

(No Model.)

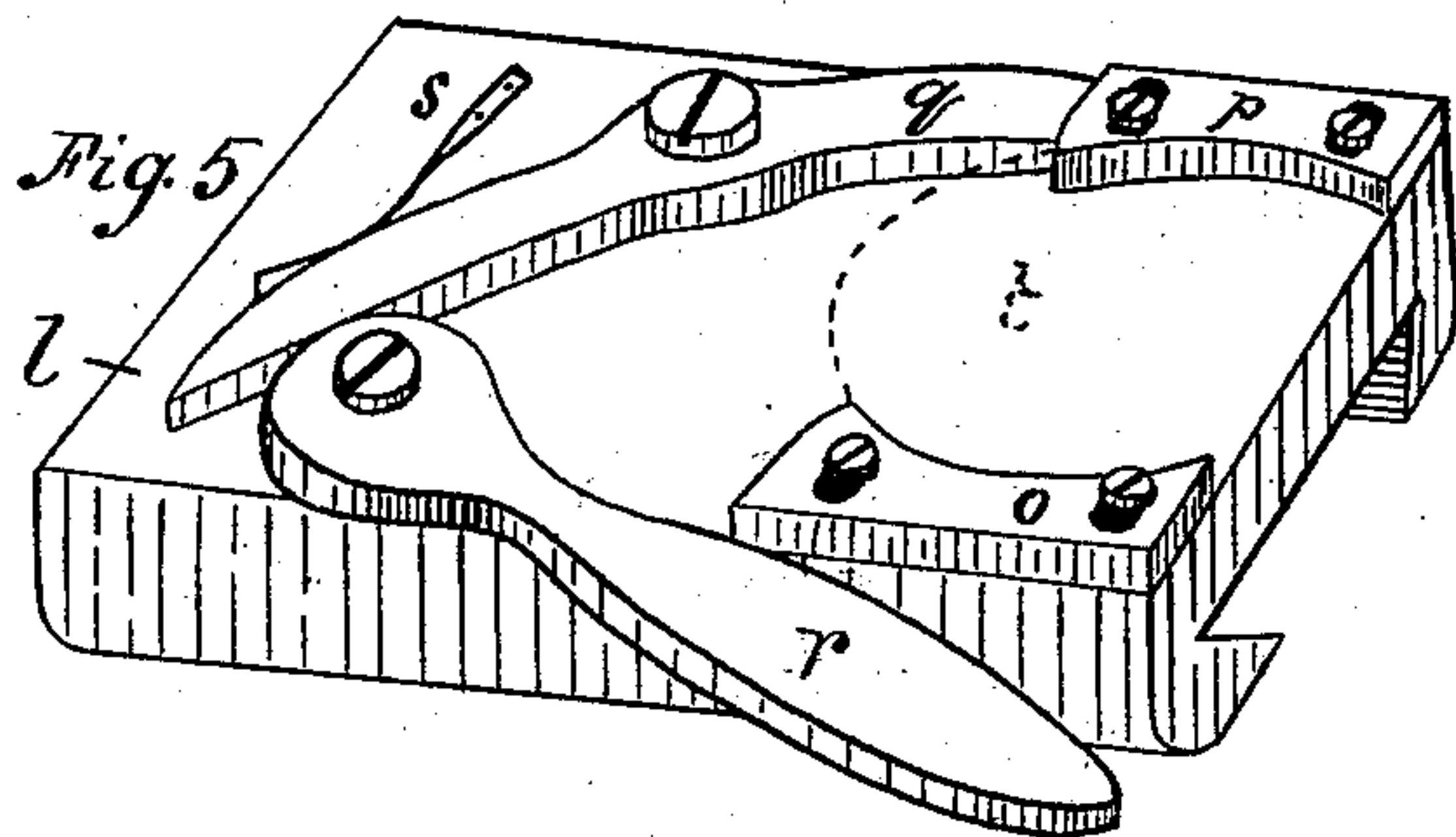
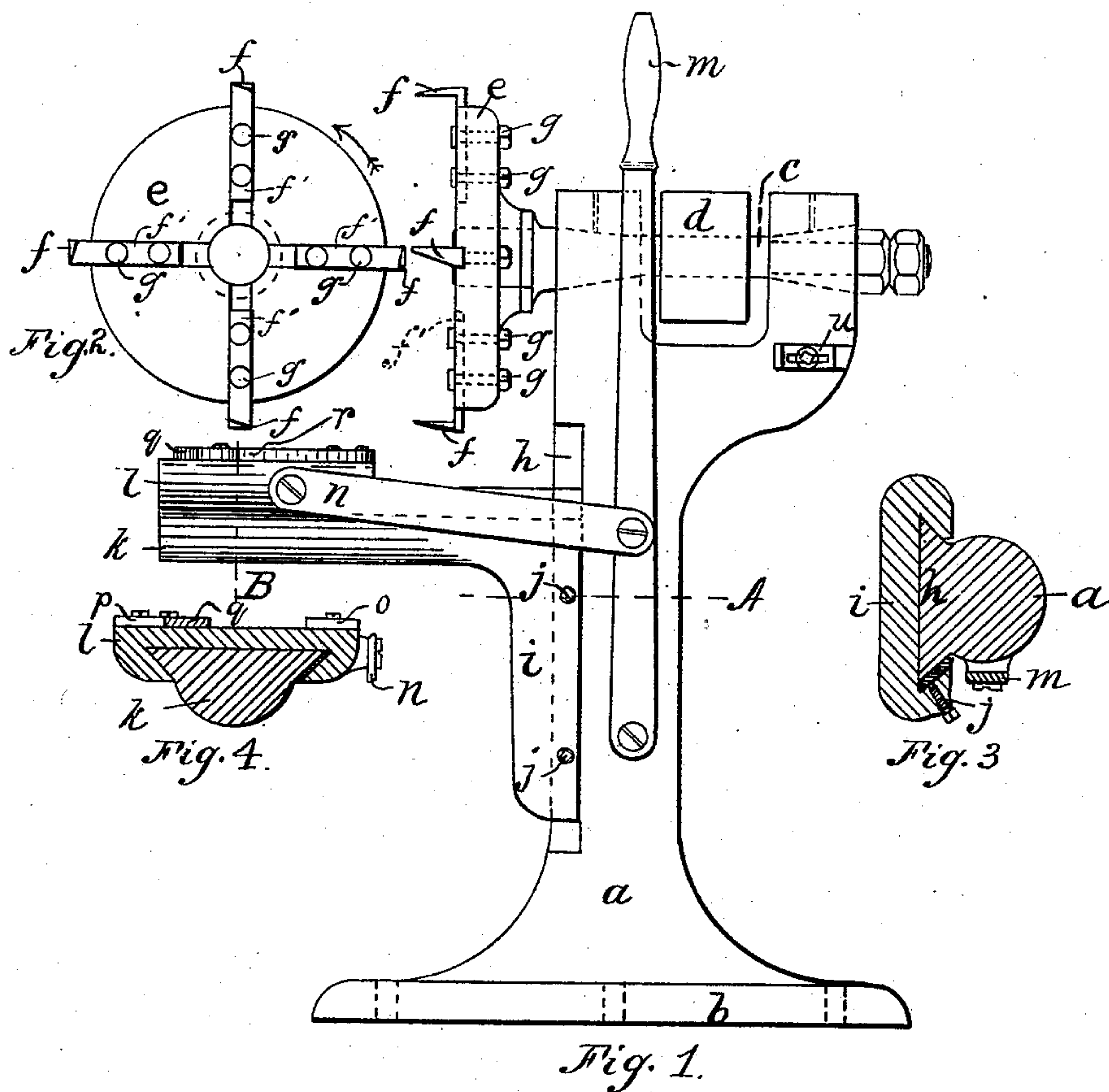
2 Sheets—Sheet 1.

W. Y. OBER.

MACHINE FOR CONCAVING BOOT AND SHOE HEEL BLANKS.

No. 298,113.

Patented May 6, 1884.



Witnesses:
Chas. S. Gooding.
Eugene Humphrey

Inventor:
William Y. Ober
per Porter & Hutchinson
Attys.

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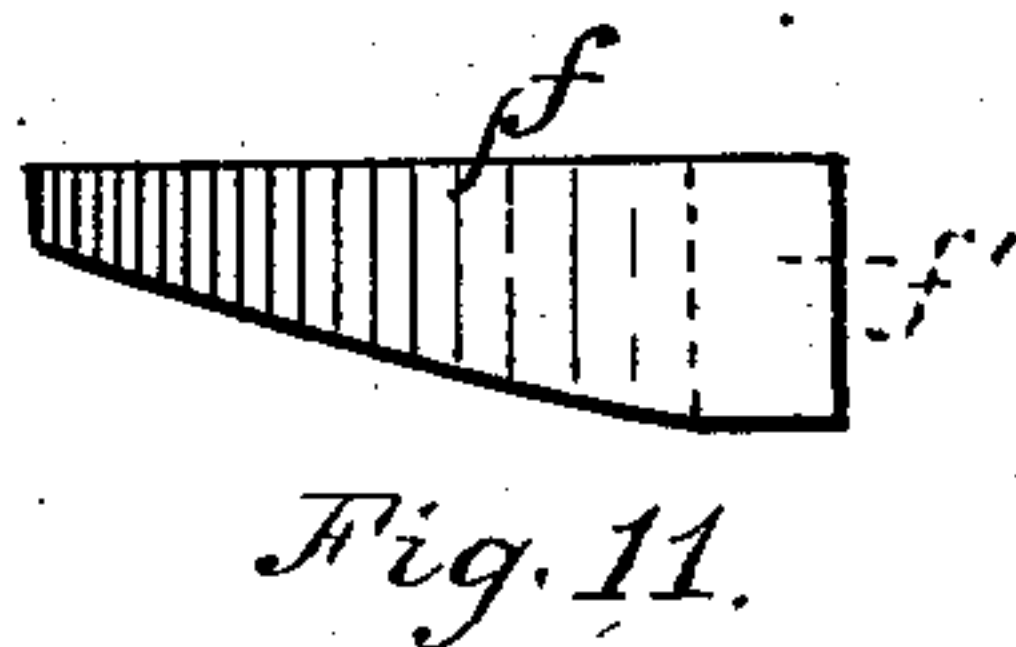
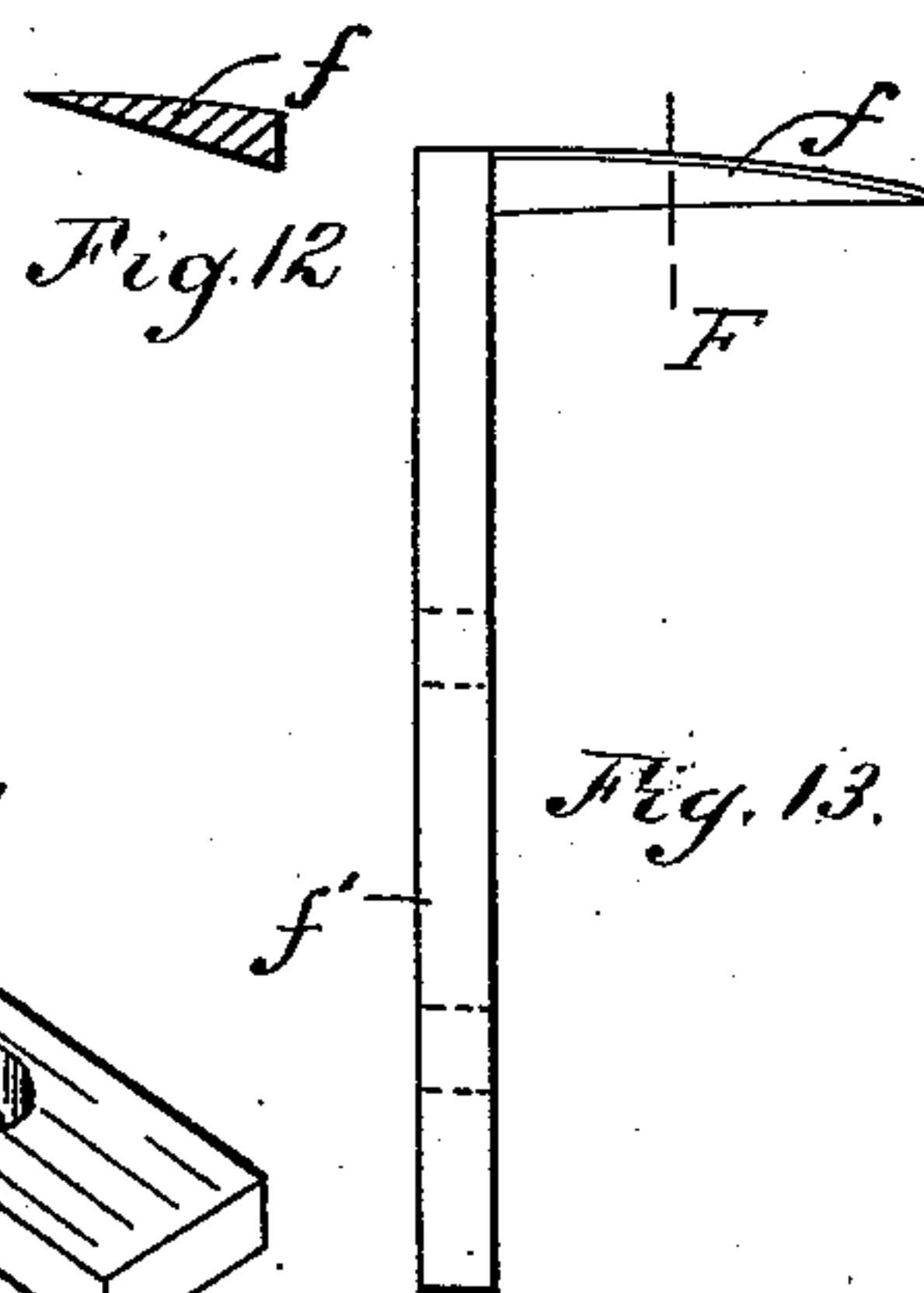
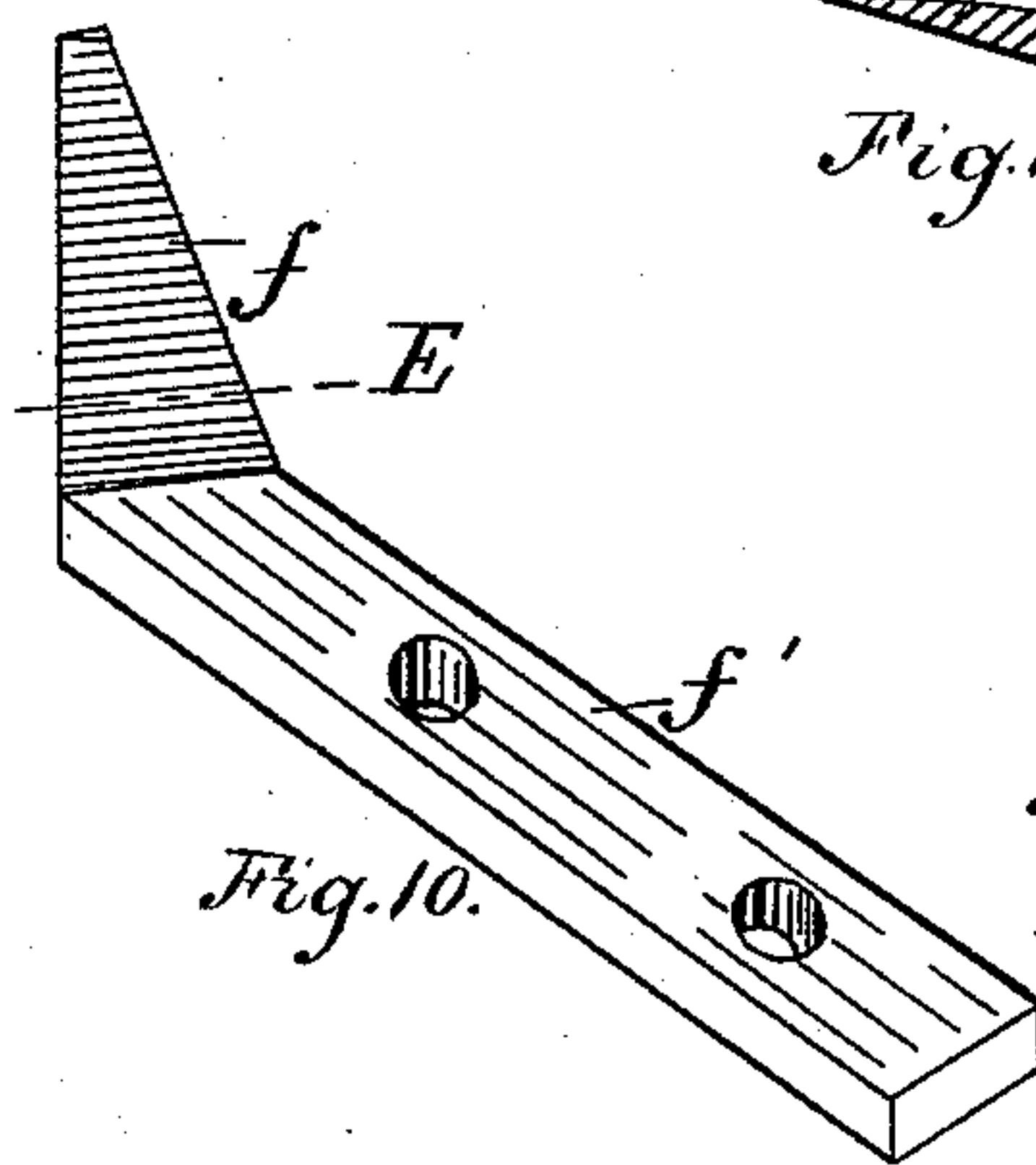
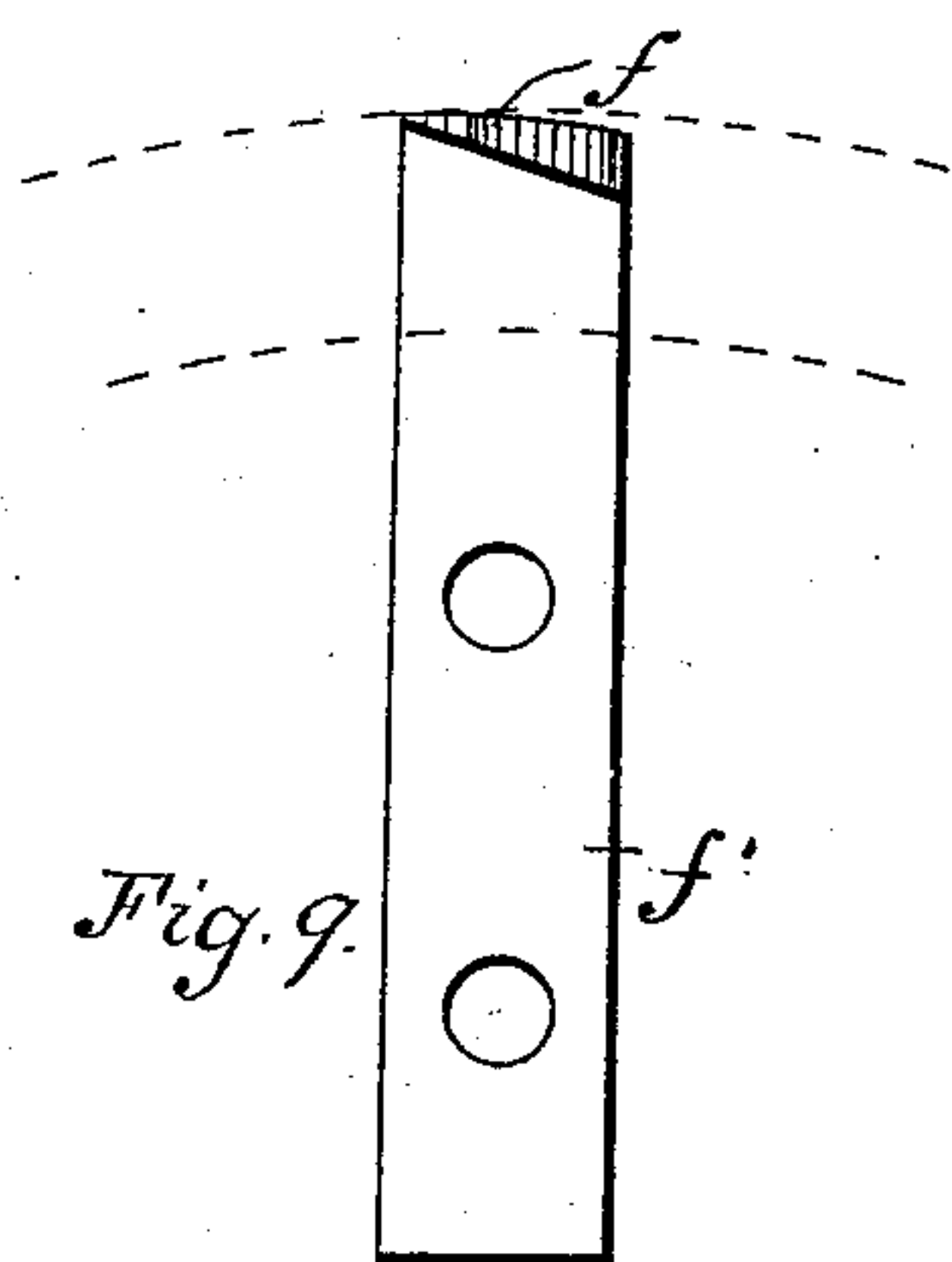
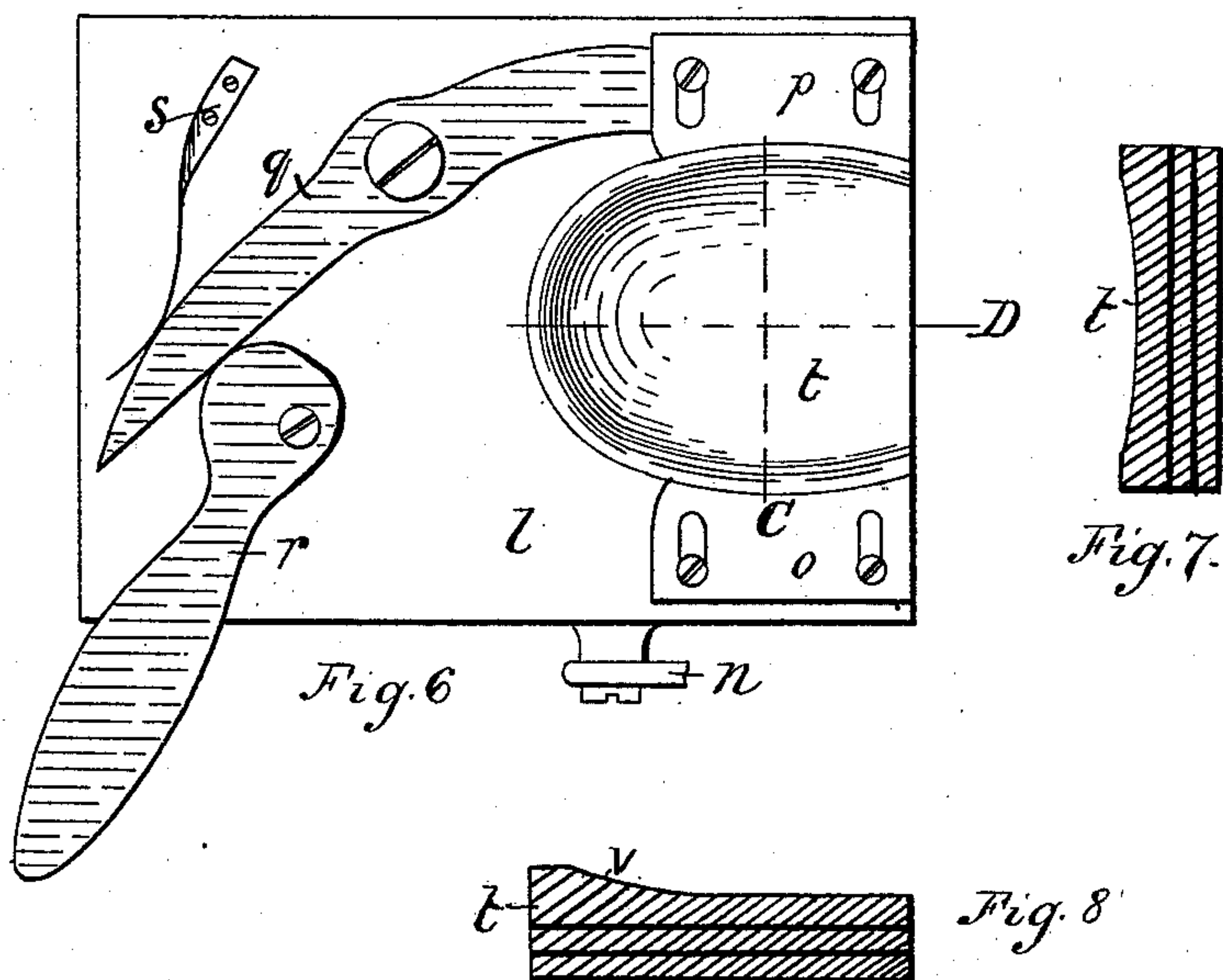
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UNITED STATES PATENT OFFICE.

WILLIAM Y. OBER, OF LYNN, MASSACHUSETTS.

MACHINE FOR CONCAVING BOOT AND SHOE HEEL BLANKS.

SPECIFICATION forming part of Letters Patent No. 298,113, dated May 6, 1884.

Application filed May 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Y. OBER, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful
5 Improvement in Machines for Concaiving Boot and Shoe Heel Blanks, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

10 The object of this invention is to form a cavity in the heel-blank of a boot or shoe in which the heel portion of the sole may be properly seated, secured, and finished without employing the usual beveled strip or "rand" around the edge
15 of the heel, to fill the space between the plane of the heel and the curved or convexed surface of the sole; which space results from the curvature of the sole away from the plane of the heel when the sole and heel are brought together without first concaiving the latter; and
20 the invention consists in the construction and combination of the divers devices embodied therein, as hereinafter more particularly and fully set forth and claimed.

25 In the accompanying drawings, Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a front elevation of the cutter-head as viewed from the left of Fig. 1, in which a side view thereof is shown. Fig.
30 3 is a horizontal section taken on line A, Fig. 1. Fig. 4 is a vertical section taken on line B, Fig. 1, viewed from the left. Fig. 5 is a perspective view of the slide shown in section in Fig. 4, and of the devices for holding the
35 heel-blanks when mounted thereon. Fig. 6 is a plan of the slide and holding devices shown in Fig. 5, and as having a heel-blank properly seated in the jaws thereof. Fig. 7 is a transverse vertical section of the heel-blank, taken
40 on line C, Fig. 6. Fig. 8 is a longitudinal vertical section of the heel-blank, taken on line D, Fig. 6. Fig. 9 is a front elevation of one of the cutters which are carried in the revolving head shown in Figs. 1 and 2. Fig. 10 is
45 a perspective view of one of the cutters, showing its body provided with bolt-holes for securing the same to the head and its tapering blade. Fig. 11 is a view of the cutter-blade proper, shown as viewed from above in Figs.
50 9, 13. Fig. 12 is a transverse section of the cutter-blade, taken as on line E, Fig. 10, or

line F, Fig. 13. Fig. 13 is an edge elevation or side view of the cutter viewed from the left of Figs. 9 and 10.

In said views, *a* represents the stand or body 55 of the machine, having a circular base, *b*, constructed and arranged to be bolted to the floor or work-bench.

In the top of the stand *a* is journaled an arbor, *c*, in suitable boxes or bearings. This 60 arbor is rotated by means of a pulley, *d*, mounted thereon and driven by a belt from a counter-shaft in the usual manner. Upon the arbor is also mounted and properly secured a revolving head, *e*, which carries a series of cut- 65 ters, *f f f f*, the shanks or bodies of which are secured by a series of bolts, *g g g g*, to head *e*, as shown, Fig. 1.

The construction and operation of the knives will be hereinafter more particularly de- 70 scribed.

One side of the stand *a* is formed at *h*, Figs. 1, 2, as a dovetail way, upon which an arm or bracket, *i*, is fitted to slide and be adjusted vertically, and is secured in position by set- 75 screws *j j*, Figs. 1, 3. This arm *i* has a right-angled extension, *k*, upon which is mounted the carriage or slide *l*, Figs. 1, 4, 5, that supports and moves the jaws and other heel-holding devices, as shown in Fig. 5. The slide 80 *l* moves horizontally on a dovetail way, and is actuated by means of a vertical lever, *m*, pivoted at the lower end to the stand *a*, and connected with slide *l* by a pivoted link, *n*, as shown, whereby said slide is moved into and 85 out of proper working relations with the revolving cutter-head when the machine is in practical use. The extent of forward movement of lever *m* is limited and graduated to conform to the length of heel being cut by an 90 adjustable stop, *u*, arranged on the side of the stand, Fig. 1, so that the lever *m* will come in contact with the same at its extreme forward movement and be stopped thereby. The actu- 95 ating-lever *m* might, for convenience, be pivoted to a suitable projection formed upon the opposite side of stand *a* from that on which it is shown, and be curved to bring the handle around said stand to the side shown, and then linked to slide *l*, so as to be moved horizontally 100 about a vertical axis when manipulated by the operator.

Upon carriage *l*, Fig. 5, are adjustably secured a pair of jaws or plates, *o p*, between which is seated the heel-blank when in position to be operated upon. The inner edges of these jaws or plates are outlined or curved to conform practically to the outline or curvature of that portion of the heel-blank which they are designed to act against and hold in place. Jaw *o* is provided with elongated holes, through which set-screws having overlapping heads are threaded into the slide *l*, as shown, and serve to clamp the jaw to the slide when it is properly adjusted thereon. This jaw *o* is adjustable laterally upon said slide to the different sizes of heel-blanks, so as to bring the longitudinal center line, *D*, of the blank, Fig. 6, when its edge is against jaw *o*, whatever its size may be, into coincidence with a corresponding center line drawn through slide *l* between said jaws. Jaw *p* is secured to slide *l* in the same manner as jaw *o*, except that it is never clamped rigidly down upon said slide by means of the screws passing through it, but is firmly attached to or formed as a part of and moved by a pivoted lever, *q*, which is actuated in one direction by a pivoted cam-lever, *r*, and, together with jaw *p*, securely locked against the heel-blank *t* when the latter is seated upon the slide between the jaws, as shown in Fig. 6. A spring, *s*, secured to the slide, moves lever *q* when the latter is released by cam-lever *r* to relax the hold of jaw *p* upon the edge of the heel-blank.

The positions of the jaws and the actuating levers and spring just described, when not employed to secure a heel-blank in place for operation thereon, are as shown in Fig. 5, and their several positions when so employed are as shown in Fig. 6, in which a heel-blank, *t*, composed of several "lifts" or layers, as usual, is shown properly seated between the jaws and secured thereby, the operation of concaving the upper lift of the same having been completed, as indicated by the transverse and horizontal vertical sections respectively shown in Figs. 7 and 8.

The cutters *f* employed in the revolving head *e*, Fig. 1, are constructed as illustrated in Figs. 9, 10, 11, 12, 13, and are each composed of a body or shank, *f'*, provided with bolt-holes, as shown, through which the cutter is bolted to the head *e*, Fig. 1, and of a blade, *f*, extending at nearly right angles from the body *f'*. The blades taper in their width from the shank outward, as shown in Fig. 10, and are beveled transversely to form a cutting-edge, and convexed or curved on their outer or peripheral face in the direction of their length, such convexity or curvature corresponding to the curve *v* of the longitudinal section-line representing the variable depth of the concave cut made by the blade in the heel, as shown in Fig. 8, the bevel of the concavity in the heel corresponding longitudinally to the convexity of the cutting-blade, and transversely to the arc of the circle in which the

blades are revolved by the rotary head, as shown in Fig. 7.

The practical operation of my machine is as follows: A heel-blank composed, as usual, of several layers of suitably-formed pieces of leather is seated upon slide *l* between jaws *o* and *p*, and secured by the locking devices, as shown in Fig. 6. The slide being mounted upon its supporting arm or bracket *k*, Fig. 1, so as to move on the dovetail way formed on said arm, Fig. 4, and being connected by link *n* to lever *m*, is in working position. It is next adjusted vertically by sliding its arm *k* on its dovetail way *h* into proper position, and securing the same in such position by the set-screws *j*, so that the upper surface of the heel-blank seated upon slide *l* will be in line with the point of blade *f*, the straight edge or "breast" of the heel being toward the blade. The operator now sets the revolving cutter-head in motion, and taking hold of lever *m* thereby moves the slide *l* toward the cutters, the outer ends of which first come in contact with the heel, cutting slightly, and as the forward movement of the slide and heel is continued the convexity of the cutter increases the depth of the cut, the stop *u* being adjusted to arrest the movement of the lever *m* at the proper time, according to the length of heel being operated upon, and so as to leave a border of full thickness around such concavity in the lift corresponding to the rand usually interposed as a separate piece in the place of such border between the heel and sole of the shoe. The concavity thus cut corresponds transversely to the arc of the circle in which the cutters move, and in its curvature or bevel longitudinally to the convexity of the cutter-blades in the direction of their lengths. Thus a suitable seat is formed in the upper lift of the heel to receive the rounded heel portion of the sole of the boot or shoe as it is usually formed and held upon the last, and enabling the heel to be properly attached thereto without the interposition of the usual separate beveled strip or rand, thereby effecting a saving in labor in applying the heel, the cost of the usual rands, which have to be separately cut into strips, beveled, curved, and placed in position, and forming a more substantial seat or bearing for the sole upon the heel.

What I claim as my invention is—

1. The combination of arm *i*, constructed and arranged to be vertically adjusted and locked upon standard *a*, and to receive and support the blank-carrying plate *l*, said plate being provided with blank-securing devices, lever *m* and link *n*, for reciprocating the plate, and rotary head *e*, carrying cutters *f*, formed to concave blank *t* in both its longitudinal and transverse sections, substantially as specified.

2. The combination, with devices, substantially as described, for holding the heel-blank and moving the same in a fixed path in the

direction of its axis, of a rotary head whose axis is parallel with the line of movement of the blank, and which is provided with knives having a convex cutting-edge adapted and arranged to form a seat in the plane of the blank, and suitable driving mechanism, substantially as specified.

3. The cutter *f*, formed with a shank or bar,

f', for securing it to head *e*, and with a convex line adapted to impart the desired longitudinal concavity to the heel-blank, substantially as specified.

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Witnesses:

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