

No. 687,802.

Patented Dec. 3, 1901.

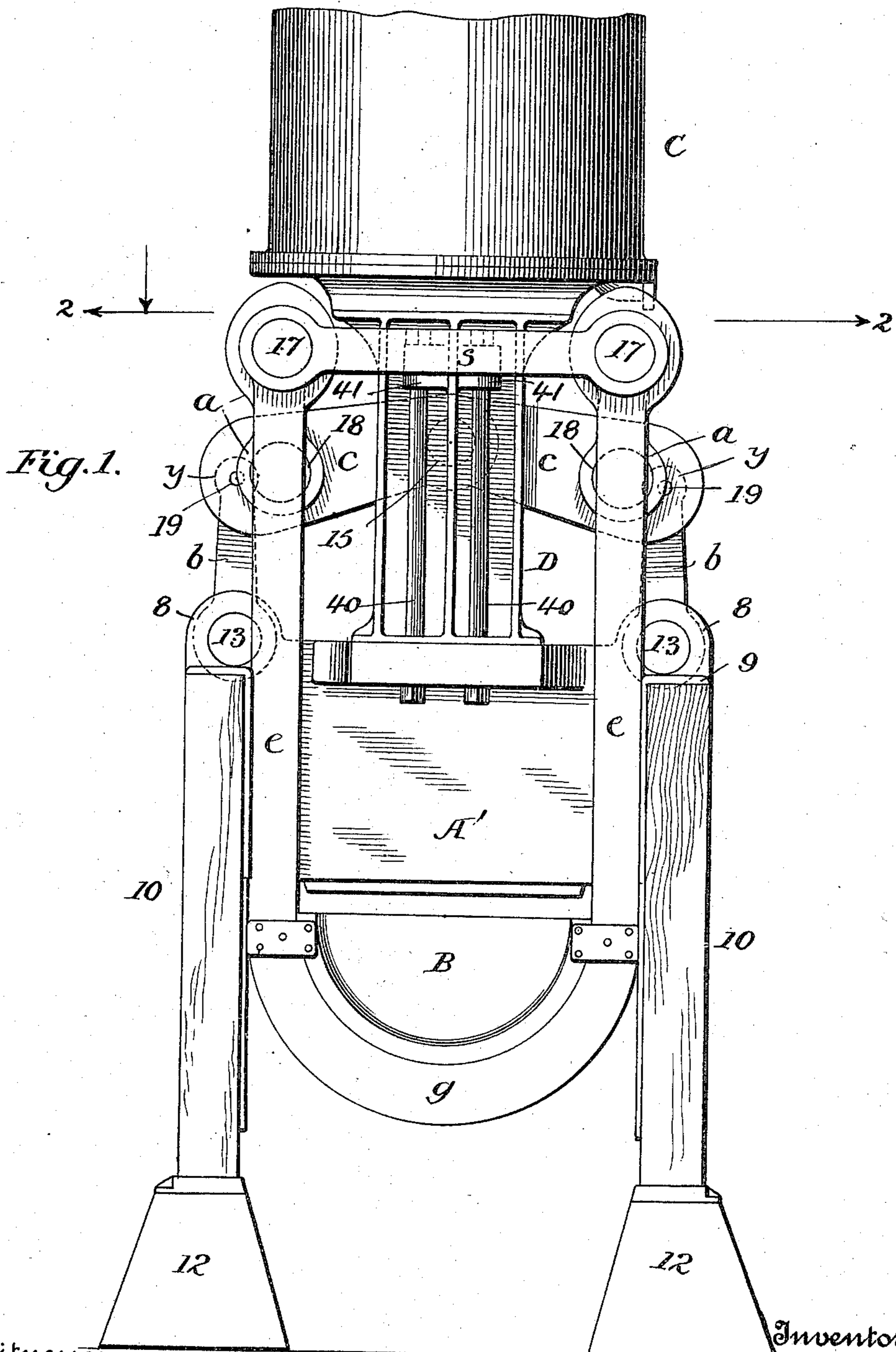
S. J. WEBB.

PRESS.

(Application filed Feb. 23, 1897.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses
J. H. Hinkel
Samuel J. Webb

Inventor
Samuel J. Webb
by *Forster Freeman*
Attorneys

No. 687,802.

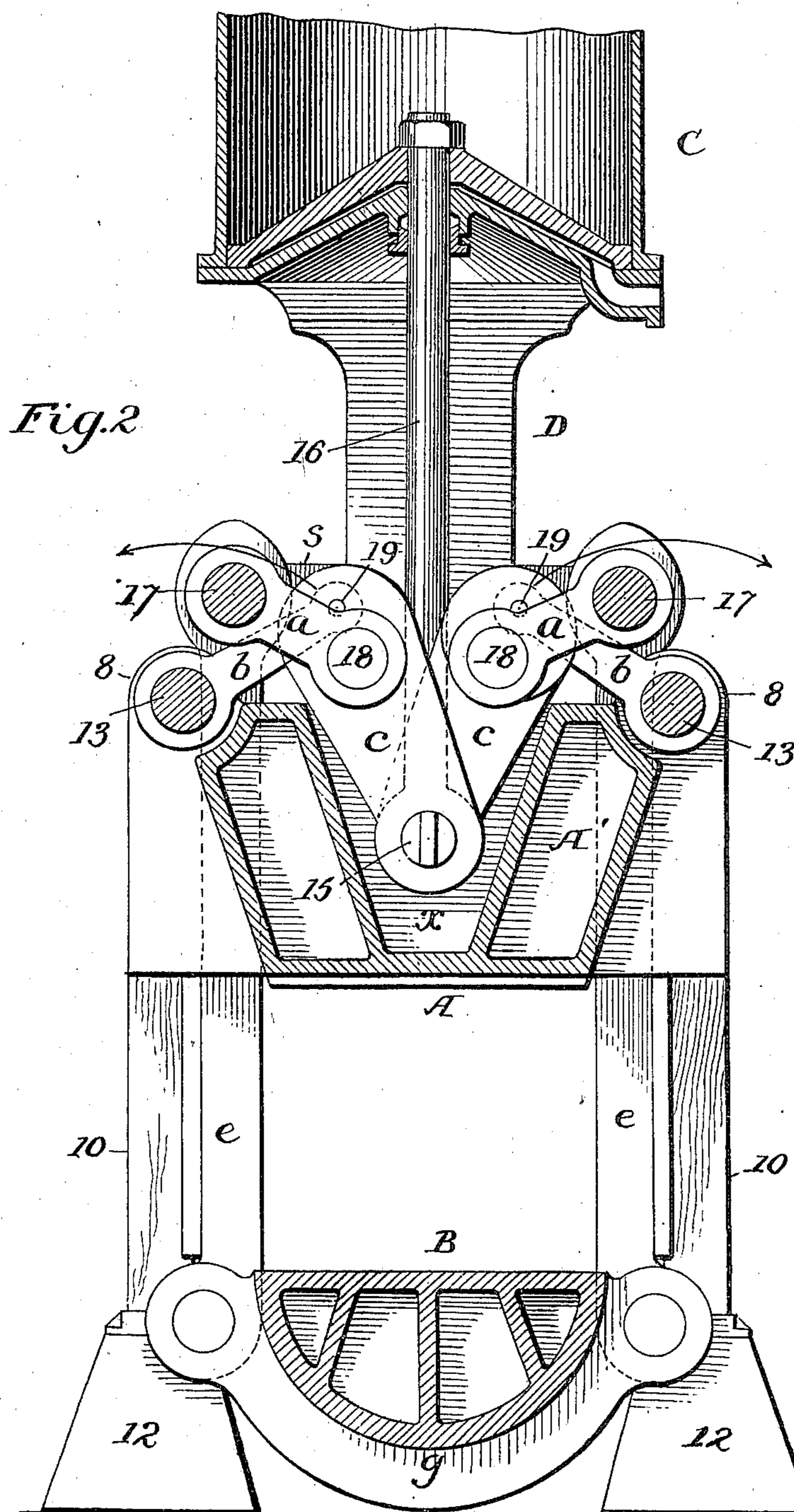
Patented Dec. 3, 1901.

**S. J. WEBB.
PRESS.**

(Application filed Feb. 23, 1897.)

(No Model.)

5 Sheets—Sheet 2.



Witnesses

J. G. Hinkel
James O. Stevens

Inventor

by *Samuel J. Webb*
for
James Freeman
Attorneys

No. 687,802.

Patented Dec. 3, 1901.

S. J. WEBB.
PRESS.

(Application filed Feb. 23, 1897.)

(No Model.)

5 Sheets—Sheet 3.

Fig. 3.

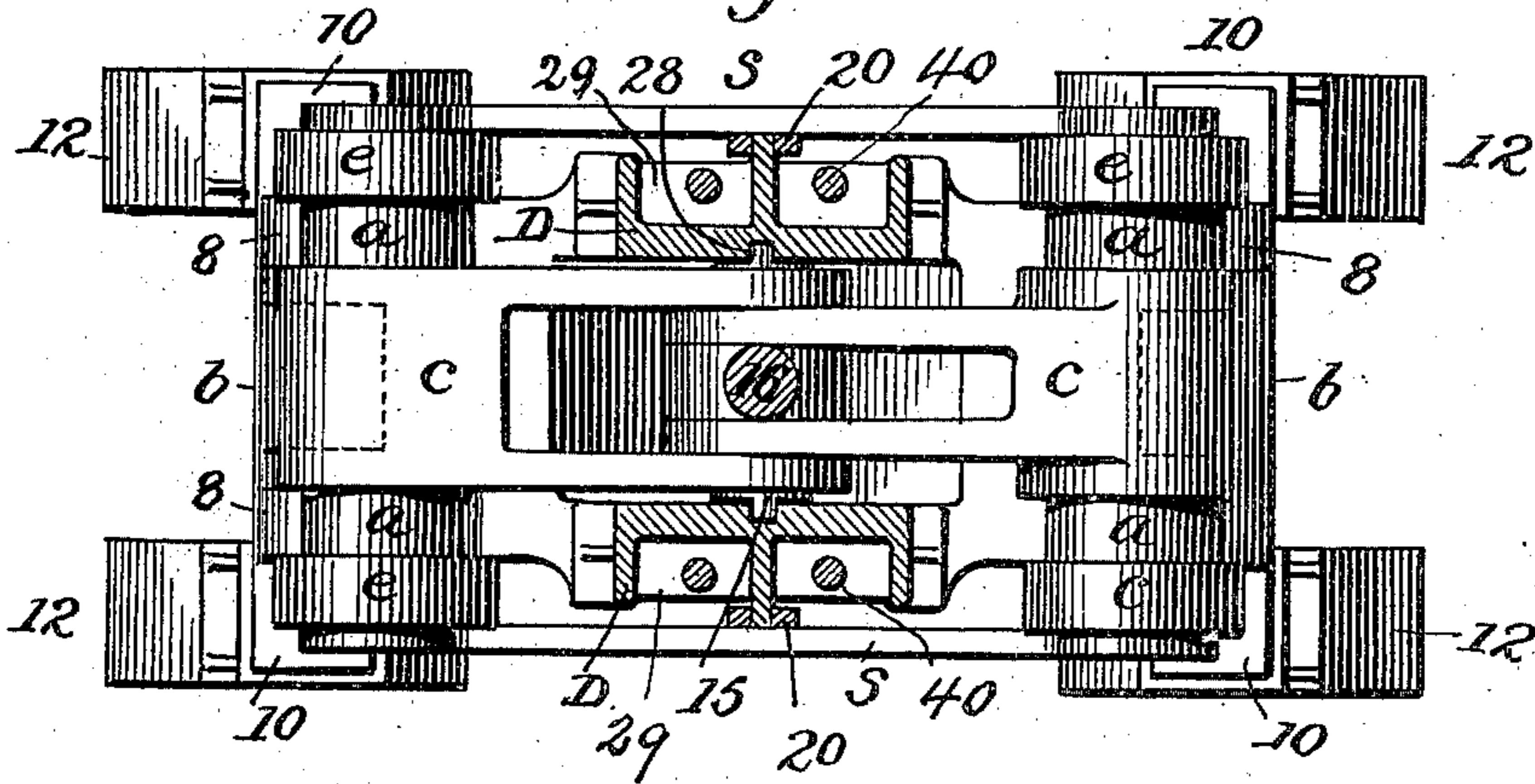


Fig. 4.

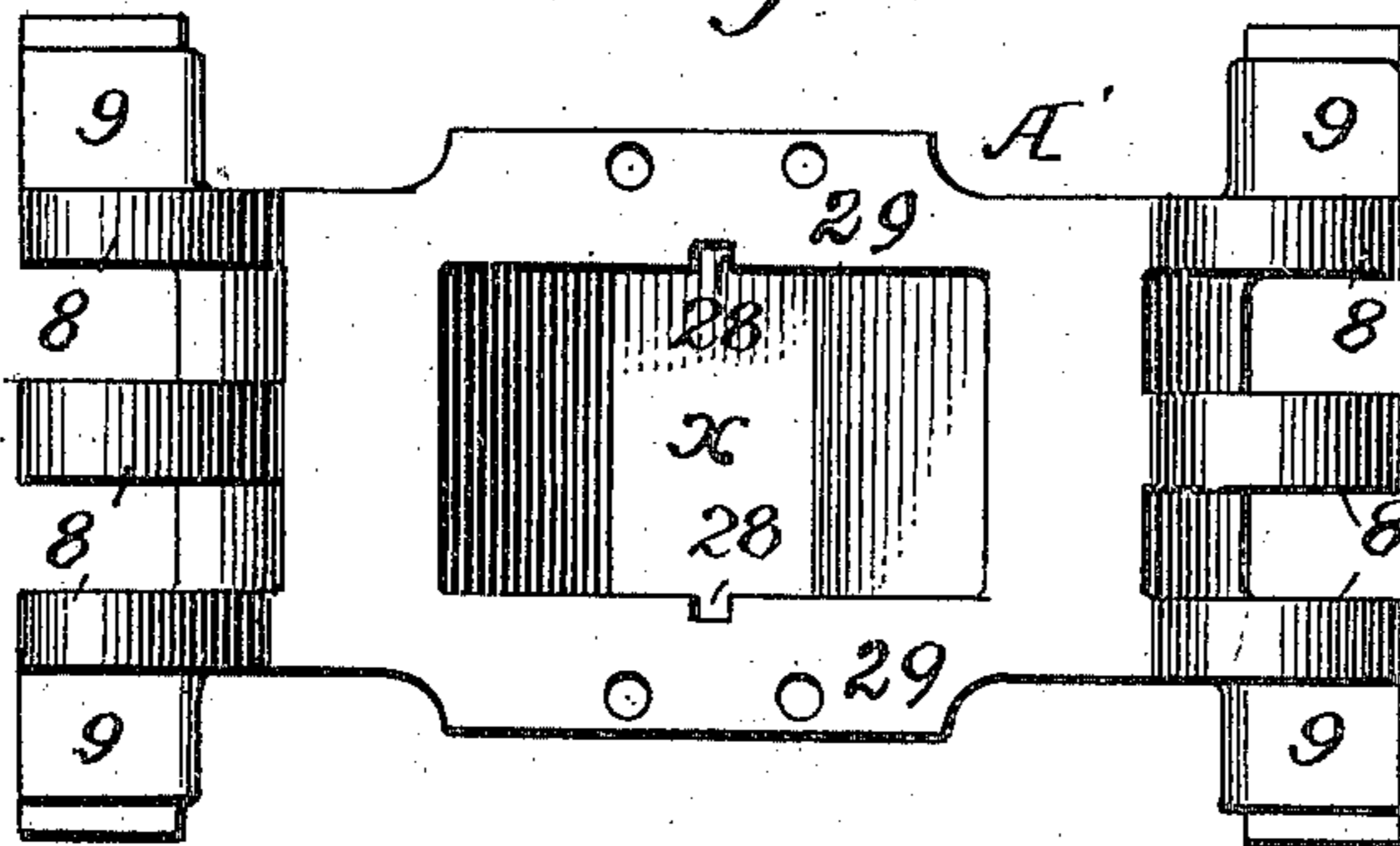
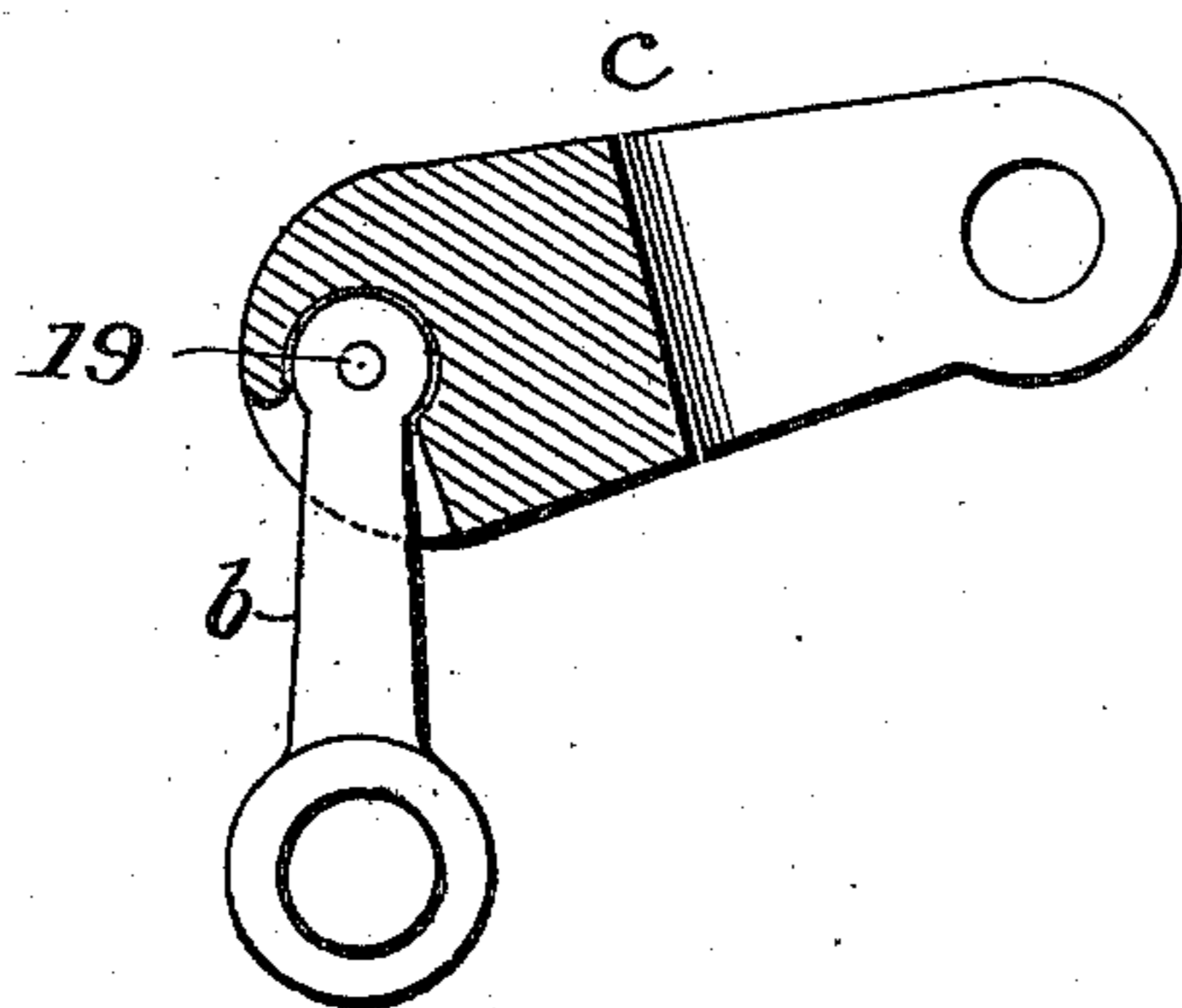


Fig. 5.



Witnesses
J. Hinkel
James Stearns

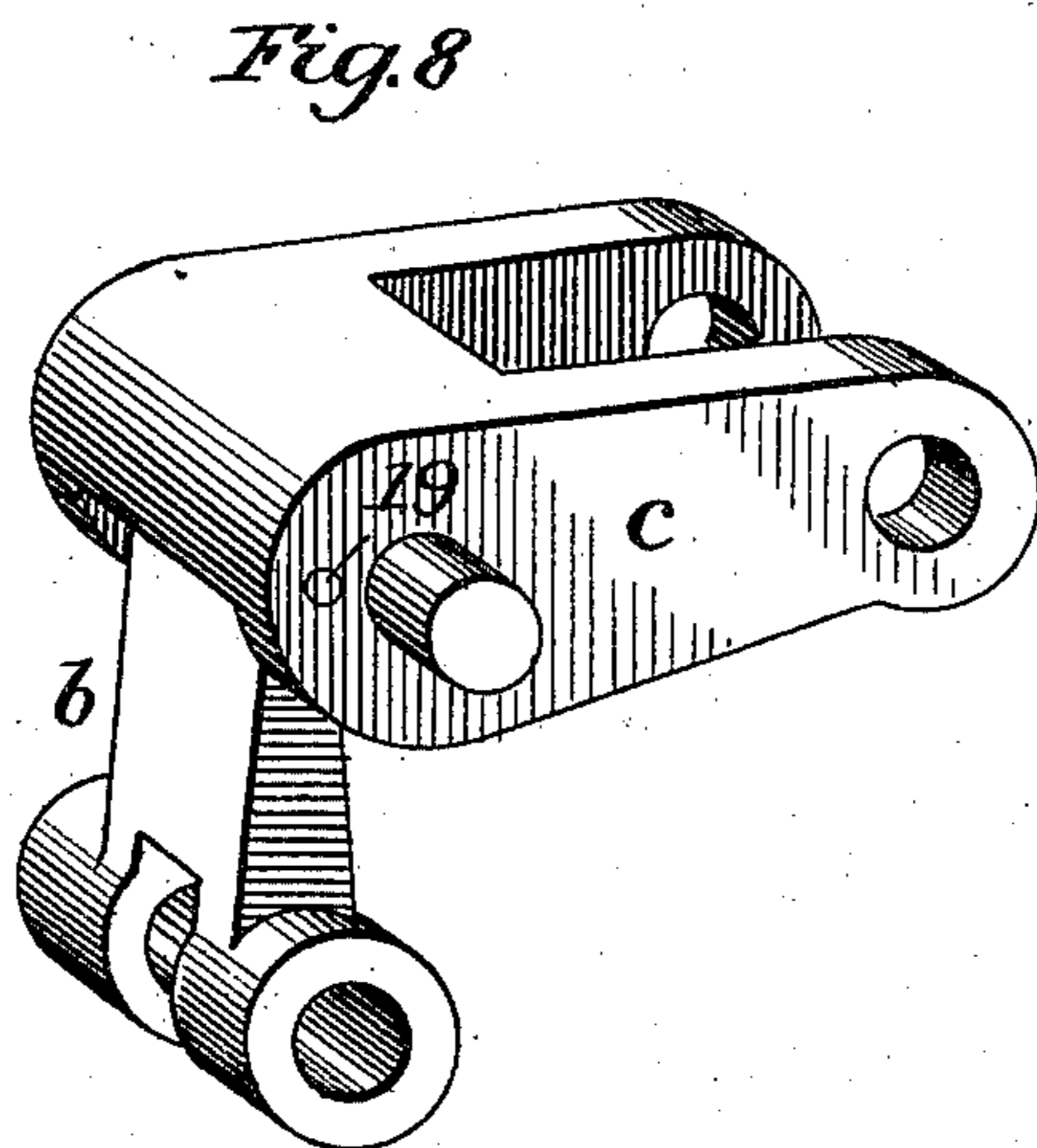
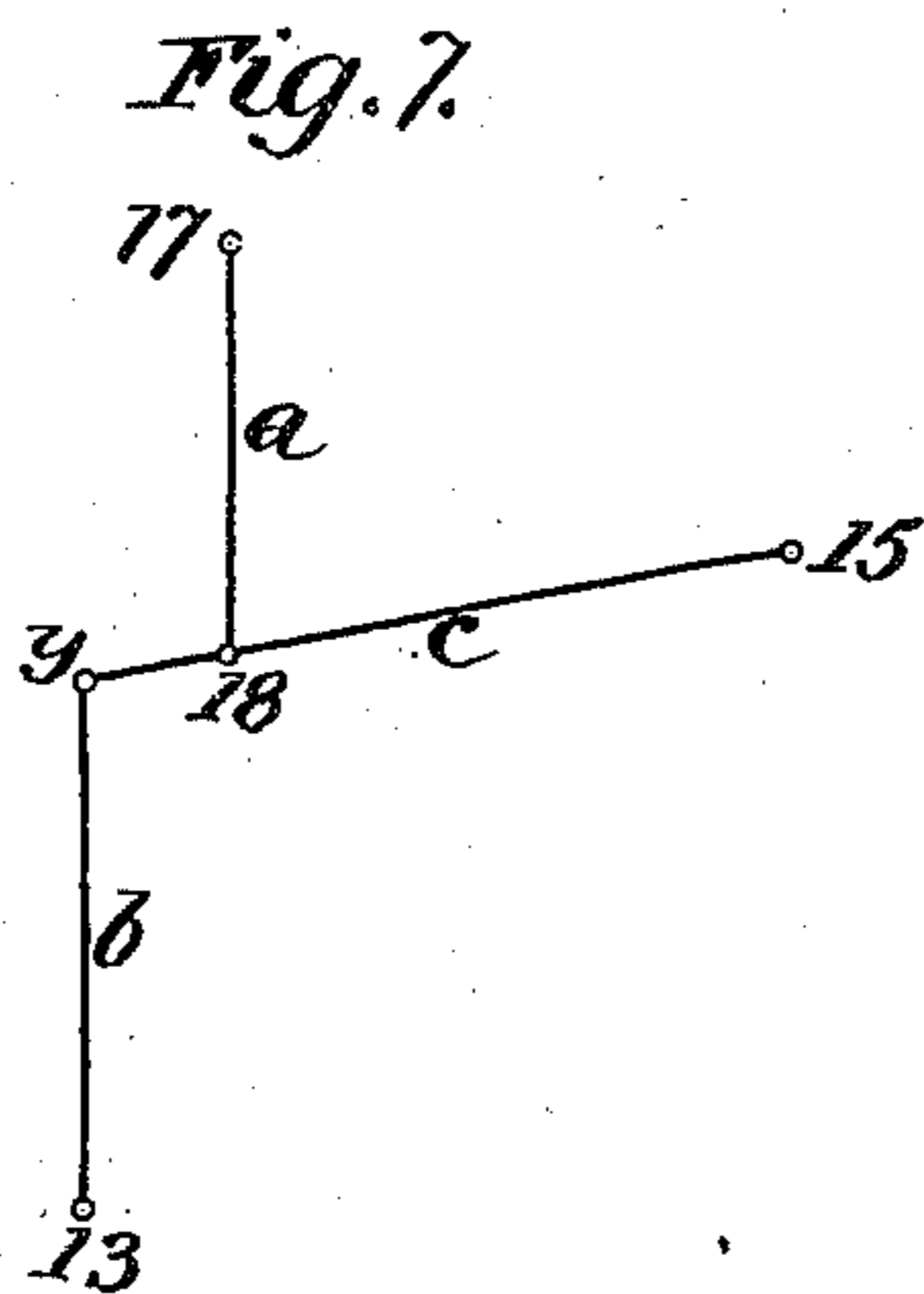
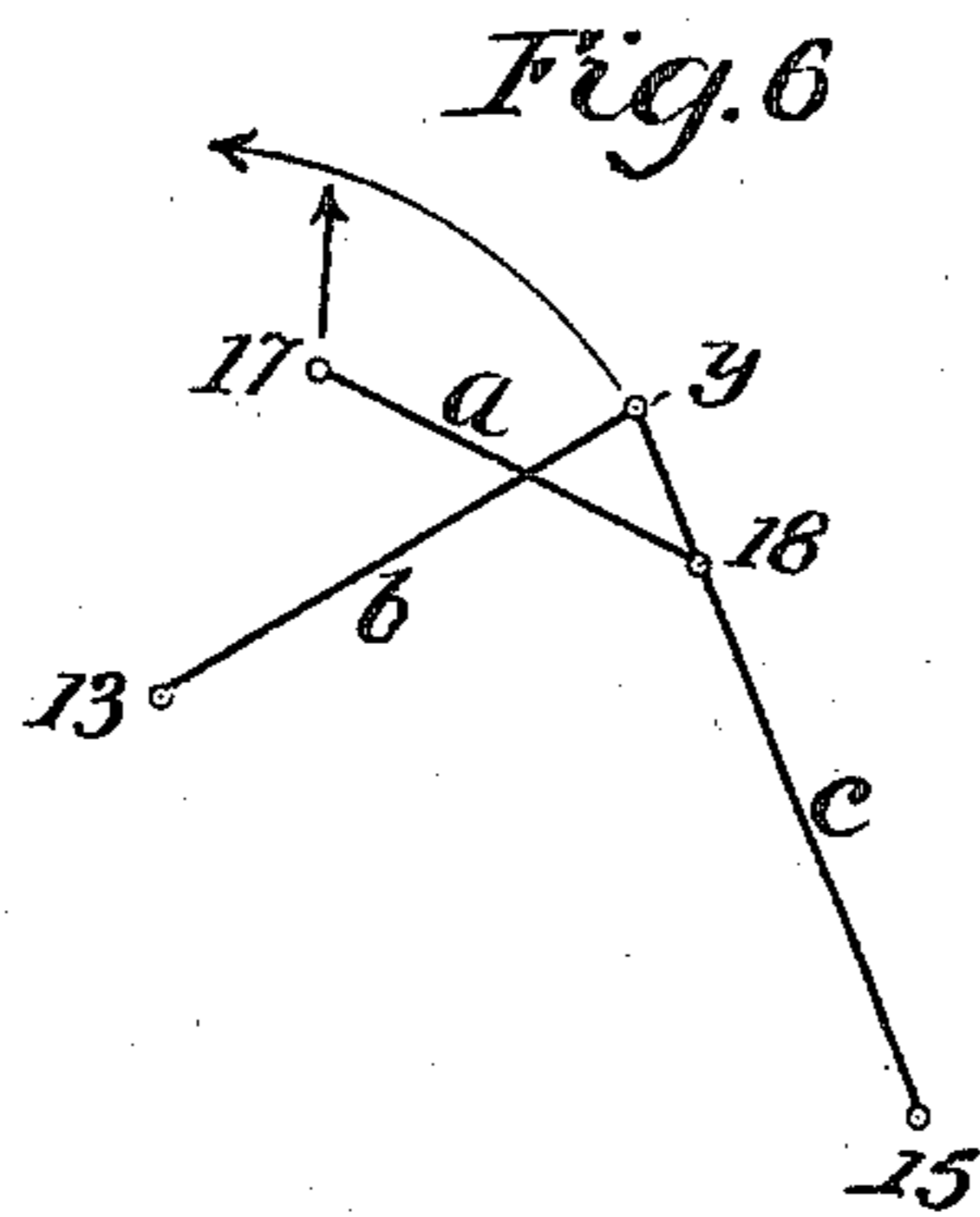
Inventor
Samuel J. Webb
by *James Freeman*
Attorneys

S. J. WEBB.
PRESS.

(Application filed Feb. 23, 1897.)

(No Model.)

5 Sheets—Sheet 4.



Witnesses
J. F. Fickel
James W. Stone

Inventor
Samuel J. Webb
by Foster Freeman
Attorneys

No. 687,802.

Patented Dec. 3, 1901.

S. J. WEBB.
PRESS.

(Application filed Feb. 23, 1897.)

(No Model.)

5 Sheets—Sheet 5.

Fig. 9.

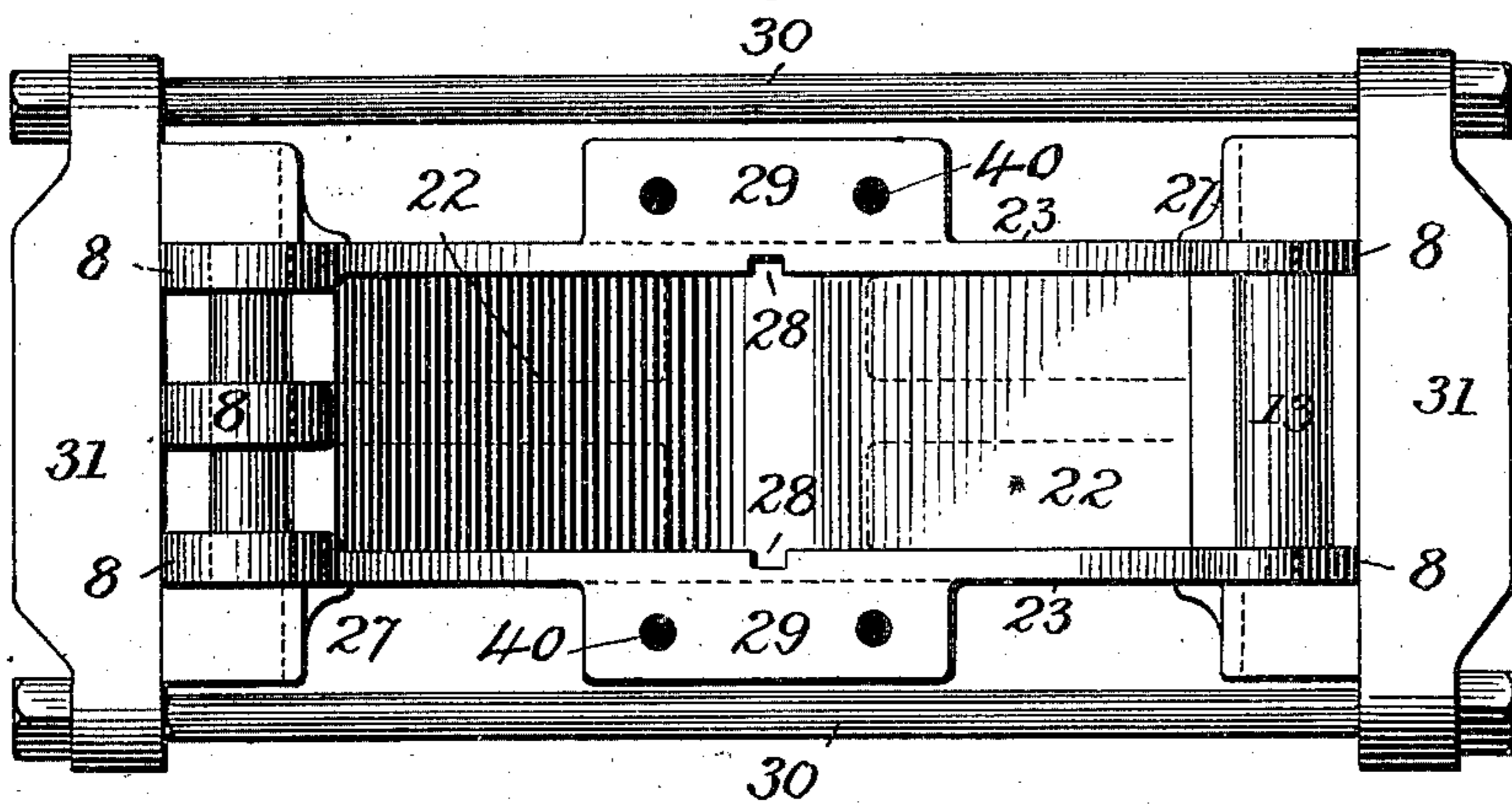
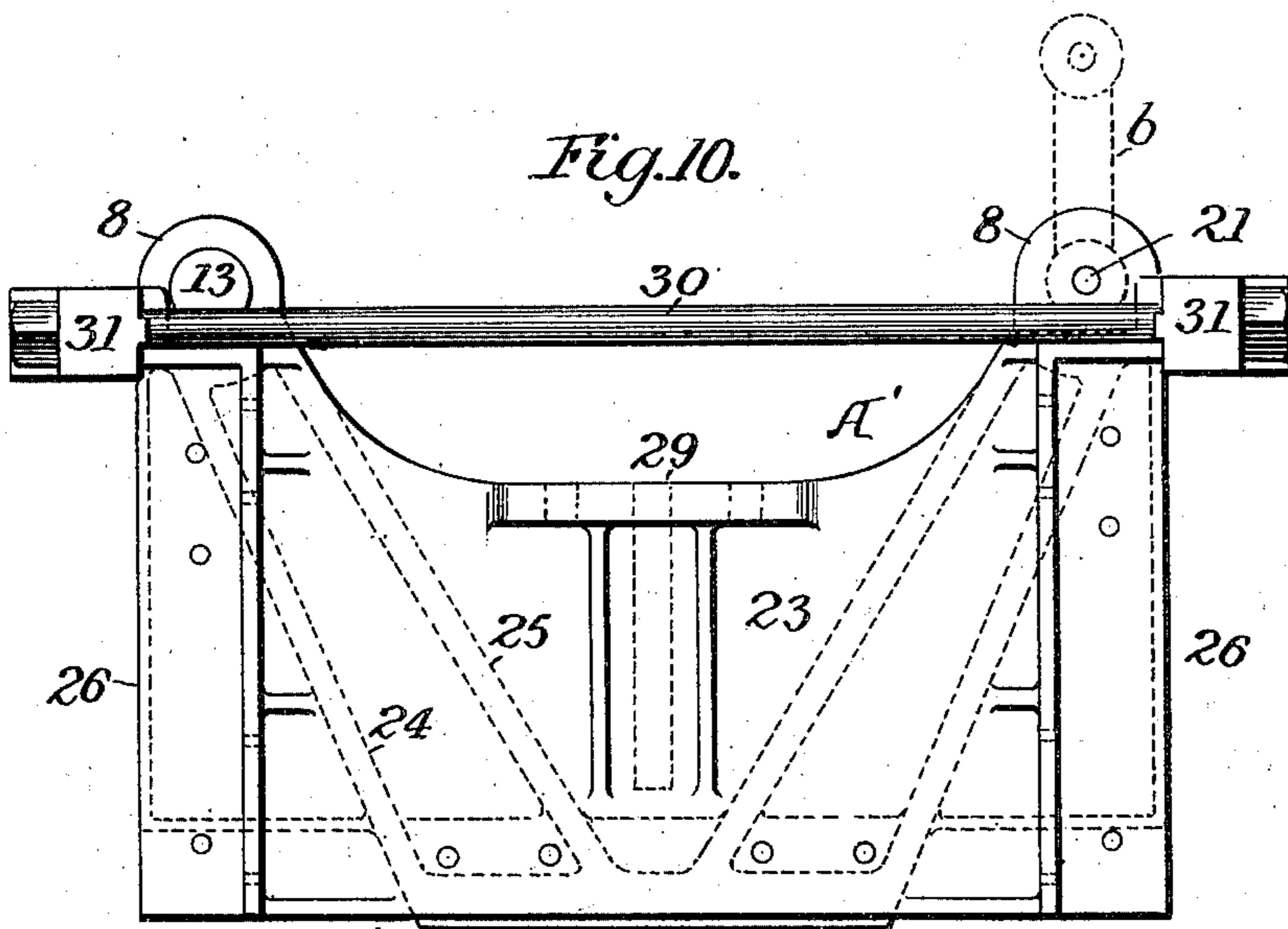


Fig. 10.



Witnesses
J. J. Hinkel
J. J. McCarthy

Inventor
Samuel J. Webb
by James H. Hinkle
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL J. WEBB, OF MINDEN, LOUISIANA.

PRESS.

SPECIFICATION forming part of Letters Patent No. 687,802, dated December 3, 1901.

Application filed February 23, 1897. Serial No. 624,634. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. WEBB, a citizen of the United States, residing at Minden, in the parish of Webster and State of Louisiana, have invented certain new and useful Improvements in Presses, of which the following is a specification.

My invention relates to that class of presses in which a movable platen is operated from an engine or other actuating device through the medium of levers and links; and my invention consists of certain improvements to strengthen and simplify the construction of the press and whereby to secure a greatly-increased pressure toward the termination of the movements of the platen, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a press embodying my improvement. Fig. 2 is a sectional elevation slightly modified. Fig. 3 is a sectional plan on the line 2 2, Fig. 1. Fig. 4 is a plan of the fixed-platen frame. Fig. 5 is a detached sectional view of one of the arms and levers. Figs. 6 and 7 are diagrams. Fig. 8 is a perspective view of the parts shown in Fig. 5. Fig. 9 is a modification plan of the fixed-platen frame and tie-rods for same. Fig. 10 is a side elevation of Fig. 9.

A is the upper fixed platen, and B the lower movable platen, and C the engine or other operating means of the press. As shown, the upper platen is secured to or a part of a heavy frame A', having ears 8 and flanges 9, which latter rest upon supports 10, that have their bearings upon a foundation 12, and to the upper part of the frame A' are bolted the lower ends of standards D D, to the upper ends of which is bolted the lower head of the cylinder of the engine.

Between the ears 8 8 at the opposite side of the frame are pivoted, as by cross-pins 13, the lower ends of arms b, the upper end of each arm being pivoted to a lever c and forms a toggle-like arrangement. As shown, the arms b are somewhat narrower than the levers c and are pivoted thereto by fitting the upper cylindrical or rounded ends of the arms b into concave or rounded sockets in the levers c and held in place by pins 19, forming knuckle-joints. The opposite ends of the levers c are connected by a cross-pin

15 to the end of the piston-rod 16 of the engine or other operating device, and the piston-rod is provided with guides working in grooves 28 in the frame A' and standards D, as shown in Figs. 3 and 4.

From the lower platen B extend upward rods e e, two on each side, the upper ends of each pair of rods being connected by a cross-pin 17, on which swing links a, each link having at the inner end a recess or bearing for a lug or pin 18 upon the outside of the adjacent lever c, the said pin 18 being arranged between the pivotal point of the arm b, which constitutes the fulcrum of the lever c, and the connecting-pin 15, but in close proximity to the pivotal point or fulcrum. The frame A' is preferably a hollow partitioned structure with a central recess or pocket x, Fig. 2, to receive the end of the piston-rod and the levers c when the lower platen is down.

Assuming the parts to be in the position shown in Fig. 2, with the platens separated, the upward motion of the pin 15 will tend to lift the upper ends of the levers c, thereby swinging their fulcrums outward in the direction of the arrows, bringing the links a and arms b toward the position shown in Fig. 1 and lifting the pins 17, connecting-rods e, and lower platen B. By the arrangement of arms and levers described I am enabled to secure an easy but gradually accumulating and very powerful lever action. Thus, as shown in the diagrams Figs. 6 and 7, at the beginning of operations, Fig. 6, the upward movement at the point 15 lifts the lever c and swings the arm b on its pivot 13 in the direction of its arrow, causing a thrust upon the link a, which imparts an upward movement to the pin 17, quickly lifting the lower platen at the beginning of operations, when there is but little resistance. As the connecting-point 18 rises above the fulcrum y of the lever c the arms b and links a are gradually straightened with a toggle-like action and gradually-accumulating leverage as a result of such action; but there is also an increased leverage in proportion to the distance between the points 18 and 15 on the lever c in respect to that between the points y and 18, so that as the parts approach the position Fig. 7 there is in addition to the toggle-like action and its result a powerful lifting action

resulting from the gradual approach of each movable fulcrum y to a position vertically above the pivot 13 and from the swinging of the lever c around the fulcrum y , lifting the point 18, the link a , and the parts attached to the latter. By this means toward the termination of the stroke I secure an enormous compression action with practically uniform leverage during the latter part of the stroke, which enables me to get the same pressure on bales of different thicknesses without any adjustment of parts.

It will be seen that I secure a more extended action by carrying the pivotal points 18 below and above the movable fulcrum y , as shown in Figs. 2, 6, and 7. This results from so connecting the arms b and levers c as to permit the links a to swing past the sides of the levers c and past the pivotal points y , and by forming the pivotal point y by inserting the rounded ends of the arms b in rounded sockets of the lever c I avoid the use of pivots, confine the joints within the limits required, and secure the requisite strength.

The connecting-rods e are prevented from spreading at their upper ends by cross-bars s , Fig. 1. Said cross-bars are provided with guides 20, which are guided by ribs on the standards D, Fig. 3, and the connecting-rods e may be connected to the yoke g of the lower platen B, as shown in Fig. 2, or may be continued around the rounded lower side of the platen. In either case there is formed a yoke g , securing a strong connection of the parts. The platen B is thus loosely seated in the yoke g and can move therein if perchance there is too much resistance on one end thereof.

While I have described the levers c as having movable fulcrum y at the ends of the pivoted arms b , the said levers may have fulcrum-bearings otherwise formed—as, for instance, upon a curved portion of the frame, as illustrated in my application Serial No. 623,151. In either case the movements of the lever will be the same and with the same effect as far as the operations upon the movable platen are concerned.

The frame A' may have one or more bearings or supports for the pin 13, but is preferably formed at each end with three ears 8, Fig. 4, so as to support the pin 13 at or near its center, as best shown in Fig. 9 on the left side. This permits of a much smaller pin and greatly reduces the friction and the cost of said pin and of the frame A'.

The lower end of each arm b may be rounded off the same as at the upper end to work in a socket in the frame A', as shown at the right-hand side of Fig. 10. In this case the arm may be held in position by means of a small pin 21 passing through it, the same as the pin 19 at the opposite end. In some cases I prefer to make the stationary frame A' with centrally-located ribs 22, 23, 24, and 25 which carry a large portion of the strain on the platen A in direct line to the center of the pin 13 and

also form a central support for said pin. The ribs 22, 23, 24, and 25 form the sides of a hollow column in each corner of the frame. These columns carry the load on pin 13 direct to the platen, thus relieving the frame of all bending or twisting strains, the columns being subject to only a compression strain. The frame A' is preferably provided with flanges 26 and 27, which are bolted to the standards 10 for supporting the frame. The frame may also be provided with flanges 29 for supporting the columns D.

In some cases where very heavy strains are required it is necessary to strengthen the frame A', and this I accomplish without increasing the thickness of the frame by attaching tie-rods 30, which pass through beams 31 at the ends of the frame, thus forming a yoke. These rods may pass through the corners of the frame or around the end of the same, and thus avoid the necessity of beams 31. When the movable platen moves upward, if the bale being compressed is unusually thin the ends of the levers c come in contact with bumpers 41, which limit the upward movement of the levers and prevent them striking the bottom of the cylinder. These bumpers 41 may be differently arranged, and are shown as attached to rods 40, which are secured to the flanges 29 of the frame A'.

It is evident that some of the improvements may be used in other presses, and I do not wish to confine these improvements to this particular press, but wish to use them in any press to which they may be applied.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

1. In a press, the combination of the fixed and movable platens and actuating means, and levers each having a movable fulcrum at one end, and the other end connected to the actuating means, and links connected to the levers between their ends, and rods connecting the links and the movable platen, substantially as set forth.

2. The combination with the movable platen and actuating means of a press, of connecting-rods extending from the platen, levers each having a movable fulcrum at one end, and the other end connected with the actuating means, and links between the levers and the said rods, substantially as set forth.

3. The combination with the operating-levers c , of a press, and with the movable platen, of links connected to said levers and rods connecting the links and platen, and pivoted arms constituting the fulcrum of the levers, substantially as described.

4. The combination with the platens and actuating means of a press, of the levers c , links a , connected to the sides of the levers, and arms b having their bearings between the sides of the levers, said links connected with the movable platen, substantially as set forth.

5. The combination in a press of a station-

ary bed and a support therefor, an engine above the stationary bed and intermediate standards D, arms *b* pivoted to the stationary part of the apparatus, levers having their bearings on said arms and connected with the piston of the engine, a movable platen and rods extending therefrom, and links extending from the said rods and connected to the levers, substantially as set forth.

6. The combination of the movable platen and levers and connections between the levers and the platen, an operating-engine and a fixed platen or frame comprising a number of hollow columns extending from the fixed platen and forming supports for the operating-levers and forming a pocket or chamber *x* to receive the said levers when in a lowered position, substantially as set forth.

7. The combination with the movable platen, operating-engine, and connections, of a fixed platen comprising a frame A' provided with ears 8, supporting-flanges 9, and a yoke consisting of the tie-rods 30 and beams 31, substantially as described.

8. In a press, the combination with the stationary and movable platens, of an engine and lever connections for the movable platen, the stationary platen comprising a frame having bearings for the fulcrum of the levers and having ribs extending from said bearings to the stationary platen, substantially as described.

9. In a press, the combination with the stationary and movable platens, of an engine and lever connections, a frame A' having bear-

ings in the form of ears 8 arranged to centrally support the arms *b* of the lever connections and having ribs 22, 23, 24, 25, forming columns extending from the stationary platen to the bearings and supporting the latter, and a yoke comprising tie-rods and beams arranged to support the frame A', substantially as described.

10. The combination of the platens and levers and operating devices of a press, and a frame provided with centrally-located ribs extending from the platen in the direction of the fulcrum-bearings and forming columns or supports for said bearings, for the purpose described, substantially as set forth.

11. The combination with the movable platen and piston, of operating mechanism connecting the platen and piston comprising levers each set of which has a knuckle-joint one member of which is convex and the other of which has a concave portion against which the periphery of the convex portion of the first-mentioned member bears, lugs on the members, and a pin extending through said lugs and joining the two members, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL J. WEBB.

Witnesses:

A. H. GOODENOUGH,
CAMERON E. STRAUSS.