

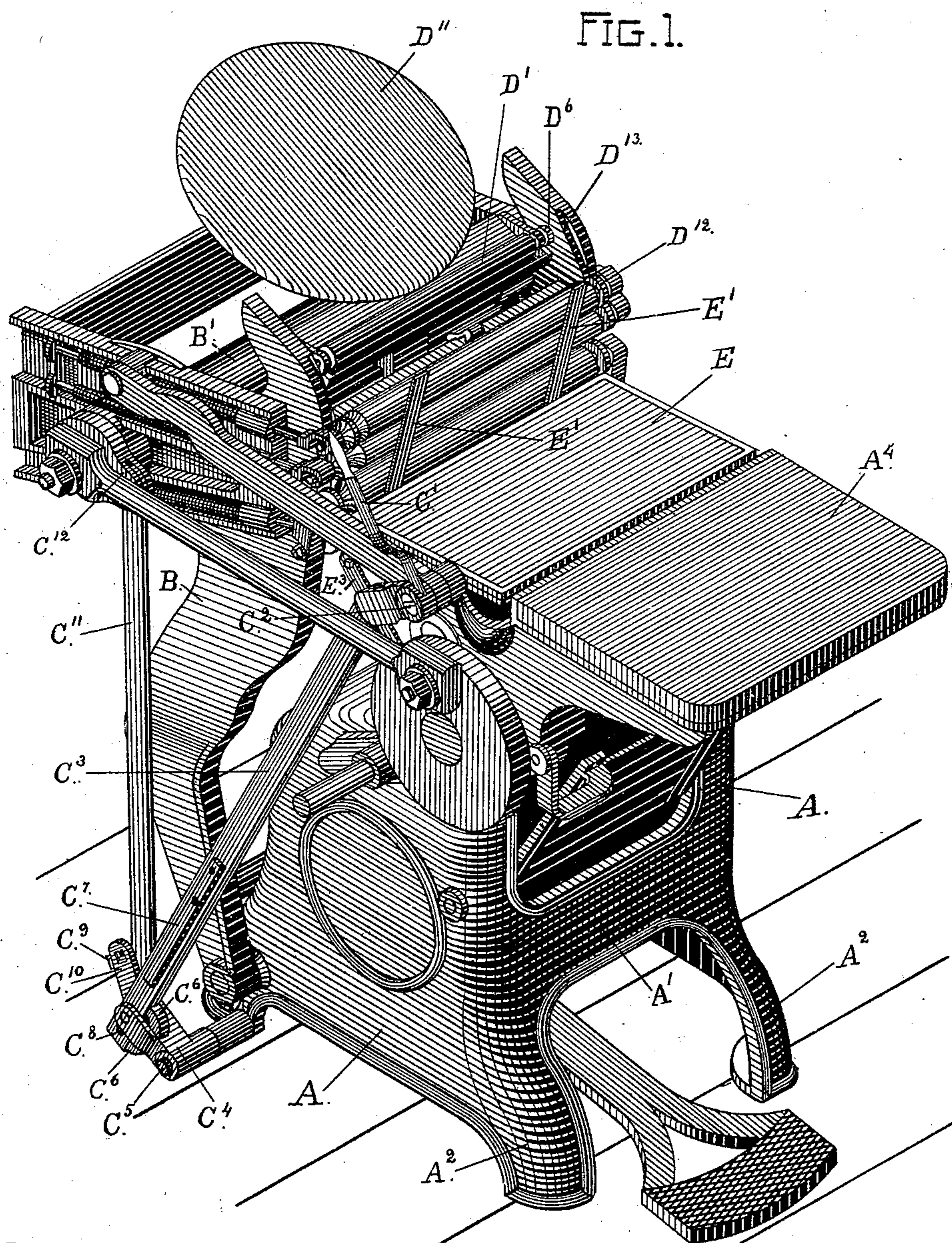
(No Model.)

8 Sheets—Sheet 1.

H. SWAIN.
PRINTING PRESS.

No. 538,296.

Patented Apr. 30, 1895.



WITNESSES

E. R. Lewis
Marcus S. Levi.

INVENTOR

Adm'n. Grant
by E. F. Muddock
Atty.

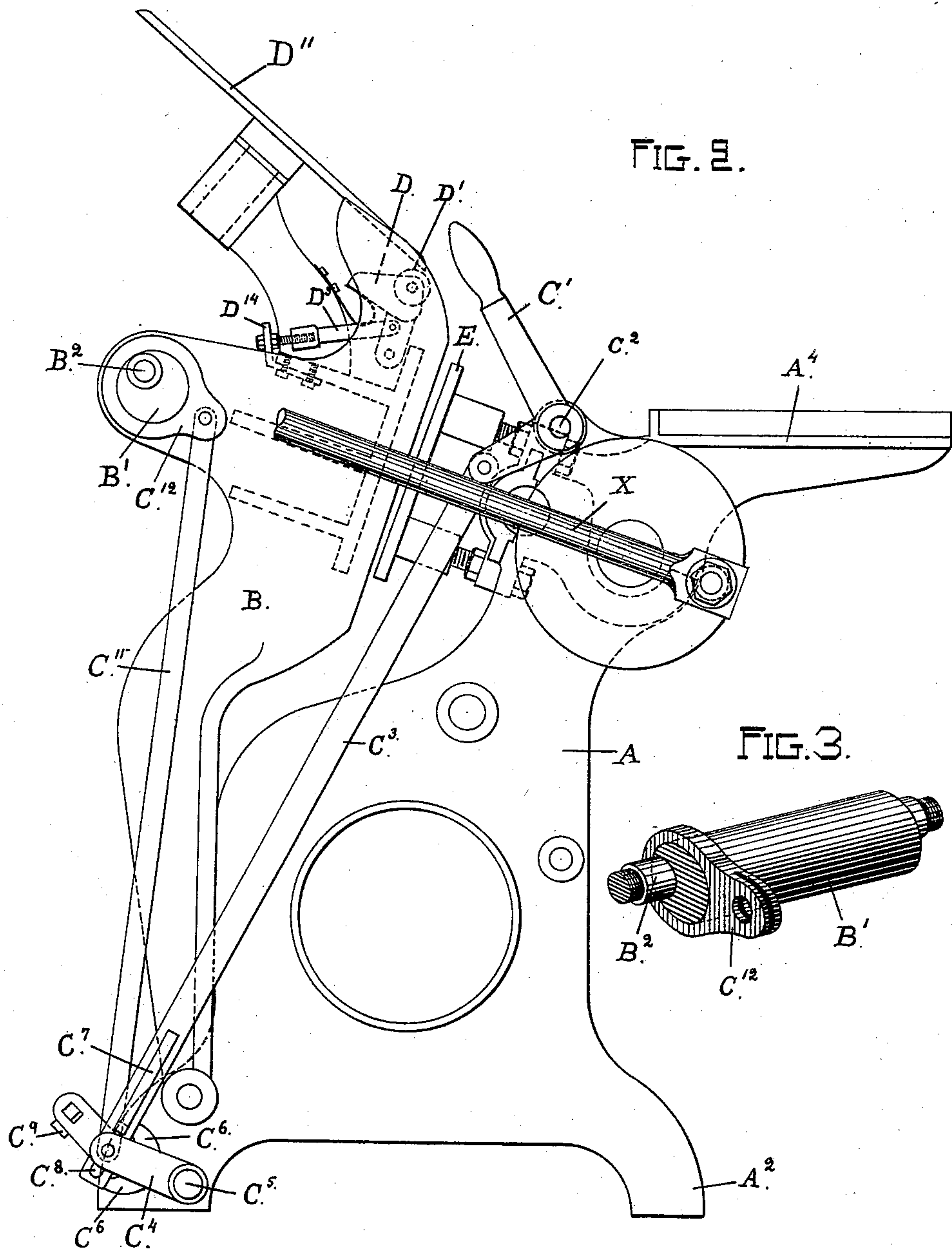
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8 Sheets—Sheet 2.

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No. 538,296.

Patented Apr. 30, 1895.



WITNESSES

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8 Sheets—Sheet 3.

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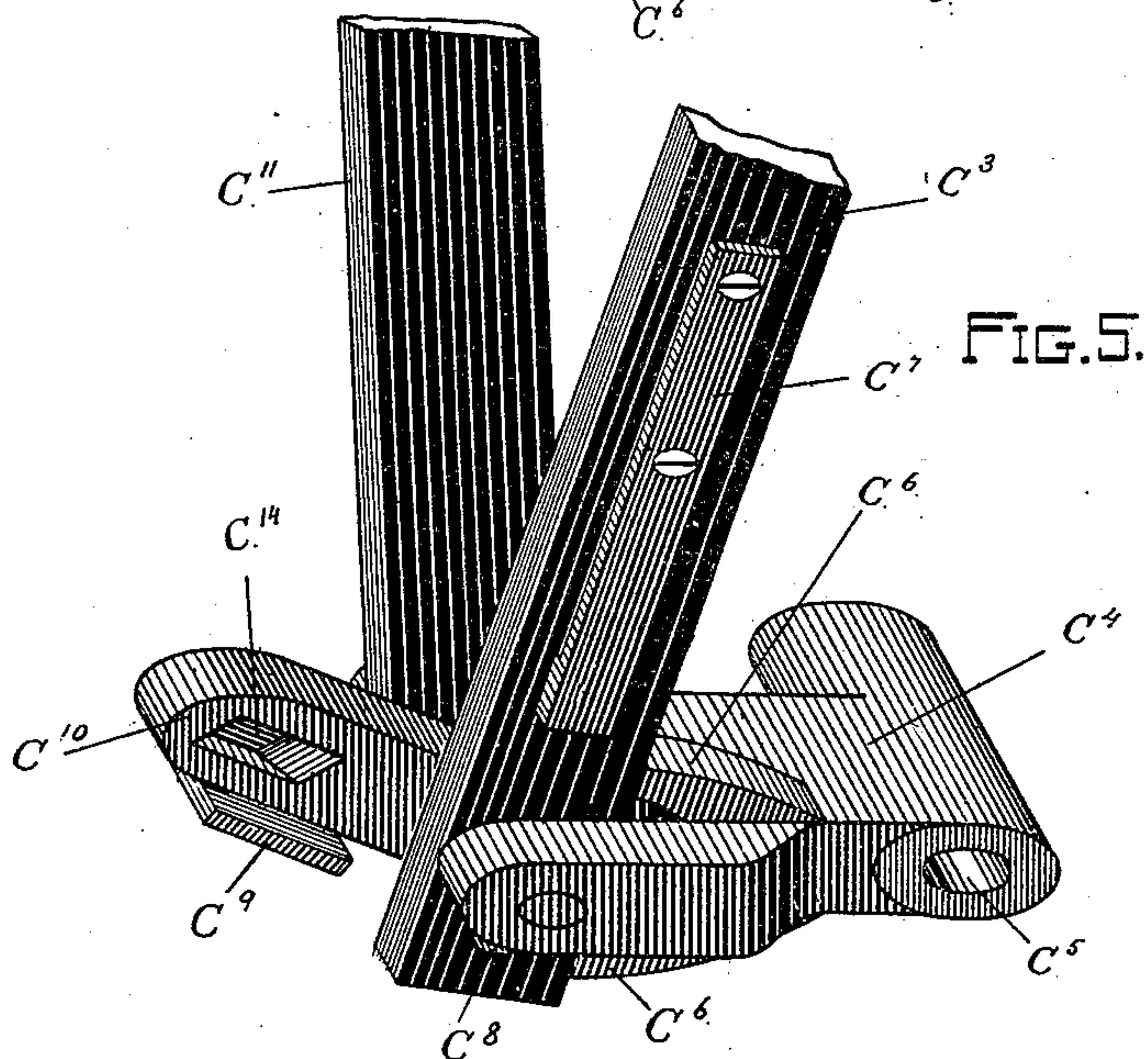
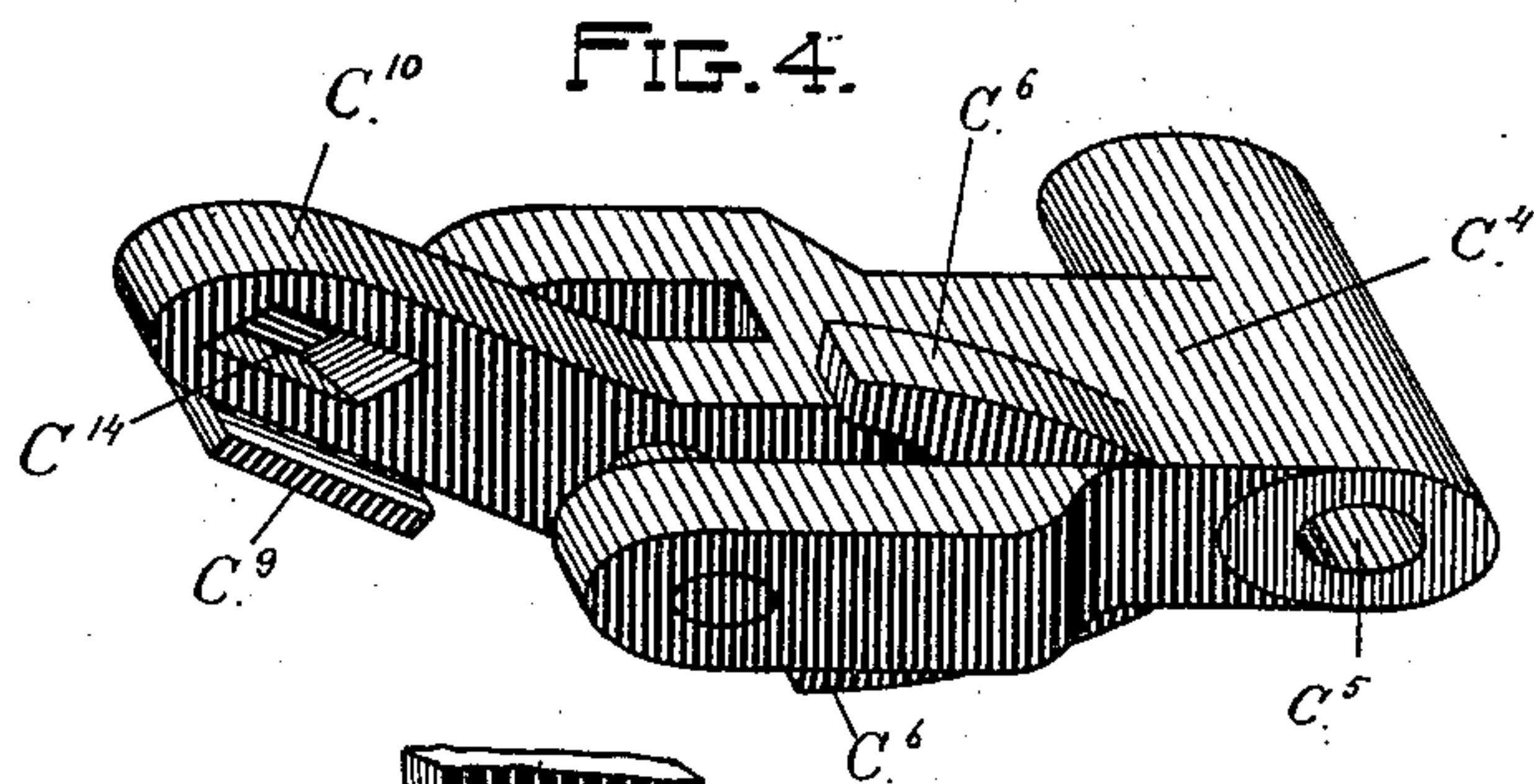
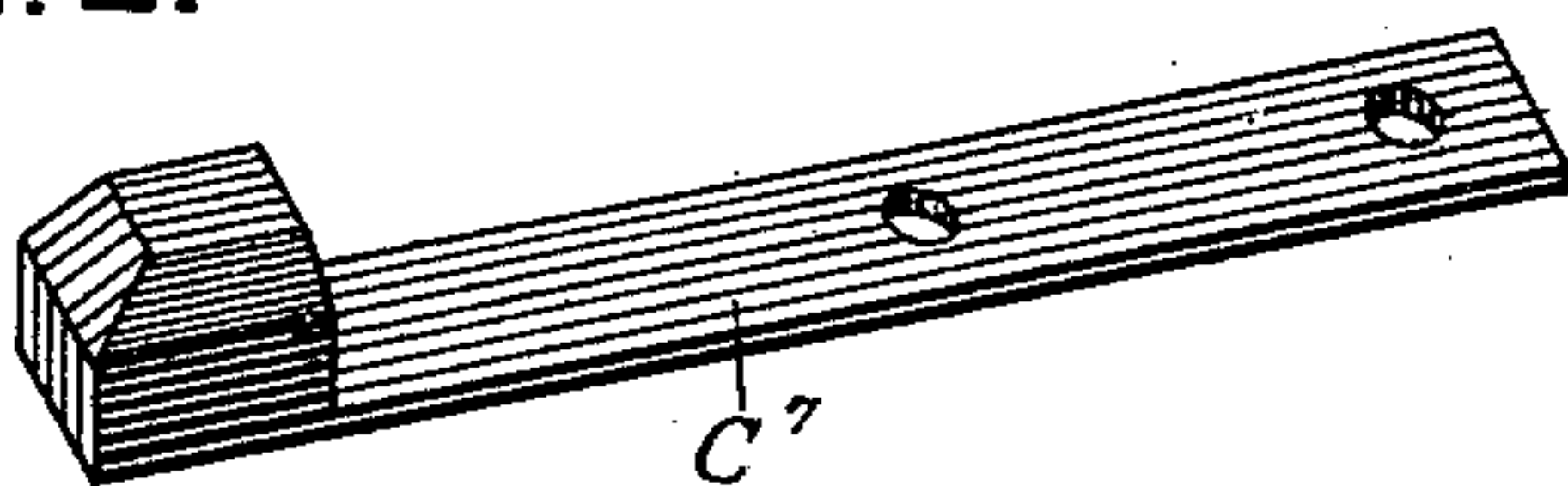


FIG. 6.



WITNESSES

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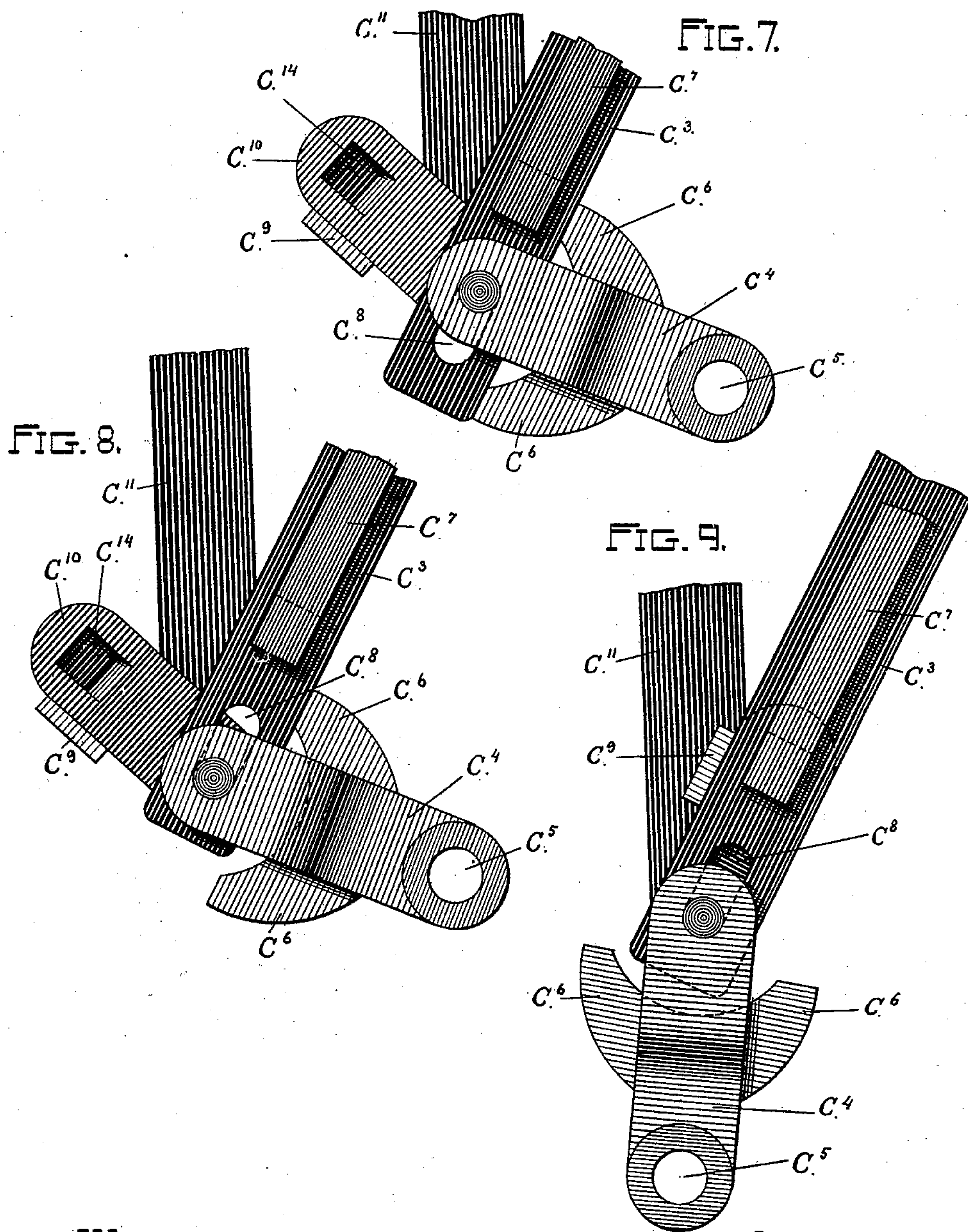
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PRINTING PRESS.

No. 538,296.

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(No Model.)

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FIG. 10.

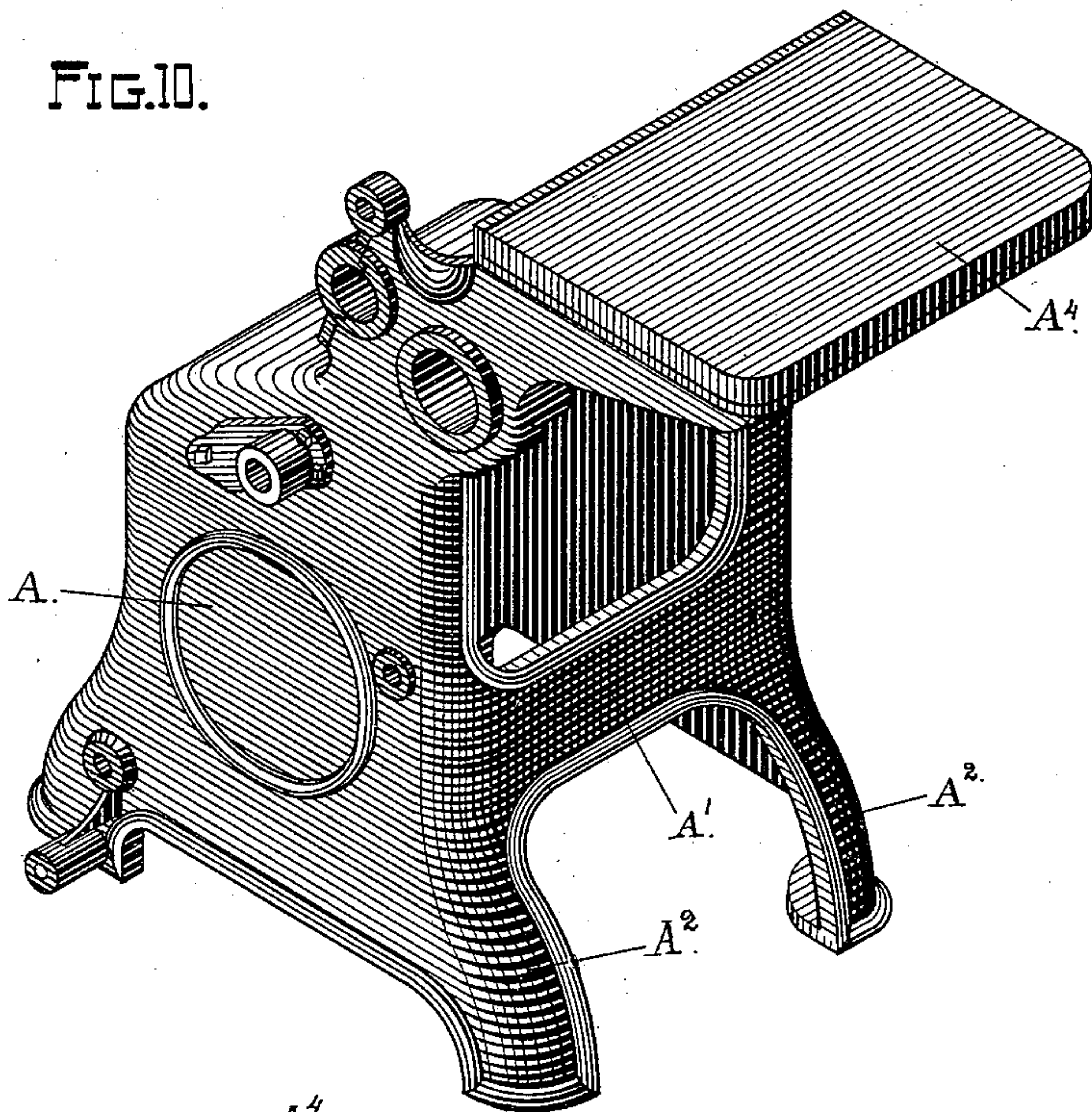
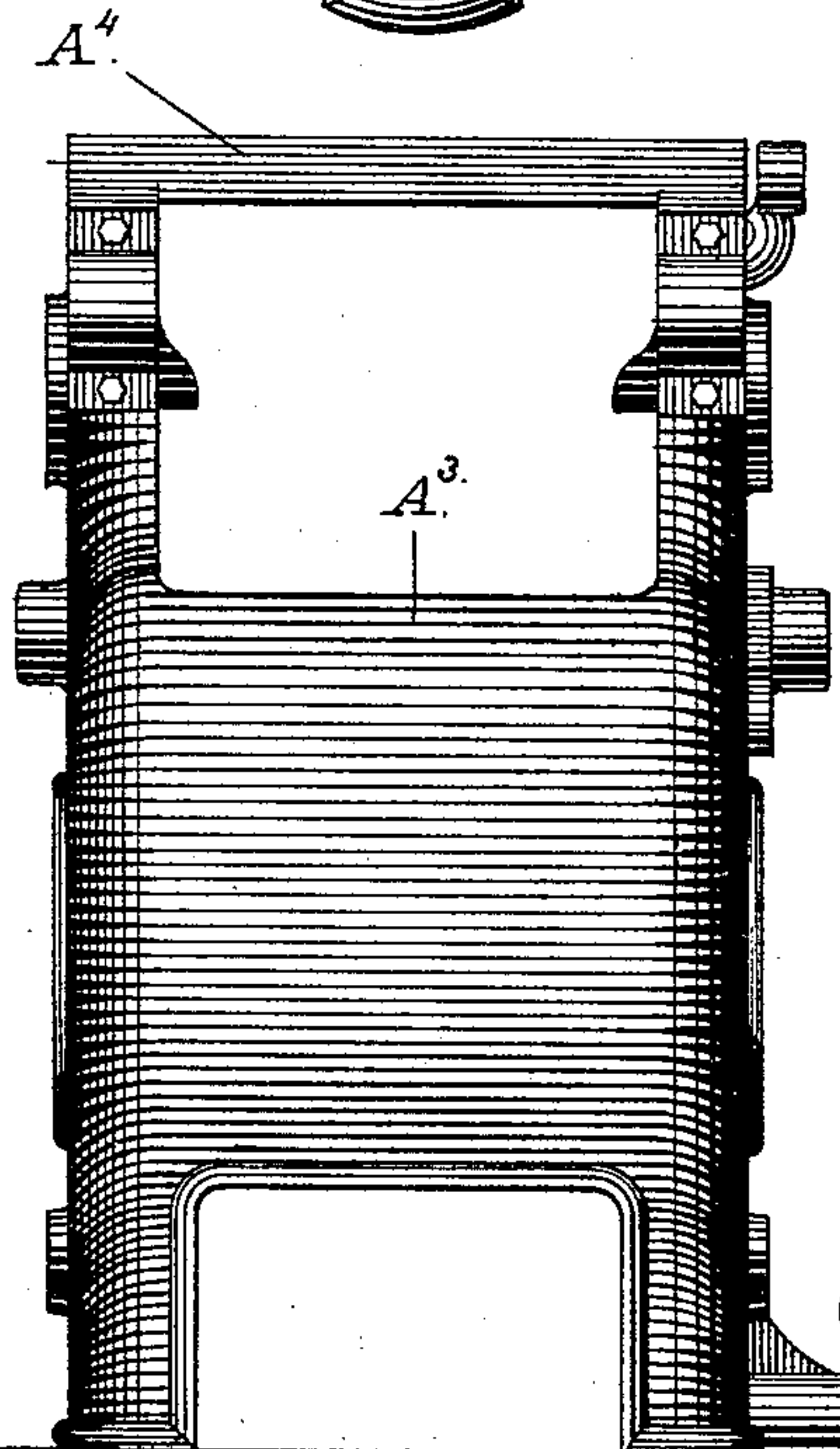


FIG. 11.



WITNESSES

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(No Model.)

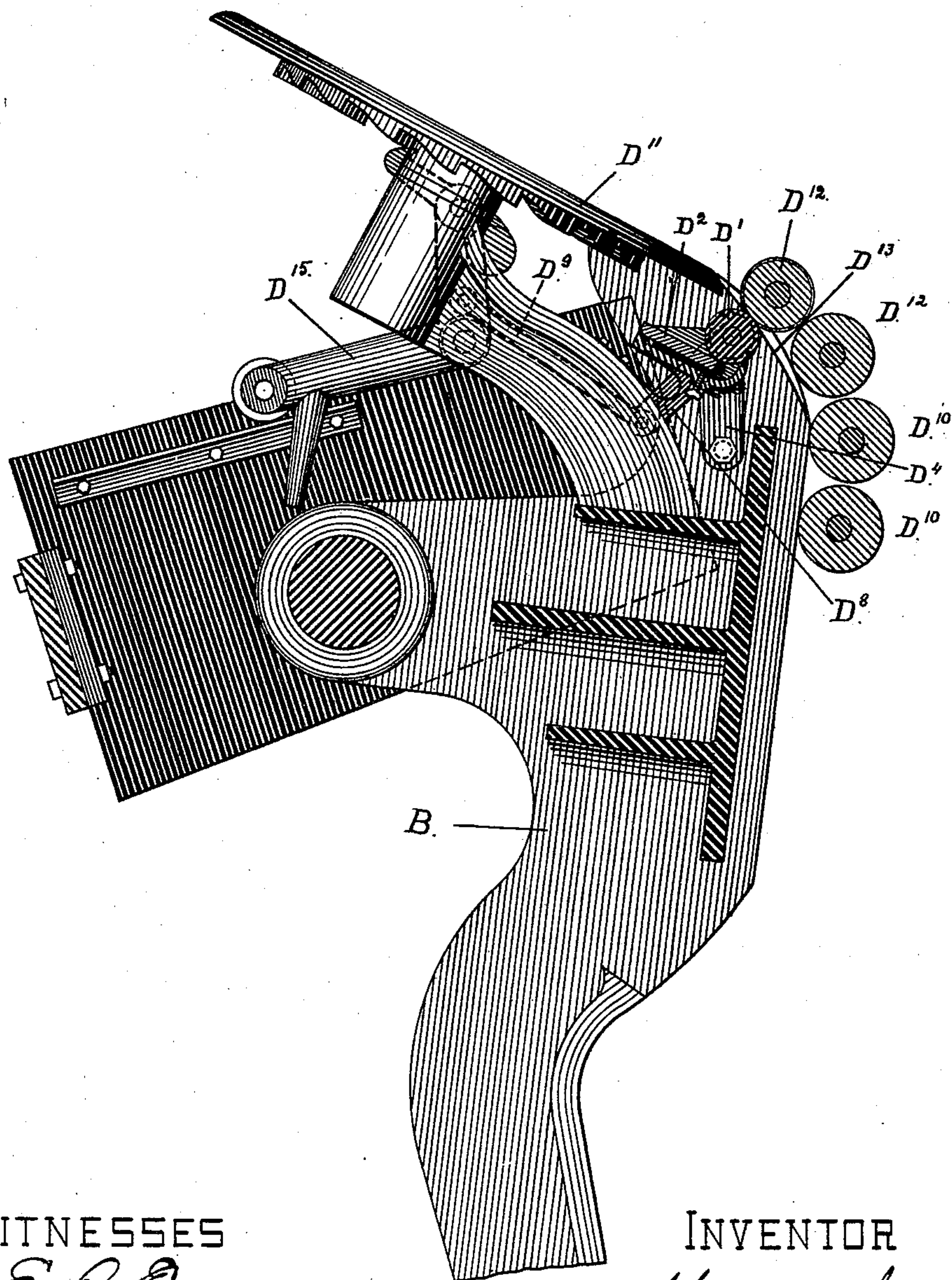
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FIG. 12.



WITNESSES

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FIG. 13.

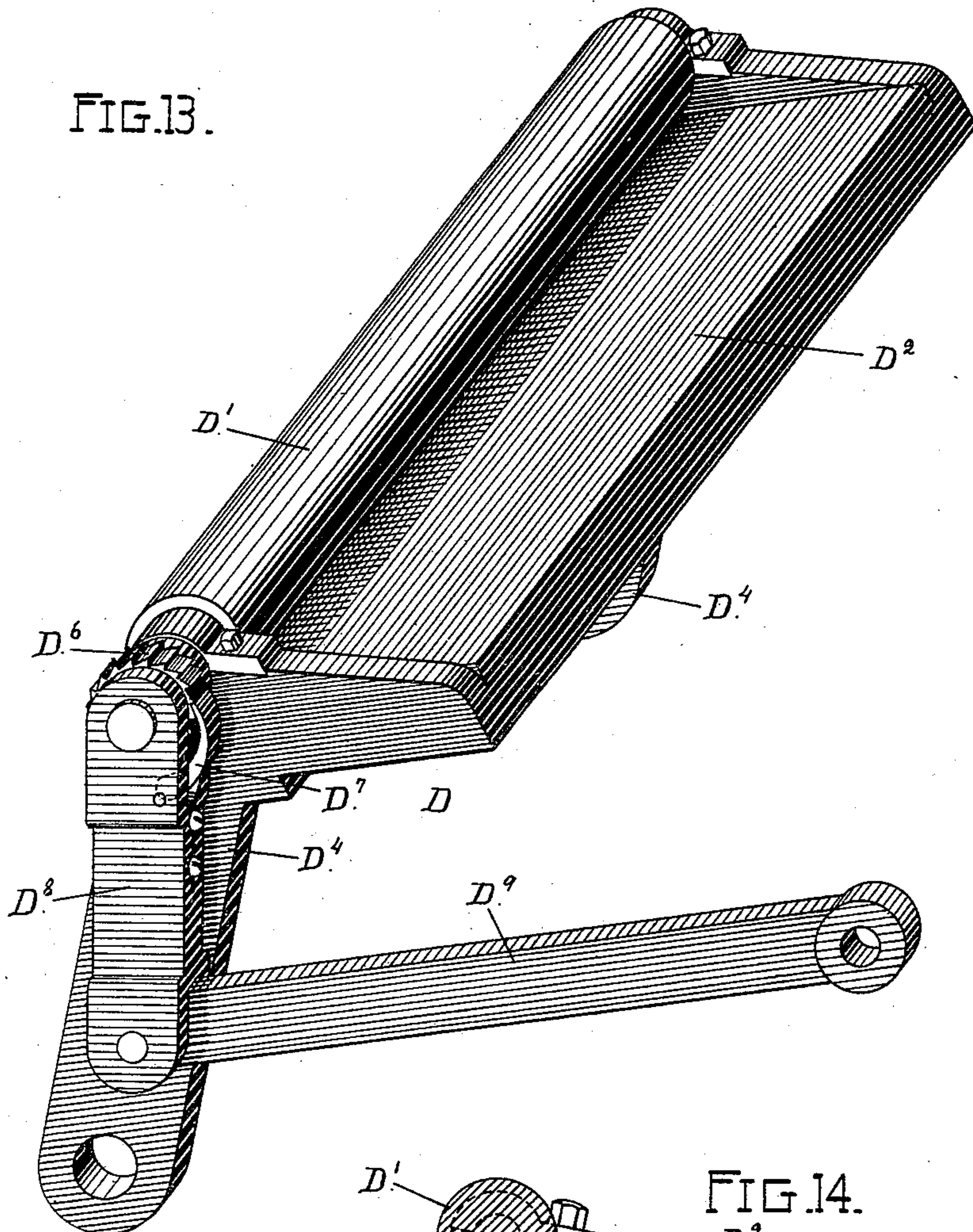
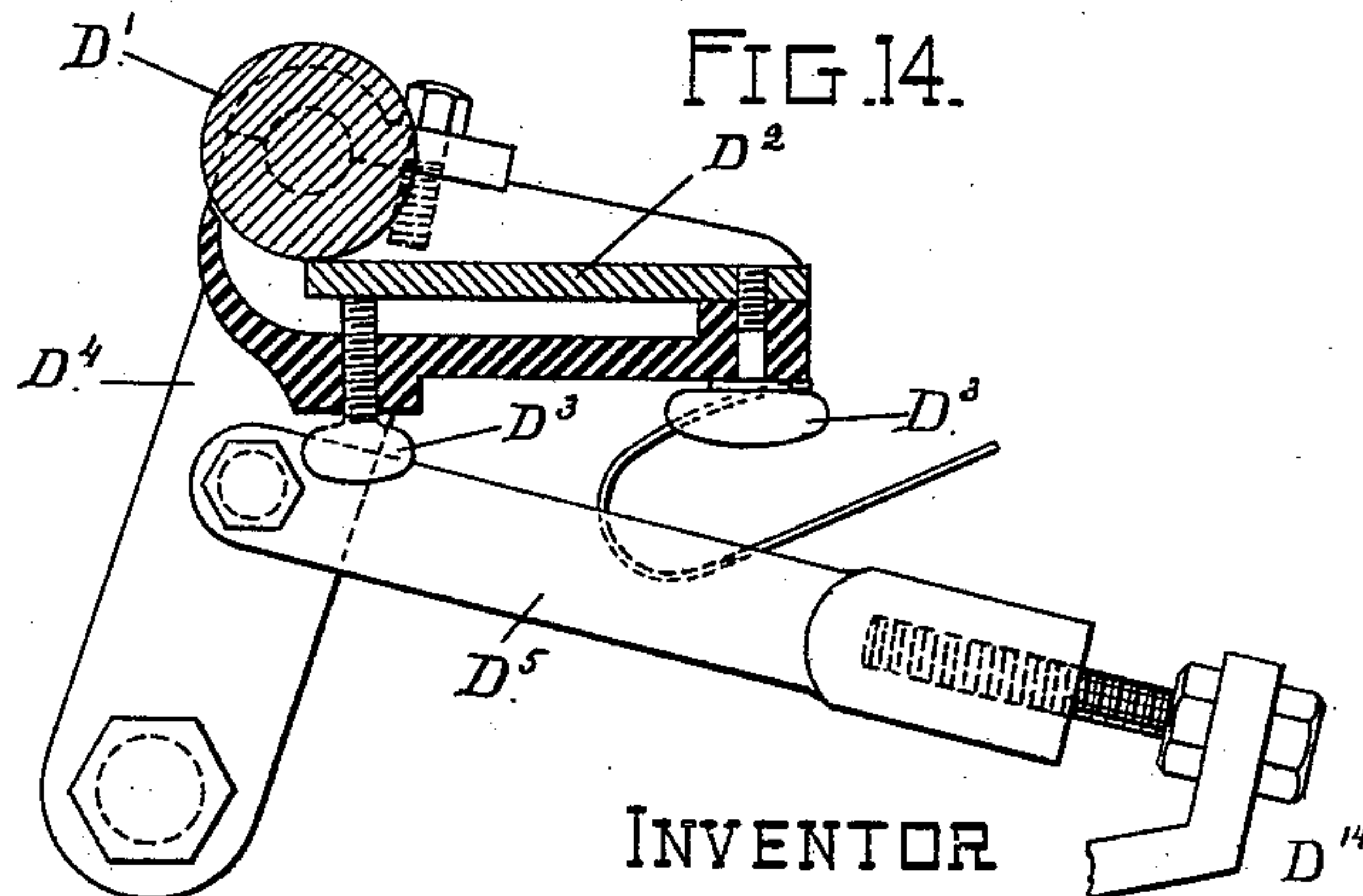


FIG. 14.



WITNESSES

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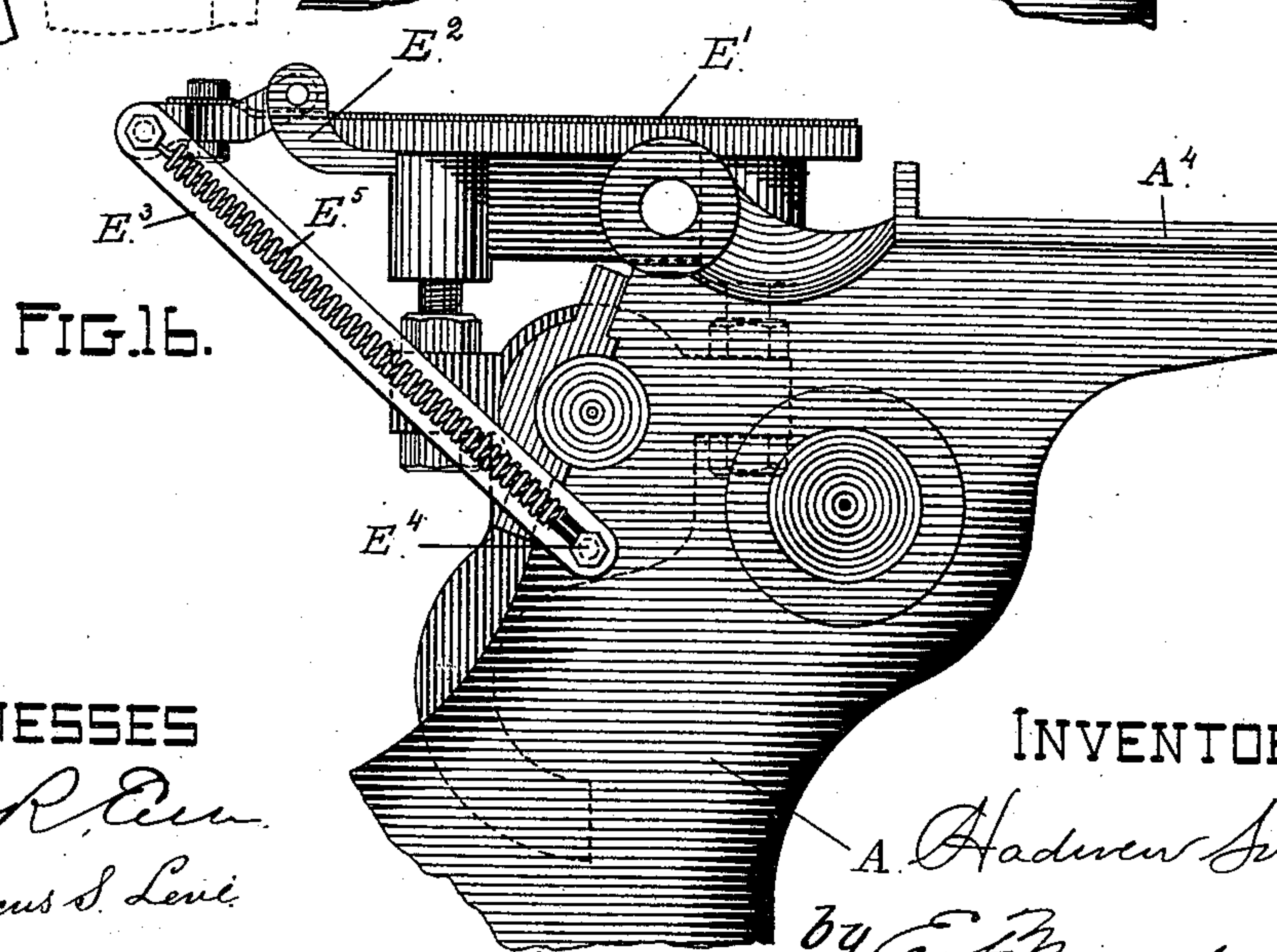
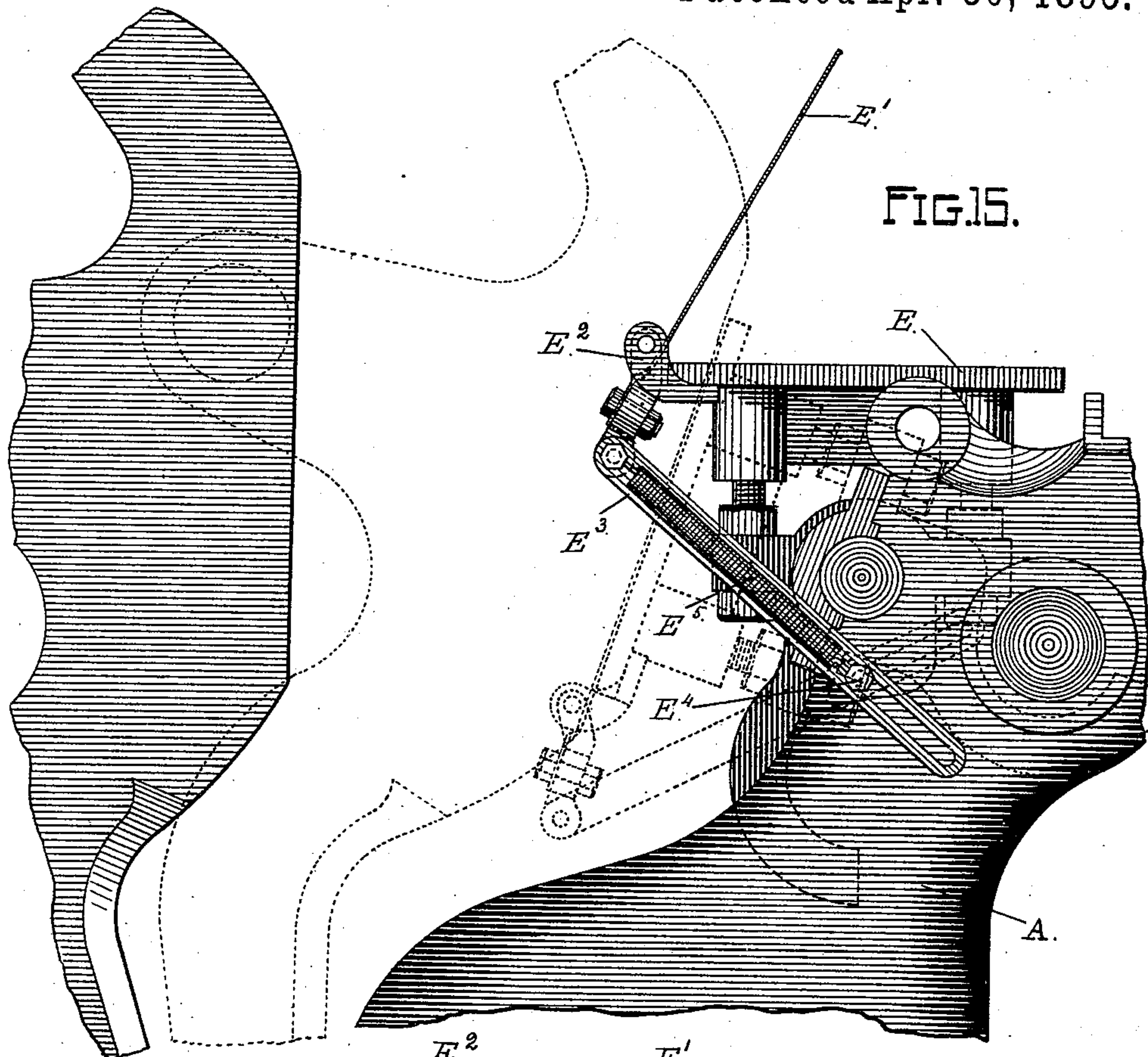
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PRINTING PRESS.

No. 538,296.

Patented Apr. 30, 1895.



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UNITED STATES PATENT OFFICE.

HADWEN SWAIN, OF SAN FRANCISCO, CALIFORNIA.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 538,296, dated April 30, 1895.

Application filed October 28, 1893. Serial No. 489,383. (No model.)

To all whom it may concern:

Be it known that I, HADWEN SWAIN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in printing presses and more particularly to that class known as the old style Gordon presses, and it consists in the novel construction and arrangement of the parts as herein set forth.

The objects of the present invention are, to provide a throw off for the swinging frame that will be rapid and easy of manipulation and which will be locked in position to prevent any accidental disarrangement of the parts; to provide a rigid frame; to provide a fountain by means of which the supply of ink on the plate may be regulated or dispensed with when desired without necessitating the removal of the fountain or parts of the machine; and to provide gripper fingers which may be depressed upon the platen when thrown back to ascertain the alignment and spacing of the impression.

In the drawings, Figure 1 is a perspective view of a press having these improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a detail view in perspective of the eccentric by which the advance of the swinging frame is regulated. Fig. 4 is a detail view in perspective showing the construction of the rocker crank. Fig. 5 is the same view showing its connections with the eccentric and lever rods. Fig. 6 is a detail view in perspective of the spring lock on the lever rod. Figs. 7, 8 and 9 are detail views showing the relative positions of the rocker crank and the eccentric and lever rods during the operation of the throw off. Fig. 10 is a perspective view of the stationary frame showing its solid construction. Fig. 11 is a rear elevation of the same. Fig. 12 is a sectional view of the fountain showing its connection with the parts of the swinging frame and inking rollers. Fig. 13 is an enlarged detail in perspective of the fountain and ratchet and pawl attachment by

which the feed roll is turned. Fig. 14 is a section through the fountain showing its adjustments. Fig. 15 is a side elevation of the platen showing the gripper finger attachments. Fig. 16 is the same view showing the gripper fingers depressed upon the platen.

The letter "A" designates the stationary frame of the press. The sides are constructed solidly and are joined by the front and back webs. The castings are made as light as is compatible with strength. By making the whole frame as is shown, in one casting I get greater rigidity than in the bolted frames now in use on these presses. The table "A⁴" is also cast with the frame adding strength thereto.

Upon the frame "A" is mounted the swinging frame "B" and the usual gearings and driving mechanism by which the swinging frame is propelled back and forward in the operation of printing.

To regulate the throw of the swinging frame so as to prevent its advance upon the platen when not desired I connect the draw-bar "X" of the press to the swinging frame "B" by means of an eccentric "B'." By rotating this eccentric the connection is shifted backward or forward to regulate the advance of the swinging frame. This is accomplished in the present invention by means of the throw of mechanism the parts of which are designated by the letter "C." They consist principally of the bell-crank lever "C'," collar "C¹²," rocker "C⁴," and the connecting rods "C³" and "C¹¹." The bell-crank "C'" is fulcrumed at "C²" upon the stationary frame "A" and is provided at the free end with a handle in easy reach of the operator feeding the machine from the table "A⁴." To the lifting arm of the lever is connected the rod "C³" which is attached to the rocker "C⁴" and transmits any motion of the said lever thereto. The rocker "C⁴" is fulcrumed at "C⁵" to the stationary frame "A" and is yoke-shaped at the free end to receive the ends of the rods "C³" and "C¹¹" upon a bolt passed through the ends of the yoke arms and said rods. The rod "C¹¹" extends from the rocker on the stationary frame to a lug on the collar "C¹²" rigidly secured on the eccentric shaft "B'" of the swinging frame "B." The draw-bar "X" is connected to this shaft by the eccentric pin

"B²" which as the shaft is rotated is thrown to and from the driving wheel of the press and thereby changes the position of the swinging frame "B" relatively to the platen on the stationary frame.

By means of the mechanism as described above and shown at Fig. 2 of the drawings it will be seen that as the handle of the bell-crank "C'" is thrown away from the operator the lifting arm of the bell-crank is depressed and this movement is transmitted through the rod "C³" to the rocker "C⁴" and rod "C¹¹" to the lug on the collar "C¹²" on the shaft "B'" rotating the same as to throw the eccentric "B²" toward the drive wheel, and the swinging frame "B" back so that the type will not imprint on the platen. When now the handle is drawn toward the operator the above described action is reversed and the swinging frame is thrown forward so as to make an impression on the forward stroke of the draw-bar.

To reduce any movement of the shaft "B'" during the impression and consequent variation of the force of the impression, I have so fulcrumed the rocker "C⁴" on the frame "A" that when the rocker is raised in position to throw the swinging frame forward, as above described, the pivotal connection between the rod "C¹¹" and the rocker will be in line with the pivotal connection of the swinging frame. In this way the frame and throw-off are caused to swing on the same pivotal center.

To lock the parts in position, so that the vibration of the machine will not dislodge them, I have provided the brackets "C⁶," "C⁶" and the latch "C⁷" as shown in Figs. 4, 5, 6, 7, 8 and 9. The rods "C³" and "C¹¹" I separate in the yoke by the extension "C¹⁰" which is cast integrally with the rocker "C⁴." Upon either side of the rocker I provide the brackets "C⁶," "C⁶" the ends of which rest against the side of the rod "C³" when it is depressed as shown at Fig. 7. To permit the engagement of both of the brackets "C⁶," "C⁶" with the rod "C³" it is provided with the slot "C⁸" to engage the bolt in the end of the yoke arms of the rocker "C⁴." This slot permits of the rod when depressed passing over the lower bracket "C⁶." In this position it is impossible for the rocker to raise until the rod "C³" is first drawn upward as shown at Fig. 8, so that the lower end of the rod passes out of engagement with the bracket "C⁶" and into the valley between the two brackets, which it does as it pulls the rocker to an upright position, as shown in Fig. 9. In this last position the swinging frame "B" is thrown toward the platen and in this position the parts are locked by the spring latch "C⁷" entering the slot "C¹⁴" in the extension "C¹⁰." The head of this latch is beveled on the side next the extension and on the end as shown in Fig. 6. The latch is attached to the rod "C³" and the head extends through an opening in the said rod provided for it.

When the rocker is drawn up by the rod "C³" the extension "C¹⁰" passes behind the said rod and in doing so the edge strikes the beveled side of the head of the latch and raises it until it falls in the slot "C¹⁴" and the side of the rod "C³" strikes against the stop "C⁹" which limits the movement of the rod in that direction. In this position the rod "C³" and rocker "C⁴" are locked until the rod "C³" is depressed by the operator throwing back the handle of the bell-crank "C'" when the beveled end of the latch head rides on the beveled end of the slot "C¹⁴" and thus out of the slot. In this position the lower end of the rod comes in contact with the lower bracket "C⁶" on the rocker and causes the continued thrust to bear in turning the rocker down, until the parts are locked in the position shown in Fig. 7 and the swinging frame is thrown off from making an impression upon the platen.

The letter "D" I use to designate all the parts of the machine which appertain to the holding and spreading of the ink.

The mechanism used in this invention for operating the rollers and tilting the platen is the same as is known and used in the present presses.

The fountain I place in front of the ink plate "D¹¹" so that the feed roller "D¹²" takes from the fountain roller "D'" on the up and down stroke of the feed rollers a supply of ink placing the same on the ink plate. The fountain roller "D'" I mount in the pivoted frame "D." This frame is pivotally mounted upon the sides of the swinging frame "B" at the lower ends of the arms "D⁴." See Figs. 12 and 14. To one of these arms is connected the link "D⁵" by means of which the fountain is advanced or receded, and is provided at the end where it is attached to the frame "B" with the set screw "D¹⁴." The set screw is attached pivotally to the frame "B" and engages a threaded perforation in the end of the link "D⁵" so that by turning the screw the link is drawn back and forward carrying the fountain.

The ink is carried in the fountain between the fountain roller "D'" and the fountain blade "D²" which is inclined to throw the ink toward the roller. To regulate the supply of ink to the roller I increase or diminish the opening between the roller and the edge of the blade by resting the forward edge on the line of set screws "D³" which are threaded in the under side of the frame "D." By raising or lowering the blade the space between the roller "D'" and the blade is varied and permits a thick or thin layer of ink to pass out of the fountain on the roller. The roller "D'" is rotated by means of the ratchet "D⁶" and pawl "D⁷" on the link "D⁸" which latter is pivoted on the roller "D'." The link "D⁸" is vibrated to cause the pawl to engage the teeth of the ratchet and turn the roller by means of the rod "D⁹." This rod is con-

connected to the vibrating device "D¹⁵" which turns the ink plate "D¹¹" and is of any suitable known construction.

When it is desired to supply more ink to the rollers "D¹²" and the flow is even, this may be accomplished by forcing the fountain forward by turning the set screw "D¹⁴" when the roller "D'" being set forward the rollers "D¹²" will bear harder on it and thereby take up more ink; or when it is desired to print extra heavy as when heavy black face type—(such as used in bill posting)—is being used, the fountain may be advanced until all of the rollers ride the supply roller "D'" in passing thereby carrying an enlarged supply of ink to the ink plate "D¹¹," or when it is desired to change temporarily the color this may be done by receding the fountain out of contact with any of the rollers and the changed color of ink may be spread by hand until the press is ready for the ink contained in the fountain when it may be advanced.

As in presses now in use, the top rollers "D¹²" of the set of ink rollers are used to spread the ink upon the ink plate. This roller is provided in this invention with enlarged carrier wheels which ride on the edge of the swinging frame "B" and raise the rollers away from the type.

In this invention the upper and inner edge of the sides of the frame are cut away to form the depressed track "D¹³" shown in Fig. 12. The carriers on the roller "D¹²" are placed in the path of the depressed track so as to travel over it and thus permit this roller to come in contact with the supply roller "D'" while the carriers on the other three rollers pass over the raised part of the track and are raised thereby over the supply roller. By thus placing the fountain in front of the ink plate as shown and described, besides the advantages mentioned above I am saved the extra swing of the rollers which they are compelled to take to reach the fountain when, as at present it is placed above and behind the table; also am I saved the wear and tear on the retaining springs which is caused by the extra stretch over the old style fountain.

The letter "E" I use to designate the parts of the gripper fingers. The construction to which this invention appertains is the flexible connection by which they are held in position and permitted to be depressed upon the platen for spacing. The gripper fingers "E'" are hinged to the lugs "E²" on the platen "E." The lower ends of these fingers are connected to the stationary frame "A" by the link "E³" which is provided at the lower end with an elongated slot as seen in Fig. 15. The link "E³" is secured to the frame "A" by the headed pin or bolt "E⁴." Between the forward end of the link and the pin "E⁴" extends the spiral spring "E⁵." This spring while allowing the link to advance until the gripper fingers "E'" are depressed upon the platen, as shown in Fig. 16, imme-

diately upon the said fingers being released returns them to the normal position as shown in Fig. 15. When now the platen is operated to fall, as shown in dotted lines Fig. 15, in the operation of the machine the link "E³" bears on the pin "E⁴" and tends to throw the fingers forward against the platen causing them to grasp firmly the paper being printed upon and maintains the same in position until the platen begins to rise, when the fingers are spread away from it to their original position.

Having thus described this invention, what I claim is—

1. In a printing press the combination with the swinging frame the platen frame, and the throw-off for varying the movement of the swinging frame embodying the eccentric, rocker and rod connecting the rocker and eccentric, of the operating rod connected with the rocker and having a limited independent longitudinal movement and a lock for holding the rocker in position when released by the independent longitudinal movement of the operating rod; substantially as described.

2. In a printing press the combination with the swinging frame, the platen frame and the throw-off for varying the movement of the swinging frame, embodying the eccentric and rocker, of the operating rod connected with the rocker and having a limited independent longitudinal movement and a spring lock connecting the rod and rocker when at the upper extremes of their movement, adapted to be released by the independent downward movement of the rod; substantially as described.

3. In a printing press the combination with the swinging frame, the platen frame and the throw-off for varying the movement of the swinging frame embodying the eccentric, rocker and rod connecting the eccentric and rocker of the operating rod pivotally connected with the rocker and having a limited longitudinal movement independent of the rocker, locking projections on the rocker with which the rod engages when the rocker and rod are at the lower extreme of their movements, the rocker being released by the independent upward movement of the rocker and the spring lock rigidly connecting the rod and rocker when at the upper extremes of their movement, adapted to be released by the independent downward movement of the rod; substantially as described.

4. In a printing press such as described the combination of a swinging frame, with a platen frame, and a throw-off consisting in the rod "C³" the rocker "C⁴," rod "C¹¹" attached to the eccentric "B'" and the brackets "C⁶," "C⁶" substantially as described.

5. In a printing press such as described the combination of a swinging frame, with a platen frame and a throw-off consisting in the rod "C³" the rocker "C⁴" provided with the extension "C¹⁰" the rod "C¹¹" attached to the eccentric "B'" and latch "C⁷" on rod C³ adapted to engage extension "C¹⁰" and lock

the rod "C³" thereto substantially as described.

6. In a printing press such as described the combination of a type frame to hold the type,
5 an ink plate, oscillating ink rollers, a fountain adapted to feed to the said ink rollers placed between the said type frame and ink table, and a track or way for the said rollers to lift them away from the type and lower
10 them to touch the said fountain in their oscillations, substantially as described.

7. In a printing press such as described the combination of a type frame to hold the type,
15 an ink plate, oscillating ink roller, a fountain adapted to feed the ink rollers, placed between the said type frame and ink table, said fountain being adjustable toward and from the path of the rollers, inking rollers and a track or way for the said rollers having

a cut away or depressed portion whereby 20 some of the rollers touch the fountain and are held away from the type during their oscillations; substantially as described.

8. In a printing press such as described the combination of a type frame to hold the type, 25 an ink plate, ink rollers mounted on carrier wheels, a fountain placed between said type frame and ink plate, and a track or way for the said carrier wheels having a cut-away or depressed portion and adapted to lower one 30 set and raise the other as they pass over the said fountain, substantially as described.

In testimony whereof I have hereunto set my hand this 20th day of October, 1893.

HADWEN SWAIN.

Witnesses:

E. F. MURDOCK,
E. R. ELLIS.