

(No Model.)

8 Sheets—Sheet 1.

W. J. GLADISH.
NAIL PLATE FEEDING MACHINE.

No. 328,399.

Patented Oct. 13, 1885.

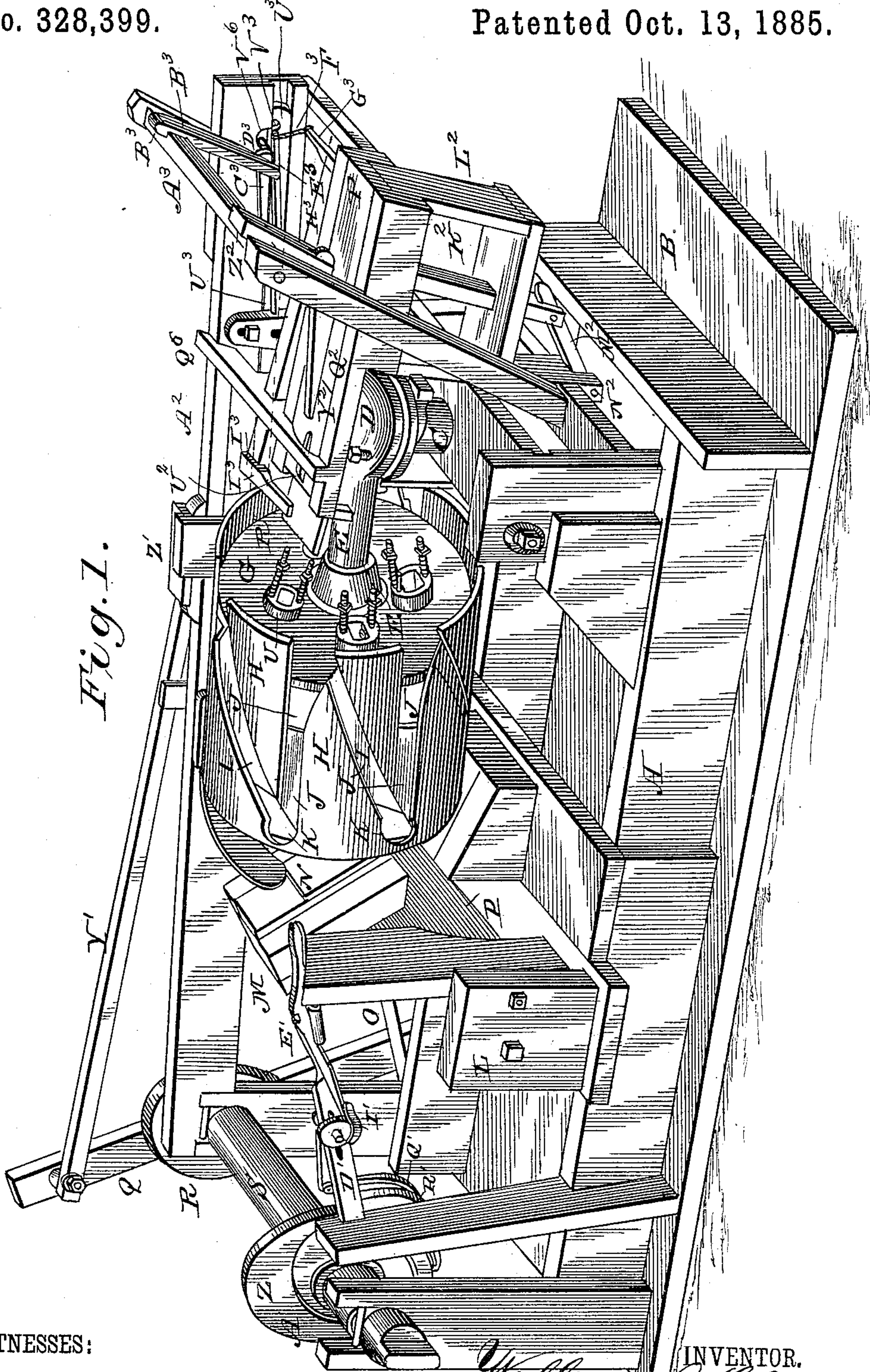


Fig. 1.

WITNESSES:

Ad. S. Dietrich
Wm. Bagger

INVENTOR.

William J. Gladish
by *Louis Bagger & Co.*
ATTORNEYS.

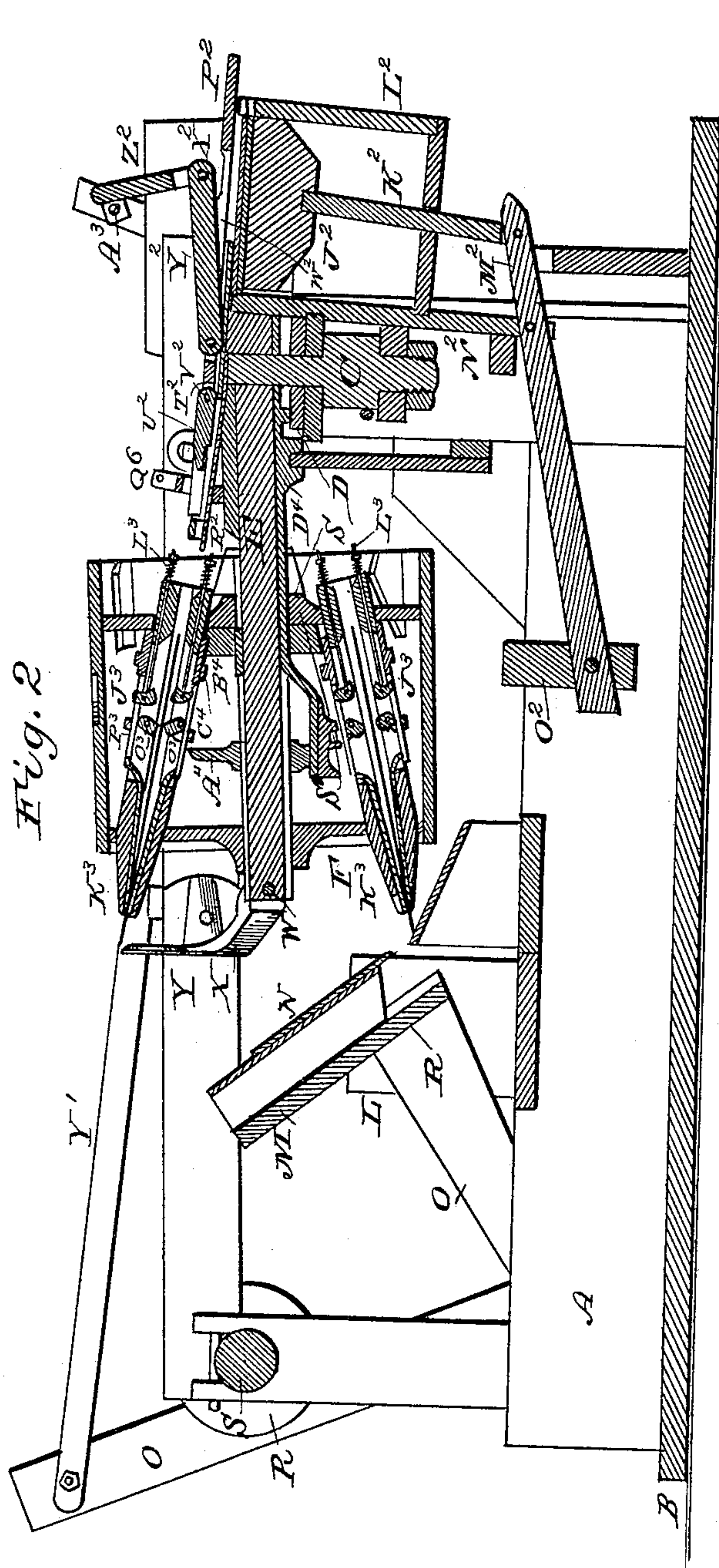
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W. J. GLADISH.
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WITNESSES:

Fred. L. Dieterich
Wm. H. Bagger

INVENTOR.

William J. Gladish
by *Louis Bagger & Co.*
ATTORNEYS.

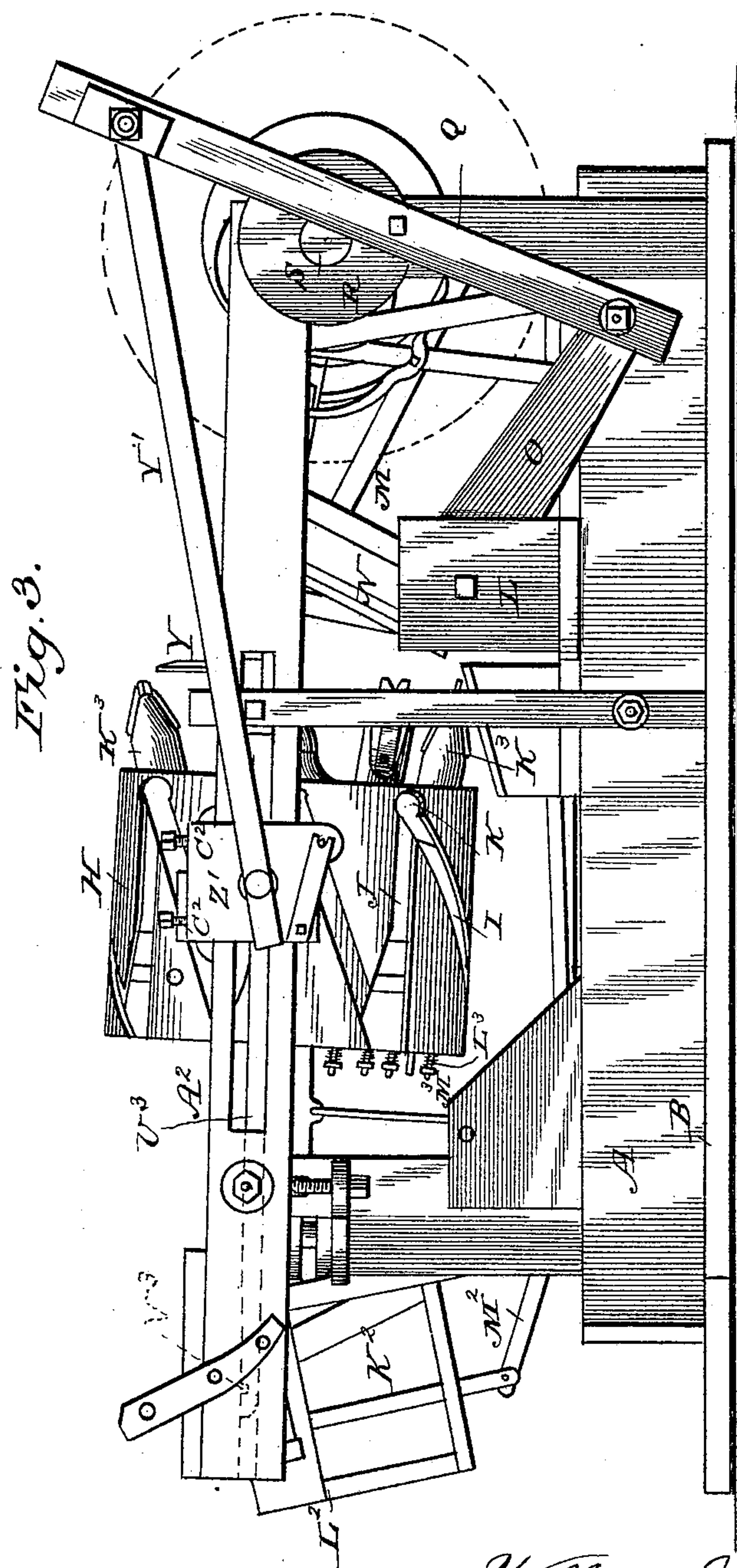
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Wm. Bagger.

INVENTOR.

William J. Gladish.
by *Louis Bagger & Co.*
ATTORNEYS.

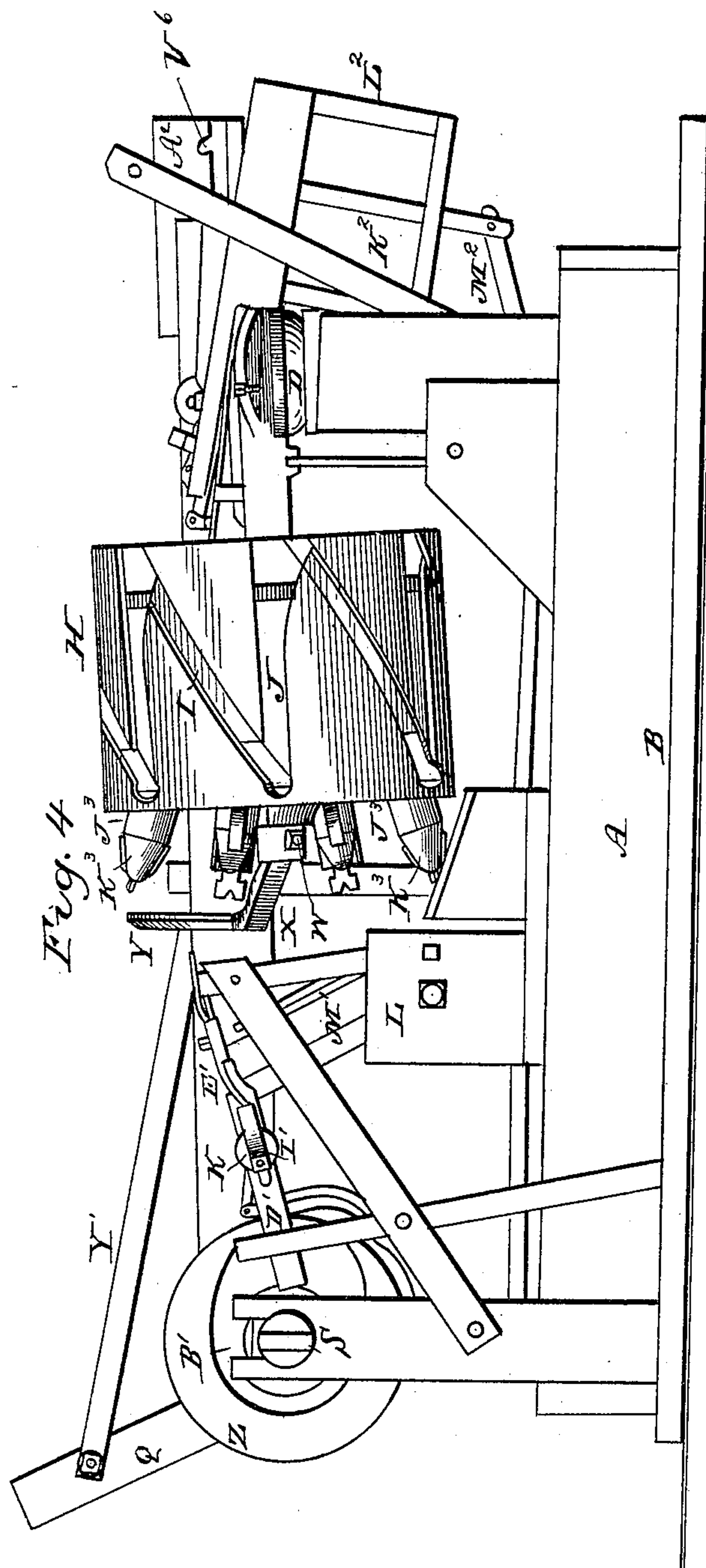
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Patented Oct. 13, 1885.



WITNESSES:

Ed. S. Dutcher
Wm. H. Bagger

INVENTOR.
William J. Gladish.
by *Louis Bagger & Co.*
ATTORNEYS.

(No Model.)

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W. J. GLADISH.
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Fig. 5

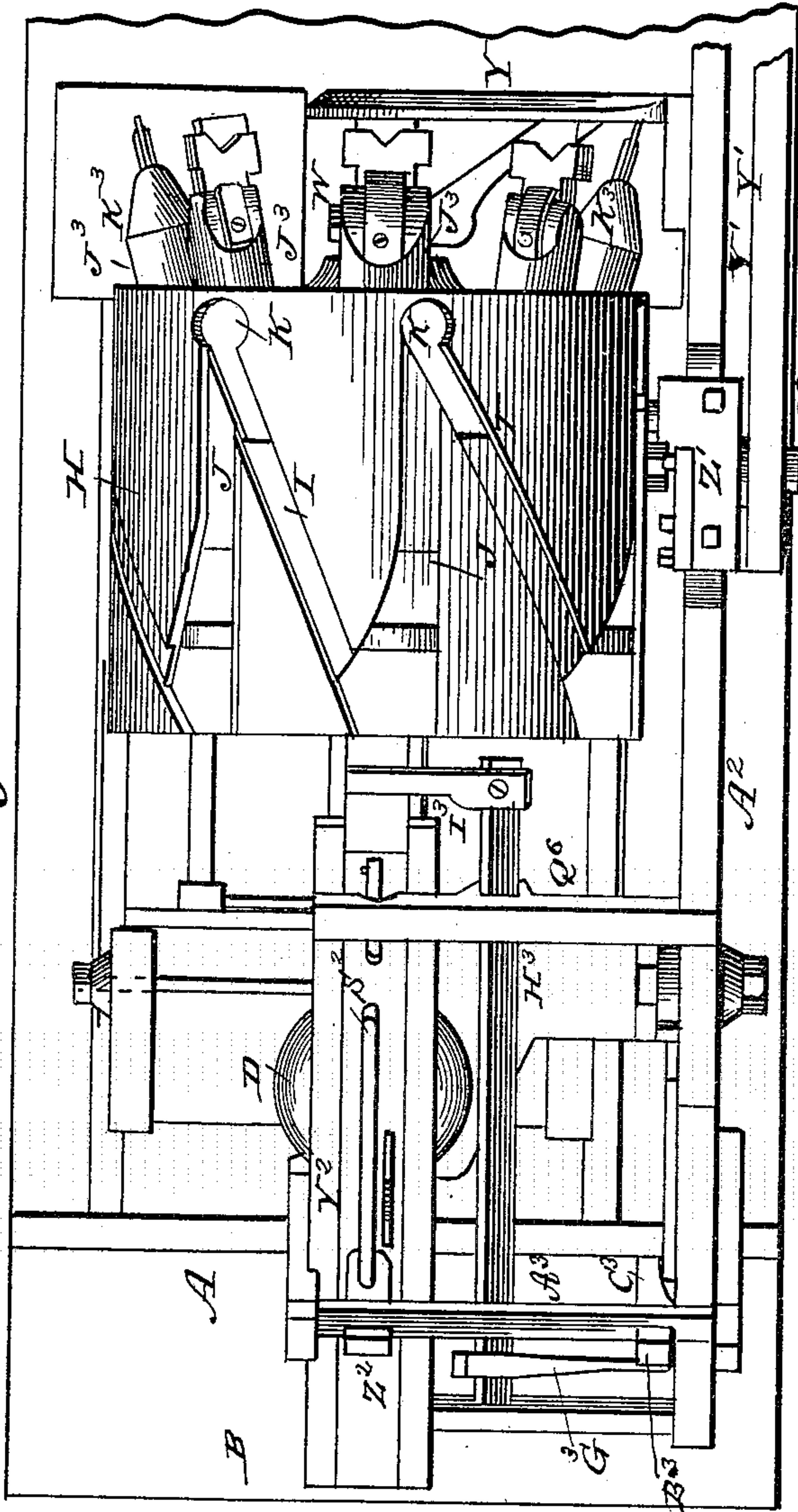


Fig. 12.

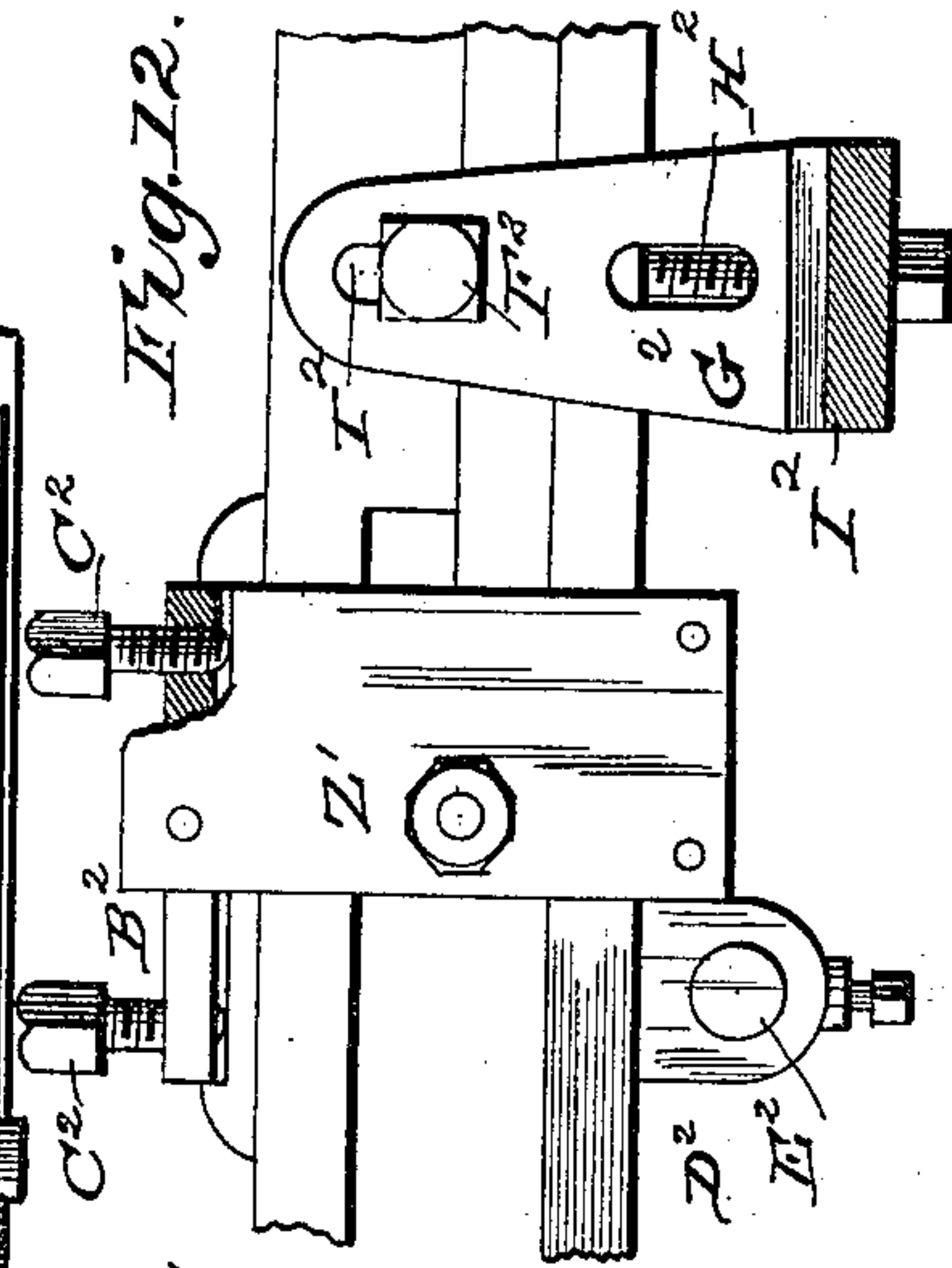
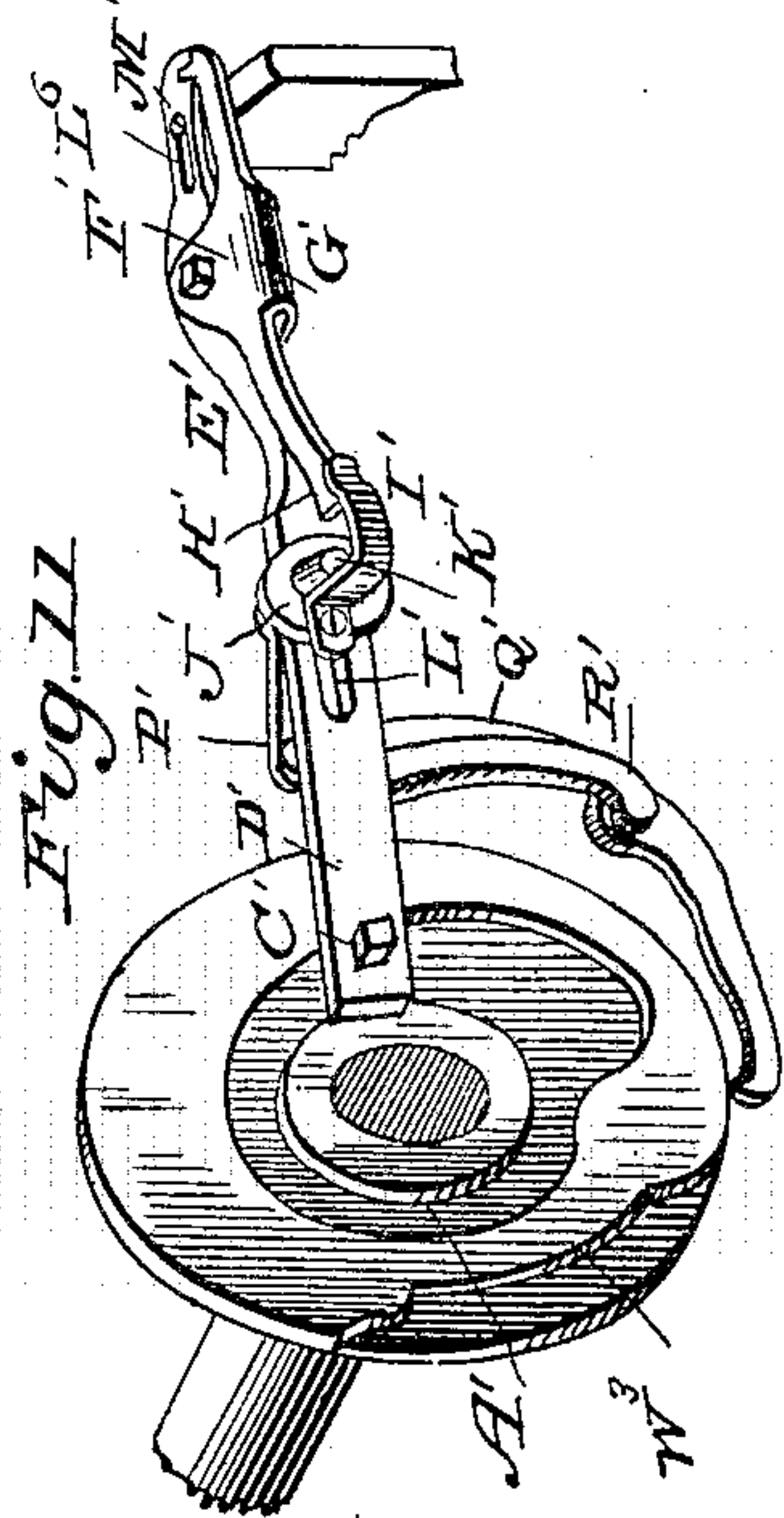


Fig. 11



WITNESSES:

Fred. L. Dieterich
Wm. Bagger

INVENTOR.

William J. Gladish
by *Louis Bagger & Co.*
ATTORNEYS.

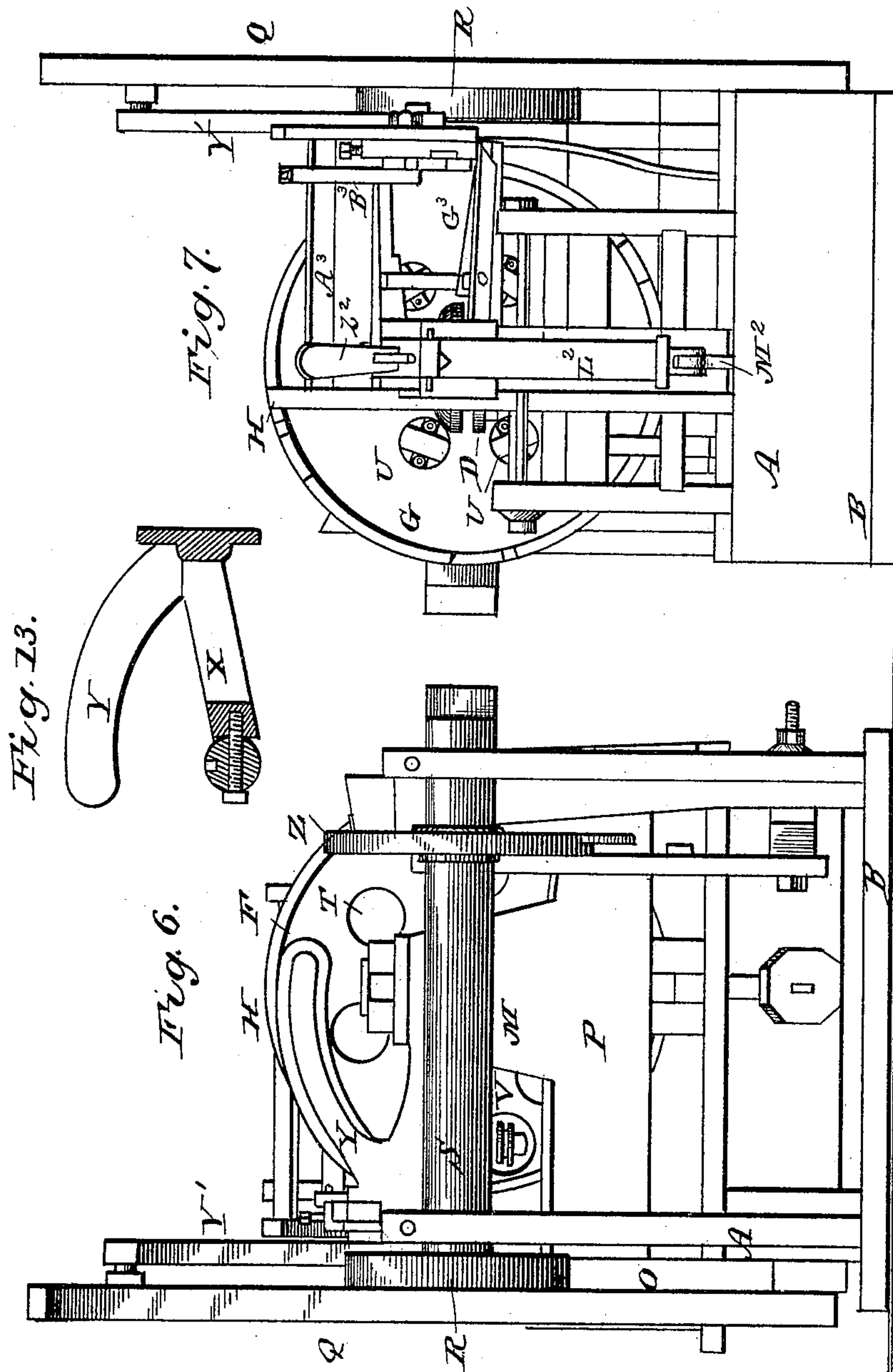
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W. J. GLADISH.
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No. 328,399.

Patented Oct. 13, 1885.



WITNESSES:

Fred. S. Dietrich,
Wm. Baggett

INVENTOR.

William J. Gladish,
by *Louis Baggett & Co.*
ATTORNEYS.

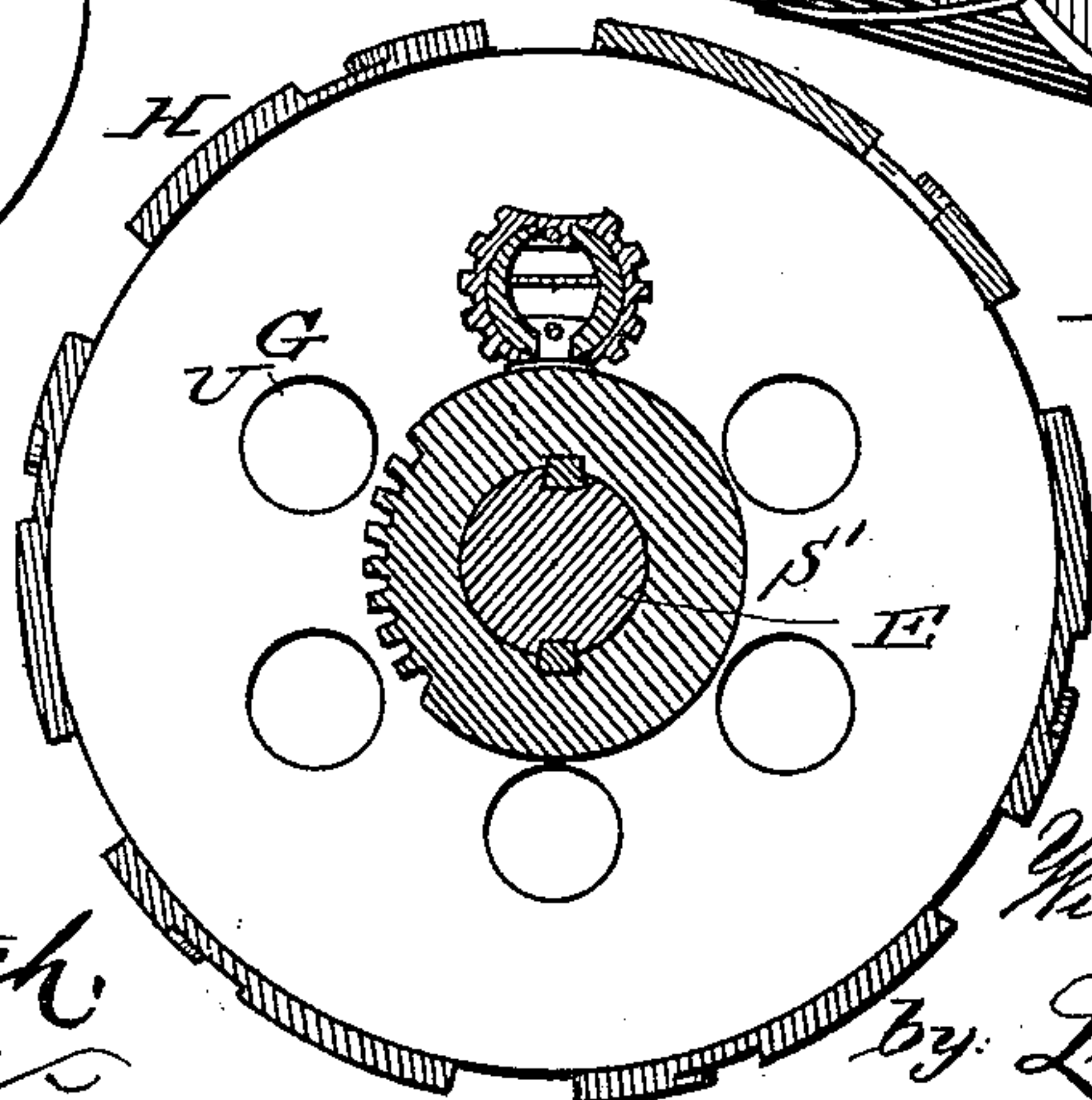
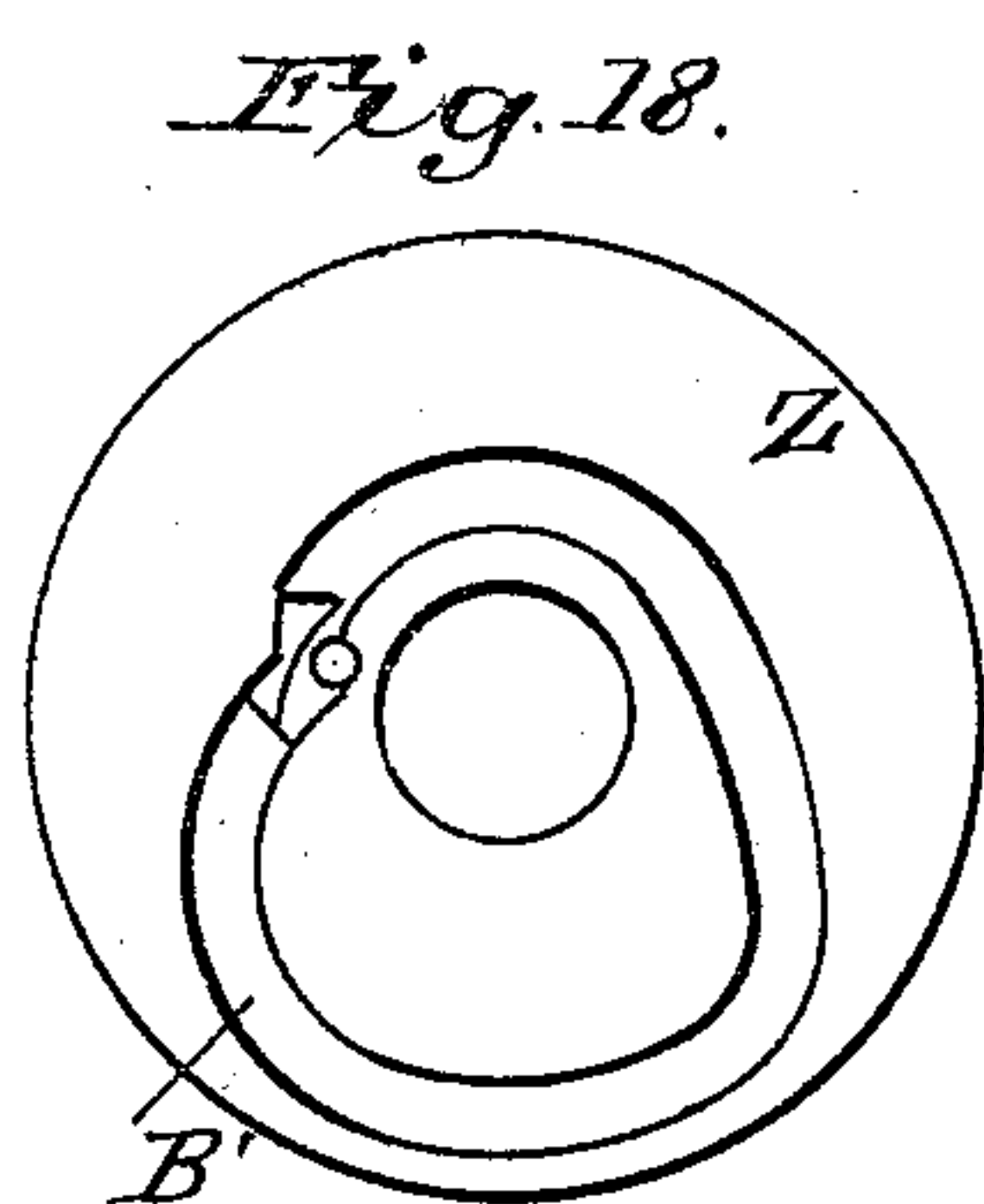
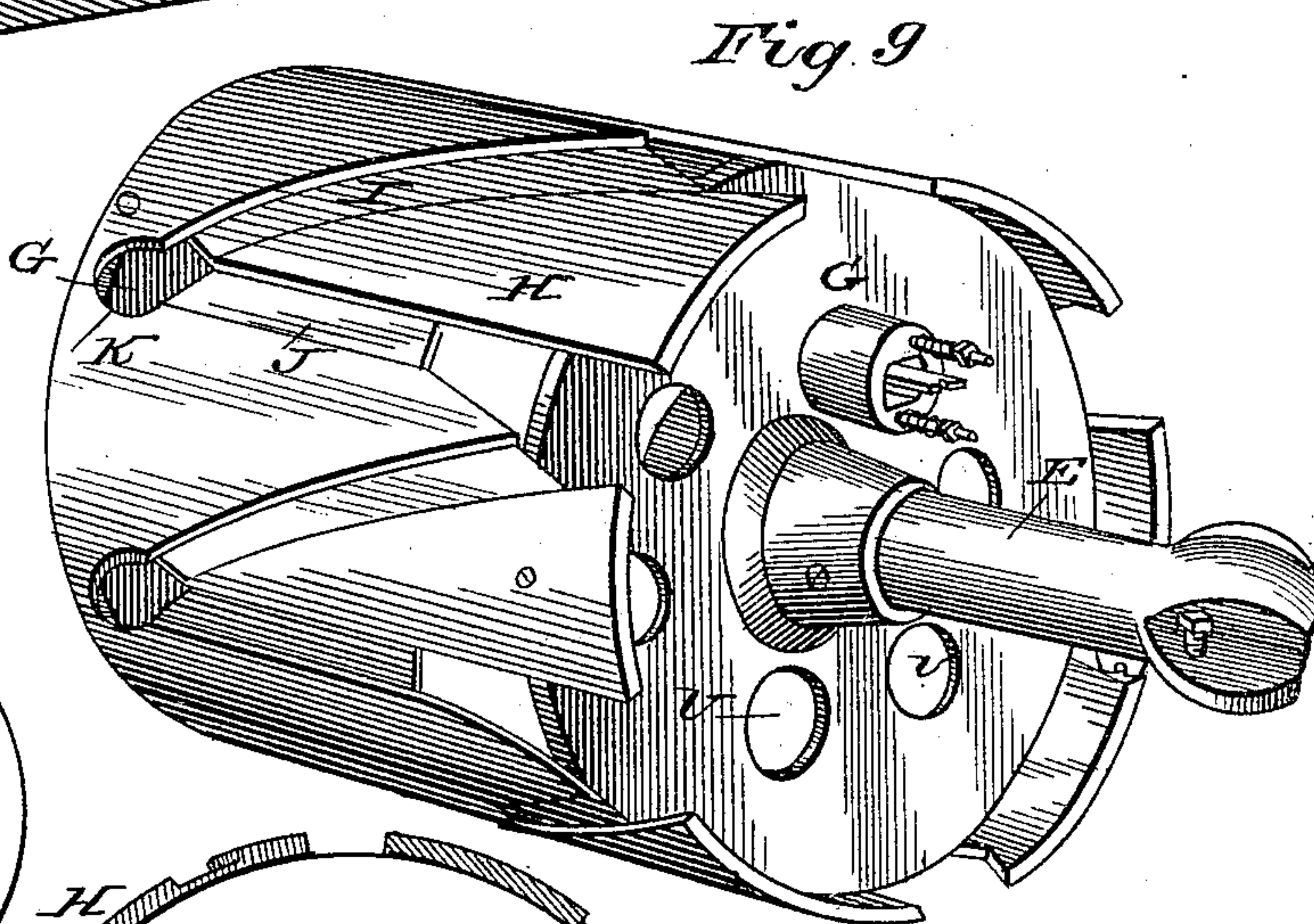
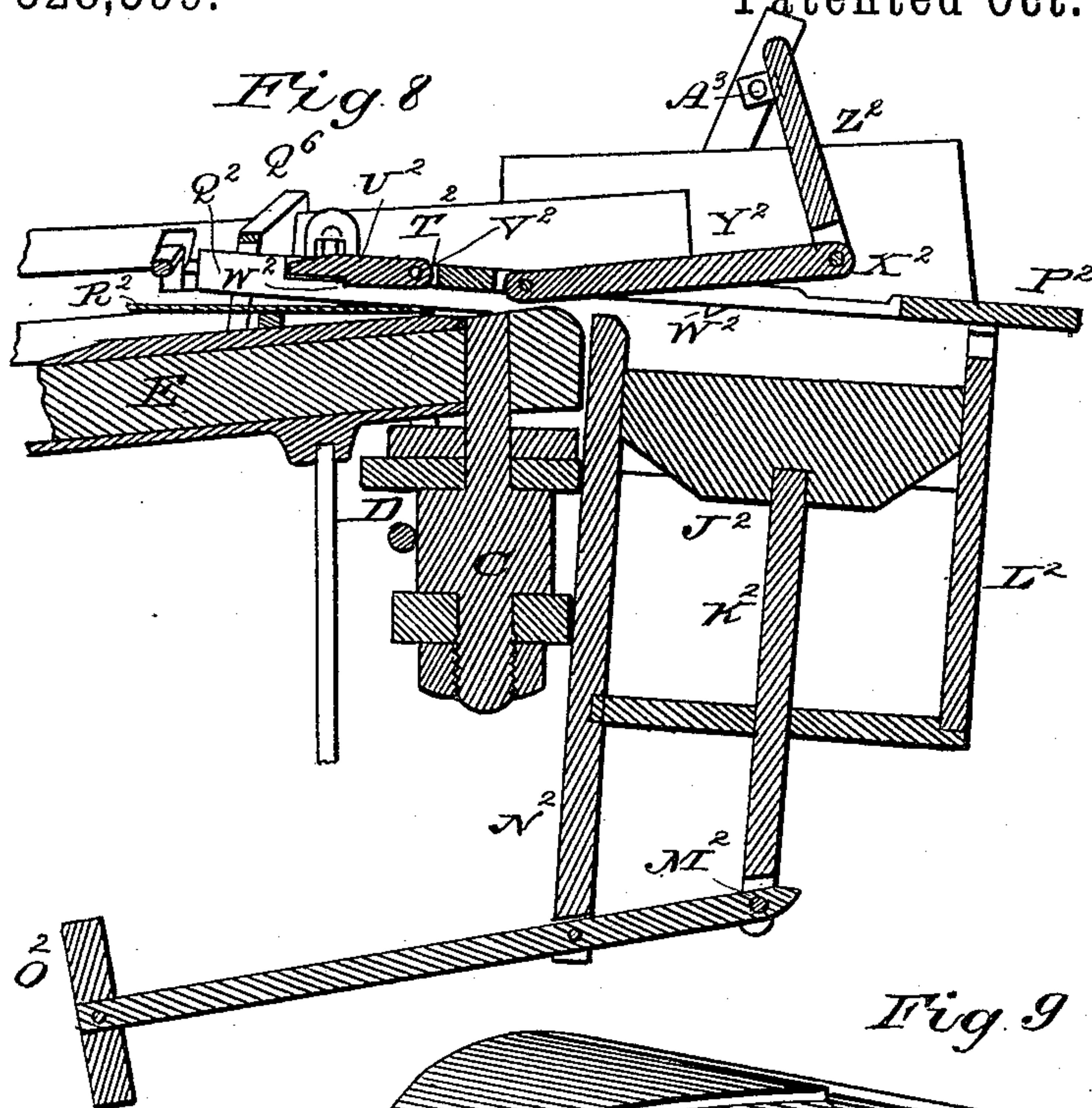
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W. J. GLADISH.
NAIL PLATE FEEDING MACHINE.

No. 328,399.

Patented Oct. 13, 1885.



WITNESSES:

Thos. G. Dietrich
Wm. H. Bagger

INVENTOR.

William J. Gladish
by *Louis Bagger & Co*
ATTORNEYS.

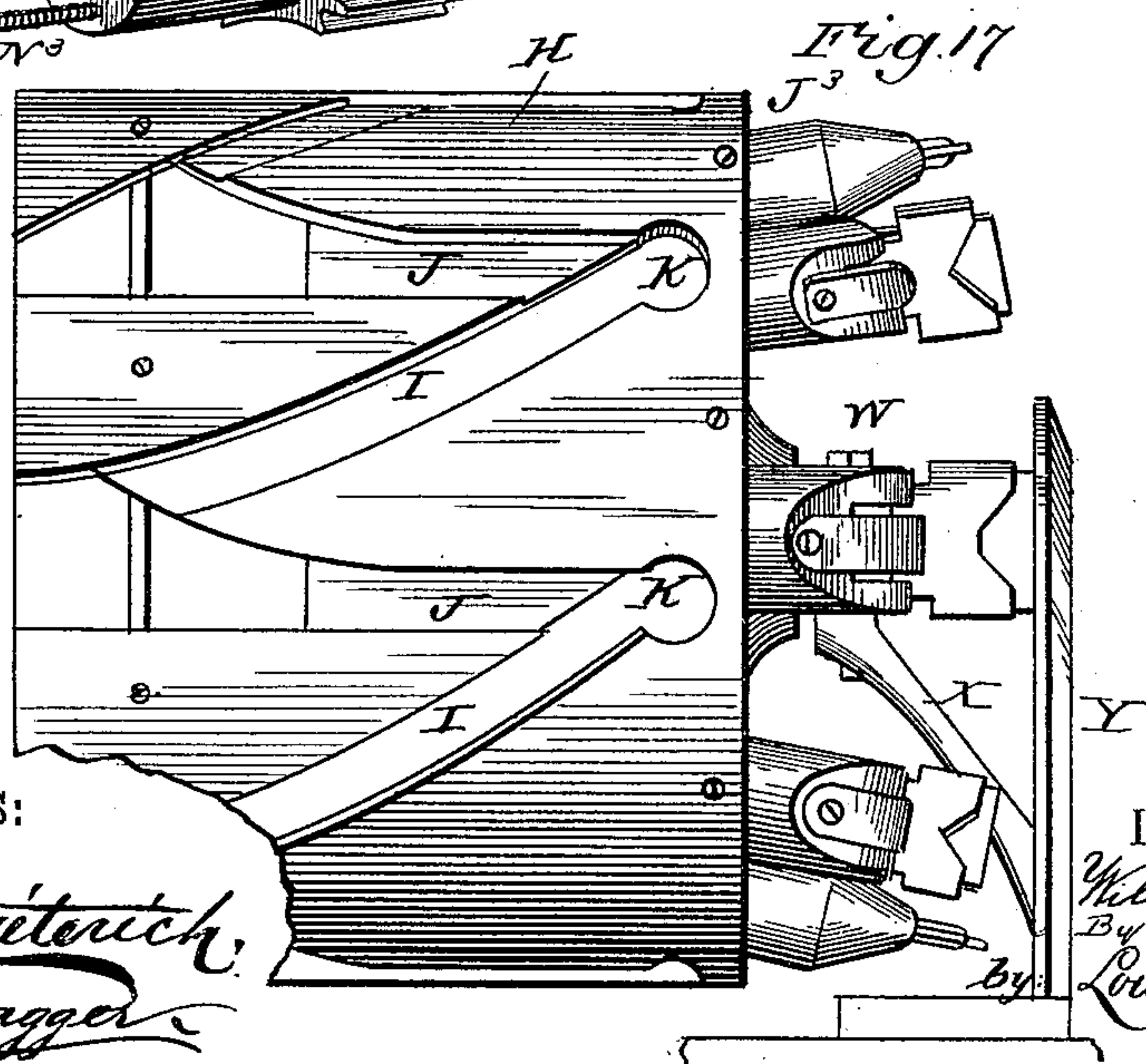
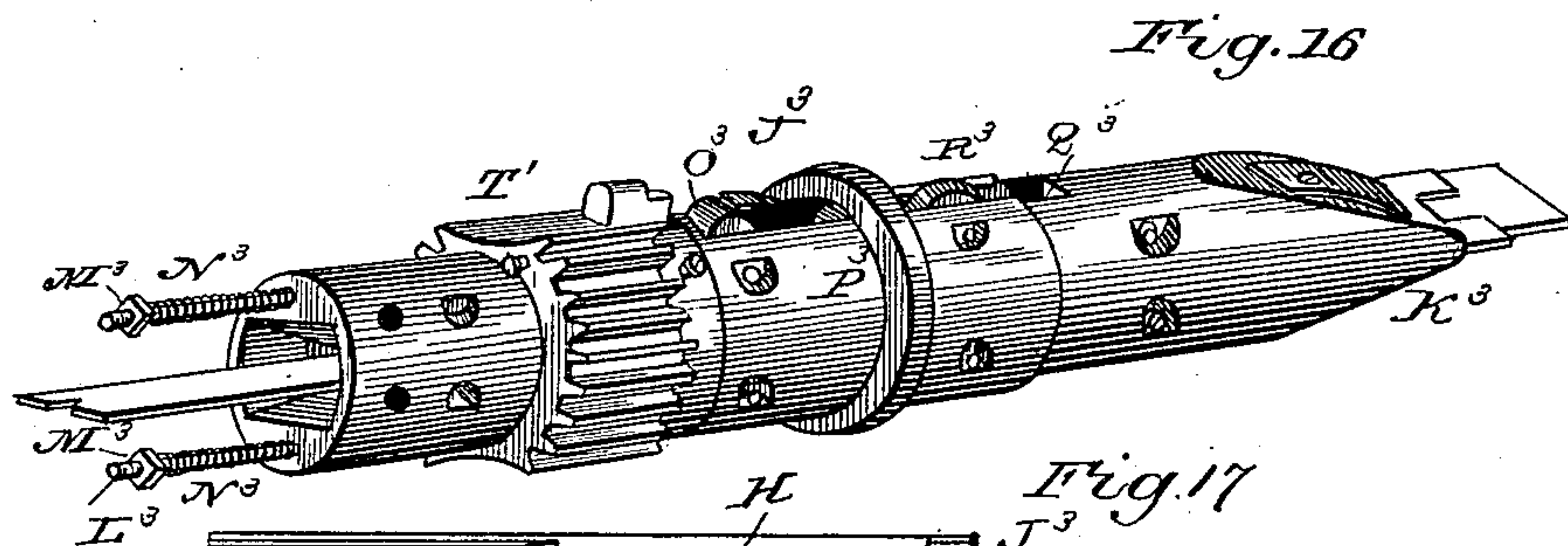
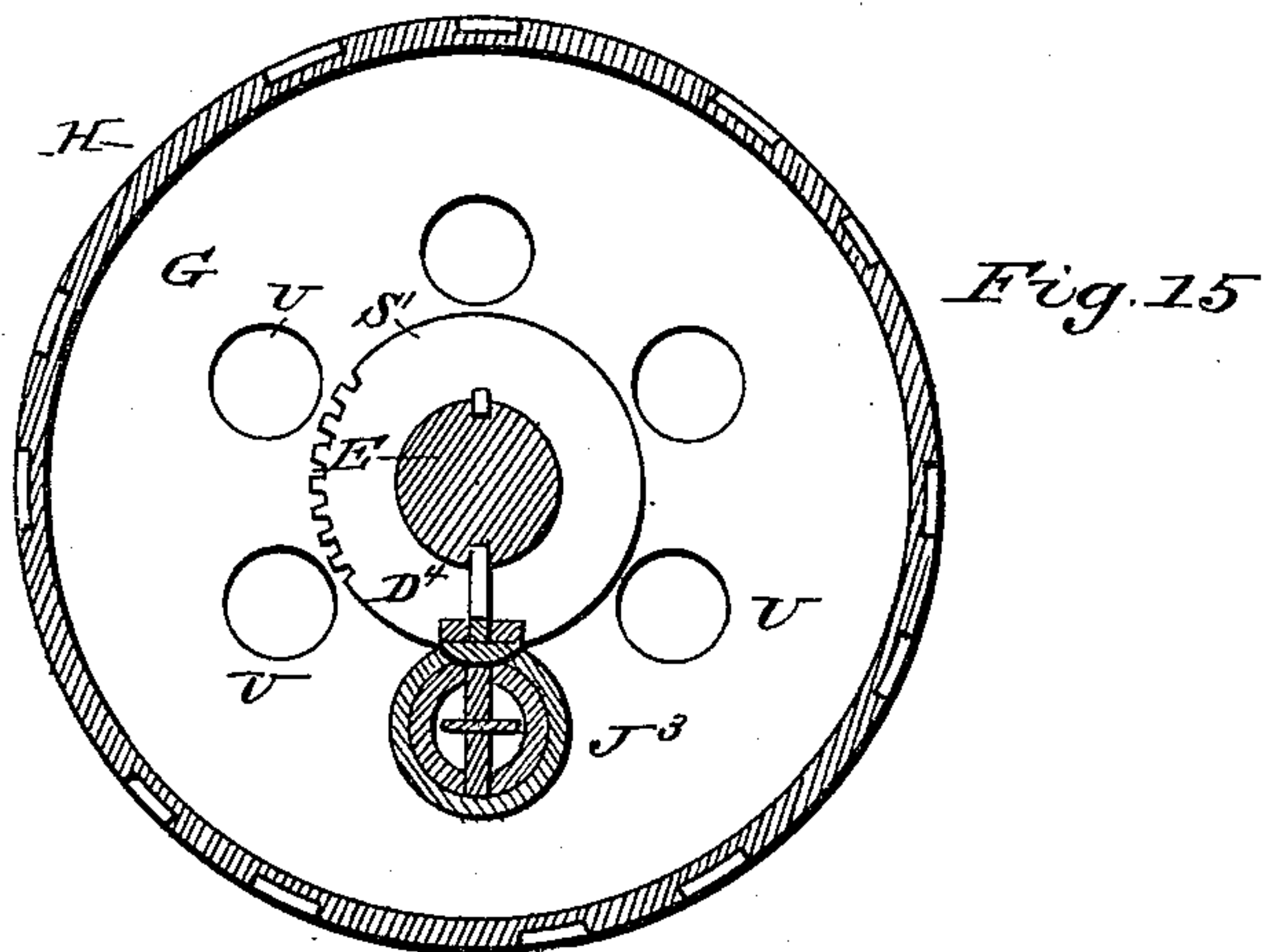
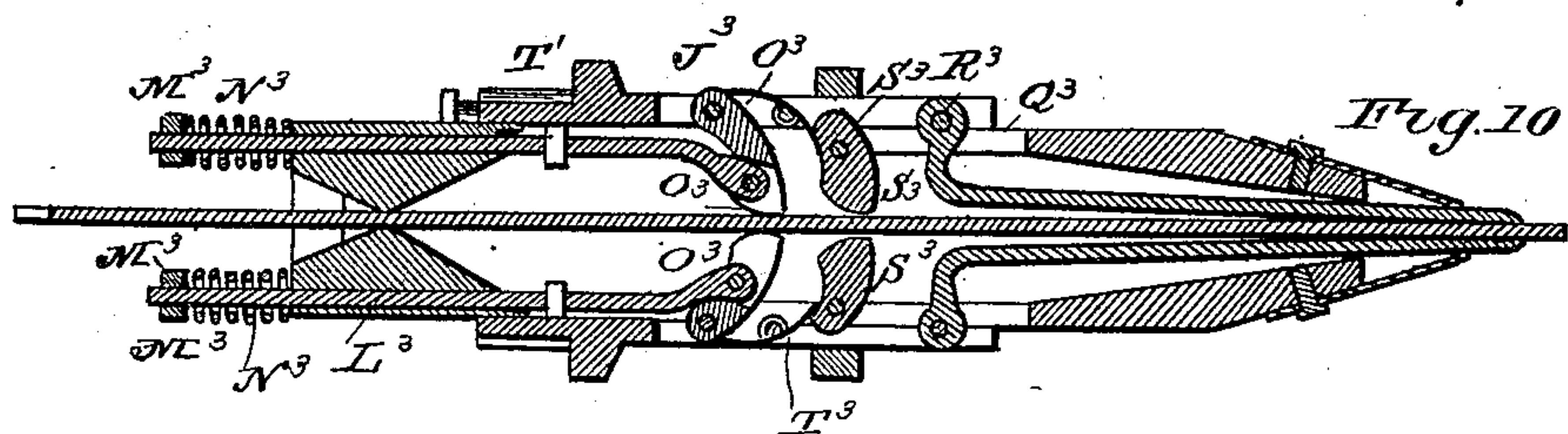
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No. 328,399.

Patented Oct. 13, 1885.



WITNESSES:

Fred. L. Dieterich
Wm. Bagger

INVENTOR.

William J. Gladish
By *Louis Bagger & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM JAMES GLADISH, OF CHATTANOOGA, TENNESSEE, ASSIGNOR
OF ONE-HALF TO J. W. LOVE, OF FORT VALLEY, GEORGIA, AND J. W.
ANTHOINE, OF EUFAULA, ALABAMA.

NAIL-PLATE-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 328,399, dated October 13, 1885.

Application filed September 19, 1884. Serial No. 143,474. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. GLADISH, a citizen of the United States, and a resident of Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Nail-Plate-Feeding Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved nail-plate-feeding machine attached to a nail-cutting machine of ordinary construction. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a side view of the machine, showing the operating-crank and the pitmen connected therewith. Fig. 4 is a side view of the opposite side of the machine. Fig. 5 is a plan view. Fig. 6 is an end view of that end of the machine which shows the nail-cutting apparatus. Fig. 7 is an end view of that end of the machine which shows the nail-plate-feeding mechanism. Fig. 8 is a longitudinal vertical sectional view, on an enlarged scale, of the nail-plate-feeding mechanism. Fig. 9 is a detail view, in perspective, of the cylinder containing the several barrels which hold and feed the nail-plates during operation. Fig. 10 is a longitudinal sectional view, on an enlarged scale, of one of the nail-plate-holding barrels. Fig. 11 is a perspective view of the nippers or pliers which serve to extract the stumps of the nail-plates from the barrels. Fig. 12 is a detail side view of the mechanism by means of which the guide-pin working in the grooves of the feeding-cylinder may be raised or lowered, so as to adjust the position of the nail-plate-carrying barrels with relation to the anvil of the nail-cutting machine. Fig. 13 is a transverse sectional view of the machine, taken through the pivot upon which the cylinder is mounted. Fig. 14 is a transverse sectional view taken through the cylinder at the point at which the operating-gear is located. Fig. 15 is a

transverse sectional view taken through the cylinder and through one or more of the sleeves of the nail-plate-holding barrels. Fig. 16 is a perspective view of one of the barrels detached from the cylinder. Fig. 17 is a detail top view, showing the cylinder in position for operation, and showing one of the barrels of the same with the nail-plate contained therein in contact with the gage by means of which its position is regulated. Fig. 18 is a detail side view of the cam-wheel by means of which the stump-removing pliers are operated.

This invention relates to nail-plate-feeding machines, and it has for its object to provide a device of this class in which the operation shall be continuous—that is, in which the nail-plate-feeding barrels shall be so disposed that whenever the nail-plate is presented to the cutting knives or shears it shall have been automatically reversed, so as to present the nail-plate in its proper position, and in which provision shall moreover be made for regulating the distance to which the said nail-plate shall be fed forward.

The invention consists, specifically, in a rotating cylinder equipped with any desired number of barrels or tubes, each of which is adapted to hold a nail-plate, and to feed it forward at stated intervals, the said barrels being so arranged in the cylinder as to receive a one-half revolution with each full revolution of the cylinder, thus presenting the nail-plate to the cutting apparatus at alternate angles at each operation.

Further, the invention consists in improved mechanism for feeding the nail-plates forward in the respective barrels and supplying a new nail-plate to each barrel when the plate previously contained therein shall have been exhausted.

Further, the invention consists in mechanism for automatically extracting the stumps remaining in the barrels when they shall have been fed forward to such an extent that no more nails can be successfully cut therefrom.

My invention, further and finally, consists in the improved construction and arrangement

of details, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, A designates the frame of a nail-cutting machine to which my invention has been attached. In the construction of the said nail-cutting machine no invention is herein claimed, except as to the parts which necessarily co-operate with parts of my invention.

B designates the bed of the machine, which is provided with a rearwardly and upwardly extending arm, C, the upper end of which forms a turn-table, D, upon which is pivoted an arm or shaft, E, which constitutes the shaft of the main cylinder of the nail-plate-feeding mechanism. The said cylinder is composed of the two end disks, F and G, which serve to support the cylindrical body H, which latter is provided with a series of zigzag grooves, I J, the former of which are formed or located diagonally with relation to the axis of the cylinder, while the latter are parallel to the said axis or shaft E. It will also be noticed, by reference to Fig. 9 of the drawings, that the junctions of the said grooves at the front end of the cylinder are somewhat enlarged, or, in other words, that the grooves J have been partially cut away or beveled, so as to facilitate the entrance of the operating-pin, to be hereinafter described, in the several grooves, while, on the other hand, the ends of the diagonal grooves I have been provided with recesses or indentations K, the object of which is to detain the said operating-pin in position until the retrograde movement of the pitman carrying the said operating-pin shall occur.

L L designate the side pieces or uprights which support the arm M, carrying the nail-cutting knife N, which is operated by means of an arm, O, secured or attached to the rock-shaft P, upon which the said cutter-arm is mounted; the said arm being operated by the action of a rod or pitman, Q, pivoted eccentrically to a disk, R, mounted upon one end of a shaft, S, which is journaled in suitable bearings at one end of the frame A. This shaft, which may be denominated the "main shaft" of the machine, is provided at its opposite end with a driving-crank, band-wheel, or other device, by means of which it may be adapted to receive motion from any suitable motive power. The said shaft, as will be hereinafter described, also serves to convey motion to the several operating parts of the nail-plate-feeding mechanism.

The disks or ends F G of the cylinder H, to which reference has hereinbefore been made, are each provided with a series of concentric and equidistant openings, denoted, respectively, by T and U, the openings T in the rear disk, or that which faces the nail-cutting machine, being located near the periphery of the said disk, while the openings U in the front disk, G, or that which faces the nail-plate-feeding mechanism, are located at some distance be-

tween the periphery of the disk and the axis of rotation of the cylinder. By this arrangement it will be seen that the plate-holding barrels, which are accommodated, as will be presently stated, in the said perforations or openings, will always be held or retained at an angle to the axis of rotation, the object being to present the nail-plates, when they reach the anvil, at such an angle to the cutting knife or shears that an even and accurate cut shall be made. The front disk, F, is additionally provided with openings or perforations V, the object of which, however, is simply to lighten the weight of the said disk.

It has already been stated that the front end of the shaft or axle E, supporting the cylinder H, is mounted pivotally upon the arm C. It remains to be stated that the rear end of the said shaft is provided with a transverse set-screw, W, by means of which it is, during the operation of the machine, connected detachably with one arm, X, of a bracket, Y, which is secured to one side of the frame A. When thus secured, the cylinder may be freely revolved or operated by the mechanism which forms part of this machine. When the said set screw is loosened or detached, the nail-plate-feeding cylinder may be swung out to one side, thus affording free access to the nail-cutting part of the machine, which may then be set or regulated as may be required.

The main shaft S has near the end which is provided with the operating crank or wheel, a cam-wheel, Z, the outer and inner sides of which are provided, respectively, with cam-grooves A' and B', the former of which receives a pin, C', arranged in the end of a longitudinally-movable slide, D', which carries at its front end one of the jaws, E', of the stump-removing nippers F', the other jaw of which, G', is pivoted to the said jaw E', and provided at the rear end of its shank with an outwardly-extending wedge-shaped or beveled projection, H', working against a spring or guide, I', which is rigidly attached to a disk, J', mounted upon a bolt, K', which slides longitudinally in a slot, L', in the slide D', which forms practically the shank of the jaw E' of the nippers F'. The jaw E' is provided with a longitudinal slot, L', moving upon a pin or stud, M', which is secured in the frame A of the machine.

Upon the inner end of the bolt K' is journaled one arm, P', of a jointed lever, Q', the lower curved arm of which is adapted to bear against the under side of the cam-wheel, to which reference has been made above.

The slide D', which forms the shank of the main jaw of the nippers, is provided with a downwardly-extending arm, R', to the lower end of which the curved arm of lever Q' is pivotally connected. The front ends of the main and auxiliary jaws of the nippers are provided, respectively, with a recess or indentation and with a tooth or prong, so that they shall be adapted to catch and retain any projecting portion of a nail-plate.

The shaft E, which extends through the cylinder H, is provided within the said cylinder with a bevel-wheel, S', a portion of the periphery of which is left smooth or free of teeth, the object being to cause the nail-plate-feeding barrels to remain stationary at that point at which the nails are cut from the plates. The said barrels are each provided at or near their inner ends with a pinion, T', meshing with or engaging the said gear-wheel, so that when the cylinder revolves, by mechanism which will be presently described, the said barrels shall receive a rotary motion, the proportions of the toothed portion of the gear-wheel S' with relation to the pinions upon the barrels being so regulated that each barrel shall make a one-half revolution to each complete revolution of the cylinder. Mechanism, which will be hereinafter described, is provided whereby the nail-plates shall be fed forward in their respective barrels during the revolution of the cylinder a sufficient distance to provide for a nail of the proper or desired width. A gage or arm extending upwardly and outwardly from the bracket Y serves to regulate the distance which the nail-plate shall be allowed to project, the said arm being simply in the nature of a stop, which, being rigid, will serve to push the nail-plate back into the barrel against the tension of the springs by which it is held, so as to cause it to project only exactly the required distance.

To the upper end of the rod or lever Q, above referred to, is pivoted a pitman, Y', extending forwardly, as shown, having at its front end a pivoted slide, Z', for which a suitable groove or guide is provided in the side piece, A², of the machine. The said slide consists of an H-shaped frame or carriage, the upper side of which is provided with a flange, B², provided with set-screws C², by means of which the friction of the carriage against its bearings may be regulated. The said carriage is provided at its lower end with a downwardly-extending lug, D², having an inwardly-extending pin, E², working in the grooves of the revolving cylinder, to which motion is thereby imparted. The front end of the side piece of the frame which forms the bearing or guide for the carriage or slide Z', is connected adjustably to the main frame of the machine by means of bolts F² G², the former of which is a horizontal bolt adjustable vertically in a vertical slot, H², formed in a lug or arm which extends upwardly from the main frame, while the latter bolt is adjusted vertically in a lug, I², and adapted to form a support for the said side piece of the frame. It will be observed that by the mechanism as described, when the machine is operated the forward stroke of the pitman Y' will carry the pin through one of the diagonal grooves in the cylinder, which is thereby caused to revolve a sufficient distance to carry the plate-holding barrel from the plate of which a nail has just been cut in an upward direction, and to carry the next barrel to such a position that the plate held therein

shall be disposed upon the anvil in a position ready to be engaged by the cutting-knife. On the rearward stroke of the pitman Y' the operating-pin will travel back through one of the grooves in the cylinder which is parallel to the shaft or axis, and the cylinder will thus remain stationary while the nail is being cut.

The box or receptacle in which the nail-plates which are automatically fed by this machine are contained, is located at the front end of the frame, and it consists of a rectangular box, arranged at an angle or incline which corresponds with the angle or inclination at which the plate-holding barrels are arranged in the cylinder, with relation to the shaft or axis of the latter. The said box, which may be of a sufficient size to hold any desired number of nail-plates—say, one hundred or more—is provided with a false bottom or follower, J², having a downwardly-extending shank or handle, K², moving in bearings which are formed by a frame, L², which may be constructed and arranged in any suitable manner. The lower end of the said shank is connected pivotally with the front end of a lever, M², fulcrumed to a bracket, N², and having at its opposite end a weight, O², by means of which pressure in an upward direction is exerted upon the follower in the plate-holding box. It will be seen that by this mechanism the plates are constantly forced in an upward direction against the slide, to be presently described, which forms the cover of the box or receptacle, and by the longitudinal motion of which the plates are successively fed from the box and into the plate-holding barrels.

I would here state that instead of the weighted lever a suitably-arranged spring, or any other suitable mechanism, may be employed for feeding or forcing the nail-plates upwardly in their box or receptacle. It is also obvious that the follower in the said receptacle must be arranged at such an angle as to be parallel with the slide or cover.

The feeding slide or cover of the plate-holding box, which is designated by letter P², is arranged to slide longitudinally in suitable grooves or guides formed for its reception near the upper edges of the sides of the said box, and in arms Q², which extend rearwardly from the same toward the cylinder, as clearly shown in the several figures of the drawings. The rear end of the said arms are provided with a bracket, Q⁶, extending laterally and connecting them with the side of the frame. Between the ends of the said arms Q² which are nearest the cylinder H is arranged a plate or floor, R², which serves to support the nail-plate which is first to be fed to the machine. It is obvious that the cover must be of such a length that the plate-holding box shall not at any time be uncovered, for the reason that if this were the case the plates contained therein would be liable to be displaced. The said cover is provided with slots S² and T², in each of which is pivoted a dog or pawl, U², having at its front end a transverse pin, lug, or other

device, V^2 , whereby it shall be supported upon the upper side of the cover, and be prevented from dropping entirely through the slot in which it is pivoted. The under side of each of the pawls is provided with a downwardly-extending lug or tooth, W^2 , extending a short distance below the under side of the cover. The tooth of the rear pawl will serve, when the slide is operated, to push the uppermost plate in the box in a forward direction or over upon the floor, to which reference has been made. At the same time the forward pawl will serve to push the plate already located upon the said floor over into the plate-holding barrel which at the time registers with the said floor.

The slide or cover is provided with a central slot, X^2 , in which is pivoted a lever or pitman, Y^2 , the opposite end of which is pivotally connected with a crank, Z^2 , extending downwardly from a rock-shaft, A^3 , mounted transversely in a pair of arms or brackets extending upwardly and frontwardly from the main frame of the machine, to which the said arms or brackets are suitably bolted or otherwise connected. The opposite end of the said rock-shaft is provided with an arm or crank, B^3 , parallel to the crank Z^2 , and provided at its outer end with a pivoted lever or pitman, C^3 , having at its lower end a laterally-projecting stud, D^3 , the functions of which will be presently set forth.

Secured to the inner side of one of the side pieces of the frame and extending in a forward direction under the lever C^3 , is a flat spring, E^3 , the free end of which is suitably connected by means of a chain or cord, F^3 , with an arm, G^3 , extending laterally from a rock-shaft, H^3 , which is journaled longitudinally and in a somewhat inclined position (it being parallel, or nearly so, to the plate-holding box) in suitable bearings, the forward one of which is located in the bracket Q^6 , which extends laterally from the arms Q^2 , and connects the said arms with the side of the frame, as seen in Fig. 1.

The rear end of the shaft H^3 is provided with a laterally-extending arm or trigger, I^3 , adapted to be engaged by the rear ends of the nail-plate-holding barrels, as I shall now proceed to describe. The said barrels, which are designated by letter J^3 , consist of tubular castings, the rear ends of which are beveled, as shown at K^3 , and the front ends of which are provided with bearings for a pair of diagonal and longitudinally sliding rods, L^3 , the forward ends of which are provided with nuts M^3 , between which and the ends of the barrels coiled springs N^3 are interposed, so as to force the said rods automatically in a forward direction. The rear or inner ends of the said rods are pivotally connected to the pawls O^3 , which are pivoted in the inner side of a sleeve, P^3 , which is arranged to slide longitudinally upon the barrel, which latter is provided with slots Q^3 , adapted to accommodate the said pawls, and also the pawls R^3 , which are piv-

oted near the front end of the said sleeve, and which extend in a rearward direction for a considerable distance, extending even beyond the beveled ends of the barrels, so as to clamp and hold the nail-plate contained therein.

S^3 S^3 designate pawls which are pivoted within the barrel proper, and which are actuated by springs T^3 , which serve to hold the said pawls in contact with the nail-plate, thus preventing a retrograde movement of the same, the said springs being arranged, as will be seen by reference to the drawings, to force the pawls in a forward direction, so that they shall simply rest upon the sides of the nail-plate without interfering with the feed movement of the same.

The beveled ends of the barrels are provided with broad flat springs, securely bolted thereto and bearing against the projecting ends of the nail-plates, so as to hold the latter securely in position while they are being acted upon by the cutting-knife.

The slide Z' , which carries the pin by means of which the cylinder of the machine is operated, is provided with a forwardly-extending arm, U^3 , moving in a suitable guide or recess in the side piece, A^2 , of the frame of the machine. The front end of this arm is provided with a notch, V^3 , adapted to receive the stud D^3 , which projects laterally from the arm or pitman C^3 of the rock-shaft A^3 . This stud is normally accommodated in the recess or opening V^6 in the side piece, A^2 , of the frame, and it is held or retained in this recess by the action of the flat spring E^3 , which normally supports the lower end of the pitman C^3 .

It will be seen that when the cylinder revolves, in case the sliding rods L^3 project forwardly a sufficient distance to engage the trigger I^3 the latter will be tilted in an upward direction, thus oscillating the rock-shaft upon which it is secured. The arm at the rear end of the said rock-shaft will thus be depressed, depressing the free end of the flat spring and permitting the stud D^3 to drop down into the notch V^3 of the arm U^3 . The said arm on its rearward stroke will thus carry with it the pitman C^3 , thus oscillating the rock-shaft to which the said pitman is connected, and which is connected with and operates the slide or cover of the plate-holding box. The construction of the latter has already been described, and it will be seen that by this action a nail-plate is fed into the barrel which at the time registers with the floor at the front of the plate-holding box, while at the same time another plate is fed from the box over upon the said floor, so as to be ready for a repetition of the operation. On the next forward stroke of the arm U^3 , the flat spring, having been released from the pressure upon the rock-shaft by means of which it is operated, will force the lever or pitman C^3 in an upward direction, thus returning the stud D^3 into the recess V^6 , provided for its reception in the side piece, A^2 , of the frame.

The cam-wheel Z , upon the main shaft S of

the machine, is provided, in addition to the cam-grooves A' and B', with an exterior eccentric groove, W³, adapted to engage the lower curved arm, X³, of the jointed lever Q' of the stump-removing mechanism.

The shaft E, upon which the cylinder H revolves, is provided with a pair of adjustable disks, A⁴ and B⁴, serving as guides for the flanges C⁴, which are formed annularly upon the sleeves P³. The said disks are eccentric or cam-shaped, so that they shall serve to move the sleeves and the nail-plates held and carried by the said sleeves a sufficient distance during each revolution of the cylinder to cause a proper portion of the nail-plate to project, from which the nail may be cut.

D⁴ is an arm extending downwardly from the shaft and carrying the barrels in a forward direction, so as to enable the pawls of the sleeves to take a fresh hold upon the plates.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, by those skilled in the art to which it appertains.

When motive power is applied to the main shaft in the direction indicated by the arrows in the drawings, an intermittent revolving motion is imparted to the cylinder, while at the same time at each forward stroke of the pitman which operates the said cylinder the stump-removing pliers are carried in a forward direction, the said pliers being held in an open position by means of the wedge at the rear end of the pivoted jaw, which engages the spring or guide attached to the stationary or longitudinally sliding jaw. It should be stated that a spring is suitably arranged to close the said jaws automatically. It will also be seen that the rear ends of the nail-plates are provided with notches adapted to be engaged by the front ends of the said jaws. So long as the nail-plate grasped or engaged by the said nippers is solid, the said nippers on their backward movement will simply slide off the plate without affecting its position; but when only a small portion of the nail-plate remains, and the nippers are able to engage or enter the notch at the rear end of the latter, they will automatically close in the said notch, and will, by the rearward motion of the sliding jaw, serve to extract the stub. On the next forward motion the jaws are again forced apart by the mechanism described, thus releasing the stump and placing the nippers in position for a repetition of the operation. The beveled front ends or jaws of the plate-holding barrels are provided with notches that will register with the notches in the rear ends of the nail-plates, so as not to interfere with the removal or extraction of the stubs.

The same operation of the main shaft which serves to operate the cylinder and the extracting mechanism, also serves, as hereinbefore stated, to operate the nail-cutting knife as well as the plate-feeding mechanism. The method of or mechanism for actuating the latter, or for

throwing it into operation at the proper time, consists simply of the rods L³, which extend rearwardly from the plate-holding barrels. It will be seen that the pawls O³, which are pivoted to the inner ends of the said rods, normally rest upon the nail-plate contained in the barrel. When the nail-plate passes beyond the said pawls, the springs N³ force the said rods in a forward direction, thus causing them to strike or operate the trigger, by means of which the plate-feeding mechanism is set in motion, as hereinbefore described.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A nail-plate-feeding machine comprising an intermittently revolving cylinder, having a series of barrels adapted to hold and feed the nail-plates to the anvil, in combination with mechanism whereby the said plate-holding barrels shall receive each a one-half revolution to each complete revolution of the cylinder, substantially as set forth.

2. In a nail-plate-feeding machine, the combination, with an intermittently revolving cylinder, of a series of plate-holding barrels arranged within the said cylinder and having a limited longitudinal motion therein, the said plate-holding barrels being arranged at an angle to the supporting-shaft of the cylinder, substantially as set forth.

3. In a nail-plate-feeding machine, the combination, with a supporting-shaft, of an intermittently-revolving cylinder having a series of plate-holding barrels arranged at an angle to the said shaft or axis, and provided at their rear ends with pinions, and a gear-wheel mounted upon the said shaft engaging the said pinions and being only partially toothed, so that a one-half revolution shall be imparted to each of the plate-holding barrels with each complete revolution of the cylinder, the said barrels being stationary at the point at which the nail-plates are exposed upon the anvil, substantially as set forth.

4. The combination, with a nail-cutting machine having a forwardly-extending arm terminating in a disk or turn-table at its upper end, of a shaft or axle mounted pivotally upon the said turn-table and carrying an intermittently-revolving cylinder provided with a series of plate-holding barrels, and mechanism for feeding the plates contained in the said barrels to the nail-cutting mechanism, substantially as set forth.

5. In a nail-cutting and plate-feeding machine, the combination, with the frame having an arm or bracket upon which is pivotally mounted a shaft carrying a cylinder provided with a series of plate-holding barrels, of a bracket extending laterally from one of the sides of the frame and adapted to sustain the front end of the pivoted shaft, said bracket being also provided with an upwardly-extending lateral guide, serving as a gage to regulate the distance to which the nail-plates shall be allowed to project, substantially as set forth.

6. In a nail-plate-feeding machine, the combination of a stationary shaft or axle, a cylinder arranged to revolve intermittently upon the said shaft, a series of nail-plate-holding barrels arranged in the said cylinder at an angle to the said shaft or axis, plate-feeding sleeves arranged to slide upon the said barrels, and a pair of cams or eccentric disks mounted adjustably upon the said shaft, substantially as set forth.

7. In a nail-plate-feeding machine, the combination, with the plate-holding barrels, consisting of tubular castings having longitudinal slots, of the annularly-flanged sleeves mounted to slide upon the said barrels and provided with spring-pawls adapted to engage the plates contained in the said barrels and feed them toward the cutting mechanism, substantially as set forth.

8. The combination, with the plate-holding barrels having longitudinal slots and provided with the beveled ends, as described, of the longitudinally-sliding annularly-flanged sleeves having spring-pawls adapted to hold and feed the nail-plates contained in the said barrels and provided with forwardly-extending pivoted jaws, and springs secured to the beveled front ends of the barrels and acting against the said pivoted jaws, which are thereby compressed upon the nail-plate, substantially as set forth.

9. The herein-described cylinder, composed of the end pieces having bearings or openings for the plate-holding barrels, and a cylindrical body provided with grooves which are alternately parallel to and at an angle to the shaft or axis of the cylinder, the front ends of the straight or parallel grooves being cut away so as to afford access for the operating-pin, and the diagonal grooves being provided with recesses or indentations to afford a rest for the said operating-pin until its return-stroke, substantially as set forth.

10. In a nail-plate-feeding machine, the combination, with a revolving cylinder carrying a series of plate-holding barrels, of mechanism for automatically supplying nail-plates to the said barrels when the plate contained in either barrel shall have been exhausted, substantially as set forth.

11. In a nail-plate-feeding machine, the combination, with a series of plate-holding barrels arranged within a revolving cylinder, of a box or receptacle adapted to hold a large number of nail-plates, a follower arranged within the said box and adapted to force the plates continuously in an upward direction, a slide adapted to remove the plates successively from the said box and feed them into the plate-holding barrels when the plates contained in the latter shall have been exhausted, and mechanism for automatically actuating the feeding mechanism at the proper time, substantially as set forth.

12. The combination of the plate-holding box or receptacle, a follower moving vertically in the same and serving to force the

plates continuously in an upward direction, brackets extending rearwardly from the upper edges of the said box or receptacle, a plate or floor arranged between the said brackets, a slide or cover moving longitudinally and provided with pawls or dogs adapted, respectively, to force a plate from the box onto the floor in rear of the same and from the said floor into one of the plate-holding barrels, and suitable operating mechanism, substantially as set forth.

13. The combination of the plate-holding receptacle, the sliding cover of the latter provided with dogs or pawls, a rock-shaft arranged transversely to the said slide and provided with an arm connected with the said slide by means of a pitman, a crank at the opposite end of the said rock-shaft provided with a pitman resting upon a flat spring and provided with a laterally-extending stud accommodated in a recess in the side of the frame of the machine, a longitudinally-reciprocating arm, having a notch adapted to receive the said stud, and a suitably-operated trigger adapted to release the said spring, so as to permit the said stud to drop into the notch of the longitudinally-reciprocating arm, whereby the cover or slide of the plate-holding box may be operated, substantially as and for the purpose set forth.

14. The combination of the plate-holding receptacle, the slide or cover of the same having dogs or pawls, operating mechanism for the said slide, substantially as described, a flat spring arranged to hold the said operating mechanism out of gear, a longitudinal rock-shaft having at its rear end an arm connected with the said flat spring, and having at its opposite end a laterally-extending arm or trigger, and the cylinder having a series of plate-holding barrels provided with longitudinally-sliding rods forced in a forward direction by means of suitably-arranged springs, and connected at their inner ends to pivoted pawls, which normally rest upon the nail-plate contained in the barrel, whereby when such nail-plate shall have been exhausted the pawls will come together and the rods be forced in a forward direction, so as to engage the trigger and set the feed-slide in motion, substantially as set forth.

15. In a nail-plate-feeding machine, the combination, with a revolving cylinder having a series of plate-holding barrels arranged at an angle to the shaft of the said cylinder and adapted to receive each a one-half revolution to each complete revolution of the cylinder, of the plate-feeding mechanism comprising a box arranged at the front end of said cylinder and in a line with the barrel which at the time is uppermost in the said cylinder, and mechanism actuated automatically by the mechanism which operates the said cylinder for the purpose of supplying a fresh nail-plate to each cylinder when the plate contained therein shall have been exhausted, substantially as set forth.

16. The combination, with a nail-plate-feeding machine having mechanism whereby the plates are fed automatically to the plate-holding barrels, of mechanism for automatically
5 extracting the stubs from the said barrels, substantially as set forth.

17. The combination, with an intermittingly-revolving cylinder, of a series of plate-holding barrels having beveled front ends
10 provided with notched jaws adapted to register or correspond with notches formed at the rear ends of the nail-plates, substantially as set forth.

18. A stub-extractor for nail-plate-feeding
15 machines, consisting, essentially, of a pair of nippers or pliers adapted to be closed automatically by a suitably-arranged spring, the jaws of the said nippers being provided at their front ends, respectively, with a recess
20 or indentation, and a tooth fitting in the said recess, substantially as set forth.

19. The combination, with a nail-plate-feeding machine, comprising an intermittingly-revolving cylinder having a series of plate-
25 holding barrels adapted to receive each a one-half revolution to every full revolution of the cylinder, of an automatic stub-extractor comprising a pair of nippers adapted to be closed automatically by the action of a suitably-
30 ranged spring, the said nippers having a longitudinally-sliding movement, substantially as and for the purpose set forth.

20. The combination of the cylinder carrying the plate-holding barrels, with an automatic stub-extractor comprising a longitudi-
35 nally-reciprocating slide having a downwardly-extending arm and carrying at its front end one of the jaws of the extracting-nippers, an auxiliary jaw connected pivotally to the
40 main jaw and adapted to be automatically closed by the action of a suitably-arranged spring, and having at its rear end an outwardly-extending beveled projection, a bolt movable longitudinally in a horizontal slot in
45 the shank of the main jaw, a spring or guide

secured to the outer side of the said bolt and adapted to bear against the beveled projection upon the shank of the auxiliary jaw, and a jointed lever connected pivotally to the inner
end of the said sliding bolt and having its 50 lower curved arm connected pivotally to the bracket extending downwardly from the shank of the main jaw and bearing against an eccentric cam formed upon a disk which is secured upon the main shaft of the machine, 55 substantially as set forth.

21. In a nail-cutting and plate-feeding machine, the combination of a plate-holding receptacle, an intermittingly-revolving cylinder carrying a series of plate-holding barrels adapted
60 to receive each a one-half revolution to each complete revolution of the cylinder, mechanism for feeding the nail-plates from their receptacle into the plate-holding barrels when the plates contained in the latter shall have been exhausted, 65 mechanism for automatically actuating the said plate-supplying mechanism, mechanism for feeding the plates contained in the barrels toward the anvil of the cutting mechanism, a gage or guide arranged to regulate the distance 70 to which the nail-plates shall be allowed to project, the stub-extracting nippers arranged to be operated automatically for the purpose of extracting the stubs from the plate-holding barrels, mechanism for operating the said stub- 75 extractor or for throwing it into operation automatically when the plates shall have been exhausted to such an extent as to render the removal of the stubs necessary, and the nail-cutting mechanism, all constructed, arranged, 80 and operating substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM JAMES GLADISH.

Witnesses:

S. F. WOODING,
CHARLES HANEY.