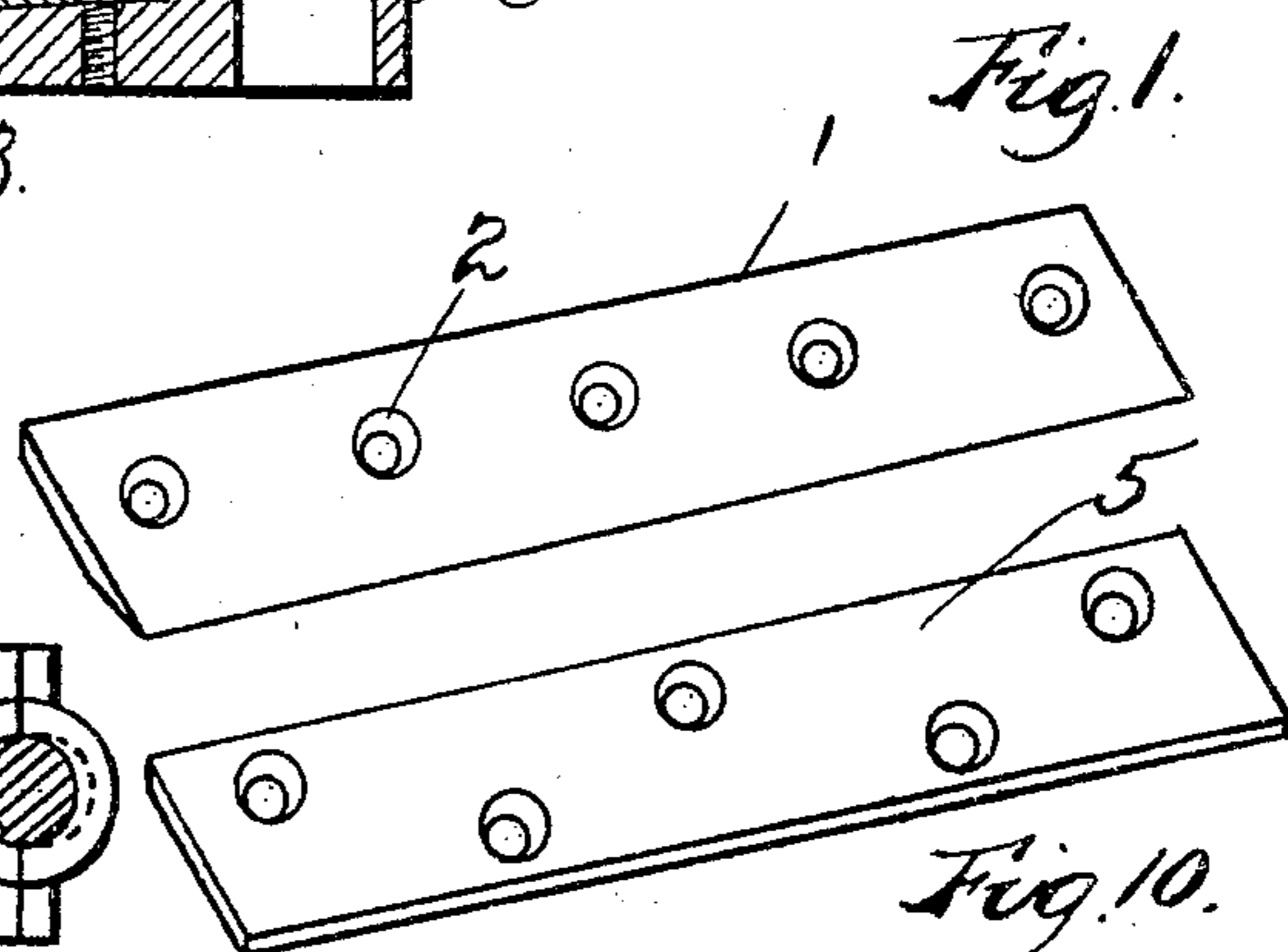
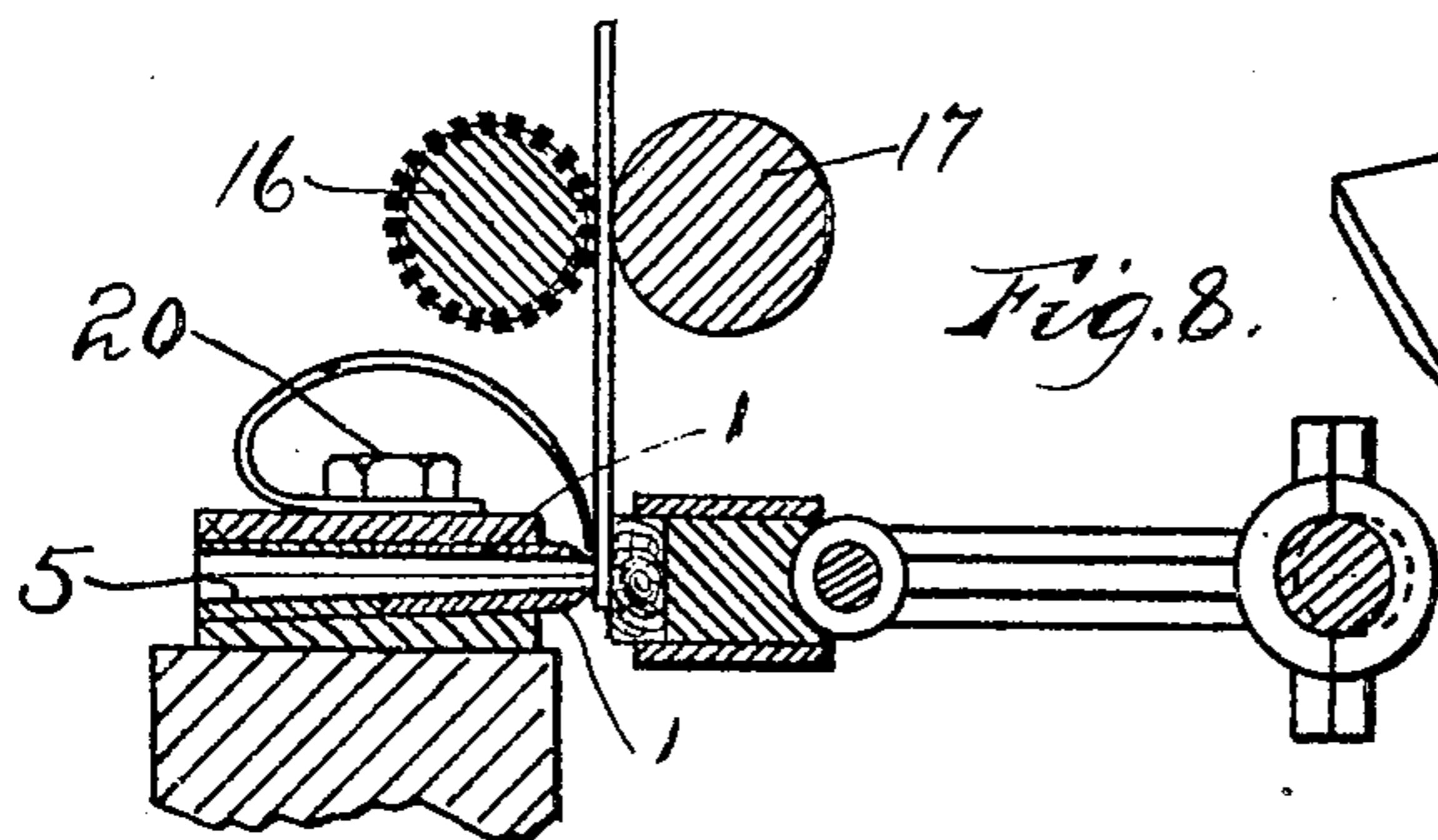
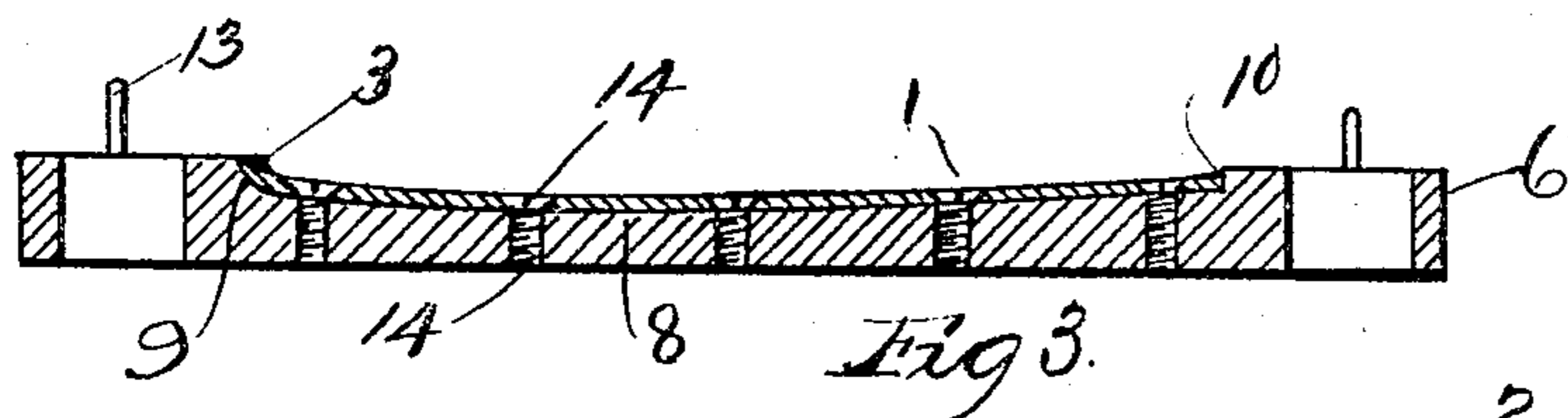
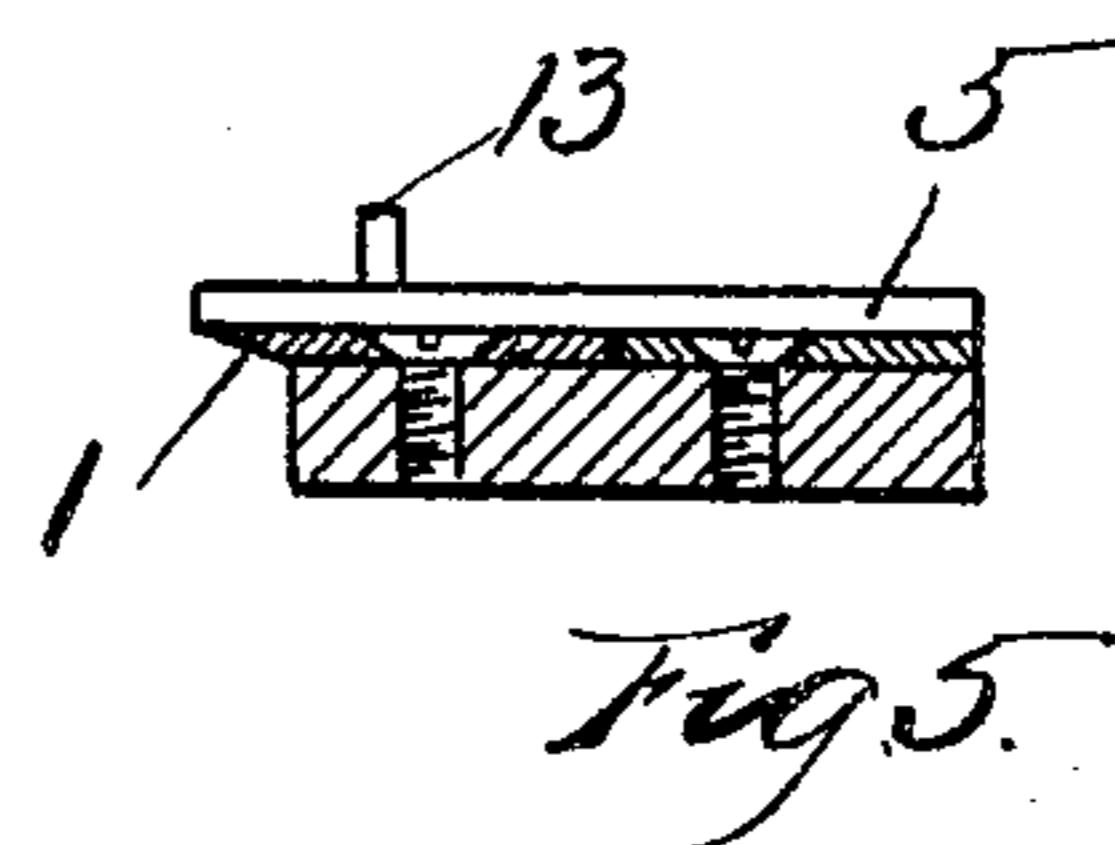
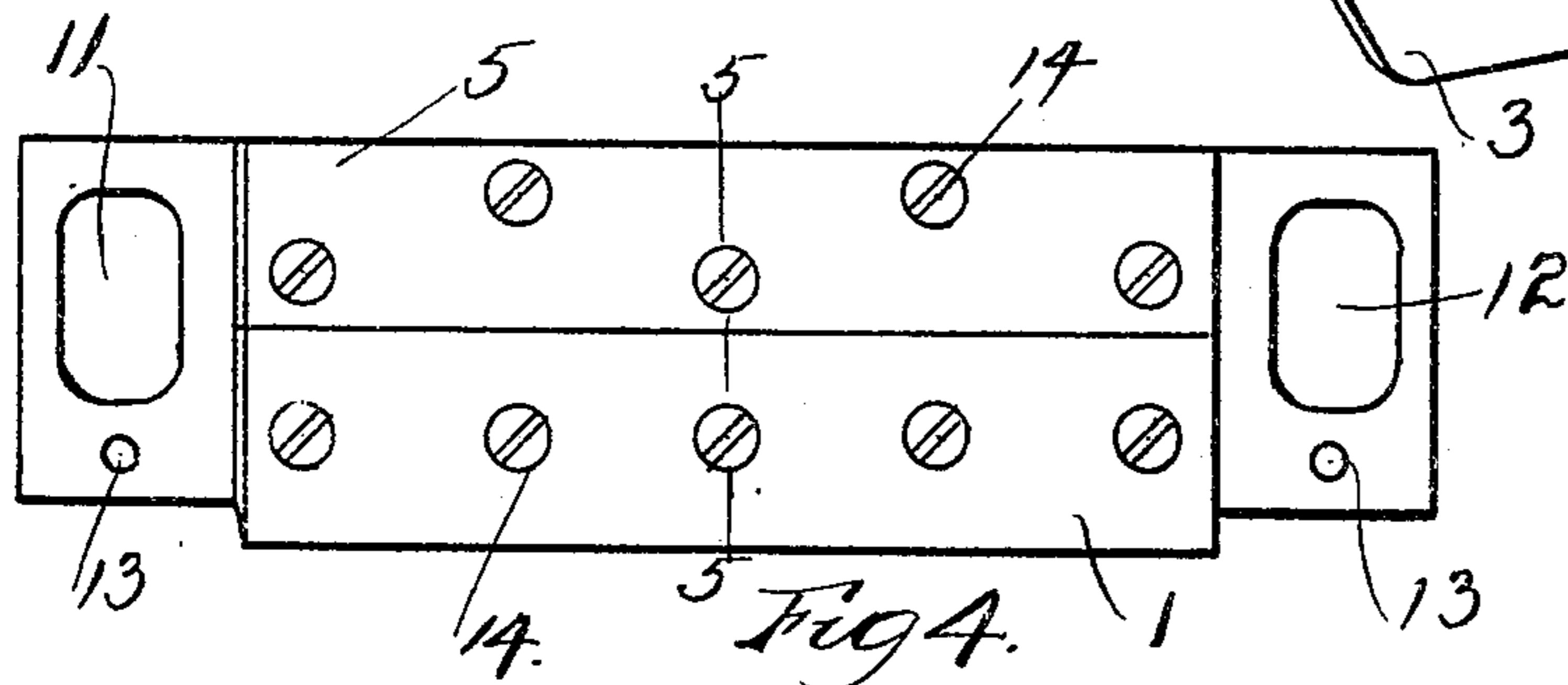
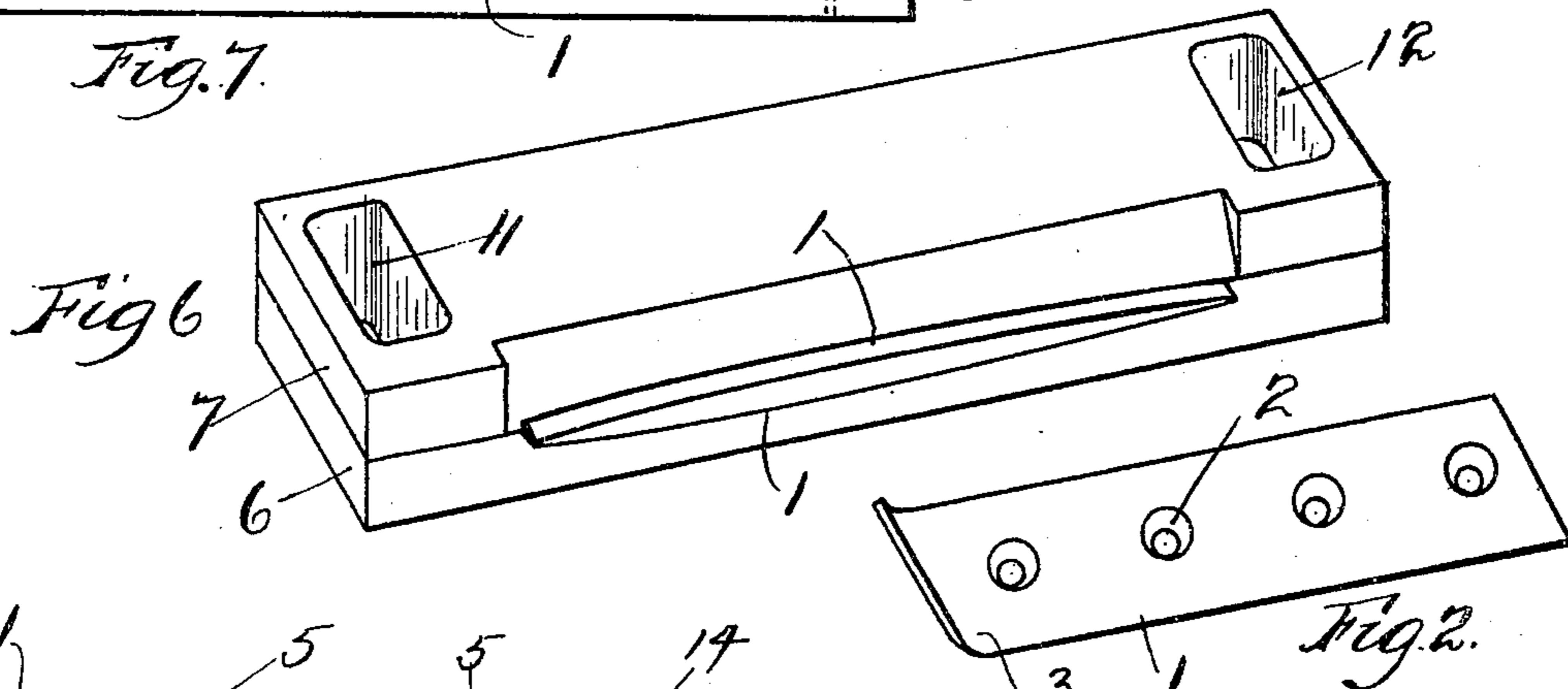
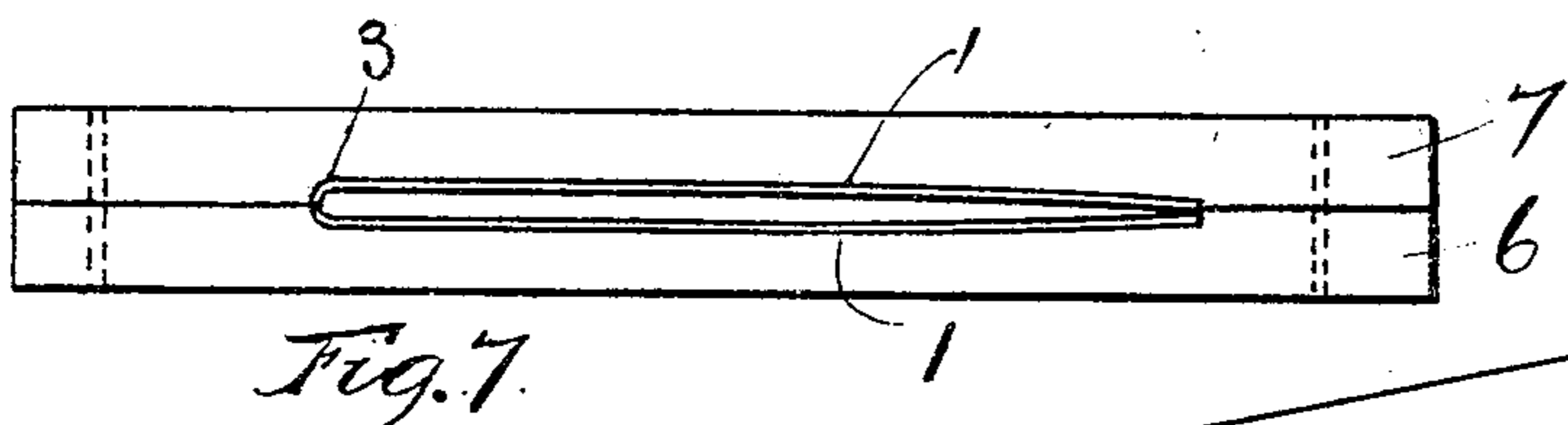


No. 795,494.

PATENTED JULY 25, 1905.

H. A. DORR.
CUTTER FOR TOOTHPICK MACHINES.
APPLICATION FILED APR. 11, 1905.



Witnesses

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Fig. 9

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CUTTER FOR TOOTHPICK-MACHINES.

No. 795,494.

Specification of Letters Patent.

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Application filed April 11, 1905. Serial No. 254,971.

To all whom it may concern:

Be it known that I, HARRY A. DORR, a resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Cutters for Toothpick-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to improvements in the construction of cutters for forming toothpicks, splints, and similar articles from a veneer of wood; and the object of this invention is to produce a practical, inexpensive, and efficient set of knives for cutting this veneer into the desired form.

In the ordinary machine for forming toothpicks or splints the veneered wood is made in a ribbon form, the width of said ribbon being the length of the toothpick. A roll of this wood may be mounted in any convenient way and fed by feed-rolls or other means along in front of a pair of knives, the shape of the opening between said knives being the form in which the pick is to be cut. The veneer is then forced through the opening between the knives by each stroke of a reciprocating block as the veneer is fed over the edge of said knives. There are several ways of forming these knives, the most common of which being to concave or shape out two rectangular plates or blocks of steel so that when they are placed together the opening formed by the concaved portions of both takes the shape of the pick to be formed. The cutting edges of the blocks must be brought down very fine and sharp in order to sever the wood clean and smooth, and it requires considerable time and the services of skilled workmen to grind these knives to the exact size and shape to produce the style of pick required. In grinding the openings it is found necessary to cut away or make a clearance immediately back from the cutting edges of the knives in order that the picks may be forced easily through the same. After these knives have been carefully prepared they are placed in the machine and are put to the severe test of cutting from fifteen hundred to three thousand picks per minute for nine hours a day. It is therefore obvious that these cutters must be ground very often

in order to keep them sharp enough to produce good work. It will be seen that by grinding off these knives thus formed on account of the clearance in the cutters the opening between the blades becomes enlarged, thereby producing picks of a different shape and an increased size. This change in size and shape is not satisfactory to the trade, as the goods should be of a uniform size, and as the knives are obliged to make about a million cuts per day it will be seen that they must be ground and replaced by a new set quite often.

The expense and bother of keeping the knives in shape to cut picks properly have heretofore been the vital point of the toothpick business. There are millions upon millions of toothpicks produced each day, and the greatest expense in producing the same, outside of the cost of the wood, is the expense of keeping the knives in proper repair to produce good work.

My invention is the result of a long practical experience and experimenting to, first, reduce the cost of constructing the knives; second, to so construct the same that they might be easily sharpened or the blades replaced at a minimum expense, and, third, that the product might be kept more uniform.

The method of forming my cutters is to first shape out two blocks of metal, making templets in the concaved form required. Then make two thin knife-blades of the desired length and width and bend and draw the same down and fasten them into the shaped-out portion of the blocks by screws or other suitable means. These thin blades are very cheap to construct, as they may be blanked out of sheet-steel, drilled, and sharpened, and whenever a blade is worn out it may be readily replaced by a new one, and as it is obliged to take the exact shape of the templets the work produced is thus always kept uniform, and the expense of regrinding and replacing new ones is reduced to the minimum.

Another and essential feature of the invention is that by the use of knives of my improved construction I am enabled to form splints rounded on one end and sharp at the other. Picks having a rounded end have never been produced before commercially, as they cannot be manufactured in a practical manner with the old-style knives.

The invention consists of other novel features, as will be fully described hereinafter and then pointed out in the appended claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

In the drawings, Figure 1 is a perspective view showing one of the knife-blades drilled and counterbored for the reception of the screws, also beveled off on one side to a sharp knife-edge. Fig. 2 illustrates one of these knife-blades as being turned up at one end, a pair of which when secured in the forming-blocks serve to cut one end of the toothpicks in a rounding form. Fig. 3 is a sectional view of one of the blocks or templets, showing one of the knives therein being drawn down to conform to the shape of said templet by means of screws. Fig. 4 is a plan view of one of the forming-blocks, showing a knife secured therein by screws, also showing a backing-plate to assist in supporting the cutting-blade against the shocks of the reciprocating cutter-block. Fig. 5 illustrates a transverse section on line 5 5 of Fig. 4. Fig. 6 is a perspective view showing the two forming-blocks together and the cutting edges of the two knife-blades extending out therefrom. Fig. 7 is a front elevation showing the form-blocks and the cutter-blades secured therein, said cutter-blades being held in said blocks in position to cut a pick having one round end and a sharp point. Fig. 8 is a diagram illustrating the veneer as being fed to the knife and the reciprocating cutter-block which drives said veneer through said cutter-knife by means of a rotating type-roll 16 and a backing-roll 17. Fig. 9 represents one of the finished picks being nicely rounded at one end and pointed at the other. Fig. 10 is the backing-plate, which may be secured to the forming-block in the manner illustrated in Fig. 4.

Referring to the drawings, at 1 is the knife-blade, that may be constructed in any suitable manner; but I prefer to blank the same out of sheet-steel, drill and countersink the screw-holes 2, then harden and grind the cutting edge. The expense of thus producing this cutter is reduced to the minimum. When it is desired to form a round end on the splint, I turn one edge of the blade up into a half-circle, as shown at 3. Two of these blades thus shaped when reversed and placed on each other, as shown in Fig. 7, cut a pick with a nicely-rounded end.

At 5 is the backing-plate, that is similar in form to the blade, except that it is not required to be hardened or ground, and it may be permanently fastened in the form-block or templet by screws or other suitable means. This plate serves to engage the rear edge of the knife-blade and back up the same, assisting

in taking the force of the shocks of the rapidly-reciprocating cutter-block in forcing the wood through the cutters.

At 6 and 7 are the form-blocks or templets. These blocks, as indicated in Fig. 3, are provided with concaved recesses 8, having shoulders 9 10. In this manner a seat is provided for the cutting-blades, the ends of the latter abutting against said shoulders, the concavity of the recesses and the depth of the shoulders being such as will bring the inner face of each of said blades to the proper position for cutting a pick. Slotted holes 11 and 12 are made through both of the blocks for the reception of the bolts 20, (see Fig. 8,) that secure them to the machine. Dowel-pins 13 13 are also set into the blocks to insure their coming back together in the exact position after having been taken apart.

After the blocks have been properly shaped out they are drilled and tapped to receive the retaining-screws 14. The blades, as above described, are made thin and are therefore more or less flexible, and when they are placed in position on the templets they are readily bent or drawn down to conform to the exact shape of the concaved portion by the retaining-screws 14, and the spring in these knives serves as a check-nut on these screws to bind the threads and prevent them from unscrewing, which in itself is a good practical feature, as without this spring tension the screws would constantly be working loose from the jar of the rapid blows of the reciprocating block and spoil the work.

After having once made the form or templet, which is the particular and most expensive part of the cutters, the blades, which are comparatively inexpensive, may be readily removed and replaced therein at slight expense, and the exact form and symmetry of the goods is positively maintained throughout. In practice I employ two oppositely-disposed blocks 6 and 7, each carrying a blade 1, said blocks being secured together, as indicated. It will be noted that when the blocks are clamped together the inner faces of the end portions thereof abut, thereby bringing the ends of the two blades into contact to form an approximately continuous knife. By this arrangement the blades are rigidly held from lateral distortion by screws 14, from transverse distortion by plates 5, and from longitudinal distortion by shoulders 9 10 and the abutting blocks. The parts are thus brought into exact register, and I secure all of the advantages of the cut of a single knife, combined with the advantages secured by making the knife of a plurality of removable blades.

If desired, the blades may be rounded at one end, as indicated in Figs. 3 and 7, the shoulder 9 being similarly formed for its accommodation. By this arrangement a pick of the form illustrated in Fig. 9 is produced.

When the toothpick-machine is printing lines of advertisements on the veneer (as is done by the arrangement of rolls and mechanism shown in Fig. 8) to produce advertising-toothpicks, these lines are placed at regular intervals just the width of a pick apart on the veneer, making it absolutely necessary to cut these picks of exactly the same width each time in order to bring said reading matter exactly in the center of the pick. It will therefore be readily seen that the width of the pick as controlled by the setting and resetting of the blades must be absolutely perfect or the knives will soon run into the printed matter and the work be spoiled. The only way to bring these knives to exactly the same position each time they are reset and positively control the width of the pick is to make the blades separate and bend them to a templet or forming block in the manner above described, and thus the production of perfect work is assured.

The numerous practical advantages of the construction of knives as above described for the formation of toothpicks or splints are obvious to those skilled in the art of toothpick manufacture.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A device of the character described comprising a pair of templet-blocks each provided with a concaved recess in its inner face, a flexible blade secured in each of said recesses, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

2. A device of the character described comprising a pair of templet-blocks each having its inner face provided with a concaved recess having shoulders formed at the ends thereof, a flexible blade secured in each of said recesses and having its ends abutting against said shoulders, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

3. A device of the character described comprising a pair of templet-blocks each having its inner face provided with a concaved re-

cess, a flexible blade secured in each of said recesses, means carried by said templet-blocks to resist the thrust on said blades, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

4. A device of the character described comprising a pair of templet-blocks each provided with a concaved recess in its inner face, a flexible blade located in each of said recesses, means for detachably securing said blades in position, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

5. A device of the character described comprising a pair of templet-blocks each provided with a concaved recess in its inner face having shoulders formed at the ends thereof, a flexible blade located in each of said recesses, retaining-screws therefor, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

6. A device of the character described comprising a pair of templet-blocks each provided with a concaved recess in its inner face having shoulders formed at the ends thereof, a flexible blade secured in each of said recesses and having its ends abutting against said shoulders, a backing-plate for each blade also secured in each of said recesses, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

7. The combination with a pair of feed-rolls, and a reciprocating block, of a pair of templet-blocks each provided with a concaved recess in its inner face, a flexible blade secured in each of said recesses, and means for securing said blocks together, whereby said blades are brought into juxtaposition to form an approximately continuous knife.

In testimony whereof I have hereunto set my hand this 10th day of April, A. D. 1905.

HARRY A. DORR.

In presence of—

GEORGE L. MINER,
E. I. OGDEN.