

(No Model.)

4 Sheets—Sheet 1.

L. M. REED.
BARREL MAKING MACHINE.

No. 411,300.

Patented Sept. 17, 1889.

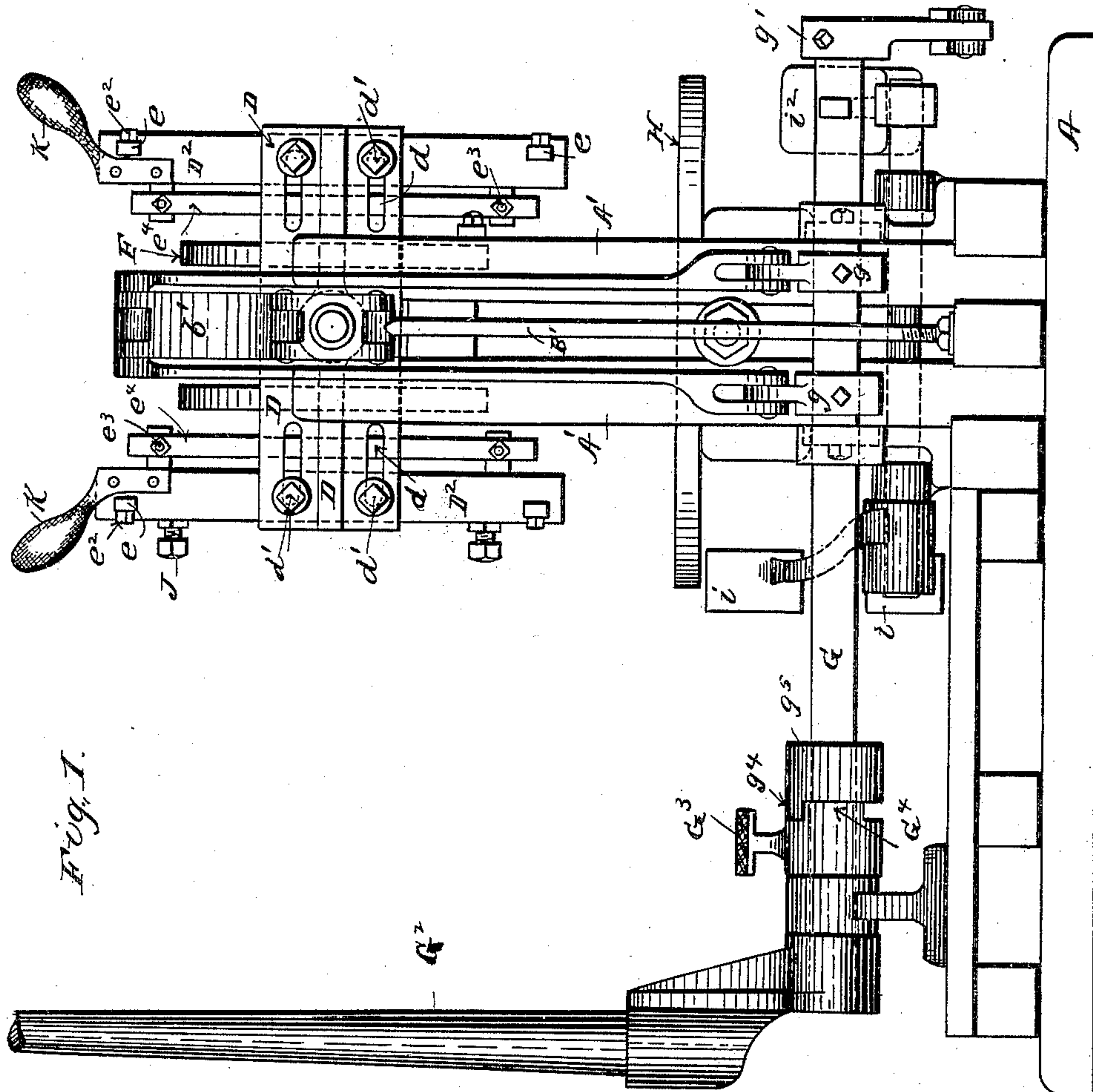


Fig. 1.

Witnesses
W. R. Edelen.
Geo. W. King

Inventor.
Lemon M. Reed
By Leggett & Leggett
Att'ys.

(No Model.)

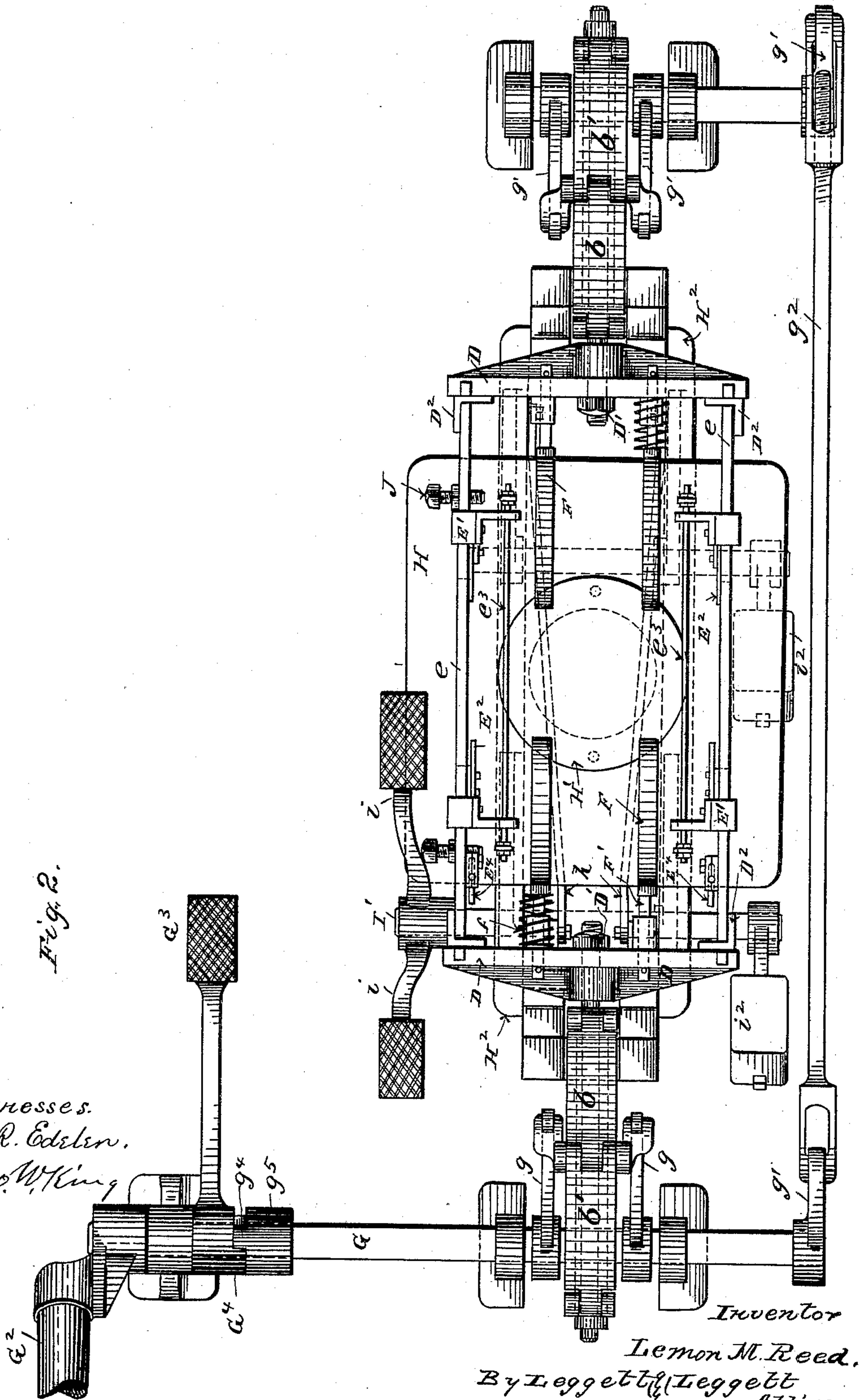
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Fig. 2.



Witnesses.
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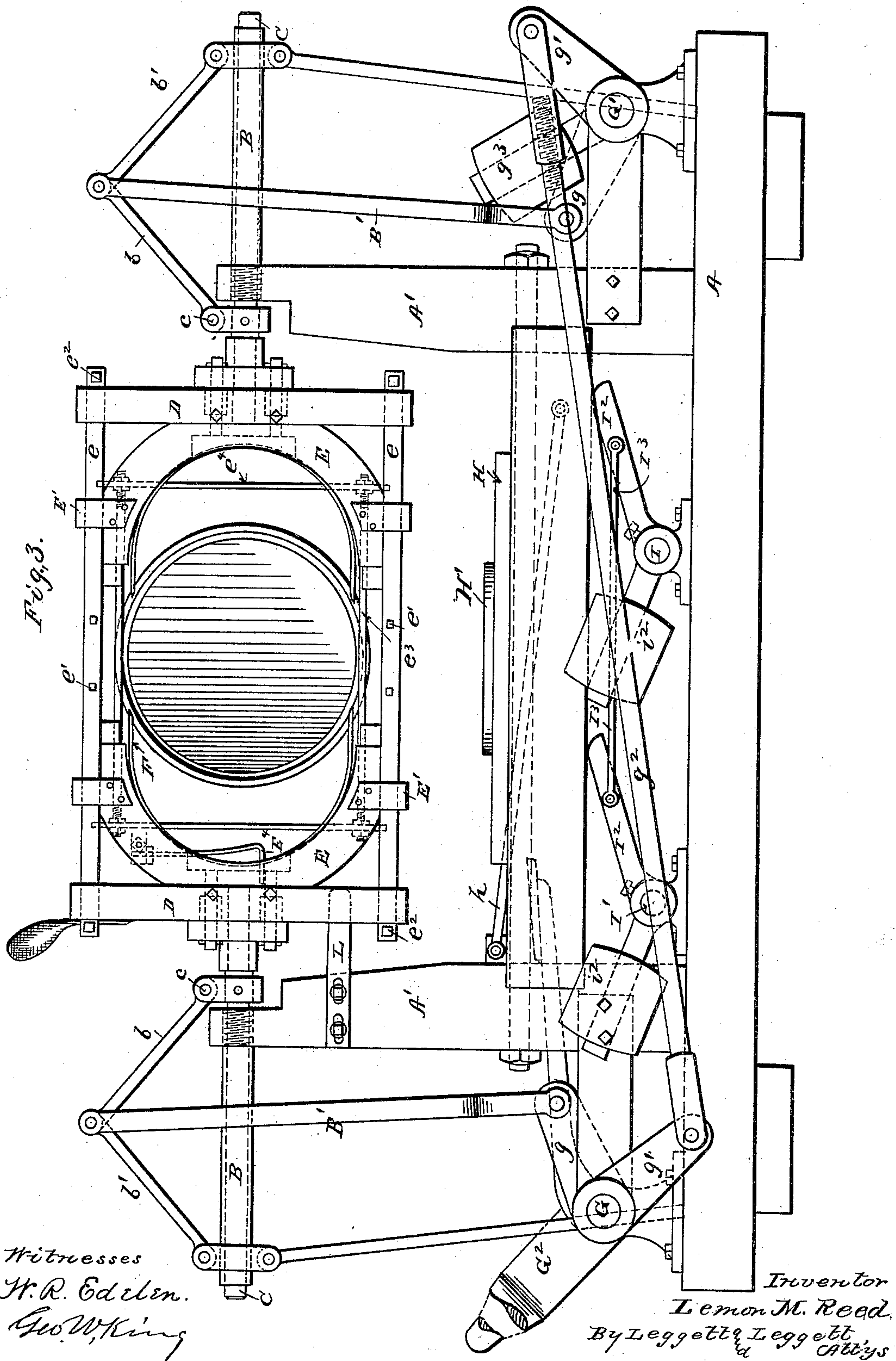
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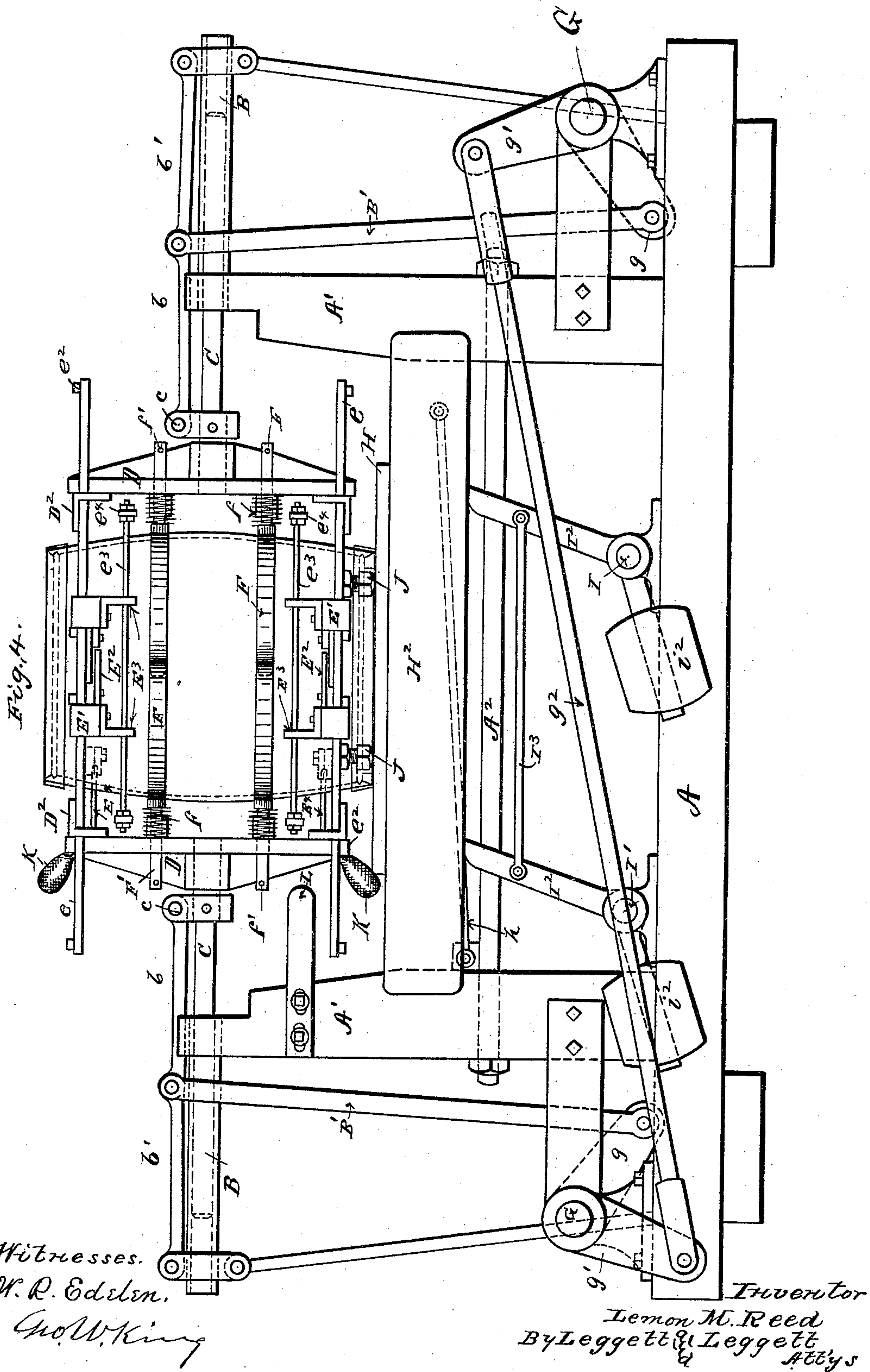
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Patented Sept. 17, 1889.



UNITED STATES PATENT OFFICE.

LEMON M. REED, OF CLEVELAND, OHIO.

BARREL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,300, dated September 17, 1889.

Application filed April 26, 1889. Serial No. 308,646. (No model.)

To all whom it may concern:

Be it known that I, LEMON M. REED, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Barrel-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make
10 and use the same.

My invention relates to improvements in barrel-making machines; and it consists in certain features of construction and in combination of parts hereinafter described, and
15 pointed out in the claims.

My present invention is designed as an improvement on a barrel-making machine for which United States Letters Patent No. 328,808 were granted to me October 20, 1885,
20 and to which reference is hereby made.

In the accompanying drawings, Figure 1 is an end elevation. Fig. 2 is a plan. Figs. 3 and 4 are side elevations showing, respectively, the clamping-jaws and co-operating mechanism in position open and closed. It will be
25 observed that in Fig. 4 the clamps are in position to hold the barrel upright, in which position of the clamps the staves are assembled, while in Figs. 1, 2, and 3 the clamps are
30 turned at right angles from the position shown in Fig. 4, in which latter position the barrel would be in approximately a horizontal position for discharging from the machine.

A represents the bed-timbers, the same having heavy standards A' attached, the latter being connected by one or more strong tie-rods A².

B B are sleeves set in line and rigidly secured to the respective standards. In the
40 bore of these sleeves operate spindles C with an easy fit, so that the spindles may reciprocate endwise. On the inner end of each spindle is journaled a cross-head D, secured by nut D'. (See Fig. 2.)

45 D² are angle-irons adjustably secured to the cross-heads at right angles to the latter, the securing-bolts d' passing through elongated holes d of the cross-head, whereby members D² are adjustable toward and from the axes
50 of the spindles, according to the size of the work. To the central portion of each angle-

iron is rigidly secured a clamping-jaw E for compressing and shaping the loose staves into the form of a barrel or keg, as the case may be, these jaws engaging the staves just below
55 the line of the chime-hoops that are afterward to be driven.

The angle-irons aforesaid near the extremes thereof are pierced for receiving loosely bars e, the latter being usually square or rectangular in cross-section. Jaws E are provided
60 with loops E', that respectively embrace loosely bars e. Bars e have stops e', that engage loops E' when the jaws are in closed position, and bars e have stops e², that engage
65 the outer face of the angle-irons when the jaws are distended, (see Figs. 3 and 4,) by which arrangement of stops bars e are brought to a central position lengthwise thereof both in the open and closed positions of the clamp-
70 ing-jaws.

E² are merely tongs or continuations of jaws E, the one set of tongs being offset so that the opposing tongs may overlap each other in closing the jaws. In the future I shall prob-
75 ably make these jaws of cast metal, in which case the ends of the jaws would be offset, so that what are now the tongs would be cast integral with the balance of the jaws.

F are light springs consisting of flat bars 80 bent flatwise to approximately a semicircular form along the central portion thereof, the free ends thereof extending straight and approximately parallel some little distance from the curved portion. Each spring F is mounted
85 on steady-pin F', the latter extending loosely through a hole in head D. Between springs F and heads D are spiral springs f, coiled around the respective steady-pins for pressing springs F inward or toward the center of
90 the barrel. The steady-pins outside of heads D are provided with pins or stops f' to limit the action of springs f, by reason of which, when the clamping-jaws are in position, partially-distended opposing springs F are
95 brought in position, with their free ends overlapping each other a trifle, and are in a central position in regard to the clamp, and in such position of parts springs F constitute
100 a yielding former in which to set the staves.

Attached to jaws E, or preferably to loops E', are slight hangers E³, the latter having

holes in which operate loosely rods e^3 , each pair of rods e^3 being connected by cross-bars e^4 , located outside the hangers, the two rods and two cross-bars constituting a rigid frame that may reciprocate endwise a limited distance when jaws D are closed, but when the jaws are open cross-bars e^4 , by engaging hangers E^3 , are brought to a central position relative to the clamping-jaws. It will be observed that there are two such frames for engaging the barrel just inside of the two sets of clamping-jaws. In opening the clamps to discharge a barrel the latter might stick in one set of springs F, but on opening the jaws wide the barrel would engage the one set of bars e^4 , and would by such engagement be forced out of the grasp of springs F.

E^4 E^4 are stops for setting the first stave against. These stops are constructed of slight springs fastened, preferably, to the clamping-jaws, and in placing the last stave these stops are pressed back out of the way. The toggle-joints for operating the clamps consist of arms b b' , pivoted together, and pivoted, the former at c , to an attachment of spindle C, arms b' being pivoted to an attachment of sleeve B, as shown, each toggle being operated by pitmen B' .

G G' are rock-shafts, each having rock-arms g for operating pitmen B' , and each rock-shaft having a rock-arm g' , these latter being connected by rods g^2 , the parts being approximately in the position shown, whereby by operating shaft G the two toggle-joints are actuated in unison. A counter-balance g^3 is preferably attached to shaft G' , approximately in the position shown. Shaft G is provided with a long hand-lever G^2 for operating the toggle, and also has a treadle G^3 for operating the toggle part way. The treadle is journaled on the shaft, and has a laterally-projecting lug G^4 , that engages lug g^4 of collar g^5 , the latter being adjustably secured—preferably by a set-screw—to the shaft. When treadle G^3 is depressed until the free end thereof strikes the floor, it becomes inoperative, but meantime the hand-lever is brought within easy reach of the operator, and in manipulating the machine by using the treadle during the first stages of the work both hands of the operator are left free for other purposes.

H is a table on which the staves are set. The table is provided with disk H' , on which the lower head is laid to bring the head in position to enter the crozing. Table H has attached side pieces H^2 , that embrace the standards loosely and serve to guide the table. A link h is pivoted to one of the standards and is pivoted to the table and serves to hold the table endwise. (See Figs. 3 and 4.)

I I' are rock-shafts having rock-arms I^2 for elevating the tables, these rock-arms being connected by rods I^3 . Rock-shaft I' has a double-ended treadle i attached for oscillating the shaft in raising and lowering the

table. Shafts I I' are provided with counter-balances i^2 , arranged substantially as shown, so that the table is easily raised or lowered and will remain in either position without fastening. The two bars e , that are at the bottom of the clamp-frame when the staves are set, are provided with adjusting-screws J to engage the table when the latter is elevated, and by adjusting these screws the table is brought to the right height to locate the staves centrally in the clamp, so that the staves will project the same distance above and below the jaws.

K are merely handles for rotating the clamp-frame and may or may not be used.

L is a stop fastened to one of the standards to engage the adjacent cross-head D when the clamp-frame is in position with adjusting-screws J presenting downward. This stop only engages the cross-head when the jaws are opened. When the jaws are closed or partially closed, head D passes by the stops without contact. In operating the machine, the clamping-jaws having been opened wide, the clamp-frame is rotated until stop L engages the adjacent cross-head, after which the table, by means of treadle i , is elevated until it engages adjusting-screws J. Next, a barrel-head is laid upon disk H' , and by depressing treadle G^3 the ends of opposing springs F are made to overlap a trifle, and in this position of parts the internal faces of jaws E and springs F are inside of the line of cross-bars e^4 , so that the latter do not interfere in setting the staves. The staves are set in the former, and as the last stave is placed in position treadle G^3 is still further depressed to crowd the staves together along the central portion or bilge. Next, by means of lever G^2 the clamping-jaws are still further advanced, these jaws engaging the staves just far enough from the ends of the staves to admit of the chine-hoops being driven while the clamping-jaws are still grasping the barrel. No truss-hoops are required. The chine-hoops are driven on what for the time being is the upper end of the barrel, after which the table is lowered and the clamp-frame and barrel are reversed and the chine-hoops are driven onto the other end of the barrel. The clamp-frame is then given about a quarter-turn, more or less, to bring the barrel in approximately a horizontal position, after which lever G^2 is reversed to open the clamps wide and the barrel is pushed out of the machine by hand.

Springs F, that, as aforesaid, constitute the former in which to set the staves, are at the central or circular part thereof of about the same radii as the respective clamping-jaws, or perhaps a trifle less, but are advanced by springs f , so that the central portion of springs F, while the staves are being set, project inward from the line of the jaws, say, a quarter of an inch, (more or less,) so that if the staves are bent a trifle flatwise such staves will not engage the clamping-jaws in setting, and con-

sequently the staves engage each other at the bilge. As aforesaid, the end sections of springs F are about straight and approximately parallel with each other, and when these springs are in position for setting the staves, with the ends of the springs overlapping each other a trifle, the former thus constituted is oblong, the elongation being sufficient to make room for the staves, the latter having previously been assorted, so that the aggregate width of the staves is just sufficient for the barrel. As the clamping-jaws are afterward advanced to press the staves together, the barrel assumes a circular form, and consequently springs F are pressed back against the action of springs f, and at the same time the end sections of springs F are distended to accommodate the rounded barrel at the bilge. These springs F, therefore, grasp the barrel with considerable force, and when the clamping-jaws are afterward opened after the completion of the work the one set of jaws F or the other are likely to retain their grasp on the barrel, holding the latter to the one end of the clamp, hence the cross-bars e⁴, that cause the barrel to be disengaged from both sets of springs F, leaving the barrel free to be discharged.

I may add that the upper head is suspended in position to enter the crozing by means of a strip of wood resting on the upper end of the staves and temporarily secured to the head, the same as described in my previous patent, aforesaid.

What I claim is—

1. In a barrel-making machine, the combination, with clamping-frames adapted to re-

volve on their axes, of toggle-joints for operating the clamping-jaws of such frames, and a hand-lever for operating the toggles, the different members being operatively connected, substantially as and for the purpose set forth.

2. In a barrel-making machine, the combination, with reciprocating clamping-jaws, of a former consisting of opposing springs yieldingly connected with the jaws, and mechanism connected with said jaws for reciprocating them simultaneously toward and away from each other, substantially as set forth.

3. In a barrel-making machine, the combination, with clamping-jaws, substantially as indicated, of a former consisting of opposing springs adapted to expand in shaping the barrel, such springs being yieldingly connected with the clamping mechanism, substantially as set forth.

4. In a barrel-making machine, the combination, with clamping-jaws and elastic former, substantially as indicated, of rigid frames loosely supported from the clamping mechanism, such frames having cross-bars adapted to engage such supports, whereby the frames in opening the clamp are brought in central position with the cross-bars inside the line of the clamping-jaws and former, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 25th day of March, 1889.

LEMON M. REED.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.