

No. 636,560.

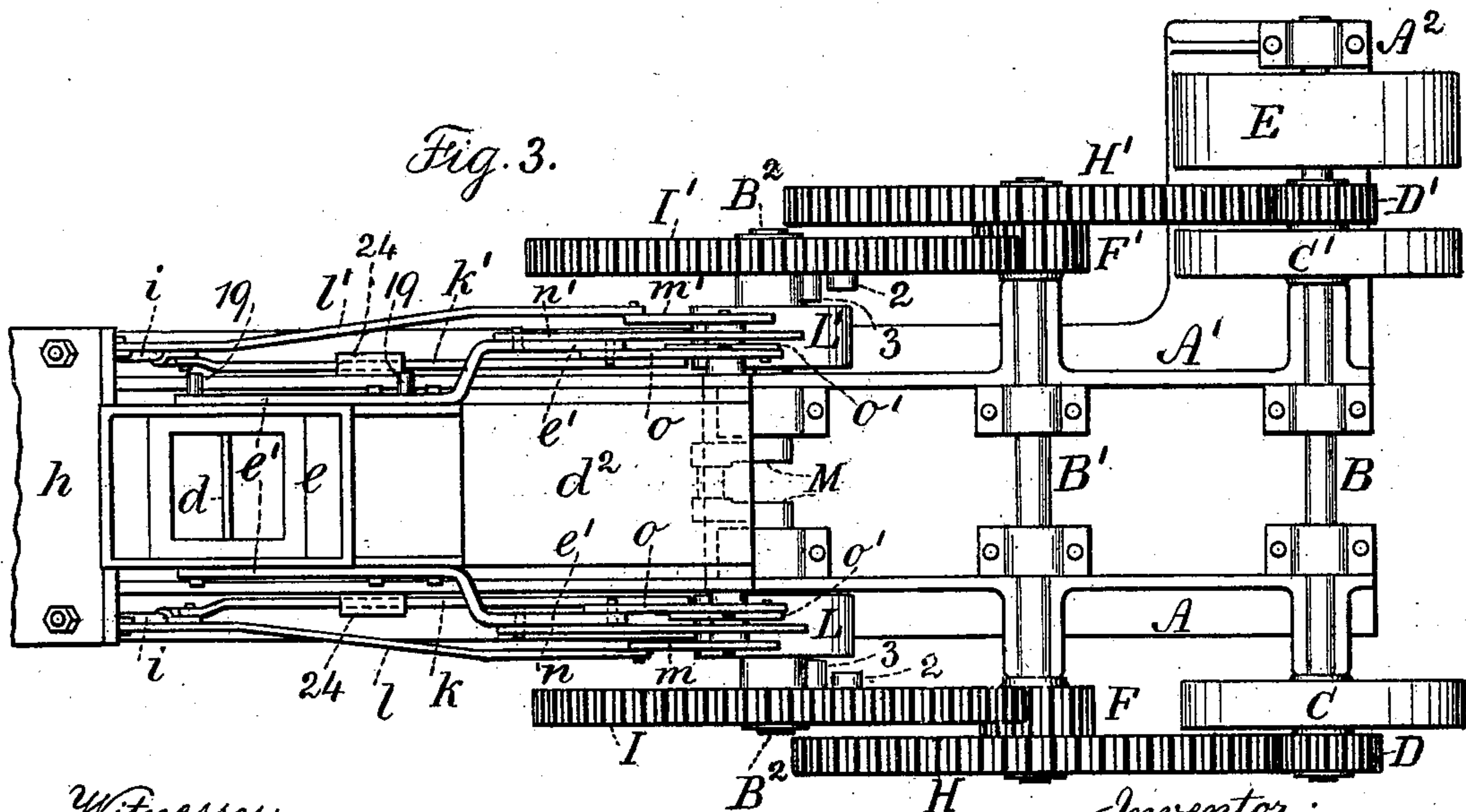
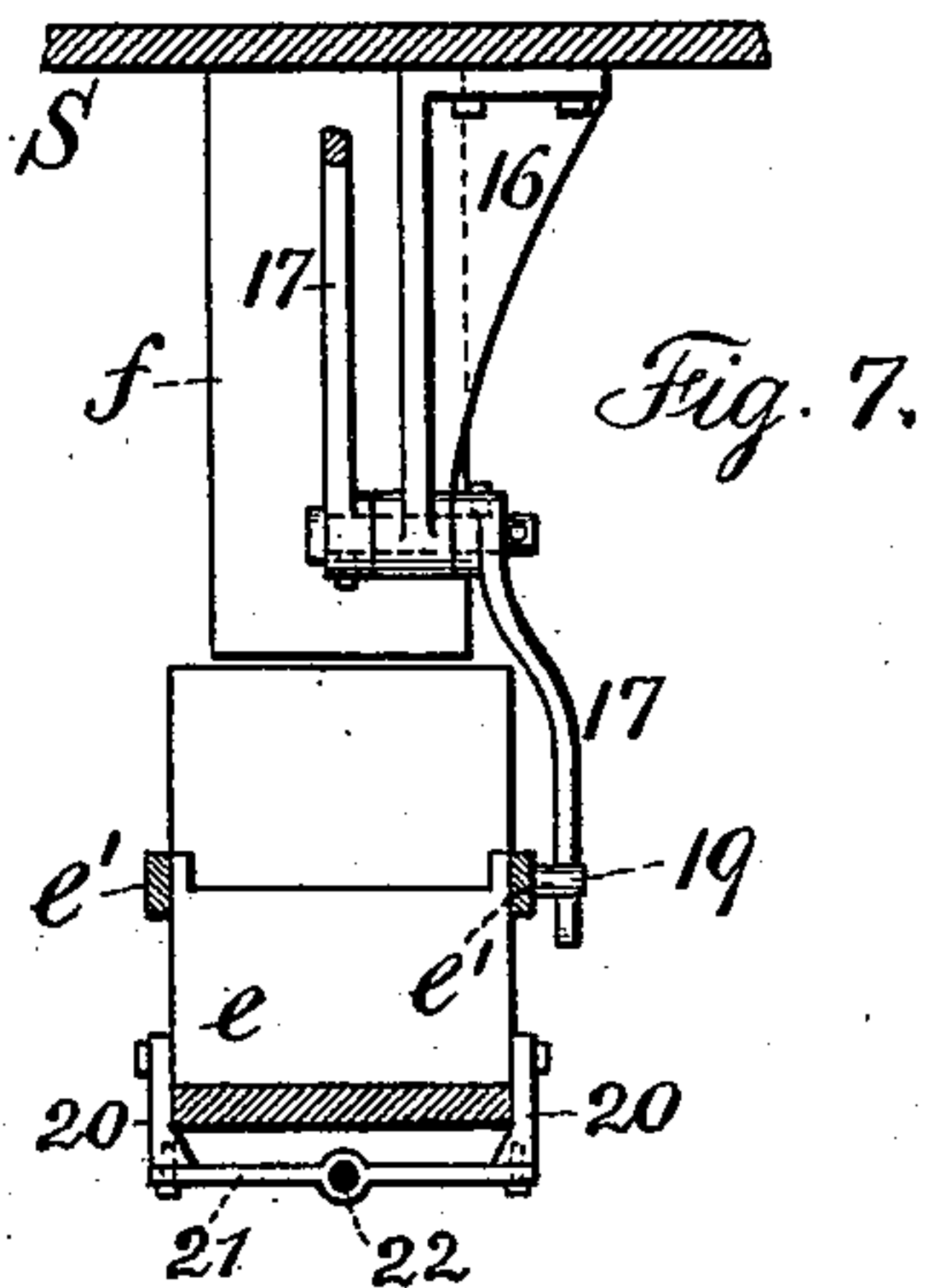
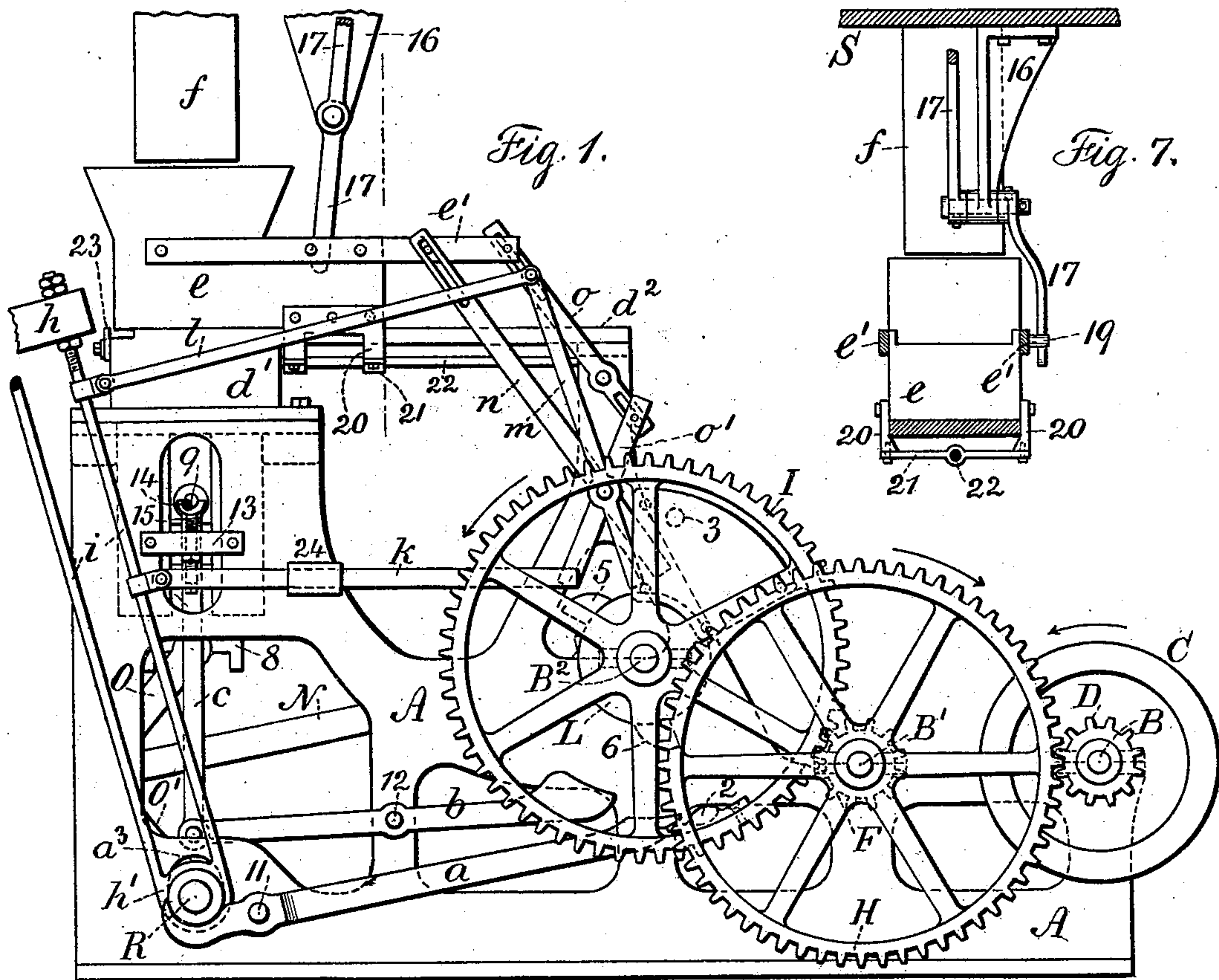
Patented Nov. 7, 1899.

G. L. ROLFE.
BRICK MAKING MACHINE.

(Application filed Nov. 2, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Chas H. Smith

Inventor:
George L. Rolfe
per L. W. Terrell & Son Attys.

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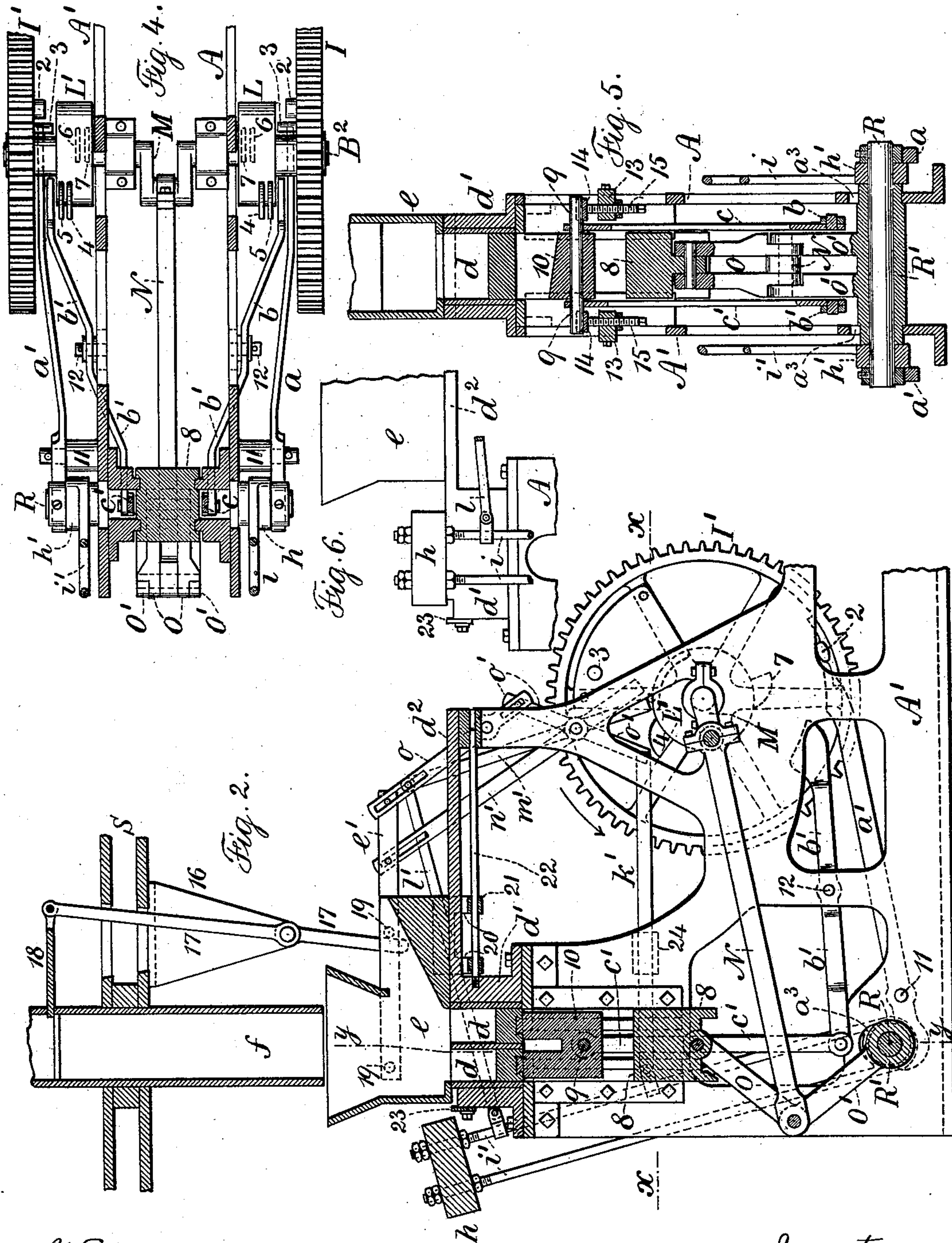
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UNITED STATES PATENT OFFICE.

GEORGE L. ROLFE, OF NEW YORK, N. Y.

BRICK-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 636,560, dated November 7, 1899.

Application filed November 2, 1898. Serial No. 695,255. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. ROLFE, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented a new and useful Improvement in Brick-Making Machines, of which the following is a specification.

My invention relates to novel combinations of operative devices for automatically effecting the progressive movements of the various parts of a machine for making sand brick; and my invention relates more particularly to means for raising and lowering and means for swinging the platen, means for raising and lowering the presser-head to discharge the bricks from the machine, means for supporting the presser-head in a state of rest and for adjusting its position, means for actuating the longitudinally-movable hopper, and means for discharging the material to the hopper.

In the drawings, Figure 1 is an elevation representing my improved brick-making machine. Fig. 2 is a longitudinal section and partial elevation of the same. Fig. 3 is a plan view of the parts shown in Fig. 1. Fig. 4 is a sectional plan of the parts shown in Fig. 2 at the line $x x$. Fig. 5 is a vertical cross-section at the line $y y$ of Fig. 2. Fig. 6 is a partial elevation at one side of the mold-box frame and platen, and Fig. 7 is a partial cross-section and elevation showing the devices for operating the slide controlling the feed of the material to the hopper.

The various parts of the machine are connected to side bearing-frames $A A' A^2$, and $B B' B^2$ are the principal shafts extending across the side frames and mounted in suitable bearings.

$C C'$ are fly-wheels upon the shaft B , and upon said shaft, outside of said fly-wheels, are the pinions $D D'$, and upon one end of said shaft B is the band or power wheel E . Upon the shaft B' , outside of the frames and bearings, are the pinions $F F'$, and upon the same shaft, outside of said pinions, are the gear-wheels $H H'$, which are in mesh with the pinions $D D'$ of the shaft B . The shaft B^2 has gear-wheels $I I'$ on its respective ends, which mesh with the pinions $F F'$ of the shaft B' . It will thus be seen that through a gearing-

down process power is communicated from the band-wheel of the shaft B , through the respective pinions and gear-wheels, to the shaft B^2 . The shaft B^2 is provided with a crank M between the bearings and outside the bearings with drums $L L'$. These drums each carry pairs of projections 4 5 and 6 7 on approximately opposite sides, and each of the gear-wheels $I I'$ carries studs 2 3 upon its inner face, the stud 2 being preferably made upon the inner face of the wheel and the stud 3 projecting from a web connected to two of the spokes of the wheel. A connecting-rod N is at one end secured to the crank M and at the other end to the toggles $O O'$. The upper end of the toggle O is pivoted to the plunger 8, and the lower end of the toggle O' is connected to a sleeve R' , surrounding the shaft R , the sleeve being connected to the main frames of the machine and its ends passing through mortises a^8 therein—that is, openings that agree with the diameter of the reduced ends of the sleeve, but which in height are in excess of said diameter. This is plainly shown in Figs. 2 and 5, and its object will be hereinafter described.

Levers $a a'$ are pivoted at 11 to the main frames of the machine. The long ends of the levers are in the direction of the gear-wheels $I I'$, and they are operated by the studs 2 coming in contact therewith. The short ends of the levers come beneath rings fastened upon the respective ends of the shaft R , and when the levers are operated this shaft R and its sleeve R' are raised in the mortise in the frame. The rocker-arms $b b'$ are pivoted at 12 upon the respective frames of the machine. One end of each lever projects toward the gear-wheels $I I'$ to be engaged in the rotation of said wheels by the studs 3. The other ends of said levers have links $c c'$ pivoted to them, and the upper ends of said links are connected to the shaft 9 of the presser-head 10, so that when these rocker-arms and their links are actuated in the rotation of the gears by the hubs 3 the presser-head 10 is raised. The presser-head at its ends is guided by the slide-ways in the frame, and the links $c c'$ are connected at their upper ends centrally of the presser-head, so as to act with uniformity in raising or lowering the same.

I provide cross-bars 13 in the main frames

with threaded holes therein, through which pass the threaded standards 15 of the yokes 14. The ends of the shaft 9 rest in the yokes 14, and the presser-head is in this manner supported, and the links and the rocker-arms just mentioned are maintained inactive. The shaft 9 is vertically adjusted to regulate the presser-head and bring it to the position desired by the threaded standards 15 and the yoke 14, and I prefer to use lock-nuts on the threaded standards beneath the cross-bars, so as to clamp them when the desired position has been ascertained.

The mold-box d is within a mold-box frame d' , which is integral with the platform d^2 , the same being supported upon the main frames A A' of the machine, the mold-box d being made separable from the frame because it is made of stronger and harder metal, and its upper surface is on the same level with the surface of the platform d^2 .

A movable hopper e rests upon the platform d^2 . The upper end of this is preferably flaring longitudinally and recessed at one end, so that the hand of the operator may be passed in under the flaring portion. The hopper is provided with side plates 20 and cross-bars 21, and a guide-rod 22 passes through the cross-bars, with the ends thereof secured in the frame of the machine and in the mold-box frame, so that the regular longitudinal movement of the hopper is thus insured.

A chute f is located directly over the mold-box d . This is shown as extending through and supported by the floor of an upper story S, depending from which floor is a shaft-hanger 16, in which is a rocker-arm 17. A slide 18 is connected to the upper end of the rocker-arm and extends across the chute f , and the rocker-arm 17 is operated to move the slide in opening and closing the chute by pins 19 upon one side of the movable hopper e .

The platen h is connected to and supported and operated by pairs of rods $i i'$. These rods extend down to the hubs h' on the shaft R. Upon the respective sides of the machine are push-rods $k k'$, that slide through bearings 24 and at one end are connected pivotally to the said pairs of rods. Also connected to said pairs of rods near the platen are the rods $l l'$, and the other ends of said rods $l l'$ are connected to levers $m m'$, pivoted to the frames of the machine. Upon the sides of the movable hopper e are horizontal arms e' . Connected to these arms, adjacent to the hopper, are the levers $n n'$, and also connected to said arms are double levers $o o'$, the said levers being pivoted to the main frame of the machine upon opposite sides, the parts at the two sides of the machine being substantially alike.

In the operation of the machine the various gears turn in the direction of the arrows, and presuming the parts to be in the position shown in Figs. 1 and 2 the composition material for forming the sand bricks is delivered down the chute f , through the hopper e , into the mold-box d . The further opera-

tion of the machine withdraws the hopper, causing the same to slide over the surface of the platform d^2 and at the same time to operate the rocker-arm 17 and move the slide 18 and close off the chute. The hopper e is drawn backward in this movement by the action of the levers $n n'$, which levers are operated by the projections 4 upon the drums L L'. Simultaneous with this movement the studs 2 operate the levers $a a'$ to elevate the shaft R and with it raise the platen h , and the projections 5 on said drums operate the levers $m m'$ and the rods $l l'$ to draw the platen over the mold-box into the position shown in Fig. 6, and when the levers $a a'$ return to their normal position the platen and the shaft R descend by their own weight, so that the platen rests firmly on top of the mold-box. With the next movement of the machine the crank M in its rotation draws the connection-rod and straightens the toggles, forcing the plunger 8 upward against the presser-head 10, holding the platen firmly down to place, and raising the presser-head in the mold-box to compress the composition material therein and to form the bricks. As the crank M turns farther, the toggles are flexed, the plunger and presser-head descend, and the projections 7 upon the drums coming against the ends of the pusher-rods $k k'$ forces the platen h off the top of the mold-box into the position shown in Fig. 2, the lower face of the platen in this movement passing across the edge of a wiper 23, which cleans any surplus material from said under face. With the next movement of the parts the studs 3 operate the rocker-arms $b b'$ and the links $c c'$ to raise the presser-head 10 through the mold-box to elevate the bricks and deliver the same from the mold-box, so that the operator can take said bricks by hand and remove them from the machine, after which the presser-head descends gradually to its normal position. The movable hopper is then operated by the double levers $o o'$, actuated by the projections 6 upon the drums as said hopper is returned to the original position shown in Fig. 2, and during the last part of its movement the projections 19 engage the rocker-arm 17, operating the slide 18 and delivering another charge of material through the chute and hopper into the mold-box for the operations to be repeated, as hereinbefore described.

The plunger 8 and presser-head 10 have a vertical movement in suitable slideways secured to the inner faces of the main frame of the machine.

I claim as my invention—

1. In a brick-making machine, the combination with the shaft R, hubs surrounding said shaft, the platen, arms connecting the hubs and platen and means for swinging the platen, arms and hubs in opposite directions upon said shaft, of the side frames mortised to receive said shaft, levers pivoted to the side frames of the machine with their short ends

beneath the ends of said shaft, gear-wheels and means for operating them from a source of power and studs upon said gears periodically engaging the long ends of said levers for automatically raising the shaft and platen before the swinging movement in either direction, substantially as specified.

2. In a brick-making machine, the combination with a platen and pivoted supporting-arms carrying the same, of pusher-rods connected to said arms, rods also connected to said arms adjacent to the platen, and levers pivoted to said rods and upon the side frames of the machine, drums having projections for engaging the pusher-rods for moving the platen in one direction, and projections for engaging the levers for moving the platen in the opposite direction and means for operating the drum and projections, substantially as set forth.

3. In a brick-making machine, the combination with a plunger and a separate presser-head over the plunger and slideways therefor, of links pivoted centrally at the opposite ends of the presser-head, rocker-arms pivoted to the other ends of the said links and also upon the side frames of the machine, and wheels revolved by the power and having studs to engage the free ends of the said rocker-arm for elevating the presser-head independently of the plunger to deliver the finished brick, substantially as specified.

4. In a brick-making machine, the combination with a presser-head and a shaft passing through the same, of cross-bars in the frames of the machine, yokes for receiving the re-

spective ends of said shaft, threaded standards passing through such cross-bars and connected to and supporting the yokes whereby the presser-head is supported and its position adjustably determined, substantially as set forth.

5. In a brick-making machine, the combination with the mold-box and a platform extending therefrom, of a hopper movable longitudinally, levers pivoted to the side frames of the machine, and in engagement with said hopper, drums and projections thereon for actuating said levers to move the hopper in one direction, double levers pivoted to the side frames of the machine and also in engagement with the hopper and other projections on said drums for actuating said double levers to move the hopper in the reverse direction and means for operating the drums and projections, substantially as set forth.

6. In a brick-making machine, the combination with a longitudinally-movable hopper and means for actuating the same, and a delivery-chute, of a shaft-hanger, a rocker-arm connected therewith, a slide in said chute connected to the upper end of the rocker-arm, and a pin or projection upon the sides of the movable hopper to engage the lower end of the rocker-arm and actuate the slide to deliver the material into the hopper periodically, substantially as set forth.

Signed by me this 26th day of October, 1898.

GEO. L. ROLFE.

Witnesses:

GEO. T. PINCKNEY,
E. E. POHLÉ.