(No Model.)

5 Sheets—Sheet 1.

# C. C. HILL.

## SEAL MAKING MACHINE.

No. 438,844.

Patented Oct. 21, 1890.

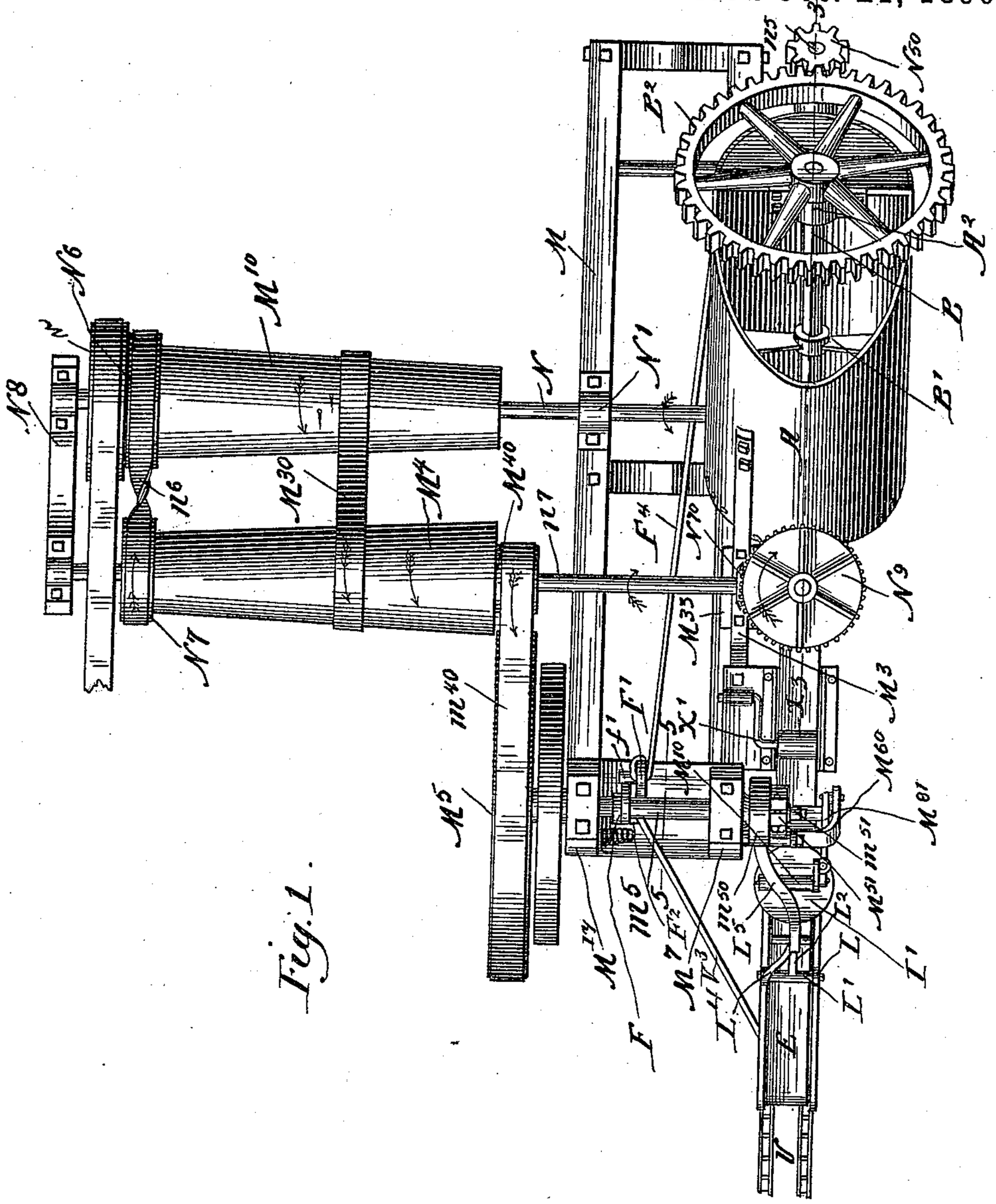

Fig. 1.

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Inventor:
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(No Model.)

5 Sheets—Sheet 2.

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## SEAL MAKING MACHINE.

No. 438,844. Patented Oct. 21, 1890.

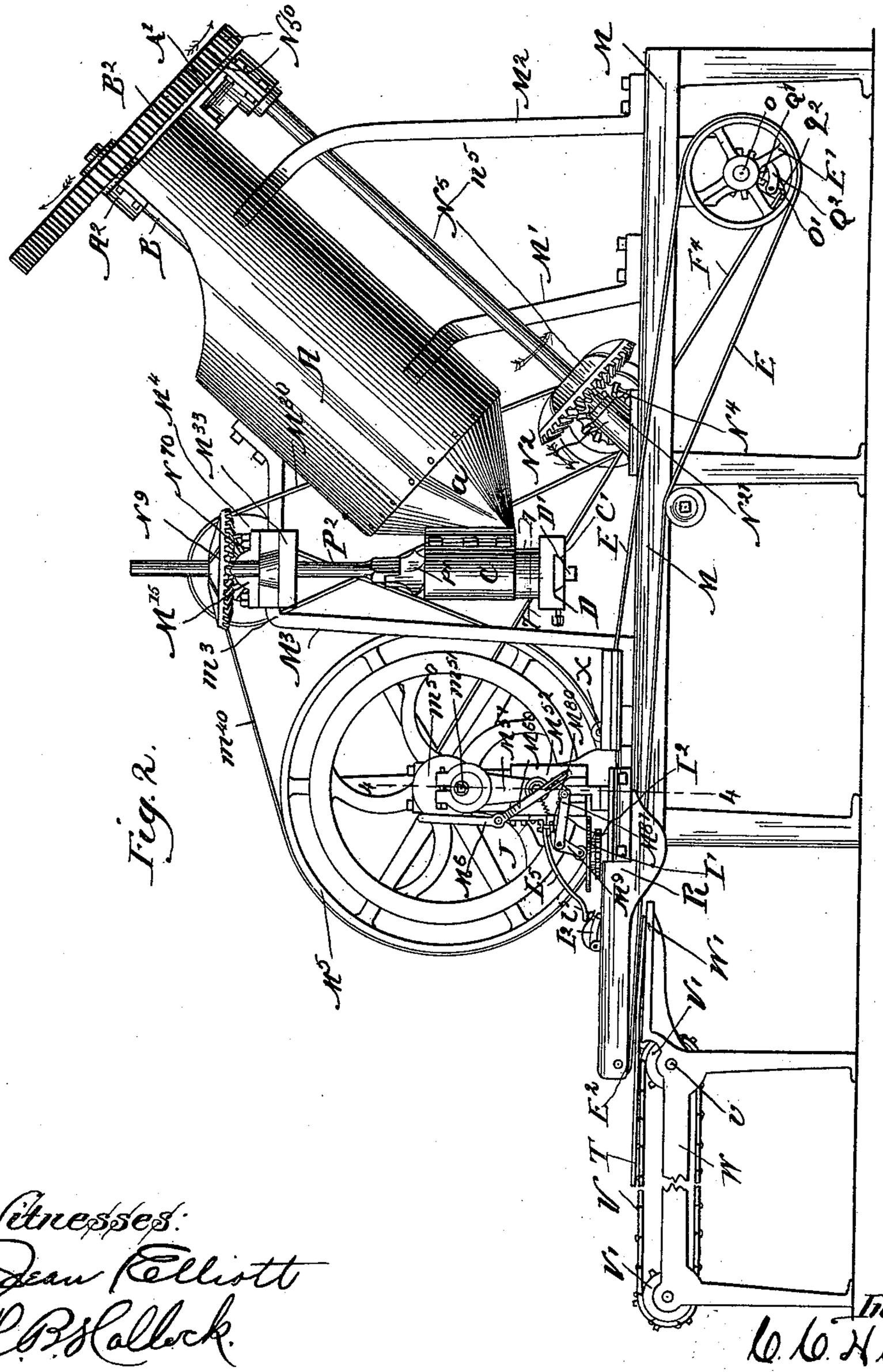

Fig. 2.

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(No Model.) 5 Sheets—Sheet 3.

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## SEAL MAKING MACHINE.

No. 438,844. Patented Oct. 21, 1890.

Fig. 6.

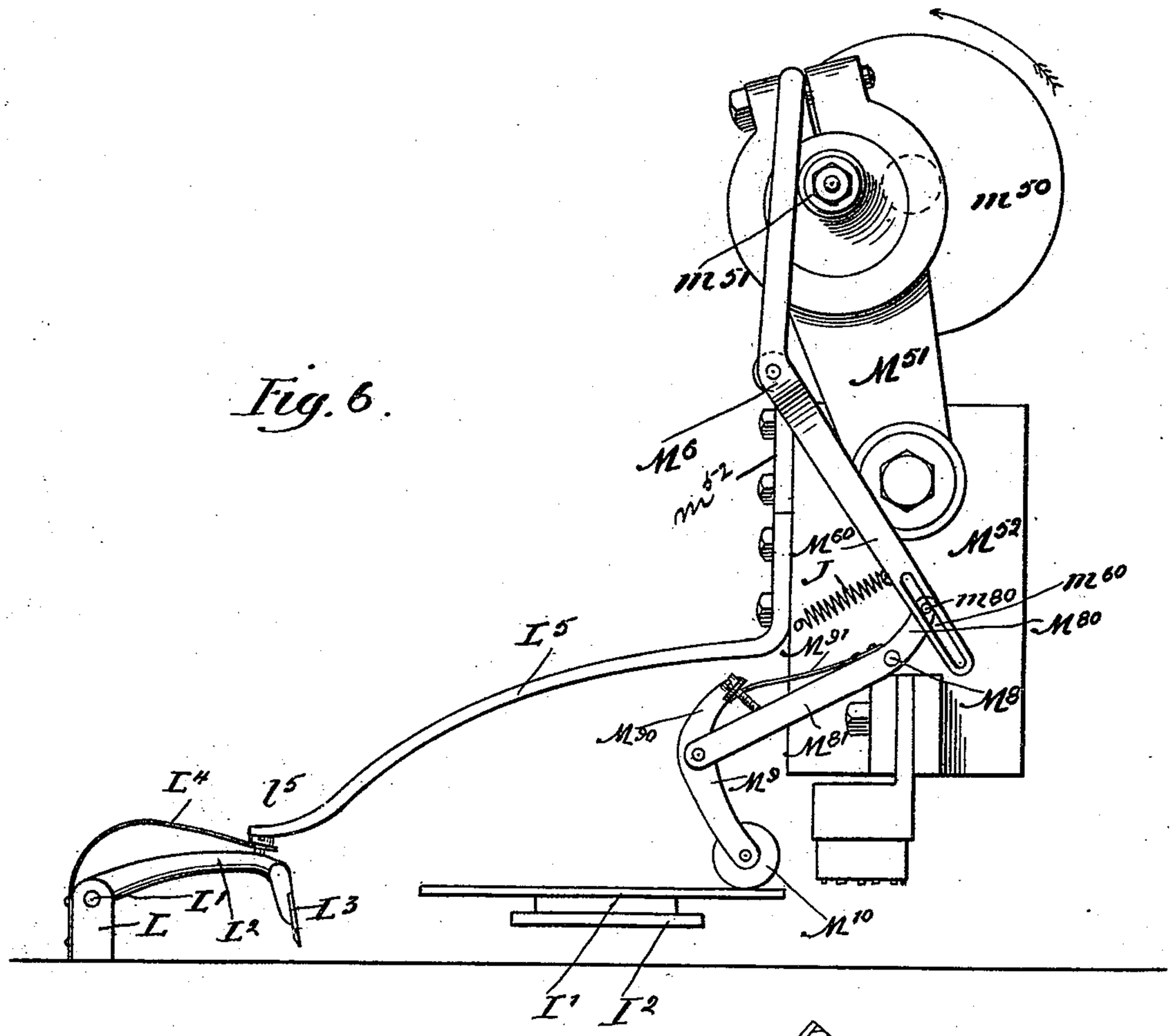
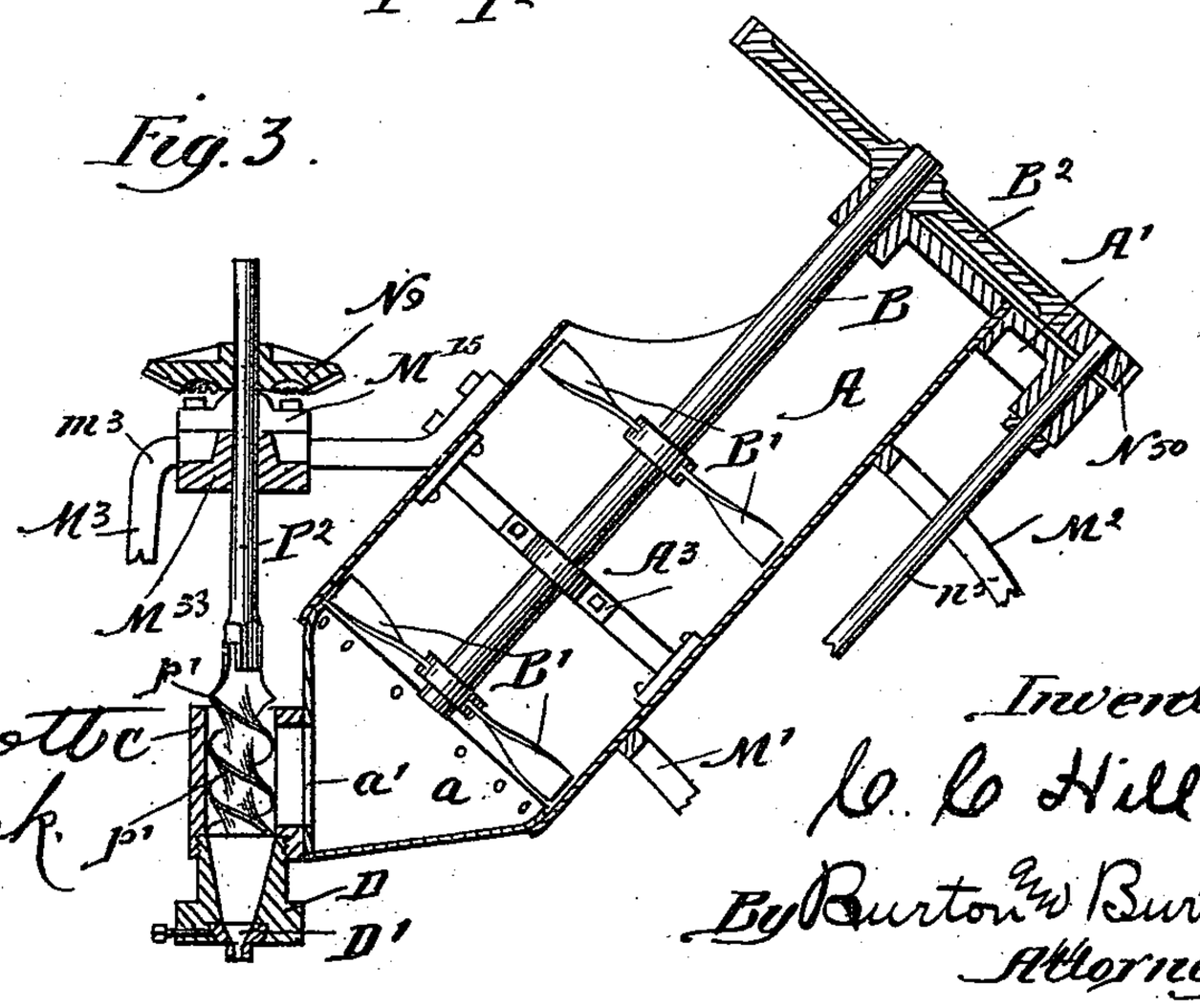



Fig. 3.

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(No Model.) 5 Sheets—Sheet 4.

# C. C. HILL.

## SEAL MAKING MACHINE.

No. 438,844. Patented Oct. 21, 1890.

Fig. 4.

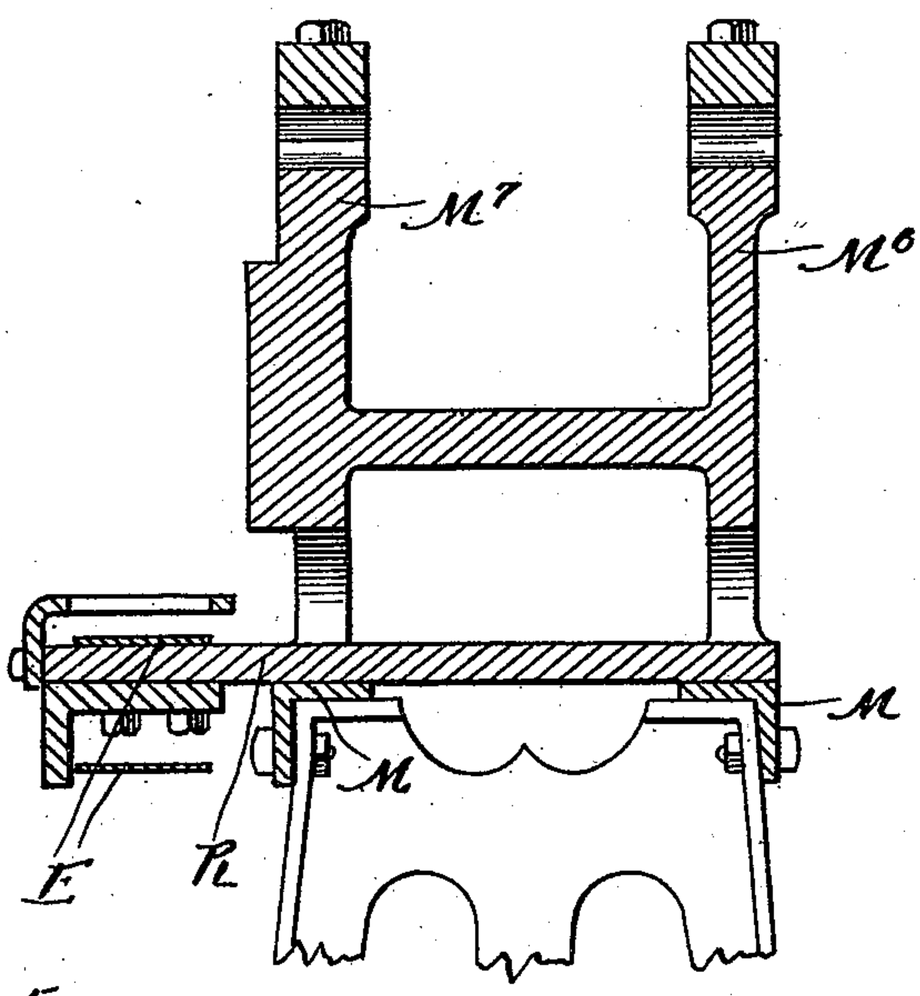



Fig. 5.

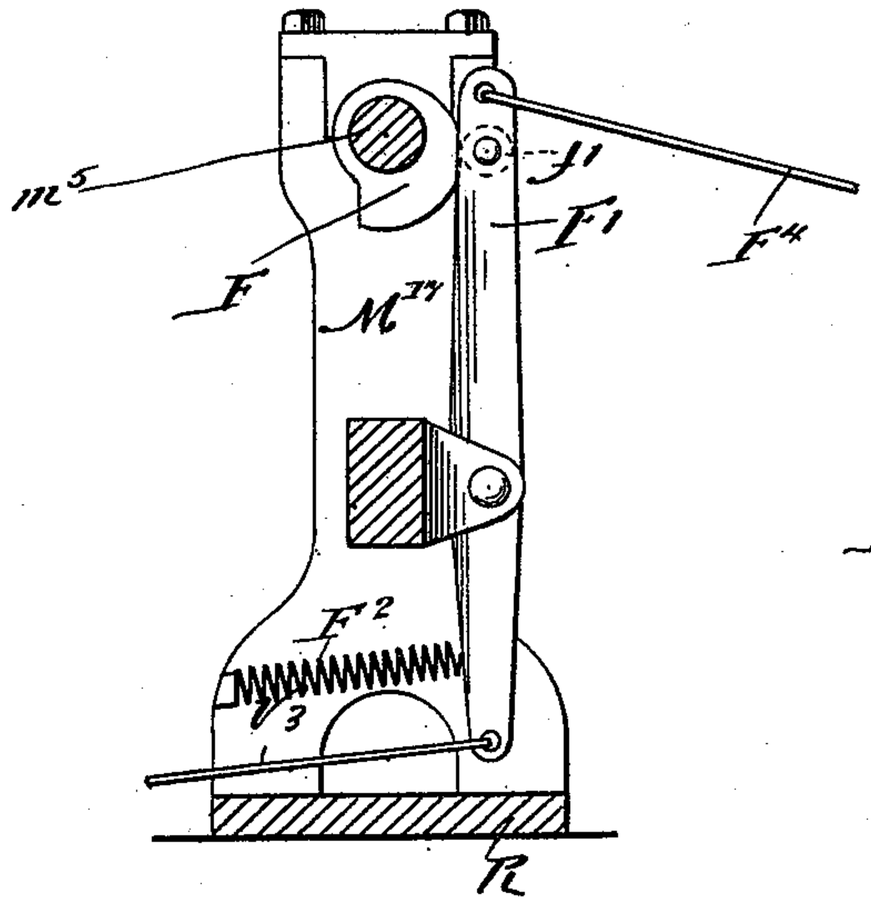
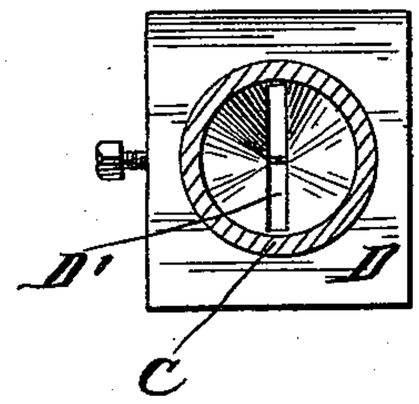



Fig. 7.

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(No Model.) 5 Sheets—Sheet 5.

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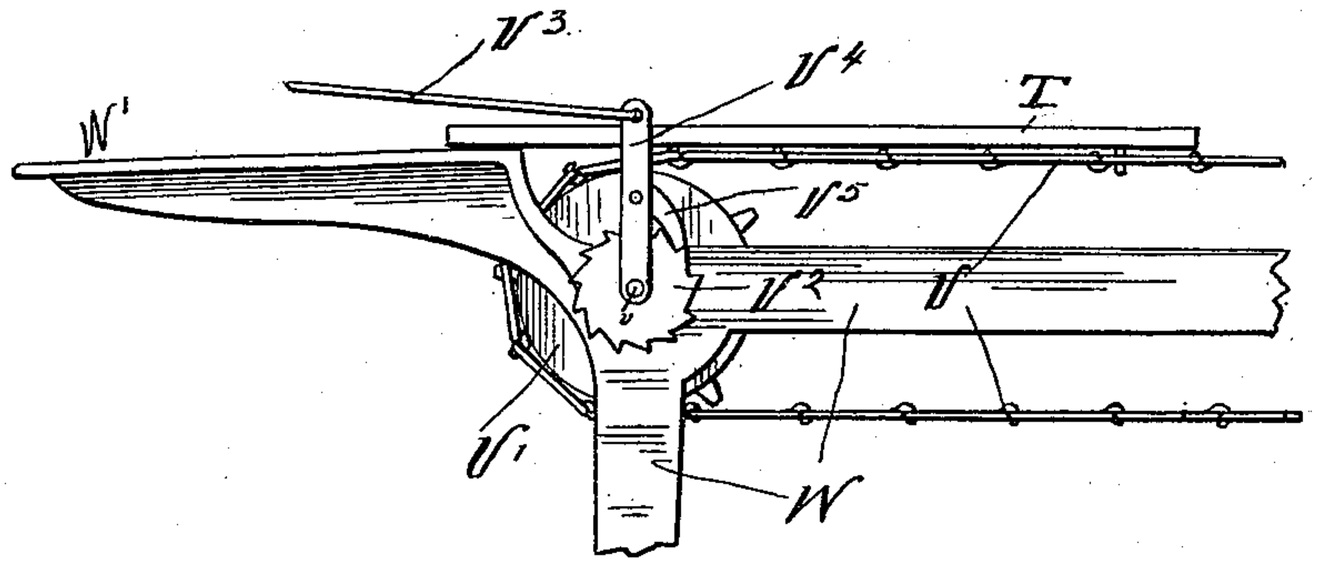
## SEAL MAKING MACHINE.

No. 438,844. Patented Oct. 21, 1890.

*Fig. 8.*

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# UNITED STATES PATENT OFFICE.

CHRISTIAN C. HILL, OF CHICAGO, ILLINOIS.

## SEAL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,844, dated October 21, 1890.

Application filed October 28, 1889. Serial No. 328,446. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTIAN C. HILL, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Seal-Making Machines, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a plan. Fig. 2 is a side elevation. Fig. 3 is a section at 3 3 on Fig. 1. Fig. 4 is a section of the frame stripped of mechanism at the plane of the line 4 4 on Fig. 2. Fig. 5 is a section at 5 5 on Fig. 1. Fig. 6 is a front elevation of details of the imprinting and inking devices. Fig. 7 is a section at 7 7 on Fig. 2. Fig. 8 is a detail rear elevation of the seal receiving and removing devices.

This invention is a machine designed to make small clay seals for use in seal-locks—that is, locks which are arranged so that they cannot be opened without first breaking a frangible seal retained in upon them. These seals are most commonly of rectangular form, and conveniently are about one by one-eighth of an inch thick and superficially one inch by one and one-half inch in dimension. It is necessary that they should bear permanently marked upon them identifying characters. The machine is therefore constructed comprising mechanism for reducing the clay to a uniform plastic condition by stirring mechanism for forming it into a strip, mechanism for marking it with identifying characters, and mechanism for dividing the strip into pieces constituting the several seals.

In the drawings, A is an inclined cylinder, into which the tempered clay is put and suitably moistened to admit of its being stirred by the mechanism provided within the cylinder. This mechanism consists of a stirrer, which comprises the shaft B, suitably journaled with respect to the cylinder and having helically-arranged stirring-arms B′. The clay is delivered from the lower end of this inclined cylinder into a smaller cylinder C, with which the cylinder A communicates at the side, and from this smaller cylinder C it is forced by a piston, hereinafter described, out through a die, which forms the bottom of the cylinder, the opening through which gives the form desired to the tape (indicated by the letter *d* in the drawings) from which the seals are cut. This tape is simply a flat rectangular strip of which the transverse dimension may be any multiple of either dimension, breadth, or length of the seal. As illustrated, the tape is in width double the length of the seal and is divided midway as it emerges by a fine wire stretched across the mouth of the die. The tape is received upon the endless conveyer-belt E, which is suitably driven around pulleys E′ and E², passing underneath the cylinder C, and by said belt is carried underneath the marking and imprinting mechanism, herinafter described, and thence on underneath a cutter, which divides it transversely, completing two seals at each stroke, that being the number comprised in the width of the tape, and finally at the delivery of said endless belt said divided seals are by delivering mechanism, hereinafter described, arranged in piles on a tablet or tray T, which is carried by an endless chain V, driven around suitable sprocket-wheels V′ V′ at a speed which bears such ratio to the speed of the endless belt E as the space occupied by the seals edgewise and slightly leaning as they stand on the tablet bears to the width of the seal.

The foregoing outline description indicates the general processes through which the clay is passed from the initial to the final stage.

The mechanism will now be described in detail. A frame M supports the cylinder A, supporting-brackets M′ M² serving to connect the cylinder and the frame. This cylinder is of heavy boiler-iron and sufficiently rigid when thus supported by the brackets M′ and M² to afford sufficiently rigid support for the bearings of certain of the shafts, hereinafter described, as obtaining support thereon.

N is the main driving-shaft. It contains one bearing at N′ upon the frame M and another bearing in the bracket N², which contains other shaft-bearings, hereinafter described. Said shaft N may have a third bearing in an independent bracket N⁸, which is designed to be mounted upon the same floor or wall which

supports the frame A, and therefore rigid with said frame. At the forward end of the shaft N, immediately adjacent to its bearing in the bracket $N^2$, there is made fast to it the beveled pinion $N^4$, which meshes with and drives the beveled gear $N^5$, which is fast on the shaft $n^5$, which has a bearing at $N^{21}$ in the bracket $N^2$. This shaft $n^5$ is parallel to the axis of the cylinder A, and at the upper end is journaled in the bracket A′, which is secured to the cylinder A upon the under side thereof at that upper end. Above the bracket A′ there is made fast to the shaft $n^5$ the pinion $N^{50}$, which meshes with and drives the gear-wheel $B^2$, which is made fast to the upper end of the shaft B, said shaft having a bearing in the journal-box $A^2$, which is mounted upon the upper end of the cylinder A, and another bearing in the bracket $A^3$, which is secured inside the cylinder A. The frame-post $M^3$, secured to the frame M and bent at a right angle at the point $m^3$, and having a horizontal portion extending from said angle and secured upon the upper side of the cylinder A, has mounted upon it the bracket $M^{33}$, which has the journal-boxes for certain of the driving shafts and wheels, and additionally supports and braces the cylinder A. The cylinder A terminates at the lower part in a conical portion $a$, to which there is secured the upright cylinder C, which will be hereinafter referred to as the "die-cylinder" by reason of the fact that at its lower end and exit the seal-forming die is located.

To the conical portion $a$ of the cylinder A a connection is made into the side of the die-cylinder C, so that the contents of the former cylinder may be forced into the latter, in which a screw-shaped piston revolves, said piston consisting of two flanges $p'$ $p'$ from a central shaft twisted about the axis of said shaft, their edges coinciding with the inner wall of the cylinder, so that as the shaft revolves any plastic substance contained in the cylinder is fed downward and forced out at the bottom of it by the spiral or screw-shaped flanges of the piston. Power is communicated to this piston through its shaft $P^2$ by the following train of mechanism, commencing with the main driving-shaft N, on which is made fast the pulley $N^6$, over which the twisted belt $n^6$ is driven, communicating power to the pulley $N^7$ on the shaft $n^7$, which has one bearing in the bracket $N^8$, in which the shaft N also has its third bearing, and has another bearing at $n^7$ in the bracket $M^{15}$. To said shaft $n^7$, near the bracket $M^5$, there is made fast the beveled pinion $N^{70}$, which meshes with and drives the beveled gear $N^9$, which is made fast on the vertical shaft $P^2$ of the screw-piston $p'$ $p'$.

D is the die which forms the mouth-piece of the die-cylinder C, being preferably made detachable therefrom, the lower end or base of said cylinder having the dovetailed groove C′, and the die being dovetailed in shape to fit said groove, so that it may be tightly held therein and secured against displacement, except when intentionally withdrawn horizontally. The opening D′ in said die is, as described, of rectangular shape, corresponding to the cross-section of the seal to be produced.

When power is applied over the pulley $n$ to drive the shaft N and the remainder of the train which receives motion from said shaft, the stirring-arms B′ on the shaft B, operating in the cylinder A, thoroughly mix and at the same time feed downward the clay therein and force it out at the opening $a'$, which leads into the cylinder C, where it is subjected to the positive downward feeding action of the piston $p'$ $p'$, revolving in said cylinder, whereby it is forced out through the aperture in the die D in the form of a tape, which lodges on the conveyer-belt E.

I will now describe the mechanism by which the necessary motion is communicated to the belt E. Fast on the shaft N is a conical roller or very broad pulley $M^{10}$, and loose on the shaft $n^7$ is a similar pulley $M^4$, tapering in the opposite direction, the taper of the two pulleys being equal and comparatively slight. A belt $M^{30}$ passes over these pulleys and communicates power from $M^{10}$ to $M^4$. Rigid with the pulley $M^4$, at the forward end, is the small pulley $M^{40}$, and the belt $m^{40}$, passing over this pulley $M^{40}$ and over the large pulley $M^5$, communicates power to the latter, which is fast on the shaft $m^5$, journaled on the brackets $M^{17}$ and $M^7$, which are secured upon the frame M. These brackets constitute the frame for the marking-press—that is, the press by which the seals are imprinted with whatever characters they are intended to bear. On the shaft $m^5$ between the two brackets $M^{17}$ and $M^7$, Figs. 1 and 5, there is made fast the eccentric collar or cam F, and pivoted at a point below the shaft on the brackets $M^{17}$ and $M^7$ is the lever F′, which has toward the upper end the finger or stud $f'$, projecting across the plane of the eccentric F, so as to be engaged by the edge of said eccentric as it revolves, whereby the lever is actuated away from the shaft. A spring $F^2$, secured to the lever below its pivot and to the frame-post $M^{17}$, tends to resist and reverse the movement communicated by the eccentric cam F to said lever. To the upper end of the lever there is connected the link $F^4$, which extends downward in a slanting direction toward the right-hand or initial end of the machine and is connected to the lever-arm O′, which is pivoted on the shaft $o$ of the pulley E′, which is the driving-pulley of the feed-belt E. Rigid with said pulley E′ there is the notched wheel Q′, and pivoted on the lever-arm O′ is the dog or pawl $Q^2$, provided with the spring $q^2$, tending to throw the dog into engagement with the notched wheel Q′.

It will be understood that the reciprocation of the link $F^4$ in one direction engages the pawl with the notched wheel and rotates the wheel E′, and in the other direction with-

draws the pawl from such engagement and permits it to engage with the next tooth of the wheel Q′ in the familiar manner of a pawl-feeding mechanism. The pawl is so arranged with reference to the wheel Q′ that the feeding movement is the pushing movement of the rod $F^4$, that being the positive movement communicated to it by the cam F, and the counter movement which said rod receives from the spring $F^2$ withdraws the pawl from its engagement to permit it to re-engage with the next tooth. It will thus be seen that the belt E is fed by intermittent impulses, standing at rest at intervals between those impulses. The clay tape, which is delivered continuously from the die D, will drop back while the conveyer-belt is halting, as illustrated in dotted lines in Fig. 2, and this is facilitated by the conveyer-belt sloping downward a little back from the point where the tape is received. The upper ply of the belt E passes over the fixed bed or support R, which is a portion of or rigid with the frame M underneath the shaft $m^5$ and extending for some little distance both ways from that point, and it may extend underneath the entire upper ply of the belt between the driving and the carrying pulleys. It must extend underneath the belt at all positions where the seal-forming tape thereon is exposed to the action of the imprinting or cutting devices, in order to afford an unyielding support for the seal when it is being thus operated upon. The forward end of the shaft $m^5$ has a crank-wheel $m^{50}$, carrying the crank-pin or wrist-pin $m^{51}$, which by means of the link $M^{51}$ operates the reciprocating head $M^{52}$, which is guided in parallel vertical ways on the bracket $M^7$, the construction being the usual and familiar one of a power-press, and which need not be further explained in detail. At the lower end of the reciprocating head $M^{52}$ there are secured whatever dies or other devices are employed to imprint upon the seal the desired marks.

I will now describe the mechanism for inking the stamping devices and for subdividing the clay tape into individual seals. The crank-pin $m^{51}$, by which the reciprocating head $M^{52}$ is actuated, projects forward through the link $M^{51}$, and on its projecting end is provided with an anti-friction roll $m^{51}$. To the edge of the reciprocating head $M^{52}$, I fasten the small bracket $m^{52}$, upon the upper edge of which is fulcrumed the lever $M^6$, one arm of which extends upward from the fulcrum and in the plane of rotation of the projecting end of the crank $m^{50}$ in position to be actuated by the roll $m^{51}$ as the crank revolves. The lower arm $M^{60}$ of the lever $M^6$ extends down in front of the reciprocating head $M^{52}$. Upon the lower part of the reciprocating head $M^{52}$ there is journaled a rock-shaft $M^8$, which has an arm $M^{80}$, extending upward and provided with a stud $m^{80}$, which engages in a slot $m^{60}$ in the arm $M^{60}$ of the lever $M^6$. The rock-shaft $M^8$ has another arm $M^{81}$ extending downward to the left, and at the lower end of this arm there is pivoted the swinging ink-roller frame $M^9$, in the lower end of which the ink-roller $M^{10}$ is journaled. The frame $M^9$ has extending above its fulcrum an arm $M^{90}$, which overhangs the arm $M^{81}$ of the rock-shaft $M^8$, and a spring $M^{91}$ is provided, secured upon the arm $M^{81}$ and reacting against the end of the arm $M^{90}$ of the ink-roller frame and tending to lift the lower end of the ink-roller frame and the ink-roller journaled therein for the purpose of holding it up against the face of the stamp in the inking process, hereinafter described. Upon the bracket I, secured to the main frame of the machine and extending up at the rear of the carrying-belt and thence forward overhanging the same there is journaled the spreading-plate or ink-tablet I′, which is provided on its lower side with a ratchet-flange $I^2$, which by means of suitable connections may be made use of to rotate the spreading-plate for the purpose of spreading the ink in the usual manner of such devices in printing-presses. The operation of this mechanism is as follows: When the shaft $m^5$, revolving in the direction of the arrow-head on Fig. 6, causes the crank-pin $m^{51}$ to actuate the reciprocating head $M^{52}$ downwardly, the roll on the projecting end of said crank-arm engaging the lever $M^6$ forces its upper arm away from the shaft, swinging its lower arm $M^{60}$ in the opposite direction, and causing it by means of the engagement of its slot $m^{60}$ with the stud $m^{80}$ on the lever-arm $M^{80}$ of the rock-shaft $M^8$ to rock said shaft in a direction which will carry the lower end of the arm $M^{81}$ away from the reciprocating head $M^{52}$, thereby carrying also the ink-roller over toward the left and out of the way of the descending stamp on the reciprocating head and bringing the ink-roller into a position overhanging the spreading-plate I′. This position is shown in Fig. 6, and is reached before the crank $m^{50}$ has reached its extreme position to the left, at which time the descent of the head has also been sufficient to bring the ink-roller into contact with the spreading-plate I′, and as the head continues to descend, the roller being unable to descend by reason of the obstruction offered by the spreading-plate, the descent of the rock-shaft $M^8$ with the reciprocating head causes the roller to be pushed to the left over the spreading-plate, whereby it is suitably inked. As the revolution of the shaft $m^5$ continues, the crank $m^{50}$ having passed the lowest position, the head rises from that position, and the lever $M^6$, being free from actuation of the crank, yields to the action of the spring J, which is secured to the reciprocating head $M^{52}$, and which tends to force and hold the upper arm of the lever $M^6$ over toward the right, contrary to the direction in which it is actuated by the roll on the crank $m^{50}$. Such action of the spring will be restrained by the engagement of the inking-roll on the ink-spreading plate I′ after the crank-pin $m^{51}$ passes its extreme position to the

left and begins to withdraw from the lever $M^6$; but as the reciprocating head $M^{52}$ rises the inking-roll, returning to the right across the plate I', will be free of that plate before the crank-pin $m^{51}$ reaches its highest position, and the spring J will thereupon force the upper arm of the lever $M^6$ over toward the right until it contacts the roll on the end of the crank $m^{50}$, and in that motion will cause the inking-roll to pass entirely under the stamp and to roll across the face of the imprinting devices thereon, and as the crank continues to revolve on upward toward the left the lever $M^6$, being forced back to the left, will cause the ink-roll to be rolled back to the left again across the face of the stamp, both said movements of the imprinting devices across the stamp occurring while the crank-wrist is passing over the center, so that whatever slight change of position of the face of the stamp may occur during those movements of the roll will be compensated by the spring $M^{91}$ holding the roll up against the face of the stamp, as hereinabove stated.

In lugs L L, which are secured to the frame, one on each side of the conveyer, and which project upward past the edges of the belt, there is journaled at their upper ends the rock-shaft L', having the arm $L^2$ projecting to the right and provided at its end with a knife $L^3$, said arm and knife overhanging, as it will be observed, the conveyer-belt and the clay tape thereon. A spring $L^4$ is secured to one of the brackets L and to the lever-arm $L^2$, with a tendency to hold said arm up and keep the knife $L^3$ off of the clay tape. To the reciprocating head $M^{52}$ there is secured an arm $L^5$, extending off to the left and downward and at the left overhanging the lever $L^2$. This arm is somewhat elastic, but sufficiently stiff for the purpose for which it is designed, as follows: When the reciprocating head $M^{52}$ descends, just before it reaches its lowest position the end $l^5$ of the lever-arm $L^5$ comes into contact with the lever-arm $L^2$ and forces downward said arm and the knife $L^3$ thereon, so that while the stamp is imprinting the seal designed upon the clay tape the knife $L^3$ is dividing the tape at a point some distance beyond that at which the imprint is being made, the distance being calculated so that the division will fall between consecutive imprints, thus dividing the tape into individual seals, cutting off one seal at the end where another is being imprinted some distance back. The clay tape being of the width of two seals, and the knife $L^3$ being of the width of the tape, and the imprinting-stamp being in like manner double—that is, containing duplicate designs side by side across the width of the tape—each action of the mechanism imprints two seals and severs two seals from the tape. The seals thus severed lie on the conveyer, and are carried thereby to the delivery end, where they fall off edgewise as the belt passes around the idle-roller q, and are received edgewise on the tablet or tray T, which is carried by the chains V, which are driven around the sprocket-wheels V' V', suitably journaled upon an annex to the frame M, which, as illustrated, consists of an independently-supported frame W, the height of which is such that the upper surface of the tablet T is below the lower surface of the lower ply of the belt E a distance at least as great as the length of the seals—that is to say, as great as the distance which the conveyer-belt travels between the impulses of the knife—and the driving sprocket-wheels V' V' are located a sufficient distance back from the delivery end of the conveyer-belt E so that the end of the tablet T may be rested upon the chains a sufficient distance to cause them to grasp the same and feed it onward while a preceding tablet is still underneath the delivery end of the conveyer-belt, and in position, therefore, to receive the seals dropped therefrom. A shelf W' may conveniently be provided, located still farther back to the right than the sprocket-wheels V' V', which will afford further support for the tablet T when first placed in position, with one end only resting on the chains, as described. It will be observed that the seals are delivered from the carrying-belt standing on edge, having been carried on the belt lying flat, and that therefore the tablet which receives them on the chains V V should be advanced an amount corresponding to their thickness only, while the conveyer is advanced an amount corresponding to the dimension of their faces, which extend longitudinally with respect to the belt. Feeding-motion is imparted to the chains V by the following mechanism: On the shaft *v* of the driving-wheel V' V' at the rear end there is secured the ratchet-wheel $V^2$, and to the lever F', which actuates the feeding mechanism of the conveyer-belt, there is connected the push-rod or link $V^3$, the other end of which is connected to the lever $V^4$, pivoted on the shaft *v*, and having pivoted to it the spring-actuated pawl $V^5$, which engages the ratchet-wheel $V^2$ and actuates it when the the lever F' is actuated outward (that is, away from the shaft $m^5$) by the cam F. The size of the sprocket-wheel V' and the number of the teeth on the ratchet-wheel $V^2$ and the stroke of the lever $V^3$ are calculated to give the chains V, and thereby the tray T, at each impulse communicated by the cam F the advancing movement required—that is, corresponding in amount to the thickness of the seals which are being delivered onto the tablet or tray T, this being not necessarily a distance exactly equal to the thickness of the seals, but equal to the distance occupied by each seal in the direction of the length of the tablet, (that is, in the direction of its movement when the seals are piled thereon, as illustrated, not perfectly vertical, but slightly leaning, as they will necessarily be.)

The condition of the clay in the stirring-

cylinder A as to moisture and other circumstances will affect the rate at which the tape is formed by a given speed of the tape-forming mechanism—that is, although the clay is forced out positively by the screw-piston $P^2$ the length of tape formed by a given motion of the piston may vary according to the condition of the clay, being more or less susceptible of compression in the process of forcing it out. In order that the conveyer-belt may at all times have a speed corresponding perfectly to the rate at which the tape is formed and delivered onto it, so that it will neither tend to stretch the tape by drawing it out too fast or to kink it by retarding it, the pulleys $M^{10}$ and $M^4$ are provided, as described, oppositely tapering, so that the belt $M^{30}$, which communicates power from the former to the latter of said pulleys, being adjusted to different positions on said pulleys, may vary the speed of the driven pulley, and thereby of all the mechanism in the train which it operates, which includes the conveyer-belt and all the imprinting, cutting, and delivering devices.

X is an idle-roller, covered with felt or other soft substance, journaled on the lever-arm X′, pivoted to the frame. This roller overhangs the tape as it is carried on the conveyer-belt, and it is intended to smooth out any irregularities therein as it lies on the belt before it enters under the imprinting devices.

I claim—

1. In a seal-making machine, in combination with the vertical cylinder C, the inclined cylinder A, discharging laterally into the cylinder C, and the spirally-flanged piston revolving in the latter cylinder to feed the laterally-supplied clay positively out in the direction of the axis of the piston, substantially as set forth.

2. In a seal-making machine, in combination with mechanism which forms the clay into tape and discharges the same downward, a conveyer-belt traveling horizontally underneath the discharge of the tape and receiving the same, a fixed bed projecting under and supporting the upper ply of the conveyer-belt, a seal-imprinting die overhanging such belt above the fixed bed, and mechanism which reciprocates it toward and from the same to cause it to imprint the clay tape carried on the belt, substantially as set forth.

3. In a seal-making machine, in combination with mechanism which forms the clay into strips or tape, a conveyer-belt which travels horizontally under the tape-discharge and receives the tape, a seal-imprinting die reciprocating toward and from the tape-carrying ply of the belt to imprint the clay tape thereon, the driving-shaft of the conveyer-belt, and mechanism actuated by the driving-shaft of the die-operating mechanism to actuate said conveyer-belt driving-shaft in the intervals between the imprinting action of the die, substantially as set forth.

4. In combination with mechanism which forms the clay into a tape, a conveyer-belt which travels horizontally under the tape-discharge and receives the tape, a seal-imprinting die and mechanism which reciprocates it toward and from the conveyer-belt to cause it to imprint the tape thereon, the pawl-and-ratchet mechanism actuating the driving-shaft of the conveyer-belt, and a rod connected thereto and actuated by the driving-shaft of the die-operating mechanism, substantially as set forth.

5. In a seal-making machine, in combination with the belt which conveys the clay tape and the stamp-carrying head reciprocating vertically above the belt, the seal-severing knife-arm mounted on the frame, and an arm actuated by the stamp-carrying head and actuating the knife-arm by the descent of the head, substantially as set forth.

6. In a seal-making machine, in combination with the endless traveling belt which conveys the clay tape lying flatwise thereon, the severing-knife mounted above the tape-conveyer belt, the reciprocating head which actuates the knife at each reciprocation, and the seal-receiving conveyer located at the delivery end of the tape-conveyer and having its seal-carrying surface lower than the level of the tape-conveyer carrying-surface a distance as great as the travel of the seal-conveyer between consecutive impulses of the knife, whereby the seals severed by the knife may alight edgewise on the seal-receiving conveyer, substantially as set forth.

7. In a seal-making machine, in combination with the endless traveling belt which conveys the clay tape and the reciprocating head and seal-imprinting stamp thereon operating above the belt, an inking-roller and suitable operating devices to cause it to pass over the face of the stamp, and the inking-tablet mounted upon the frame and overhanging the traveling belt beyond the imprinting-stamp, substantially as set forth.

8. In combination with the shaft $m^5$, having the crank which operates the imprinting-stamp, the cam F, fixed on said shaft, and the conveyer-feed mechanism actuated thereby, the feed-actuating prominence of said cam being located with respect to the stamping-actuated crank so that it actuates the conveyer while the imprinting-stamp is rising, substantially as set forth.

9. In combination with the shaft $m^5$, the lever F′, the links $F^4$ and $V^3$, connected thereto, the conveyer-feed mechanism, and the tray-feeding mechanism actuated by said links, respectively, substantially as set forth.

CHRISTIAN C. HILL.

Attest:
H. H. MADDOCK,
CHAS. S. BURTON.