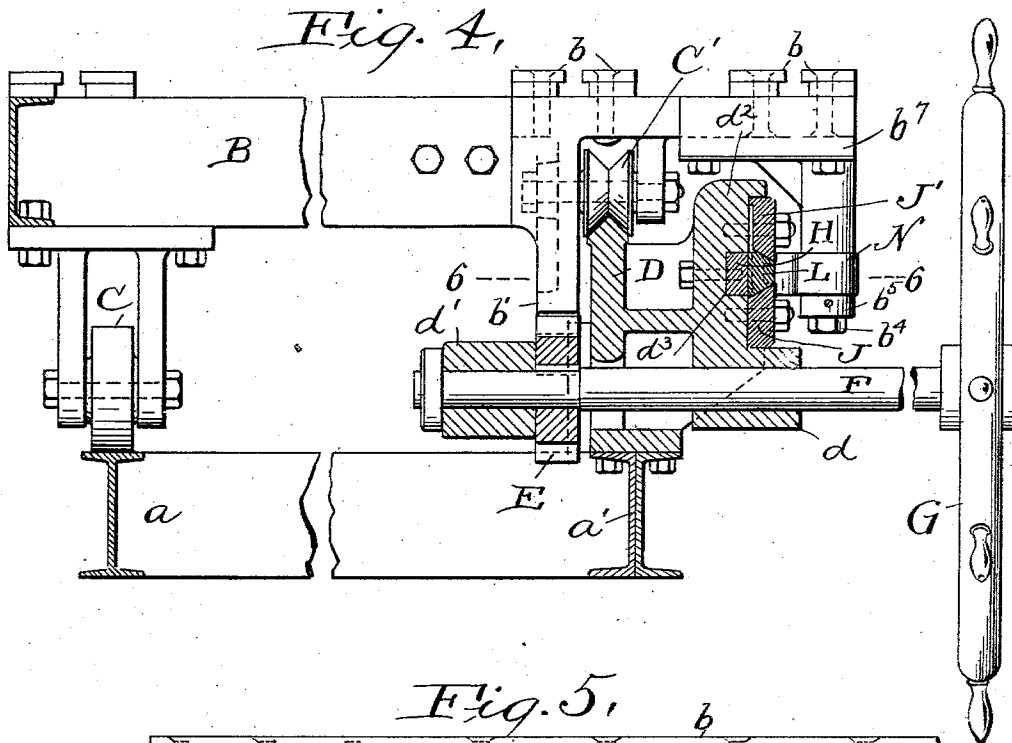
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3 SHEETS—SHEET 2.



Witnesses.
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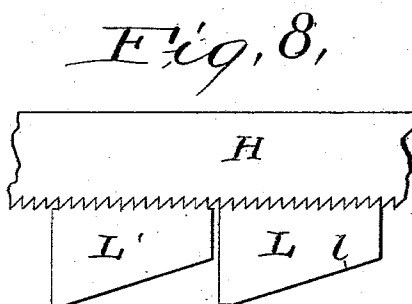
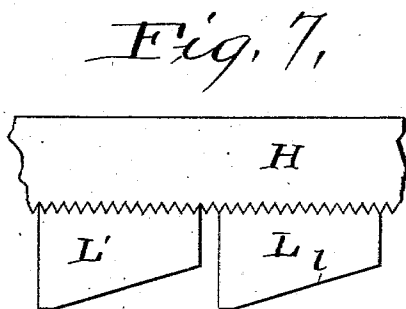
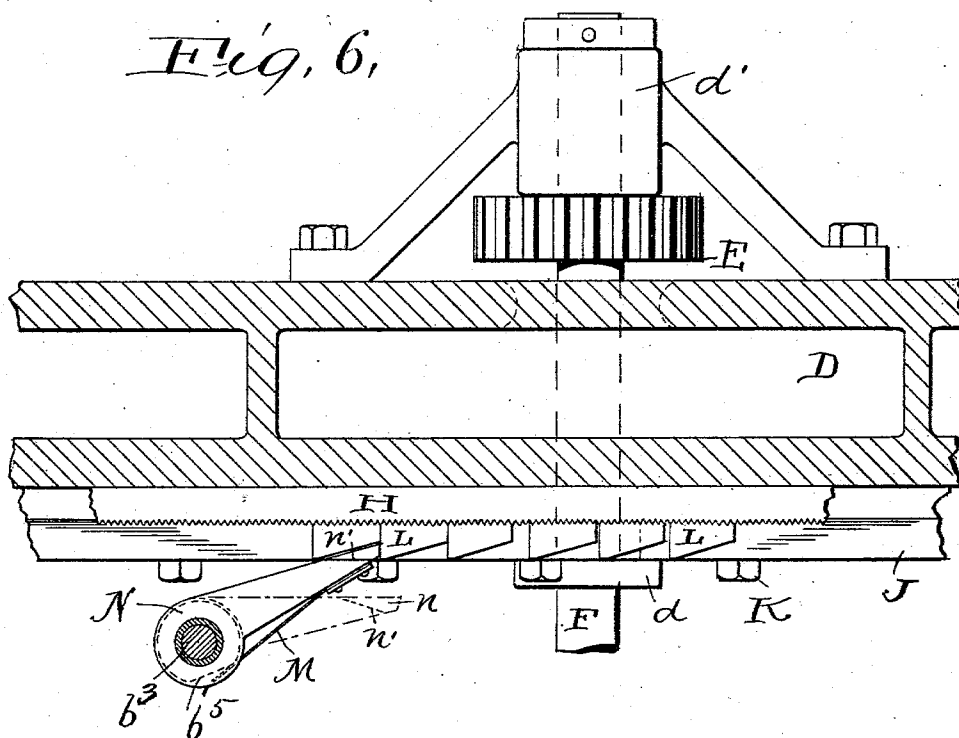
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3 SHEETS—SHEET 3.



Witnesses.
E. B. Gilchrist
B. W. Brockett

Inventor
Lawrence D. Weaning,
By his Attorneys,
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UNITED STATES PATENT OFFICE.

LAWRENCE D. WEANING, OF CLEVELAND, OHIO.

SPACING-TABLE.

SPECIFICATION forming part of Letters Patent No. 748,823, dated January 5, 1904.

Application filed October 20, 1902. Serial No. 127,912. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE D. WEANING, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Spacing-Tables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide an apparatus for feeding material in accurately spaced amounts to a suitable machine-tool—as a punch, for example.

My table may be conveniently employed for feeding sheet-metal plates, beams, and all sorts of structural or rolled forms.

The invention comprises, broadly, a table adapted to carry stock, means for moving the table, a series of dogs for determining the positions of the rest of the table, and means for holding those dogs in various adjusted positions.

The particular embodiment of the apparatus is also of my invention.

The invention may be summarized as consisting of the combination of parts to the above end, as hereinafter more fully explained and as definitely set out in the claims.

The drawings clearly disclose the invention, Figure 1 being an end view of my spacing-table associated with a punch, Fig. 2 a front elevation thereof, and Fig. 3 a plan of a portion thereof. Fig. 4 is an end view of the spacing-table sectioned along the line of the operating-shaft. Fig. 5 is a front elevation of a portion thereof sectioned across the operating-shaft. Fig. 6 is a horizontal section on the line 6 6 of Fig. 4. Figs. 7 and 8 are details showing the dogs employed and the rack with which they interlock.

Referring to the parts by letters, A represents the base or support for the table. It carries a pair of longitudinal rails a a' .

The table proper is designated B. It includes a horizontal lattice framework, on the upper surface of which are mounted overhanging rails b , arranged in pairs to provide a slot of an inverted-T shape. In this slot T-bolts may be placed, adapted to clamp the work onto the table in a usual manner.

The table B is provided with wheels by which

it is supported on the base. At the rear side these wheels are preferably flat, as at C, and take directly onto the I-beam a . On the front side the wheels are preferably grooved, as at C', and take into the inverted-V edge of a beam D, which extends along the machine and is secured at its foot to the longitudinal rail a' , which is constructed, preferably, of a pair of oppositely-facing channel-beams. The arrangement of the grooved wheels C' and the flat wheels C holds the table in a line and at the same time provides for expansion thereof.

Suitably supported by the table proper on its under side is a longitudinal beam b' , which carries on its lower edge rack-teeth b^2 . With these rack-teeth mesh a pinion E on an operating-shaft F. This shaft is journaled in a bracket d , depending from the beam D, and in another bracket d' , supported by said beam. The bearings of this shaft are thus stationary, and if the shaft be rotated in one direction or the other, as it may be by the hand-wheel G upon it, the table is moved forward or backward accordingly.

P represents a suitable machine-tool—as, for example, a punch—adapted to operate on the stock carried by the table. The shaft F for operating the table may conveniently have another bearing, as p , mounted on the frame of the machine-tool.

In order to stop the table at the exact point desired for the machine-tool to operate upon the stock, I provide the following mechanism: The front side of the stationary beam D is formed with a longitudinal member d^2 , which has a recess d^3 , in which is secured a toothed rack-bar H. Secured to the member d^2 , above and below this bar, are the longitudinal strips J and J', which overhang the toothed bar and are held in place by nuts K, screwing into studs carried by the member. In a space between the opposed edges of the strips J and J' are placed the dogs L, which have on their inner faces teeth interlocking with the teeth of the bar H. These interlocking teeth hold the dogs longitudinally against movement, while the overhanging strips J and J' clamp them in place laterally. The outer sides of the dogs L are inclined, at l , so that they constitute ratchet-teeth, and are adapted to cooperate with a pawl N, piv-

otally carried by the table proper. The pawl N is mounted on a stud b^3 in a bracket b^7 , depending from the table, and is pressed toward the dog L by a spring M, which the pawl carries and which bears on a head b^5 , rigidly secured to the stud below the pawl. In order to prevent wear, the pawl is made wider than the distance across the opening between the strips J and J', but has a reduced nose n projecting into such opening. The wear thus comes on the shoulder n' of this pawl and the outer face of the strips J and J' instead of on the dogs L. A flat portion is provided on the head b^5 , so that when the pawl is turned backward into idle position the spring M, engaging such flat portion, may hold the pawl in this position.

The dogs L may be made as large as desirable, their accurate operation being independent of their size and being governed by the interlocking teeth between them and the bar H. I regard it as very convenient to make these teeth an eighth of an inch apart. The teeth may either be of the ordinary form shown in Fig. 7 or of the ratchet form shown in Fig. 8. In order to allow a finer adjustment than that of the distance between the teeth on the bar H, I provide an alternative set of pawls L', which overhang the teeth a certain distance—as, for example, one-half the way to the next tooth. With such dogs the adjustment may be made a sixteenth of an inch, though the teeth on the bar H occur only every one-eighth of an inch. If desired, other sets of alternative dogs could be provided overhanging different amounts, thus reducing the variation to one thirty-second of an inch or less, as desired.

In placing the dogs in position the strip J' is removed, and a tape-measure, for example, is stretched along the exposed surface of the beam d^2 . Then with the drawing or other data as a guide the dogs are put in position at their proper places, which they hold by gravity. Then the tape-measure is removed and the strip J' replaced. This strip may be formed in as many longitudinal sections as desired for convenient removal and replacement. After the dogs have been placed and the stock clamped to the table, the pawl N having been turned back into idle position, the table is moved by the rotation of the shaft F to the extreme rearward position in Figs. 1, 3, and 4, which is the right-hand position in Figs. 2, 5, and 6. Then the pawl is thrown into operative position, and the hand-wheel is rotated in the opposite direction until the pawl clicks over the first dog L. In the ordinary operation of the table it will be moved with enough rapidity, so that when the pawl thus clicks over it will pass a slight distance beyond the face of the tooth. Then the hand-wheel is turned slightly backward, causing the nose of the pawl to abut the front edge of the tooth, thereby holding the stock in just the desired position for action by the machine-tool. After the first hole has been

punched, for example, the hand-wheel G is given a turn to the left till the pawl clicks over the next tooth and then a slight movement to the right to take up the back-lash, and the next hole is punched, and so on.

I claim—

1. The combination of the base and a table mounted to move thereon, a rack carried by one of such members, a strip carried by the same member adjacent to the rack, a series of dogs having teeth adapted to mesh with the rack in various positions and be clamped in place by said strip, and a pawl carried by the other member and adapted to cooperate with said dogs, substantially as described.

2. In a spacing-table, the combination of a longitudinal rack, a pair of strips mounted adjacent to said rack and having undercut edges, a series of dogs having teeth to interlock with said rack, said dogs being adapted to be clamped in place by said strips, and means for cooperating with said dogs, substantially as described.

3. The combination of a base and a table movable thereon, a longitudinal beam carried by one of such members, an undercut longitudinal strip removably bolted along said beam, a series of dogs adapted to be clamped in various positions by said removable strip, and means carried by the other member for engaging said dogs, substantially as described.

4. The combination of a base, a table mounted to travel thereon, means for moving the table in either direction, a pawl and a series of dogs cooperating therewith, one of said cooperating members being carried by the base and the other by the table, overhanging strips for clamping said dogs laterally, and a rack having teeth adapted to mesh with teeth on the rear side of the dogs to hold them in place longitudinally, one of said strips being removable to allow the change of position of the dogs, substantially as described.

5. The combination of a base, a table mounted to travel thereon, means for moving the table in either direction, a pawl and a series of dogs cooperating therewith, one of said cooperating members being carried by the base and the other by the table, strips longitudinally placed with reference to said series of dogs, and a pawl adapted to cooperate with said dogs, said pawl having a wider face than the opening between said strips but having a reduced nose projecting into said opening, substantially as described.

6. The combination of a base and a table movable thereon, a longitudinal rack carried by one of such members, a series of dogs having teeth adapted to intermesh with said rack, means for holding said dogs in position, and means carried by the other member for cooperating with said dogs, the operating edges of said dogs overhanging the teeth longitudinally, substantially as described.

7. The combination of a base and a table movable thereon, a longitudinal rack carried

by one of said members, dogs having teeth adapted to intermesh with said rack, means for holding said dogs in position, and other dogs having their operating edges placed differently with reference to their teeth from the dogs first mentioned, substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LAWRENCE D. WEANING.

Witnesses:

ALBERT H. BATES,
R. A. REID.