

No. 713,526.

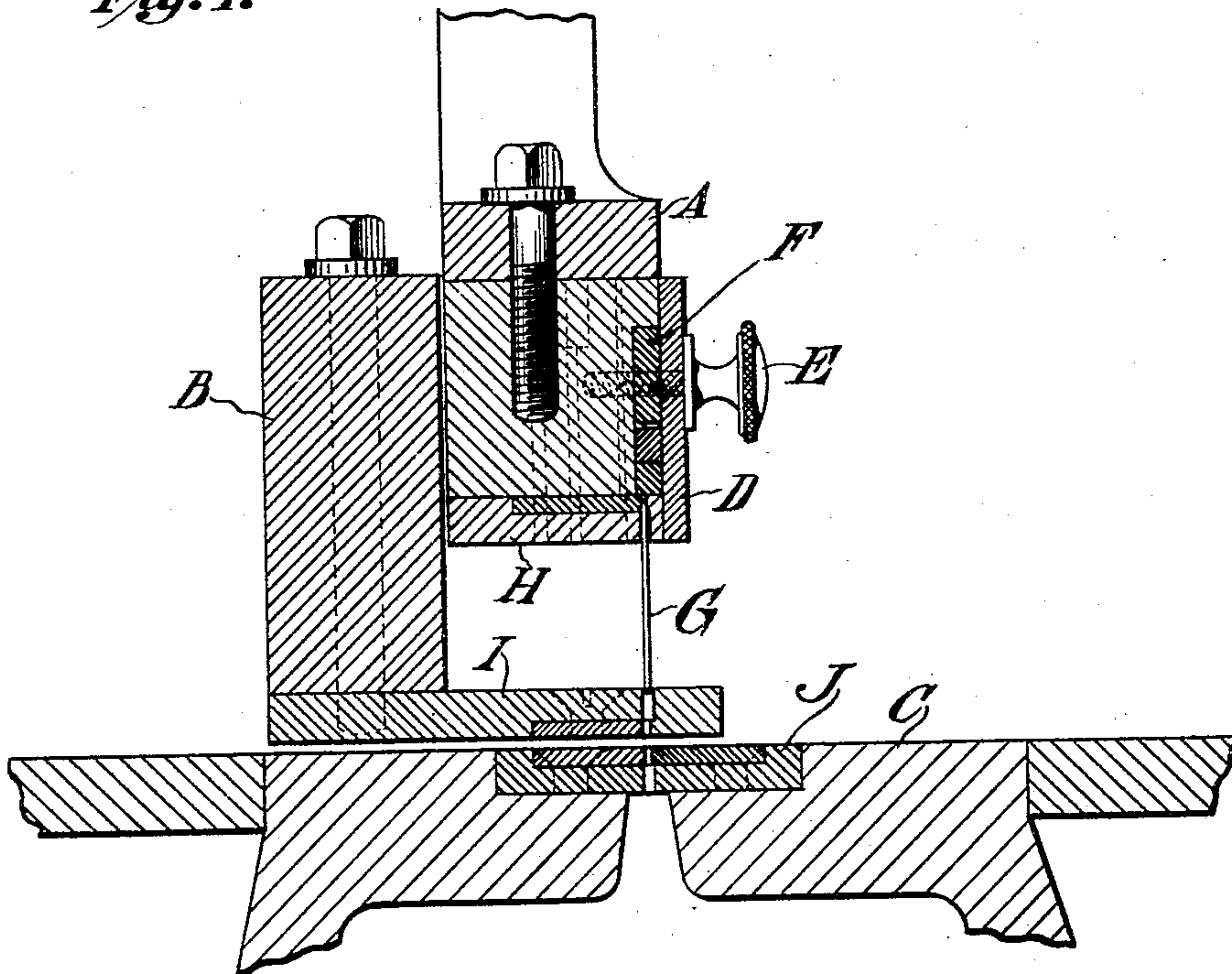
Patented Nov. 11, 1902.

E. B. STIMPSON.  
PERFORATING MACHINE.  
(Application filed May 19, 1902.)

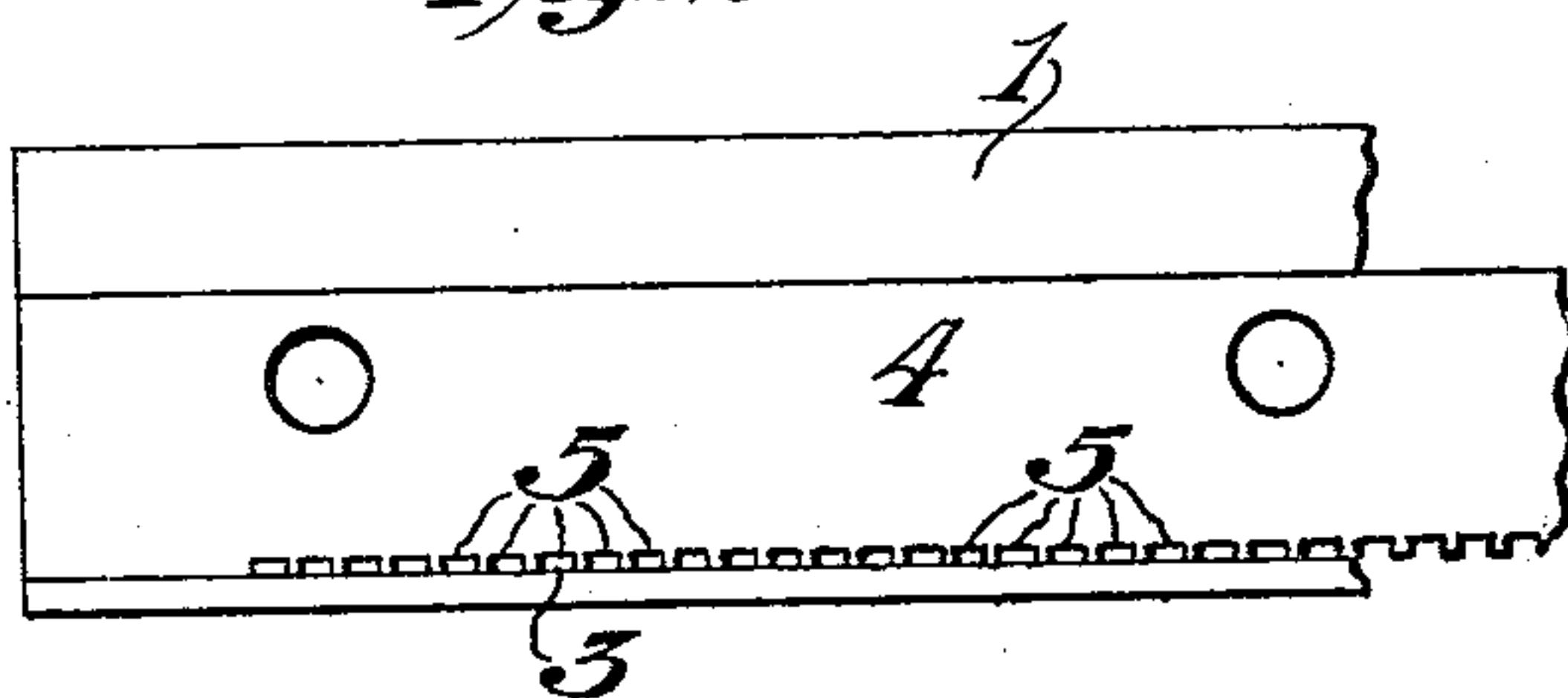
(No Model.)

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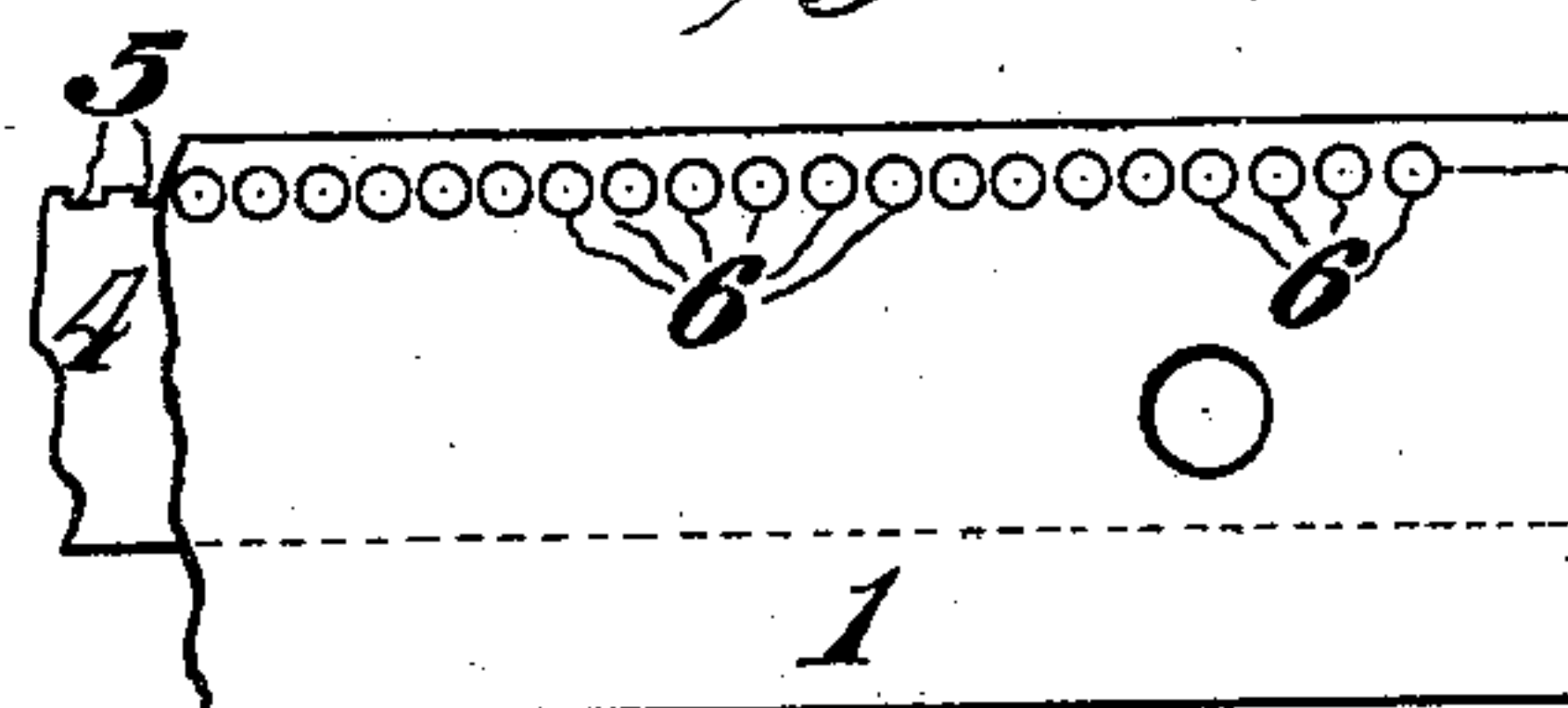
*Fig. 1.*



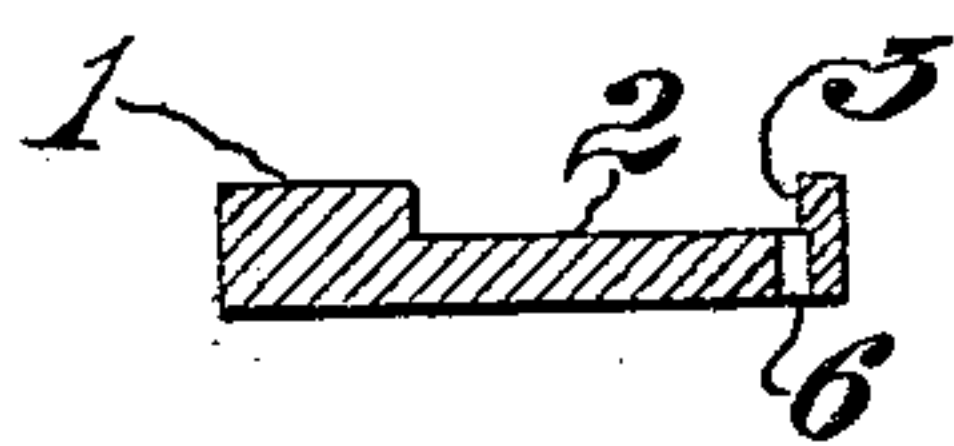
*Fig. 2.*



*Fig. 3.*



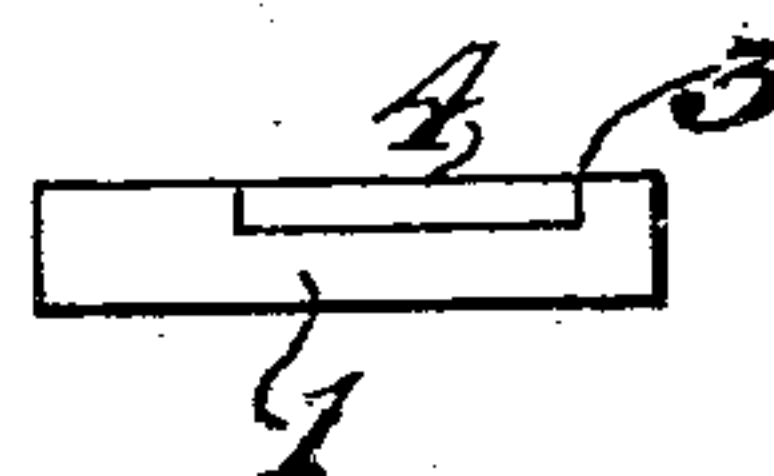
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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(No Model.)

2 Sheets—Sheet 2.

Fig. 7.

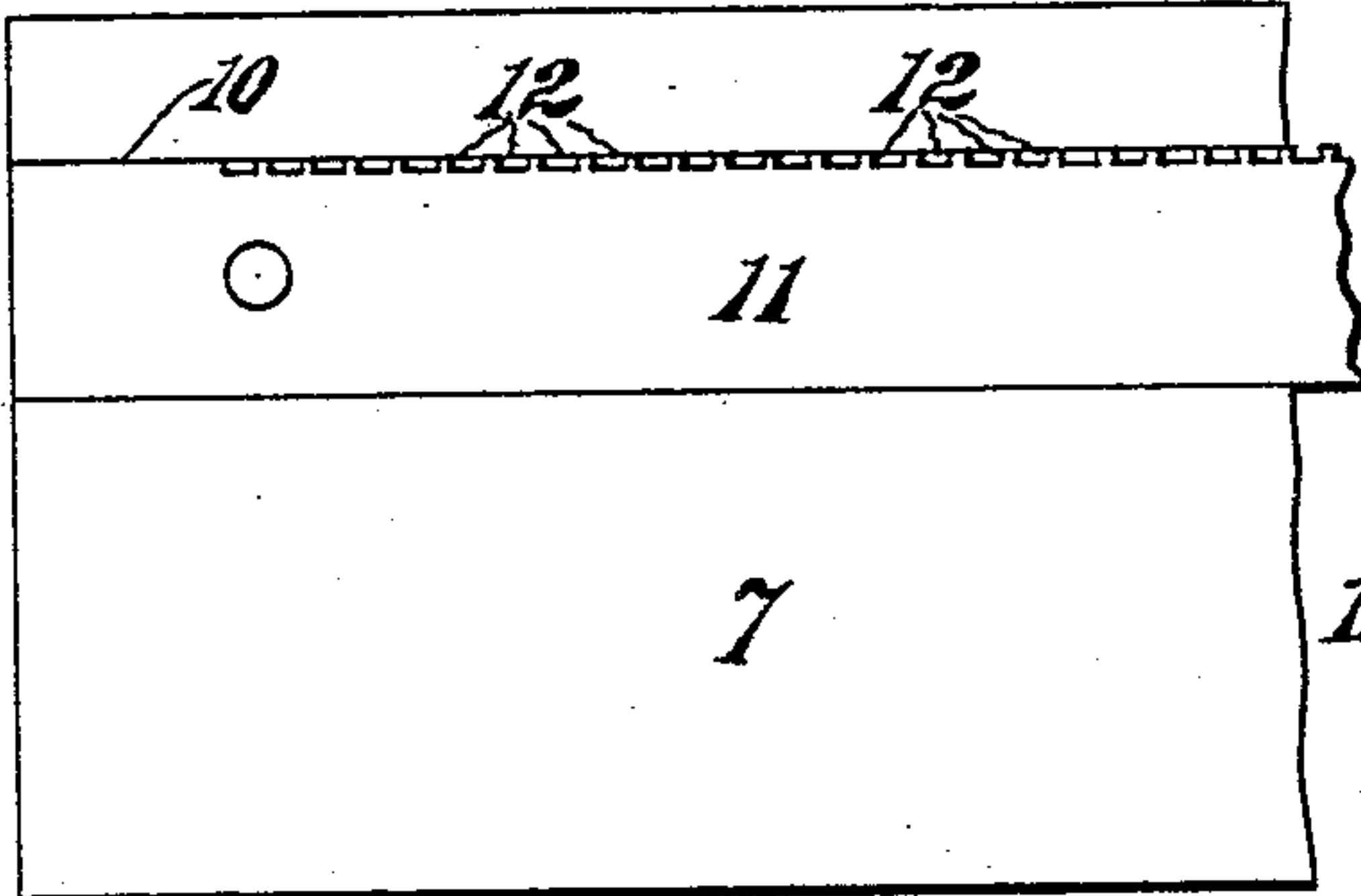


Fig. 8.

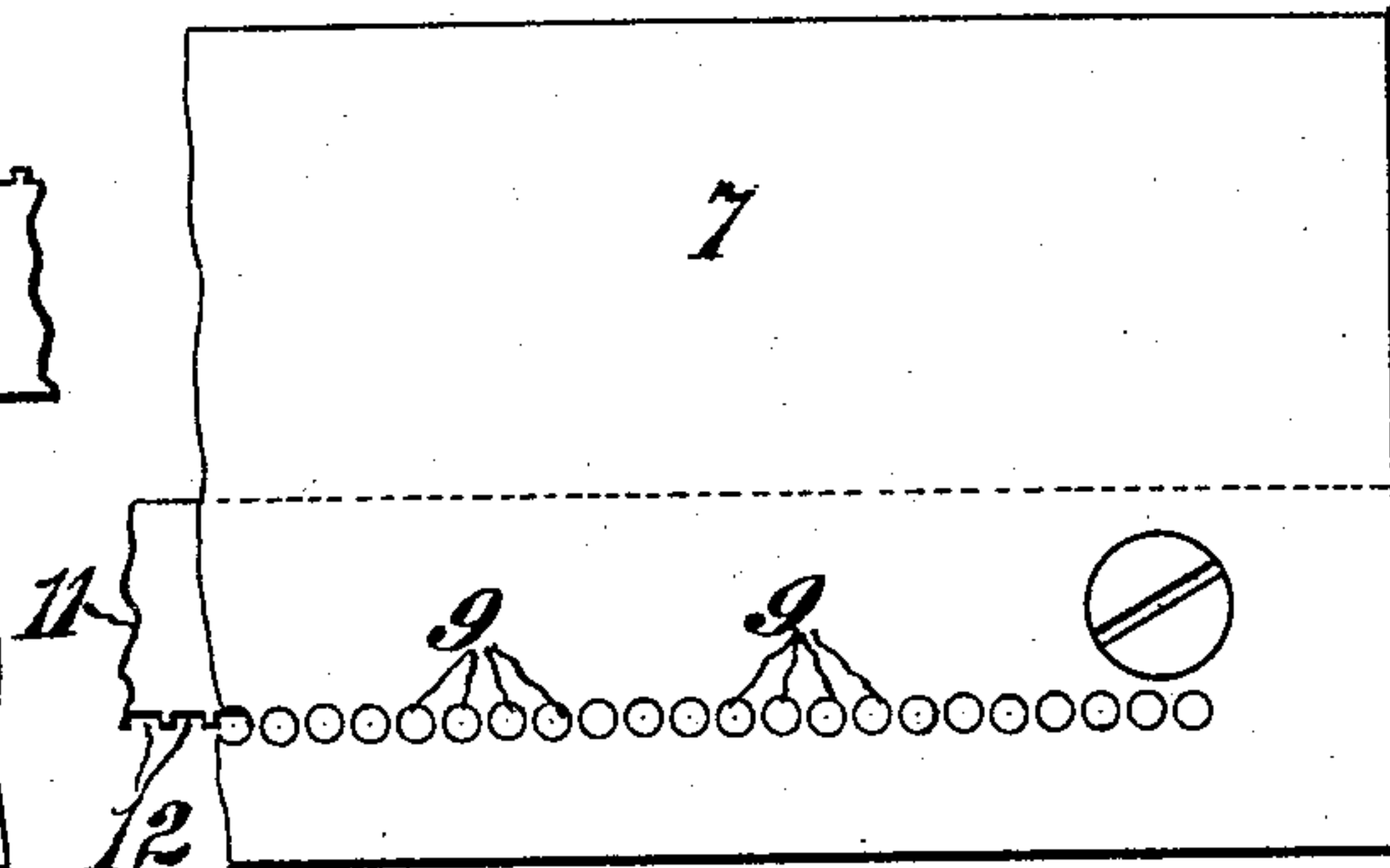


Fig. 9.

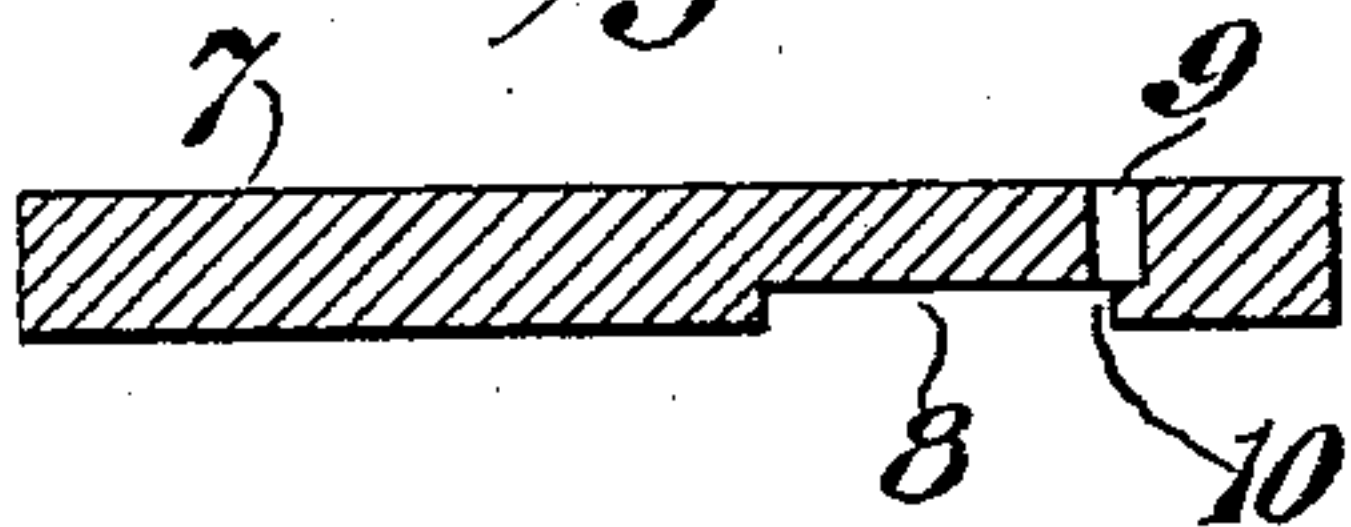


Fig. 10.



Fig. 11.

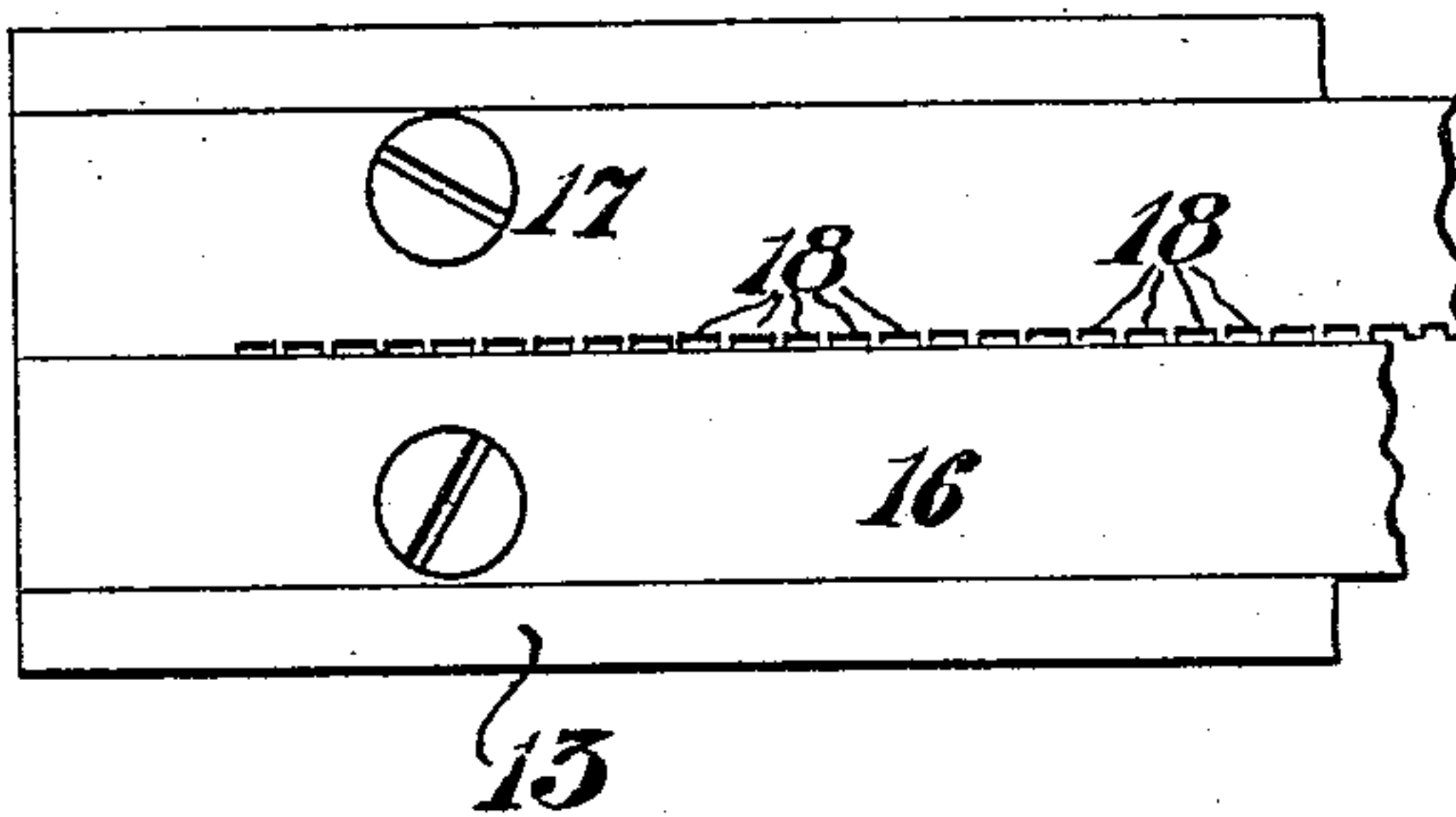


Fig. 12.

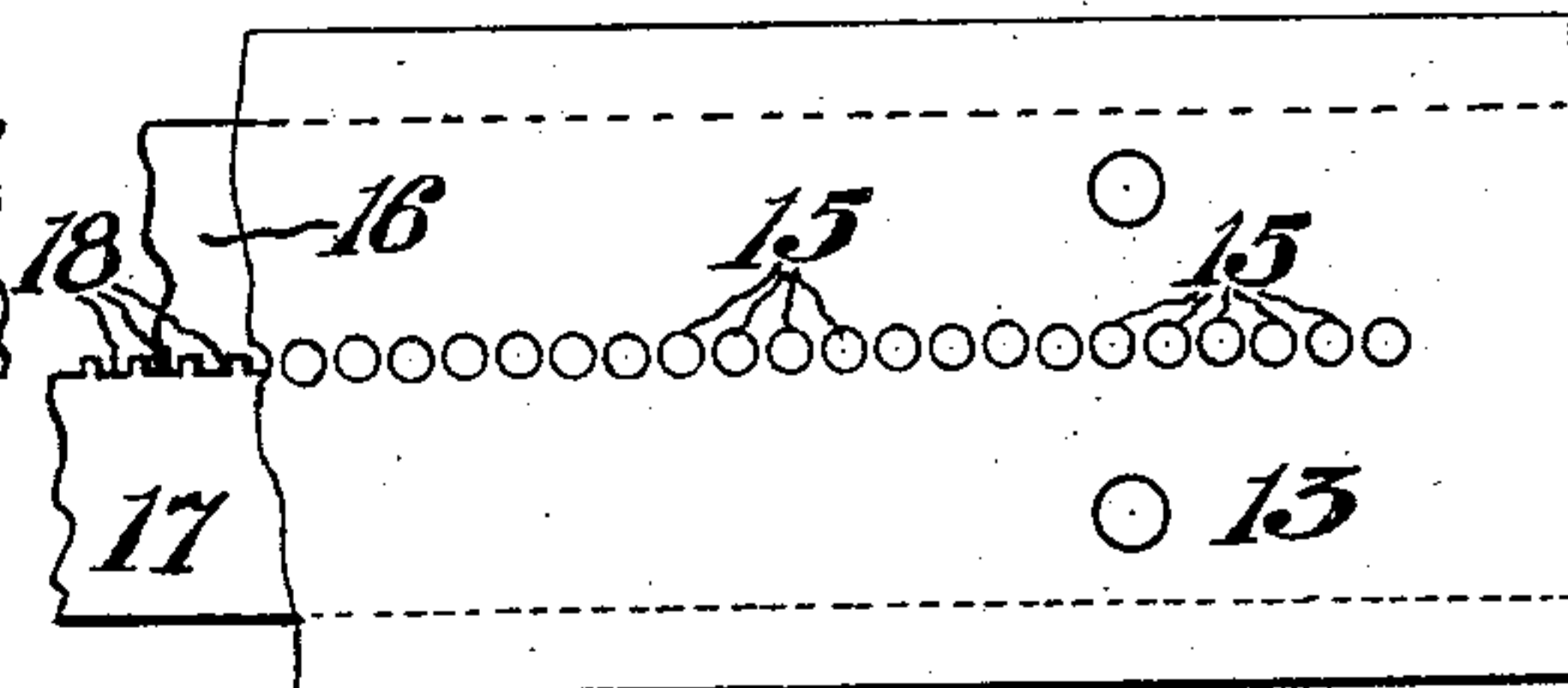


Fig. 13.

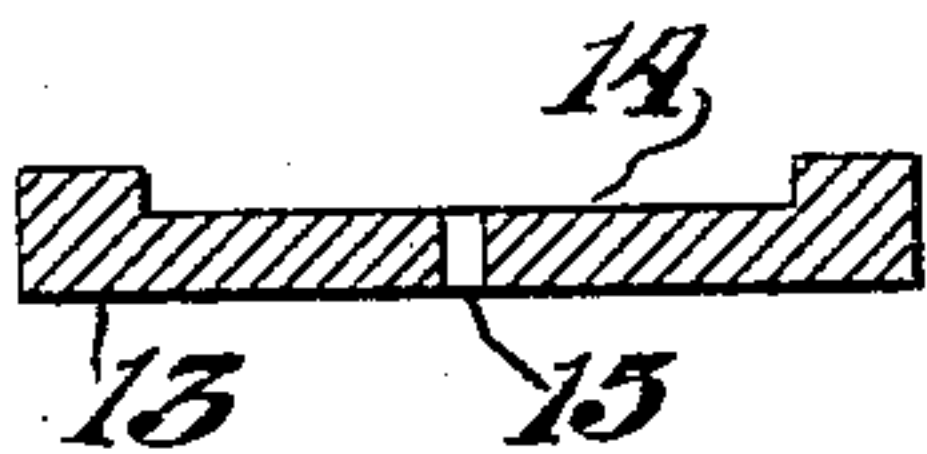
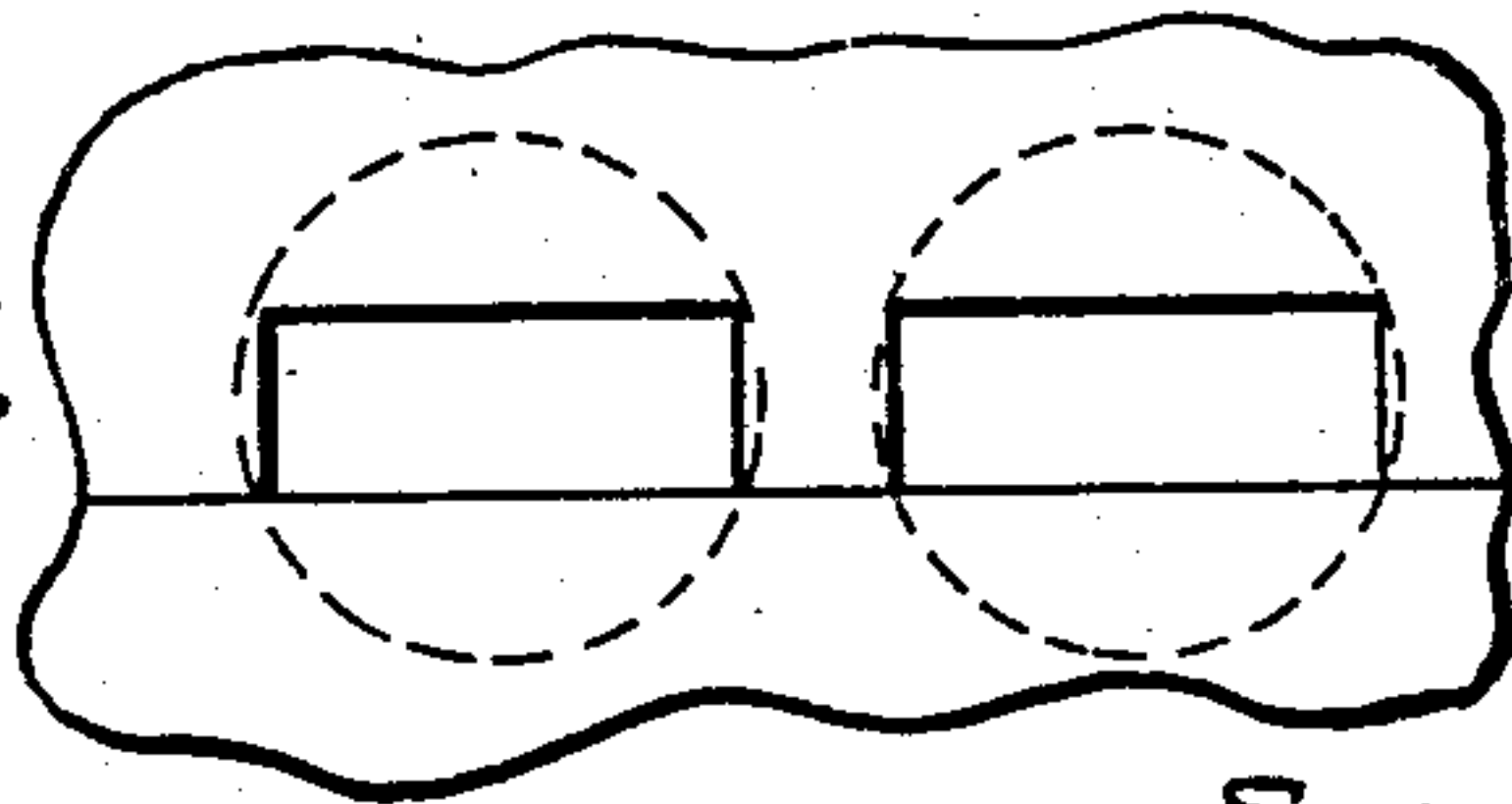


Fig. 14.



Fig. 15.



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# UNITED STATES PATENT OFFICE.

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## PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 713,526, dated November 11, 1902.

Application filed May 19, 1902. Serial No. 107,968. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN BALL STIMPSON, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and city and State of New York, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a specification.

This invention relates to the class of perforating-machines wherein the perforation has a non-circular form, an example of which may be seen in my United States Patent No. 313,383, dated March 3, 1885.

In the perforating-machine herein illustrated the novel features reside in the punch-holder, the stripper, and the die-holder, and for purposes of illustration I have shown these parts mounted in supporting parts similar to those shown in my said former patent, No. 313,383, which may be referred to as the general construction of a suitable machine for my purpose.

The object of the present invention is to improve the construction of the said punch-holder, the stripper, and the die-holder by simplifying the construction and making the parts more durable and accurate.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a transverse section of the main portion of the machine, showing the punch-holder, the stripper, the die-holder, the cross-head of the machine, the stripper-beam, and the bed of the machine. Figs. 2 to 6 illustrate the construction of the punch-holder. Fig. 2 is a fragmentary view of the upper side thereof. Fig. 3 is a similar view of the under side of same. Fig. 4 is a cross-section of the channeled bar. Fig. 5 is a cross-section of the notched plate, and Fig. 6 is an end view of the holder complete. Figs. 7 to 10 illustrate the construction of the stripper, Fig. 7 being an under side view, Fig. 8 an upper side view or plan, Fig. 9 a cross-section, of the channeled bar, and Fig. 10 a cross-section of the notched plate. Figs. 11 to 14 illustrate the die-holder. Fig. 11 is a plan, Fig. 12 is an under side view, Fig. 13 is a cross-section, of the channeled bar, and Fig. 14 a cross-section of the notched and plain plates. Fig. 15 is an illustrative view of the construction, on

a large scale, showing the punch-apertures of rectangular form and the circumscribing circular holes in the channeled bar.

Referring, primarily, to Fig. 1, which shows the parts assembled, A designates the reciprocating cross-head which carries the punches. B is the fixed stripper-beam. C is the bed which supports the sheet to be perforated. D is the face-plate. E is one of its securing-screws, and F denotes the packing-pieces which hold the punches G in place. All of these features are shown in my said Patent No. 313,383 and need not be more minutely described here. Indeed, the present invention is not limited to the specific construction of the machine so far as the above features are concerned.

The features of the machine in which the novelty of the present invention resides will now be described.

The punch-holder (designated as a whole by H) is secured to the under side of the cross-head A and carries the punches G. This holder H is illustrated in detail in Figs. 2 to 6. The holder is compound and comprises a flat bar of metal 1, with a channel or recess 2 milled out of its upper face and extending from one end to the other thereof near one edge of the bar, but leaving a wall 3 along one margin thereof. A plate 4, of metal, is of such dimensions as to fit exactly and snugly in the channel 2 so as to be flush with the upper surface of the channeled bar 1. In that edge of the plate 4 which fits up to the wall 3 are formed notches 5, which fit the bodies of the punches and form, with the said wall 3, sockets to hold and space the punches. In the bar 1, coincident or registering with the respective sockets formed by the notches 5 and wall 3, are drilled holes 6. (Seen best in Fig. 3.) A line through the centers of this series of holes should be coincident with the centers of the notches 5. In the illustrative view Fig. 15 the dotted circles show the relations of the drilled holes 6 to the rectangular apertures for the punches, and this view serves as well to illustrate this feature in the stripper and die-holder. The plate 4 is held in place by screws which clamp it between the bar 1 and the cross-head.

The stripper, which is designated as a whole



by I, is secured to the under side of the stripper-beam B and is illustrated in detail in Figs. 7 to 10. A broad flat bar 7 has a channel or groove 8 milled out of its under side, said channel extending its entire length, and it has in it a series of holes 9, Figs. 8 and 9, the centers of which are nearly coincident with the wall 10 of the channel 8. Fitted snugly into the said channel is a metal plate 11, which has in its edge that abuts against or fits up to the wall 10 notches 12, of the proper size and form to fit the punches G. The plate 11 is secured in place in the channel 8 by screws, and its lower face is flush with the general under surface of the channeled bar 7.

The die-holder as a whole is designated by J, and this feature is illustrated in detail in Figs. 11 to 14. The holder is compound and comprises a bar 13, which has a channel 14, Fig. 13, formed in its upper face and extending its entire length. It is set in a channel in the bed C, as seen in Fig. 1. This bar 13 has a series of holes 15 bored in it along the center line, as seen in Figs. 12 and 13. Fitted snugly in the channel 14, so as to fill it, and disposed edge to edge are two die-plates 16 and 17. The plate 16 is plain; but the plate 17 has along that one of its edges which abuts against the edge of the plain plate 16 a series of notches 18, which form the dies and are of such size and so spaced as to fit snugly and receive the punches G. The plain plate 16 is shown herein as narrower than the plate 17, the object of this being merely to bring the row of dies into the axis of the channel 14 and coincident with the row of holes 15. The plates 16 and 17 are secured in place by screws, and the edge of the plain plate 16 forms one wall of the dies or die-apertures.

When the punches, the stripper, and the dies are in place, the punches will be accurately alined with the apertures in the stripper and with the dies.

In this class of machines it is customary to form a slight enlargement or head on the punch by upsetting the upper end of the flat punch at the lateral edges and to slightly recess the socket in the punch-holder to receive such enlargement. This is a known feature, and I have not attempted to fully illustrate it herein. The purpose of it is to prevent the punches from dropping down through the holder.

To resist the upward pressure in punching, the packing-pieces F are employed. These are also known, and I have not illustrated them in detail. It need only be said here that in this class of machines provision is made for omitting some of the punches, if desired.

The general construction of the punch-holder is the same as that of the stripper, except that in the former the notched plate is at the upper side and in the latter it is at the lower side. The employment of circular holes in connection with the non-circular apertures

for the passage of the punches is common to the punch-holder, the stripper, and the die-holder shown herein. Each of these three features is essentially a compound bar comprising as its elements a channeled bar or element provided with circular holes for the passage of the punches and a notched plate fitted and secured in the channel in the other element, the notches being coincident with the respective holes in the latter and of such form as to snugly fit the punches.

It may be stated here that while the holes punched are usually rectangular in this class of perforating-machines the present invention is not restricted to this form of hole or punch. A circular hole may be conveniently drilled, but a non-circular hole cannot be so produced. The point herein is to produce the holes of the shape of the punch without drilling and to drill the holes in channeled plate, so as to open a way for the punches therethrough. The notched plates fit accurately in the channels in the bars and are secured rigidly in place therein by screws or other means than soldering or brazing, as this latter process is apt to clog up the holes for the punches.

Having thus described my invention, I claim—

1. A perforating-machine for producing non-circular perforations, having a series of punches, and a compound bar through which said punches extend, said compound bar comprising elements secured rigidly together, one of said elements having in it angular notches or apertures which fit the respective punches, and another of said elements having circular apertures for the punches to pass through, the apertures in the said elements being respectively coincident, substantially as set forth.

2. A perforating-machine for producing non-circular perforations, having a series of punches, and a compound bar through which said punches extend, said compound bar consisting of elements secured rigidly together, one of said elements having in it angular apertures or notches which fit the respective punches and another of said elements having in it a channel to receive the first-named element, and having in it also circular apertures for the punches to pass through, the apertures in the said elements being respectively coincident, substantially as set forth.

3. A perforating-machine for producing non-circular perforations, having a series of punches, and a compound bar through which said punches extend, said compound bar consisting of elements secured rigidly together, one of said elements having a channel in its face and a series of circular apertures spaced for the passage of the respective punches, another of said elements set in said channel and having in one of its edges a series of angular notches which coincide or register with the circular apertures in the first-named



channeled element, and another element in the form of a plain strip or plate in said channel and disposed edge to edge with the said notched element, substantially as set forth.

4. In a punch of the character specified, the combination with the punches, of a punch-holder H, comprising a channeled bar 1, provided with a series of circular holes 6 along one margin of said channel, and a plate 4, with notches 5 in its edge, said plate occupying and fitting into the channel in the bar 1, with the notches therein coincident respectively with the circular holes in the channeled bar.

5. In a punch of the character specified, the combination with the punches and a punch-holder, of the stripper I, said stripper comprising the bar 7, having a channel 8 in its under side and a series of circular holes 9 along one margin of said channel, and a plate 11, occupying and snugly fitting the channel in the bar 7 and secured therein, said plate 11 having notches in one of its edges which coincide or register with the respective holes

9 in the channeled bar, substantially as set forth.

6. In a punch for the purpose specified, the combination with the punches, and the punch-holder, of the die-holder J, said holder comprising a bar 13 having a channel 14 in its face and a series of circular holes 15 in the bottom of said channel and extending parallel with the walls or sides of the same, and the two plates 16 and 17 fitted snugly into said channel edge to edge, one of said plates having notches 18 in that one of its edges which is applied to the edge of the other or plain plate, the said plates 16 and 17 being secured rigidly to the bar 13, and the said notches 18 being coincident with the respective holes 15, substantially as set forth.

In witness whereof I have hereunto signed my name this 16th day of May, 1902, in the presence of two subscribing witnesses.

EDWIN BALL STIMPSON.

Witnesses:

PETER A. ROSS,

WILLIAM J. FIRTH.