

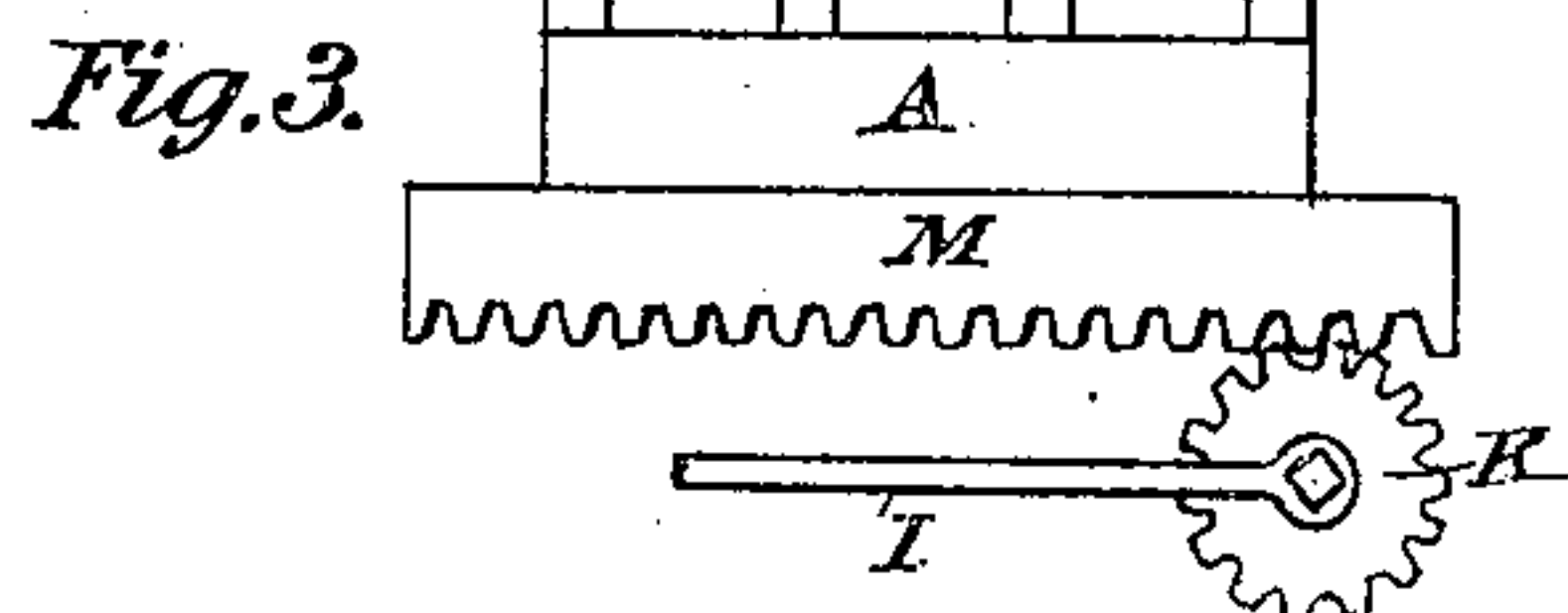
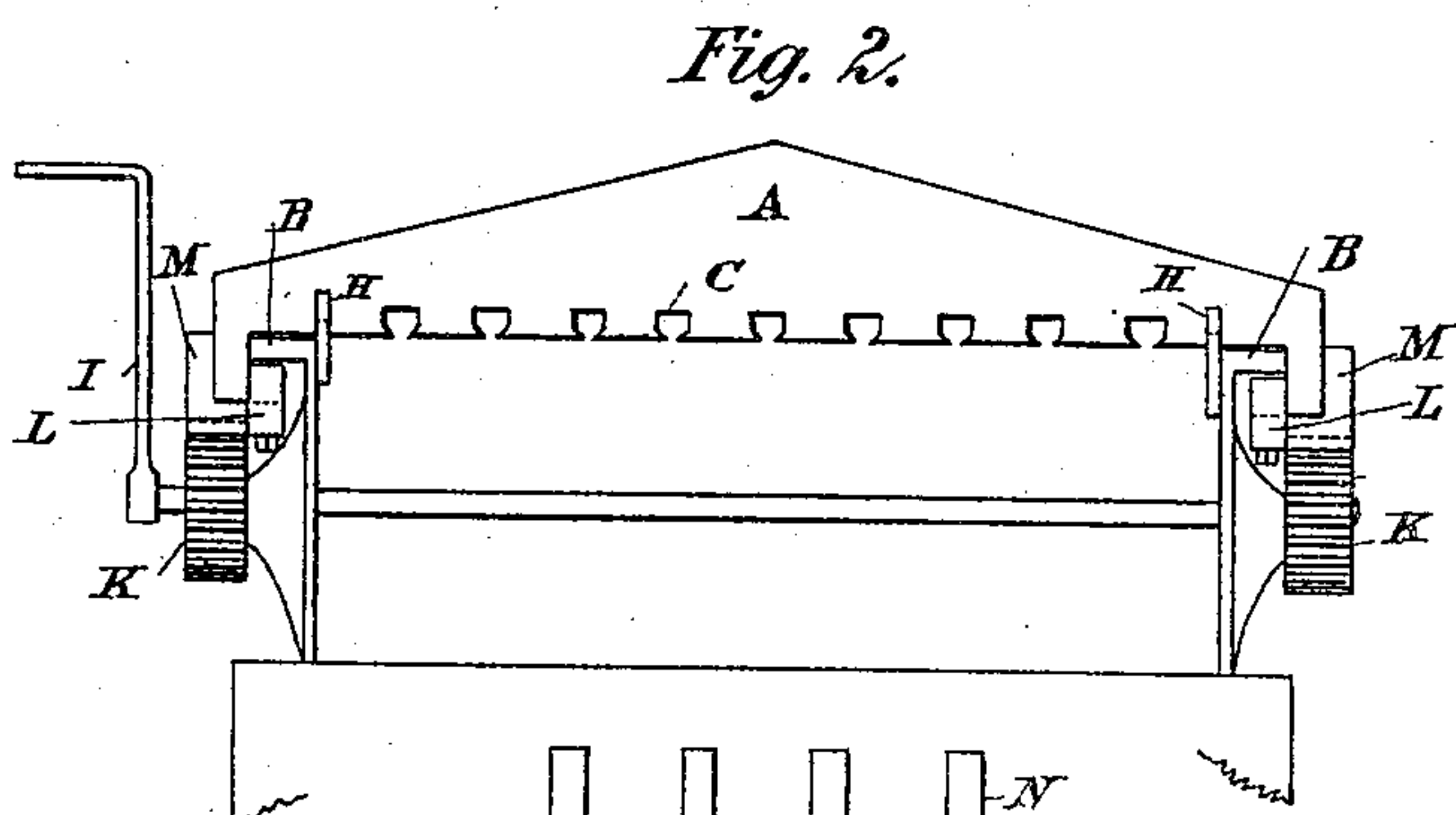
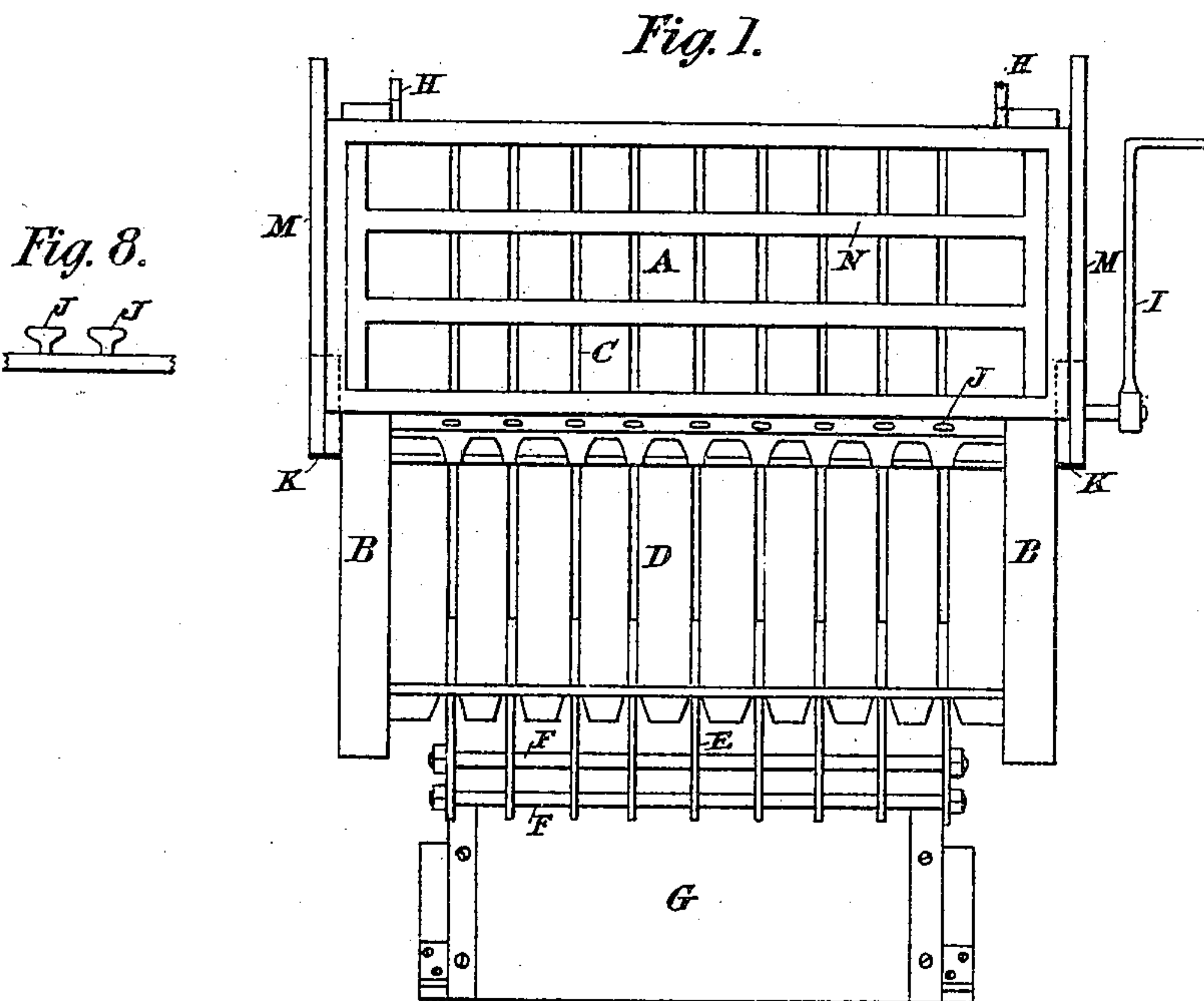
No. 814,742.

PATENTED MAR. 13, 1906.

H. H. SPEARS.
MACHINE FOR PRESSING CONCRETE BRICKS.

APPLICATION FILED JUNE 10, 1905.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 4.

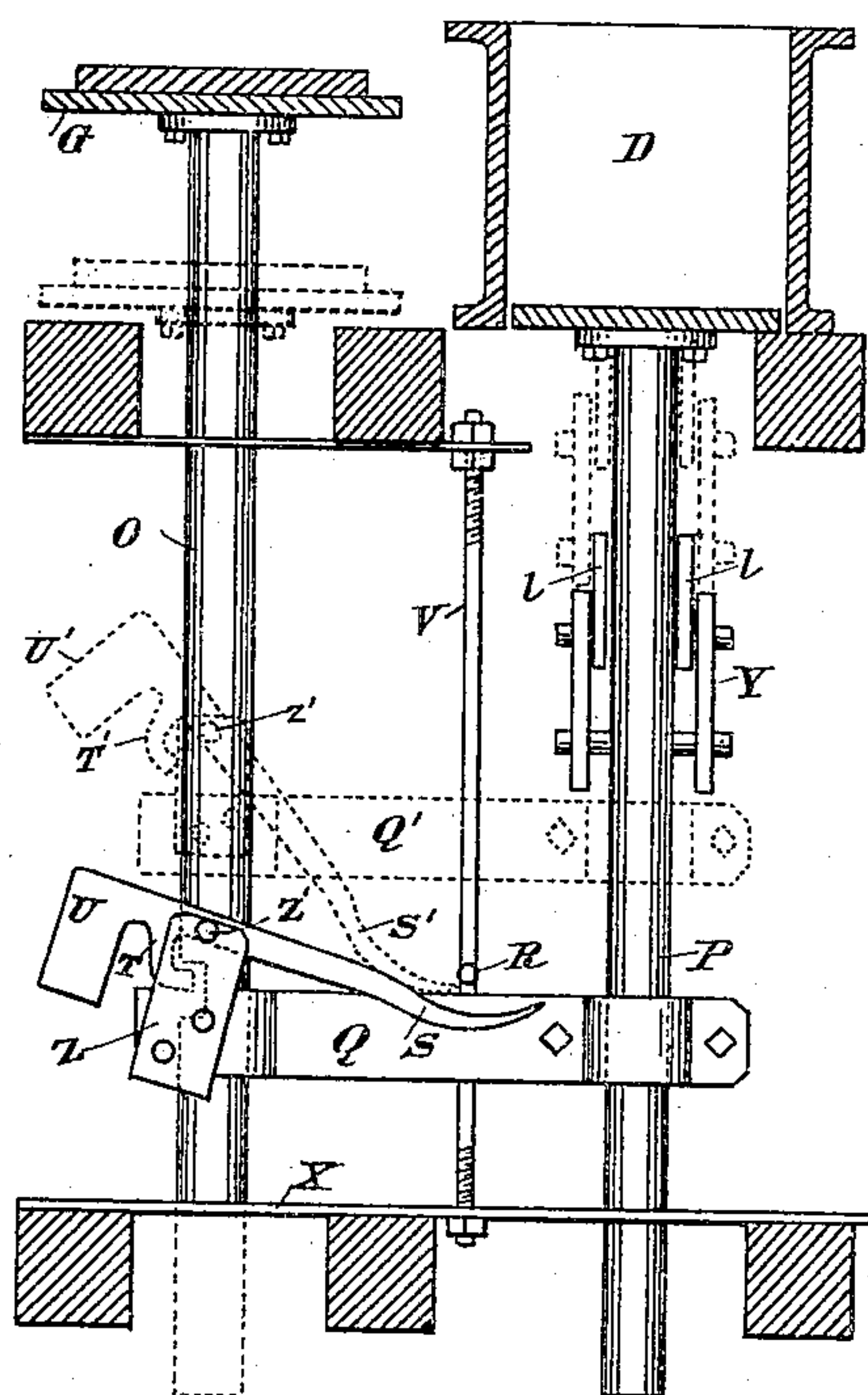


Fig. 5.

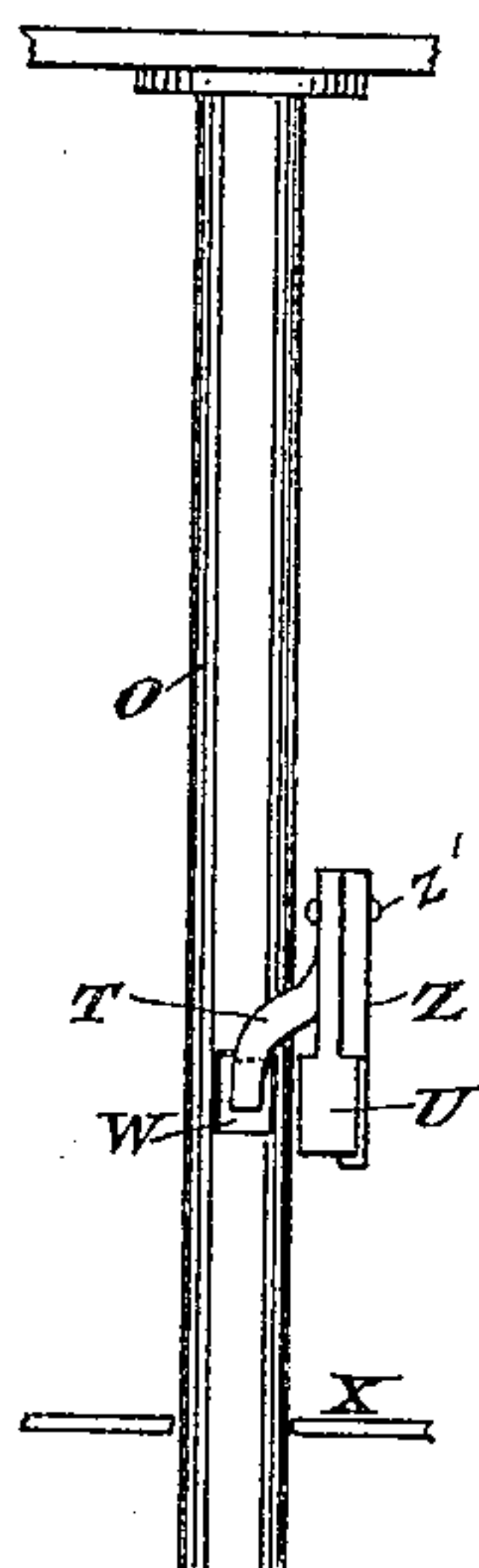


Fig. 6.

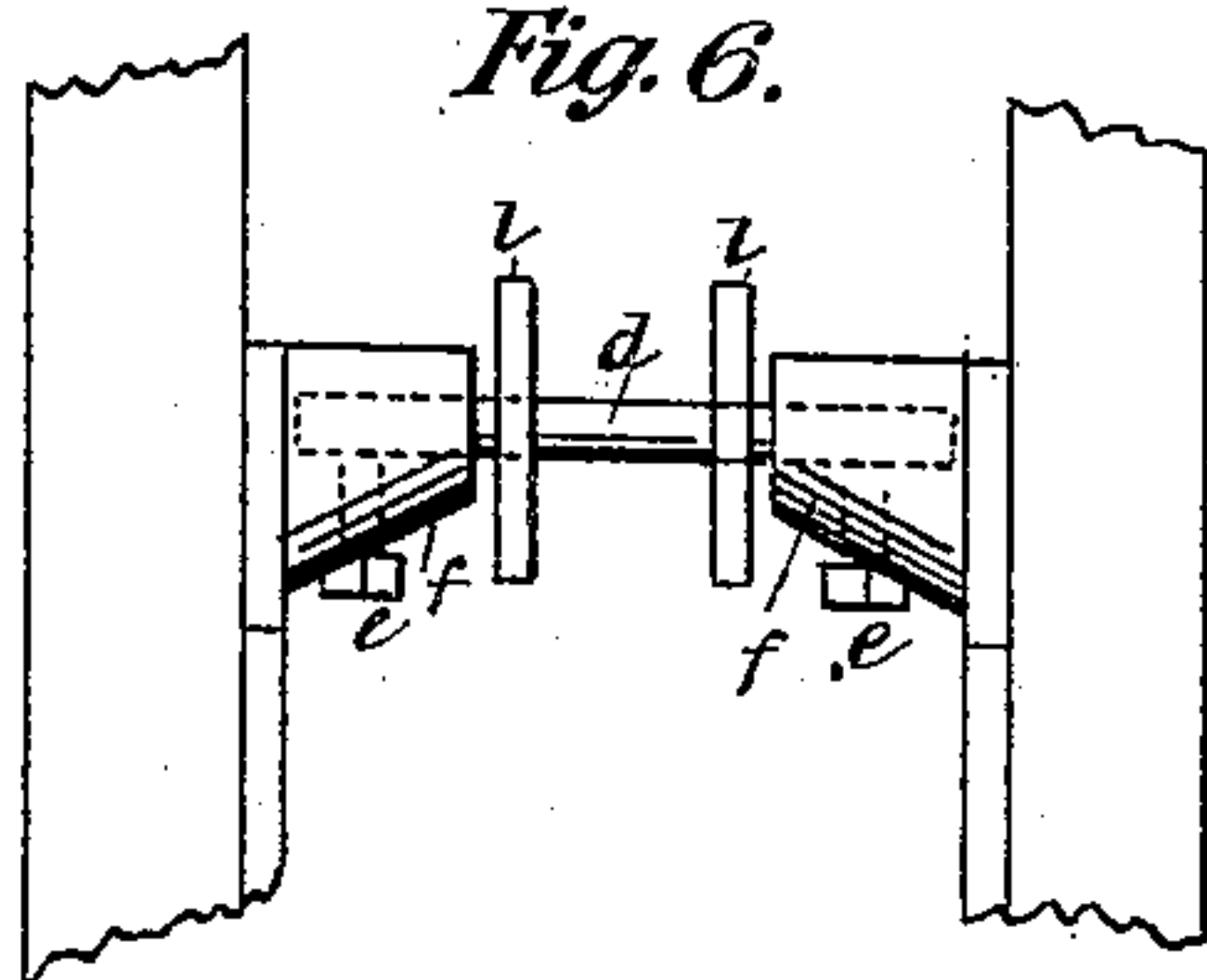
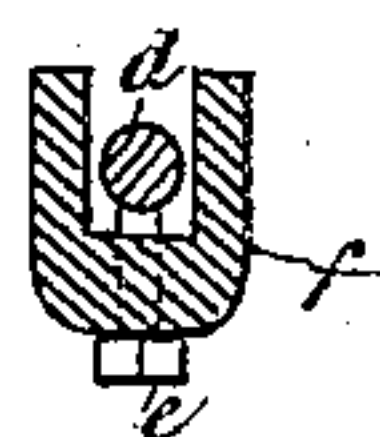


Fig. 7.



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3 SHEETS--SHEET 3

Fig. A¹

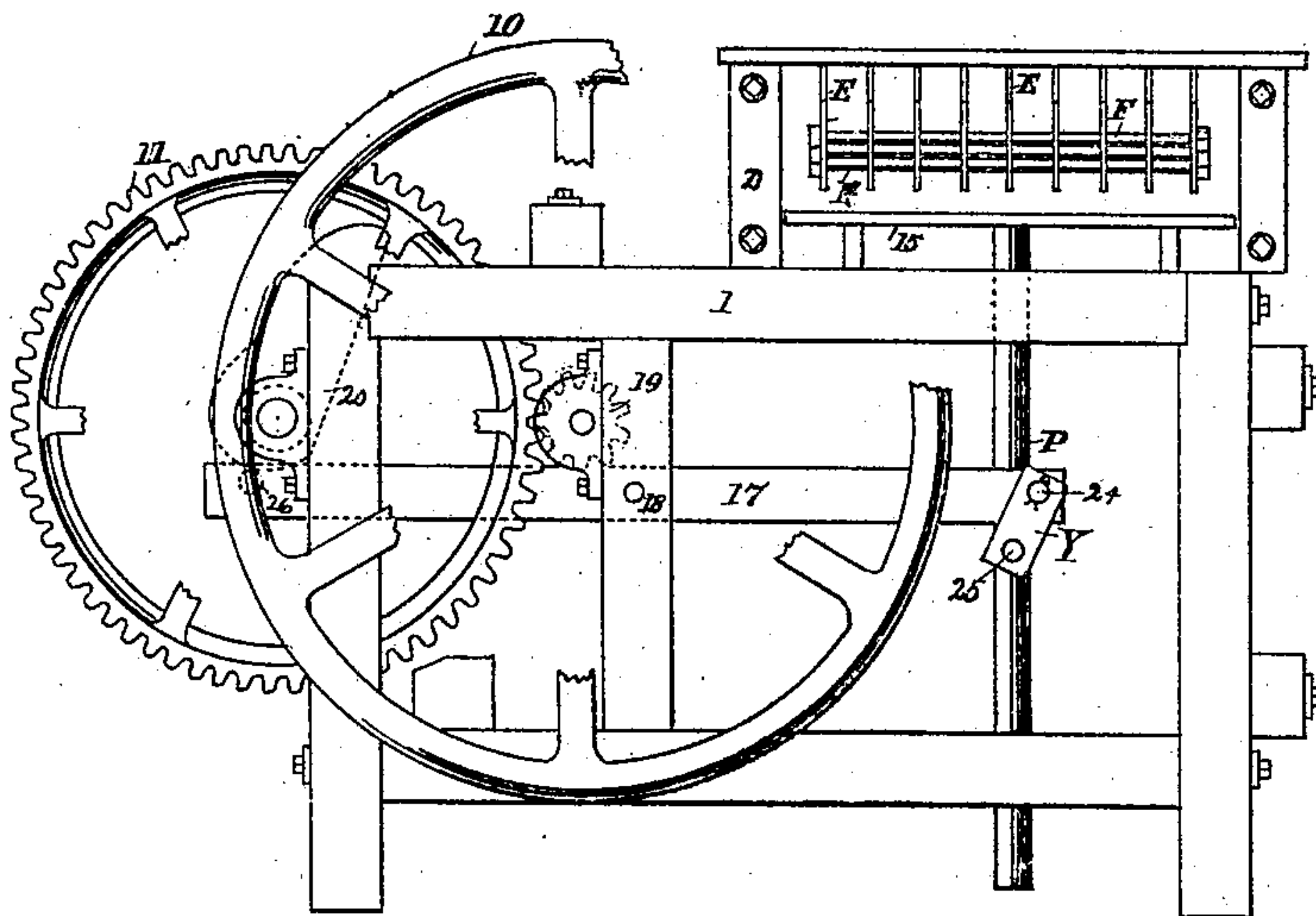


Fig. A²

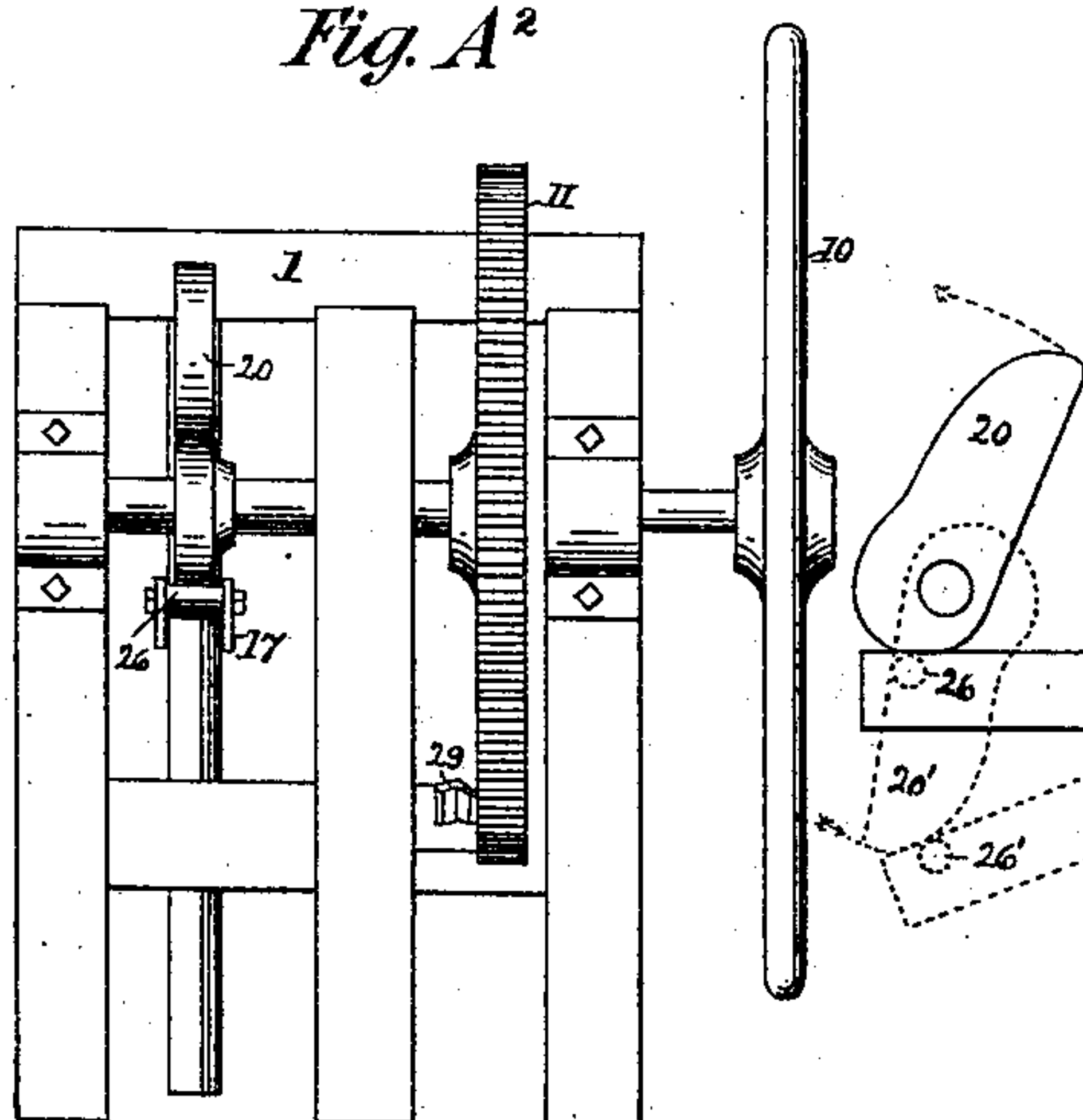
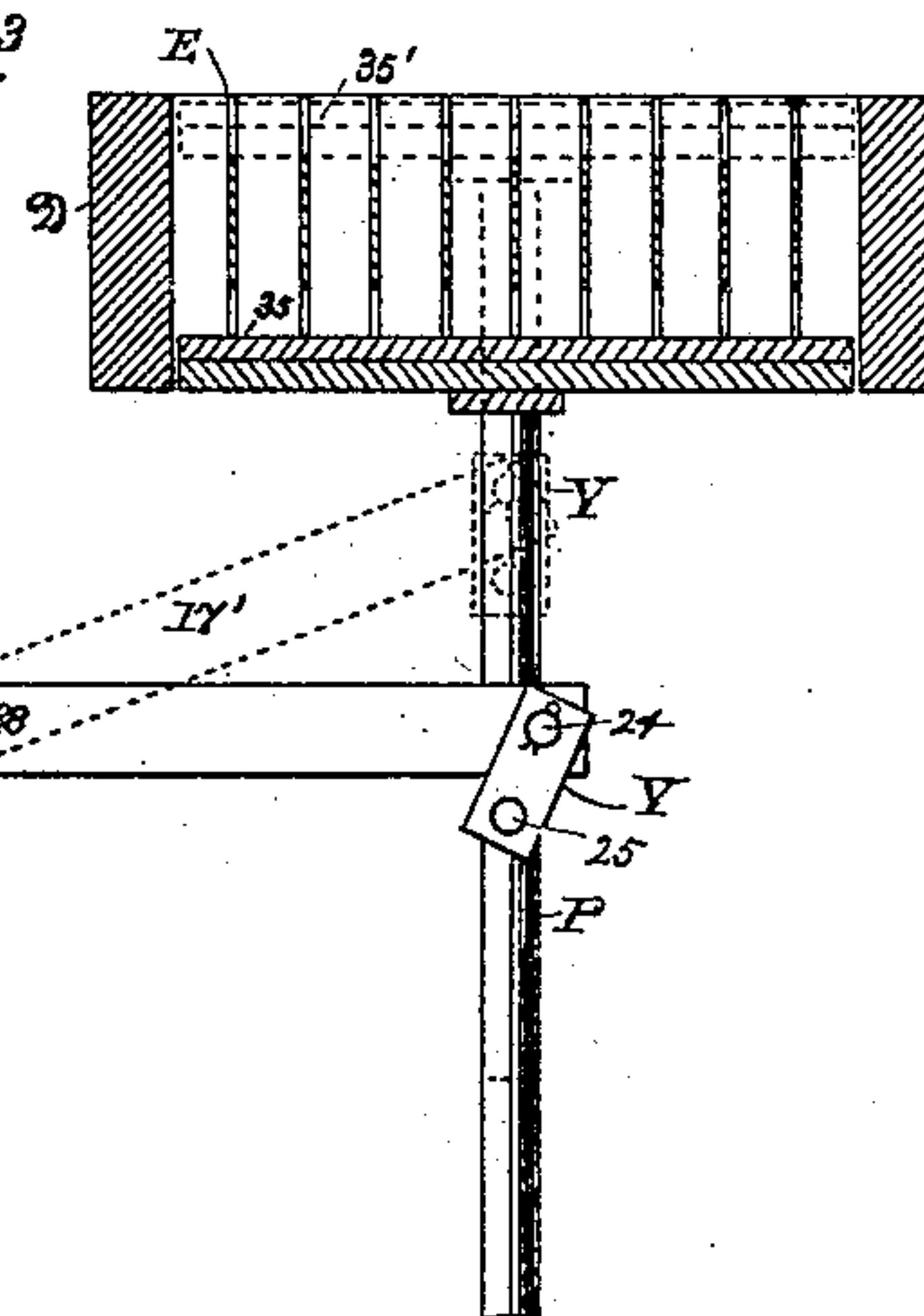


Fig. A³



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UNITED STATES PATENT OFFICE.

HENRY H. SPEARS, OF LOUISVILLE, KENTUCKY.

MACHINE FOR PRESSING CONCRETE BRICKS.

No. 814,742.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed June 10, 1905. Serial No. 264,557.

To all whom it may concern:

Be it known that I, HENRY H. SPEARS, a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented certain Improvements in Machines for Pressing Concrete Bricks, for which I now seek the protection of a patent from the United States, of which the following is a specification.

My invention refers to such a machine as was patented to me by Letters Patent No. 777,155 of the United States, of which these are the leading features:

First. Gearing which starts with a driving-wheel and actuates one end of a lever of which the other end raises a plunger and allows it to drop after it has in its upward motion done its work of pressing concrete into bricks and lifting these out of the mold for removal. The lever in the old machine, as well as in the new, is made of two broad bars rigidly connected. For this no novelty is claimed in said patent.

Second. A mold with four side and end walls, the bottom of which is formed by the plunger-cap, and a movable following-board laid thereon, while a lid is laid on the mold to receive the pressure and is taken off when the pressed bricks are to be taken out. This lid moves on hinges like the lid of a chest.

Third. A frame of (preferably nine) slides or knives, which divide the mold during the pressure into chambers one more than their own number. This frame is shoved in and out of the mold through openings in the lower part of its front wall. The slides fit into grooves in the lower surface of the lid.

Fourth. By means of a catch on the wheel in the gearing certain coiled springs are released at that moment in the turning of the wheels when the lid has done its work of pressure and the lid flies up and back off the mold to allow the bricks to rise above it.

My present invention makes certain improvements or modifications in the machine, leaving its parts otherwise unchanged.

First. As the pressure of the whole machine acts on the shaft, which serves as fulcrum for the lever, this shaft will gradually settle down, in which case the working end of the lever will rise to a lesser height than before. This will give to the bricks as they lie in the mold a greater height—that is, greater width as they lie in the wall. I therefore introduce means for correcting the position of this shaft when it has settled, also to raise it

slightly beyond the regular position when it is intended to make bricks of lesser than the standard width.

Second. While in the old machine the lever lifts along with the plunger also another rod, which carries the platform bearing the slides, but there is no provision how far this platform is to go up with the plunger-cap. Now I introduce a rod and pin and catch and dog, which arrest the upward movement of this platform independently of the plunger at such a height that it will be ready to receive back in the same plane the frame of slides when it is withdrawn from the mold, whereby I avoid any harmful action of the slides on the bricks at such withdrawal.

Third. While foregoing in these improvements the automatic opening of the lid by coiled springs, I now do away with the hinges of the lid and its door-like motion. I now shove it forward and backward. In its most forward position it will close the mold and receive the pressure of the concrete against its under surface. In its rearward position it will lie so far behind the mold as to allow the charge of bricks to be lifted out. This shoving can best be done by a rack and pinions worked by hand with a crank. There are at least three advantages: First, the opening and closing of a hinged lid leads to hitches—that is, to loss of time; second, the hinged lid may when it is opened break off the edges of bricks; third, moving the lid to and fro over the bricks will serve to "trowel" their upper surface. This movement of the lid to the rear of the mold requires pretty strong guides, which may be in one piece with the side walls of the mold, on which guides the lid can slide back and rest, and by flanges attached to its lower edge it can clasp these guides so as to be held down at all times.

Fourth. In the old machine I have shallow grooves in the lower surface of the lid. I now cut narrow slits through its body where the slides or knives meet it, and these incisions broaden upward into broad gutters. Thus the surplus material will find place enough without clogging the knives. I set on the rear wall of the mold buttons—i. e., pins with disks thereon—to clean out these gutters when the lid passes on them in its rearward travel.

In order to carry out the purposes here indicated, I set up a mechanism, illustrated, as far as it is not here modified, by the drawings made part of Patent 777,155, and as far as it

is thus modified it is illustrated by the drawings annexed hereto upon three sheets and in eleven figures, among which

Figure 1 is a top view of the apparatus
 5 other than the gearing, taken while the lid rests in rear of the mold. Fig. 2 is a front elevation of the mold and lid. Fig. 3 is a side elevation of the lid. Fig. 4 is a vertical section showing the plunger and other uprights parallel thereto, with their connections. Fig. 5
 10 shows more in detail one of these uprights. Fig. 6 shows the fulcrum and lever in vertical section. Fig. 7 shows the fulcrum in a vertical plane at right angles to Fig. 6. Fig. 8 shows a vertical view of some of the pins and disks. Fig. A' is a vertical section in the plane of the wheels without the lid upon the mold. Fig. A² is an elevation showing the wheels side-
 15 wise. Fig. A³ shows separately the mold with the plunger under it and the lever which moves the latter. It shows both of these in changing position.

A is the solid lid. N N are the ribs or web upon it, giving it weight and strength. B B
 25 are the guides on the sides of the mold. C C are incisions in the lid and gutters above these and correspond to the grooves in the old machine. D is the interior of the mold. E is one of the slides. (Nine are shown.) F
 30 F are two of the cross-rods which connect the slides into a frame. G is the platform on which the frame of guides is carried. H H are the rearward-protruding ends of the guides on which the lid rests. I is the crank
 35 to pinion K. J J are the buttons or pins with disks for cleaning out the gutters C C. K is a pinion or pinions meshing in the rack-bar M. L L are flanges, as long as the sides of the mold, on the sides of the lid, which clasp
 40 guide-bars on the side of the latter. It will be prudent to insert strips of soft iron between these flanges and guides. M M are bars toothed on their lower surfaces to mesh with the pinions K. By turning the crank I
 45 the pinion and rack-bar is actuated and the lid can be shoved either way.

In Figs. 4 and 5, P is the stem, which bears up the plunger-cap. This stem is by the metal strip Q connected (but not rigidly)
 50 with the stem or upright pole O, which bears the platform G. V is a thin rod between O and P, attached at top and bottom to the long narrow platform X, which rests on the sockets of the machine. The stems P and O
 55 pass through X and move freely up and down. U T Z represent a long piece of iron, which turns around the bolt z', let into the stem or pole O. The rectangular piece Z is by this and two other bolts attached to O. The end U
 60 of the long piece U T S is hatchet-like and heavy. T is bent into a hook near the end U and will, through the weight of U, naturally fall into the hole W in the stem U, which is best seen in Fig. 5. The tail S is just long
 65 enough to touch the pin R. The dotted

lines on Fig. 4 show the position of the parts therein shown when the uprights O and P have been elevated. L L show in cross-section the two bars making up the actuating-lever, which with the intervention of the
 70 hangers Y Y raises the plunger-rod P. The length of the lever is at right angles to this plunger-rod and is not seen on this drawing. They are elsewhere connected by bolts.

In Figs. 6 and 7 the pivotal shaft *d* is
 75 shown, also in cross-section the two bars *l l*, which form the lever, and *e e* are set-screws by which the shaft forming the fulcrum can be slightly raised or lowered. *f f* are the bearings in which this shaft lies and which
 80 are narrowed or widened by means of the set-screws. Fig. A' is a vertical section in the plane of the wheels without the lid upon the mold. Fig. A² is an elevation showing the wheels edgewise. Fig. A³ shows separately
 85 the mold with the plunger under it and the lever which moves the latter. It shows both of these in changing positions. 1 is the frame of the machine. D is the mold, four sides without bottom or lid, the front slotted
 90 to receive the slides. Its longer dimension is in the horizontal of Fig. A', such as to hold (say) ten bricks lying on edge with the slides between its height about eight inches, its
 95 third dimension eight or nine inches, according to the desired length of the bricks. E denotes a slide. (Nine of these are shown.) Their height is four or four and one-half
 100 inches—the width of the bricks when pressed—with a slight excess to run into the slots (formerly grooves) in the lid. F F are the rods which connect the slides into a frame.
 105 10 is the driving-wheel. Its shaft runs through a beam of the frame and bears the pinions 19, which meshes with the cog-wheel 11. This has about seven teeth for each tooth of the
 110 pinion. The shaft of the cog-wheel bears also the cam 20, which in Fig. A' is drawn in dotted lines, because partly hidden from view by the wheels. It is of rather irregular
 115 form, first a slightly eccentric half-circle, then an arc of much greater radius, and on its return an almost straight line. The cam when turning its longer eccentric distance down-
 120 ward depresses the lever 17, (made up of two broad parallel bars,) connected at the end nearest the cam by the bolt 26. In Fig. A² both bars are seen. The end of the lever
 125 away from the cam rises when that under the cam is borne down, and the rising end raises the plunger 16. In order to keep the plunger in a straight vertical, it connects with it through the hangers Y Y. The hang-
 130 ers connect with the lever and the plunger by shafts or bolts 24 and 25. The top or cap of the plunger bearing a following-board is shown in Fig. A³.

The operation of the machine is as follows: First and before going to work the machine
 130 must be tested to find out whether the ful-

crum-shaft is set to the proper height for the width of the bricks to be made. If it is not, the set-screws must be turned to make the correction. The gearing works as in the old machine; but the projection and spur, which are mentioned on page 2, lines 28 and 30 of the former patent, are used only to give a sound at the moment when the lid has done its work of pressure, so as to notify the operator, but do no automatic work. Otherwise the gearing from the driving-wheel to the cam and the lever work as in my former patent. The following-board is put on the cap of the plunger. The slides are then pushed into the mold upon this board. Concrete is then put in between the slides and between the two outside slides and the side walls of the molds to a height of about two inches more than the intended width of the bricks made. The lid, which has lain in the rear of the mold, is now shoved forward, which can be done by the crank on one side which turns the pinion under the rack-bar. The driving-wheel is then turned. It operates indirectly on the cam, which depresses one end of the lever and raises its other end, which clasps the plunger-rod and lifts it by the aid of hangers Y Y vertically. It thus presses the concrete on the plunger-cap and following-board against the lid, the slides entering the incisions in the latter. The height of the mass of concrete is lessened by this pressure to the desired height. The sound in the gearing is then heard, and the slides are then withdrawn from the mold to their platform. This platform has been arrested at this height by the stroke of the dog U T S against the pin R, as shown in Figs. 4 and 5, the result being that T theretofore held in the hole W in stem O gets quite clear of that stem, which then is freed from its connection with P and rises no farther.

It may here be remarked that as the grooves are now become cuts through the lid the slides may be made to rise higher when it is intended to lessen the width of the bricks.

The sound, which is a signal for withdrawing the slides, is also a signal for drawing the

lid to the rear. Before bringing it to rest behind the mold it may be shoved to and fro once or oftener, so as to trowel the bricks when this is desired; but the driving-wheel being turned again the plunger will, with the following-board and bricks, travel upward out of the mold till they are above it and free from it. They are then carried off. Lastly, by a further turn of the wheel the active end of the lever is made to drop, and with it the plunger-cap, as well as the platform for the slides, return to their original position at the bottom of the mold, and the same process is then gone over.

What I claim as my present invention, and desire to protect by Letters Patent, is—

1. In a machine for pressing concrete bricks and containing a mold and a frame of slides for dividing the mold into chambers, a lid with slots running through it where it meets the slides of the same length with these slides, which slots widen upward into gutters.

2. In a machine for pressing concrete bricks, and containing a mold and frame of slides, and slots widening into gutters in the lid, a row of buttons set on the rear wall of the mold, each button made up of a pin and disk, so located that they will pass through the slots and gutters, when the lid is shoved to the rear.

3. In a machine for making machine-bricks with a mold divided by slides into chambers for the single bricks, a platform for receiving the frame with which the slides are combined; which platform is raised by the same leverage which bears up the concrete toward and against the lid, and means for stopping the ascent of this platform, such as are shown in the specifications and drawings, Figs. 4 and 5, at a height at which the frame of slides is drawn out from the concrete and replaced on the platform.

Subscribed this June 8th, 1905, at Louisville, Kentucky.

HENRY H. SPEARS.

Witnesses:

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A. LINCOLN DEMBITZ.