

No. 630,970.

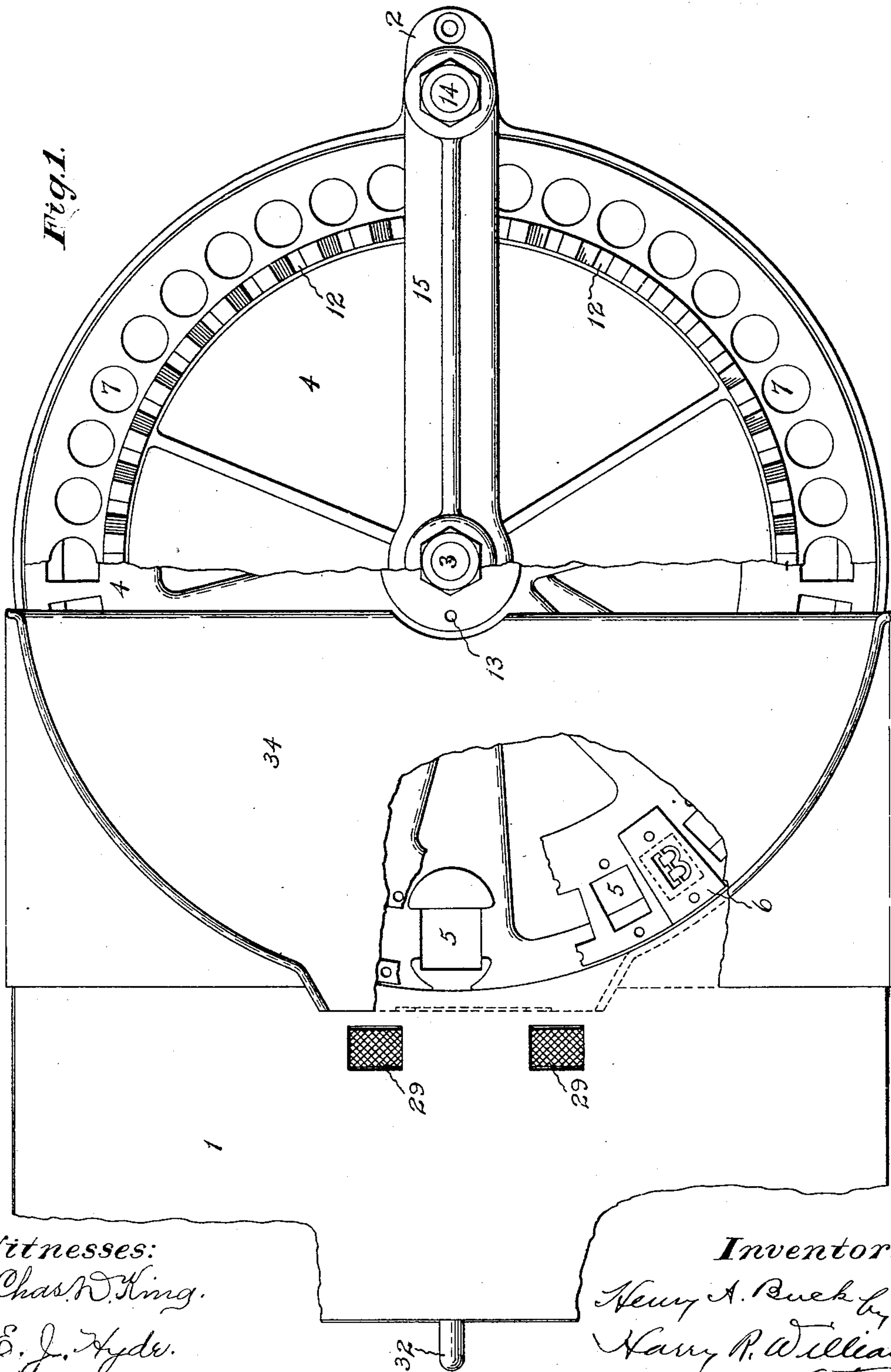
Patented Aug. 15, 1899.

H. A. BUCK.
STENCIL CUTTING MACHINE.

(Application filed Sept. 19, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
Chas. W. King.
E. J. Hyde.

Inventor:
Henry A. Buck by
Harry R. Williams
Attys.

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3 Sheets—Sheet 2.

Fig. 2.

Fig. 3.

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Chas. D. King.
E. J. Hyde.

Inventor:
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Harry R. Williams
Atty.

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3 Sheets—Sheet 3.

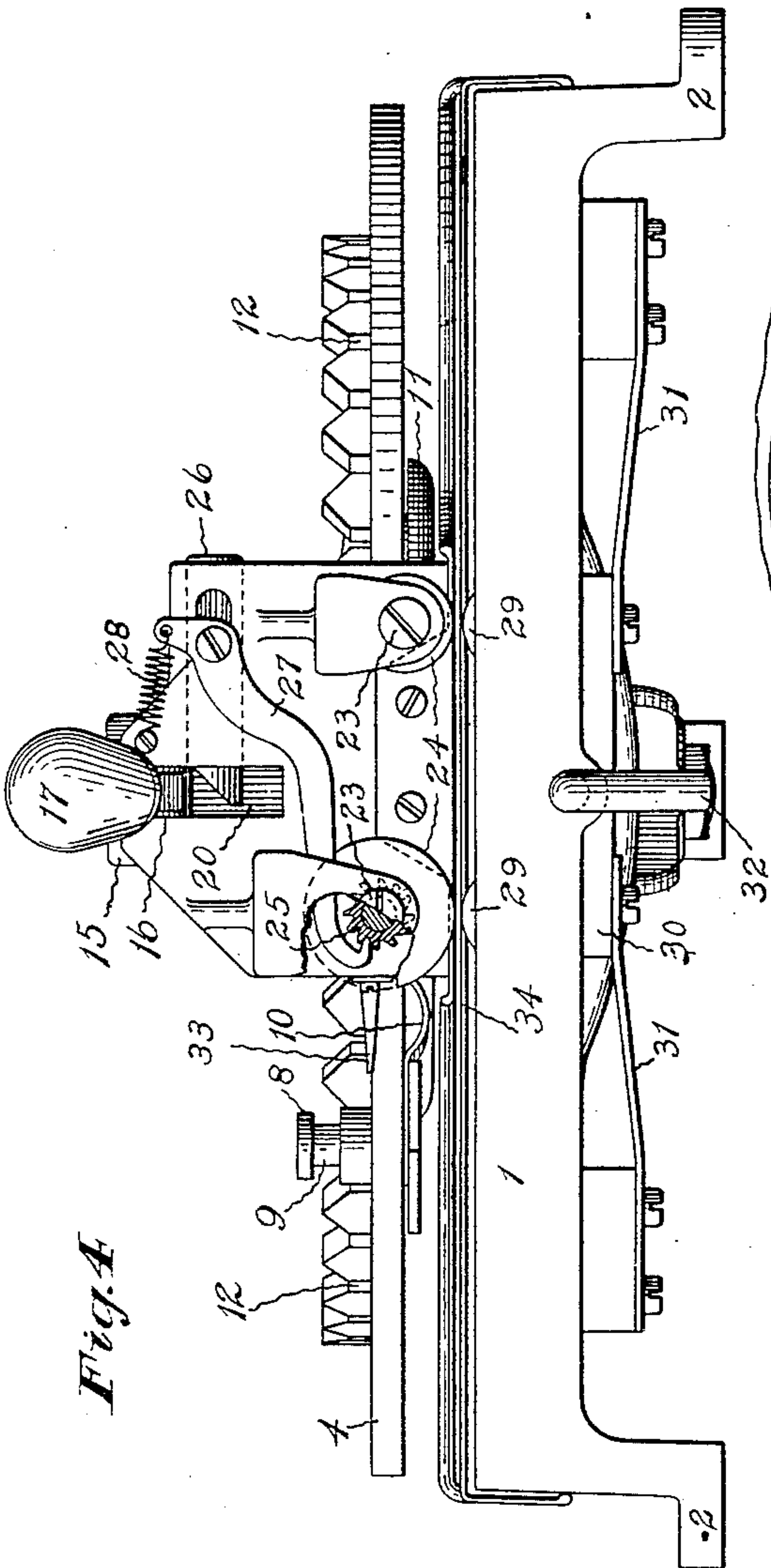


Fig. 4

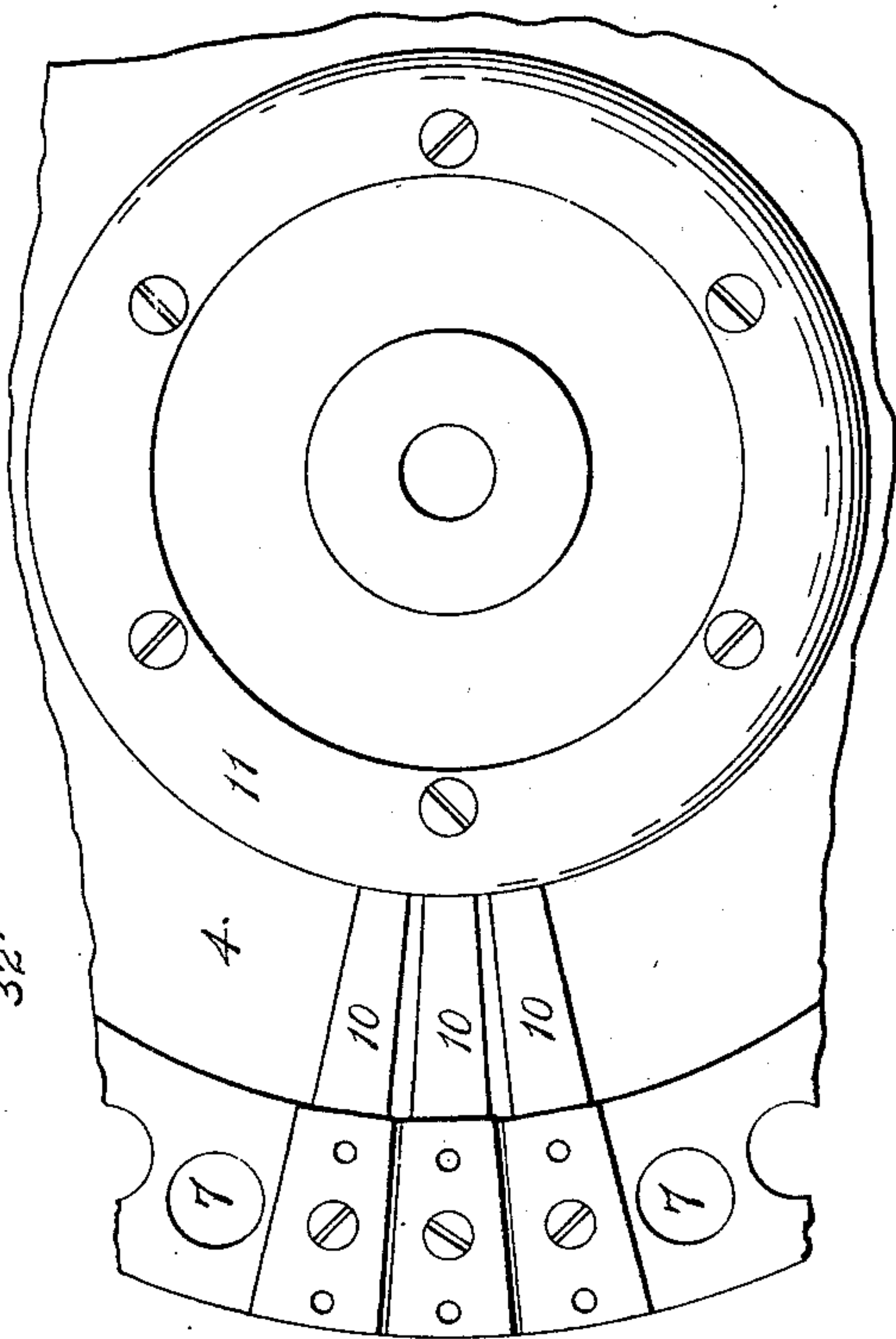


Fig. 5.

Witnesses:
Chas. W. King.
E. J. Hyden

Inventor:
Henry A. Buck, by
Harry R. Williams
att'y.

UNITED STATES PATENT OFFICE.

HENRY A. BUCK, OF THOMPSONVILLE, CONNECTICUT.

STENCIL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 630,970, dated August 15, 1899.

Application filed September 19, 1898. Serial No. 691,299. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. BUCK, a citizen of the United States, residing at Thompsonville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Stencil-Cutting Machines, of which the following is a specification.

This invention relates to a stencil-cutting machine which has lettered or numbered complementary punch and die disks that are rotated together by hand for bringing the desired punch and die plunger into communication with a master-plunger that can be depressed by a lever for registering the disks and cutting the stencil material when the proper punch and die are in position, the oscillation of the lever besides reciprocating the master-plunger also feeding the stencil material into position for the following cut.

The object of this invention is the production of a durable machine which will cut the stencil outlines accurately and sharply and which can be handled conveniently and rapidly without danger of destroying or damaging the stencil which is being formed.

The machine embodying the invention that is illustrated in the accompanying drawings has a bed with an arbor, rotatable together, upon which are a pair of connected disks, one bearing an annular series of fixed dies and the other bearing an annular series of reciprocating spring-elevated plungers, with punches that cooperate with the dies in cutting the letters or figures, the latter disk also being provided as far as possible from its axis with a series of registering notches. The bed also has a post, and rigidly supported by this post and the disk-arbor is an arm that projects forward and near its free end supports a hand-lever that is provided with a master-plunger arranged to engage with and communicate its motion to the head of the punch-plunger that is moved beneath it. The master-plunger is provided with a locking-lug which during the downward movement of the plunger engages the proper notch and registers and locks the disk so the punch and die will accurately cut. A spring is arranged for lifting the lever, together with the master-plunger and punch-plunger that is engaged by the master-plunger, after each de-

pression. Feed-rolls for advancing the stencil material are mounted at the free end of the arm and complementary rolls are adjustably supported by the bed in position to assist in advancing the material. A ratchet wheel connected with one of the upper feed-rolls is engaged by a spring-pawl that is connected with a slide which is reciprocated by the oscillation of the lever. This machine also has a guide and stripper having leaves between which the stencil material is inserted that covers the ends of all the punches and dies except the punch and die immediately beneath the master-plunger, so that the stencil material can be easily thrust into position to be cut and when cut will be stripped from the punch and die so that it may be correctly advanced by the feed-rolls.

Of the drawings, Figure 1 shows a plan of this machine with portions of the arm, the disks, the guide and stripper, and the bed broken away. Fig. 2 is a vertical section of this machine. Fig. 3 is a plan of portions of the arm, the disks, and the bed, showing the lever and master-plunger. Fig. 4 is a view of the front of the machine, and Fig. 5 is a view of the under side of a portion of the punch-disk.

The bed 1 of the machine is desirably cast to shape of iron with supporting-legs 2. An upright arbor 3 is located at the center of the bed, and mounted so as to be rotatable upon this arbor are two disks 4. The lower of the disks is provided near its periphery with an annular series of openings 5, and secured over these openings are die-plates 6, with the letters, figures, or other symbols to be cut in the stencil material. The upper disk is provided near its periphery with an annular series of openings 7. Loosely supported in these are the plungers 8, that on their lower faces have the punches that cooperate with the dies for cutting the stencil material. The upper ends of these punch-plungers are provided with grooves 9, and they are held up by spring-plates 10, that are fastened to the under side of the upper disk by a ring 11, that is secured in place by screws. The upper disk has inside of the plunger-openings an annular series of openings or notches 12, that are wider at the top than at the bottom, for receiving the part that registers and locks

the disks in correct position when an outline is to be cut. The disks are shown as fastened together by a pin 13; but they may be connected so that they will rotate together in any suitable manner.

An upright post 14 is located at the back of the bed, and bolted to this post and to the arbor, so as to extend above the disks and project forward toward the front of the machine over the bed, is an arm 15. This arm is nowhere connected with the disks or with the bed in front of the middle. In a mortise in the front end of this arm a lever 16 is pivoted. This lever at its front end has a handle 17, and connected with the other end is a spring 18, the tension of which keeps the handle end of the lever lifted. A set-screw 19 may be provided for determining the downward movement of the back end of the lever. Loosely placed in a perforation through the arm, near its free end, is the master-plunger 20. This master-plunger is recessed, and the hand-lever passes through that recess, so that the movements of the lever are communicated to the master-plunger. The lower end of the master-plunger is provided with a hook 21, that extends in such manner as to project into the grooves 9 in the heads of the punch-plungers that are brought beneath the master-plunger as the disks are rotated, so that the reciprocation of the master-plunger will reciprocate the punch-plunger that is directly beneath. A stud or lug 22 projects from the master-plunger in such a direction as to pass into one of the openings or notches 12 and register the disks and then lock them in correct position when the plungers are depressed for cutting the letter, figure, or symbol in the stencil material. Supported at the front end of the arm by screw-studs 23 are rolls 24. The shaft of one roll bears a ratchet-wheel 25. In an opening in the arm is a slide 26, with a beveled end that projects into the path of movement of the hand-lever. Joined to this slide is a pawl 27, the hooked end of which engages with the teeth of the ratchet-wheel, while to the other end a spring 28 is connected to keep the hooked end in engagement with the teeth of the ratchet-wheel and also draw the slide back after it has been forced out by the depression of the hand-lever. The depression of the hand-lever moves the slide and causes the pawl to rotate the ratchet-wheel and turn the feed-roll so as to advance the material the required distance just before the punch and die operate to cut.

Two complementary feed-rolls 29 are mounted upon a block 30, that is supported by spring-plates 31, fastened to the under side of the bed. The spring-plates normally tend to keep the rolls lifted, so that the upper portions of their peripheries extend through openings in the bed beneath the upper rolls. A flattened rod 32 is supported by the bed in such manner that when turned in

one position the lower rolls will be depressed to facilitate placing the material between the rolls and the punch and die disks. When the rod is turned so that its flattened side is down, the lower rolls will spring up and press the material against the upper rolls.

In this machine all the punch-plunger-supporting plates are secured in position by the single ring 11, held by screws to the under side of the upper disk, which, together with the lower disk carrying the dies, is easily and quickly rotated by hand until the desired punch and die are beneath the master-plunger.

The registering notches that receive the locking-lug that is on the master-plunger are such a distance from the axis of the upper disk that the error or variation in registration resulting from wear of the parts is reduced to a minimum.

A finger 33 is secured to the end of the arm and arranged to point to letters, figures, or symbols marked upon the upper disk in such position that the finger indicates the letter, figure, or symbol of the punch and die that is in operative position beneath the master-plunger.

Stencils can be cut from sheets of any size with this machine, for the arm being supported only at the back and at the axis of the disks leaves a free space at the front end for the insertion of the material between the punches and dies.

The guide and stripper 34, which is inserted between the upper and lower disks, is formed of thin sheet metal bent so that the upper leaf covers the lower faces of the punches and the lower leaf covers the upper faces of the dies. The upper leaf has its front end bent upwardly and secured to the front end of the arm, and openings are made through both leaves to permit the punch that is directly beneath the master-plunger to operate upon the material to be cut.

The material to be cut is quickly inserted into position between the leaves of the guide and stripper, and then a turn of the rod 32 permits the lower rolls to lift the material into contact with the upper rolls. As the leaves of the guide and stripper cover all of the punches and dies except the one to be made use of the material can be easily inserted into the position necessary for it to occupy for being perfectly cut. The material when held from the punches and dies in this manner can be surely and correctly advanced by the feed-rolls, for should it buckle or bend its cut portions cannot catch on the punches so as to interfere with its feed, nor will the cut portions engage the punches so as to become damaged or torn as the material is being advanced by the feed. These leaves also strip the material from the punch when it is raised after cutting.

The outlines of a stencil cut with this machine will be sharp and true, the letters, fig-

ures, or symbols will be accurately spaced, and the material will issue in a flat smooth condition.

I claim as my invention—

5 1. A stencil-cutting machine having a bed, punch and die carrying disks rotatably supported upon the bed, an arm supported at the center of the disks and having a free end that projects forward above the disks and bed
10 with which it is not directly connected in front of the center, a lever supported by the arm, a master-plunger connected with the lever and having one end adapted to engage the punch-plungers as they are brought be-
15 neath it, a lug projecting from the master-plunger, an annular row of teeth projecting upwardly from the punch-disk near the punches in position to be engaged by the lug projecting from the master-plunger when the
20 master-plunger is depressed, and feed-rolls supported by the arm and adapted to be rotated by the movements of the lever, substantially as specified.

2. A stencil-cutting machine having a bed,
25 disks rotatably supported by the bed, dies fixed to the lower disk, plungers loosely carried by the upper disk, spring-plates for holding the punch-plungers, a ring securing the spring-plates to the under side of the upper
30 disk, an arm supported at the center of the disks and having a free end that projects forward above the disks and bed with which it is not directly connected in front of the center, and a lever supported by the arm and
35 adapted to depress the punch-plungers, substantially as specified.

3. In combination in a stencil-cutting machine, a bed, rotatable disks bearing punches and dies, an arm projecting over the disks,
40 a lever for operating the punches and dies,

and a guide and stripper formed of two leaves in a single piece, one leaf covering the lower ends of all of the punches in front of the center arbor except one and the other leaf covering the upper faces of all of the dies in front
45 of the center arbor except one, said guide and stripper having portions extending down the side and front faces of the bed for holding it in position, substantially as specified.

4. In combination in a stencil-cutting machine, a bed, an upright arbor supported near the middle of the bed, a pair of connected disks rotatably mounted upon the arbor, dies secured to the lower disk, punches movably supported by the upper disk, an arm sup-
50 ported by the arbor and an upright post at the back of the bed and projecting forward above the disks and the bed with which it is not directly connected in front of the center, a lever pivotally supported by the arm, a mas-
55 ter-plunger loosely supported by the arm and connected with the lever, teeth on the punch-disk, a lug on the plunger adapted to engage the teeth, a slide supported by the arm and adapted to be moved by the depression of the
60 lever, feed-rolls mounted upon the arm and adapted to be rotated by the movement of the slide, spring-plates attached to the under side of the bed, rolls mounted upon the spring-plates, an indicating-finger attached to one
65 side of the arm, index characters on the punch-disk, and a two-leaf guide and stripper extending between the disks and covering the faces of all of the dies and punches in front of the arbor except one, substantially as speci-
70 fied. 75

HENRY A. BUCK.

Witnesses:

HARRY R. WILLIAMS,
CHAS. D. KING.