No. 723,602. PATENTED MAR. 24, 1903.

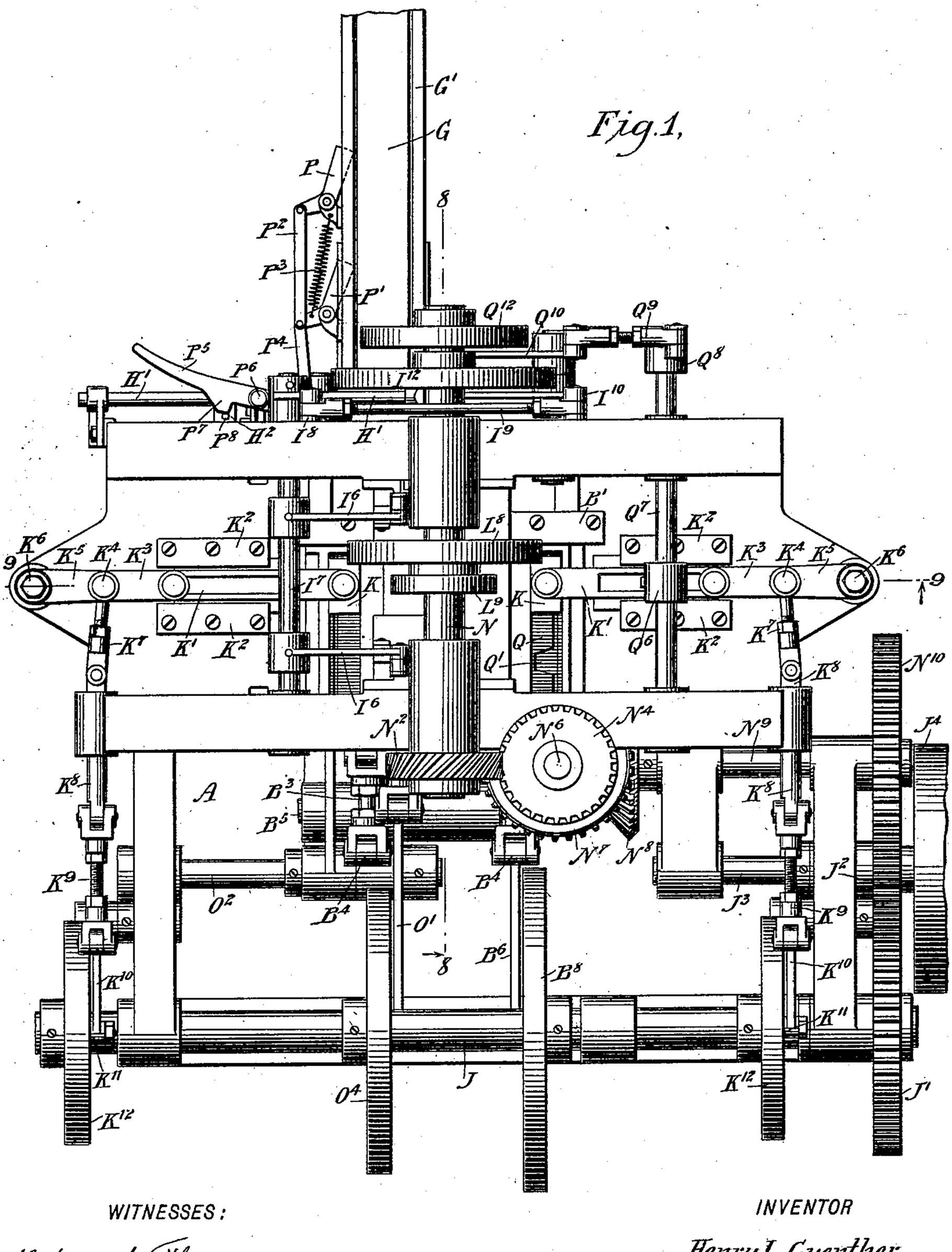
H. L. GUENTHER.

MACHINE FOR FLANGING CAN BODIES.

APPLICATION FILED NOV. 18, 1901.

NO MODEL. 11 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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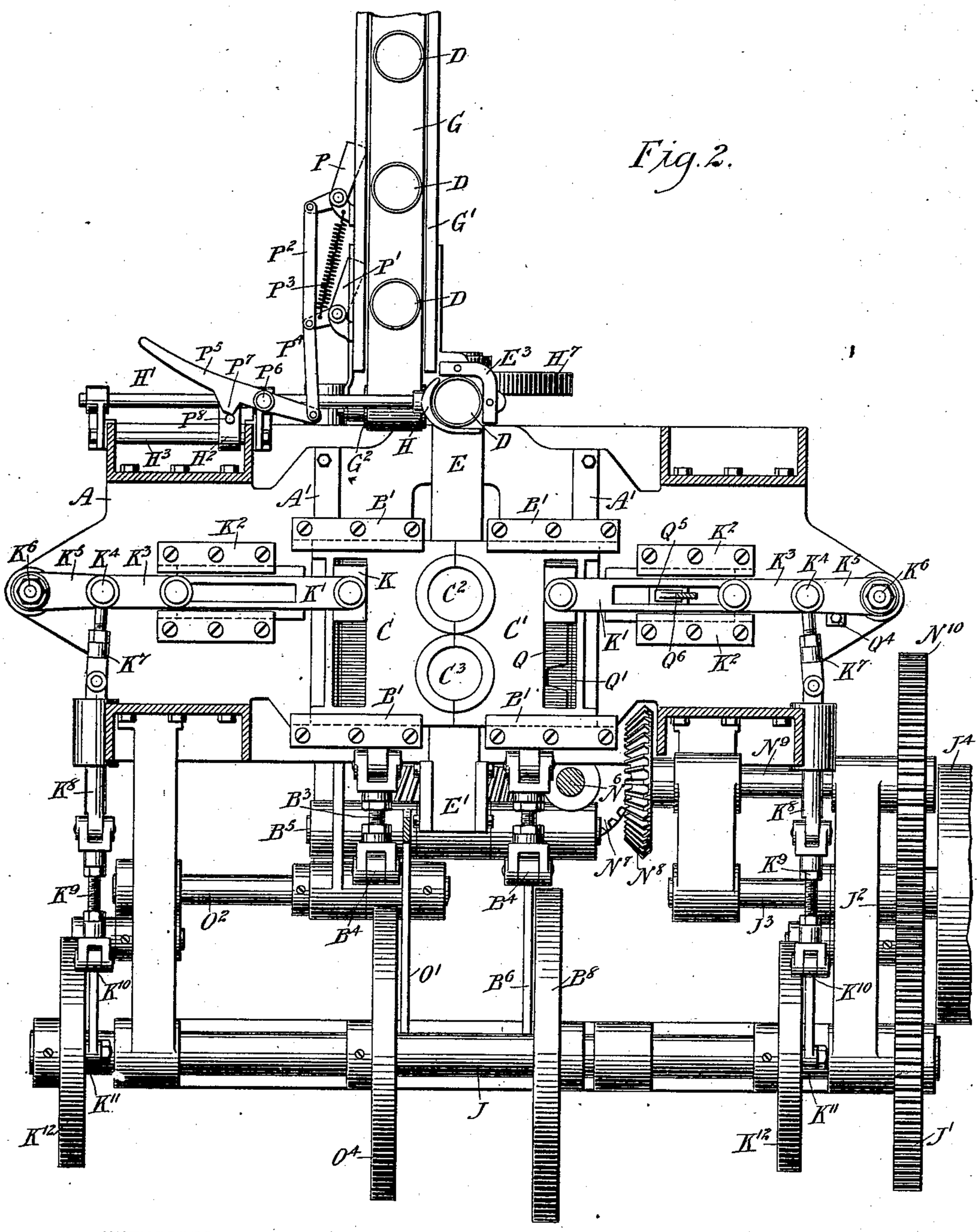
Fig. 2.



WITNESSES:

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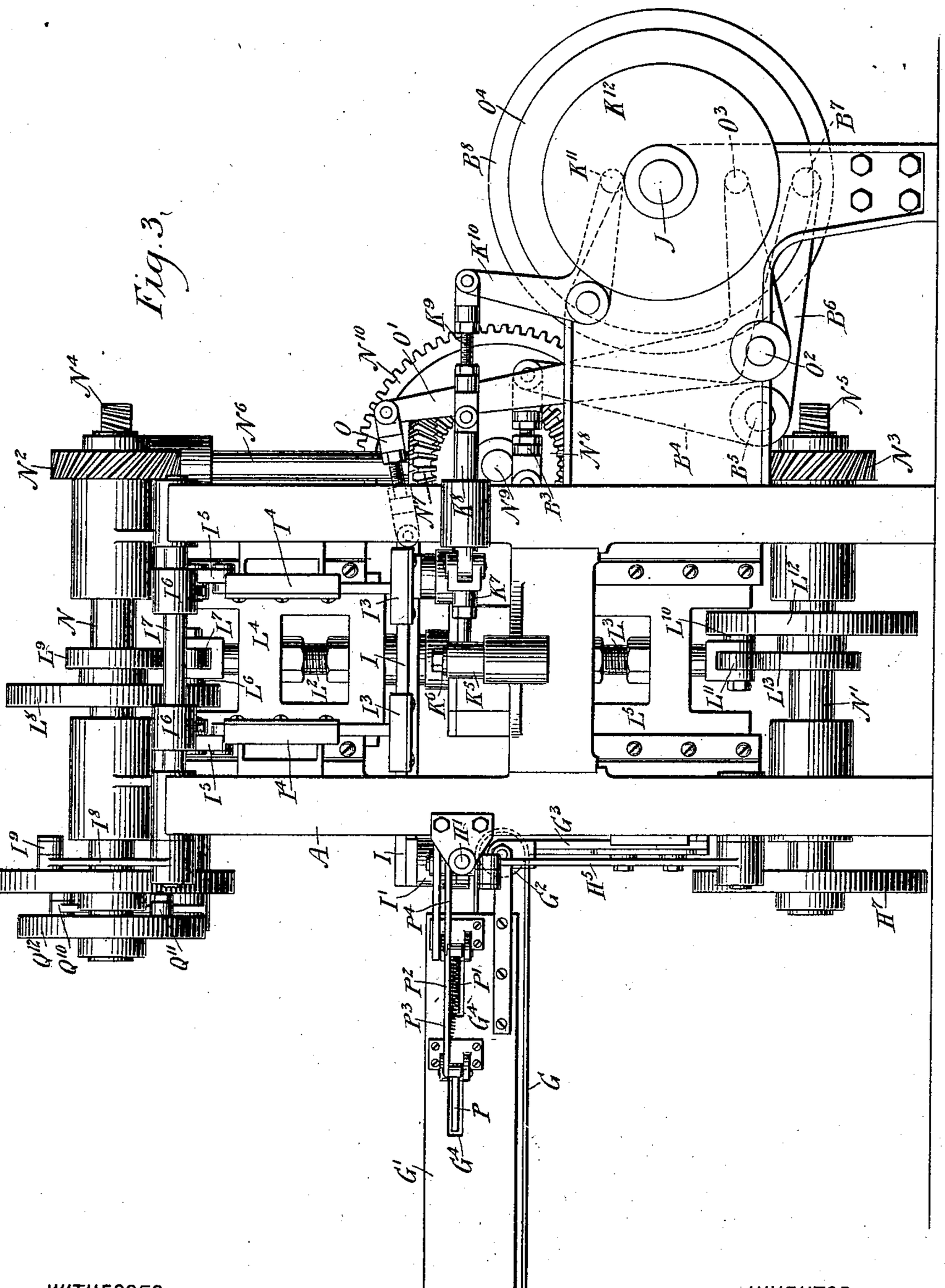
Fig. 3.



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NO MODEL. 11 SHEETS—SHEET 4.

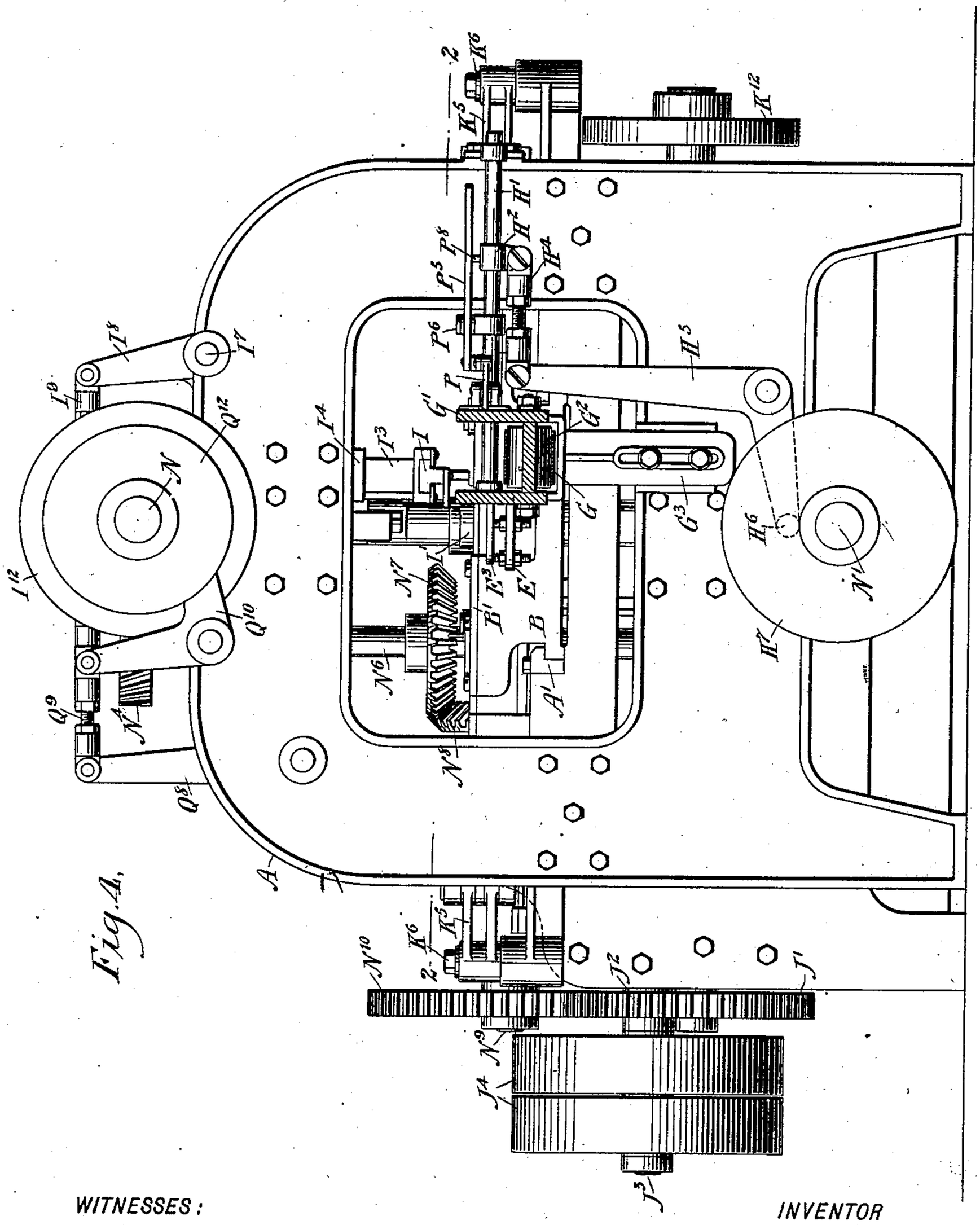

Fig. 4.

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NO MODEL. 11 SHEETS—SHEET 5.

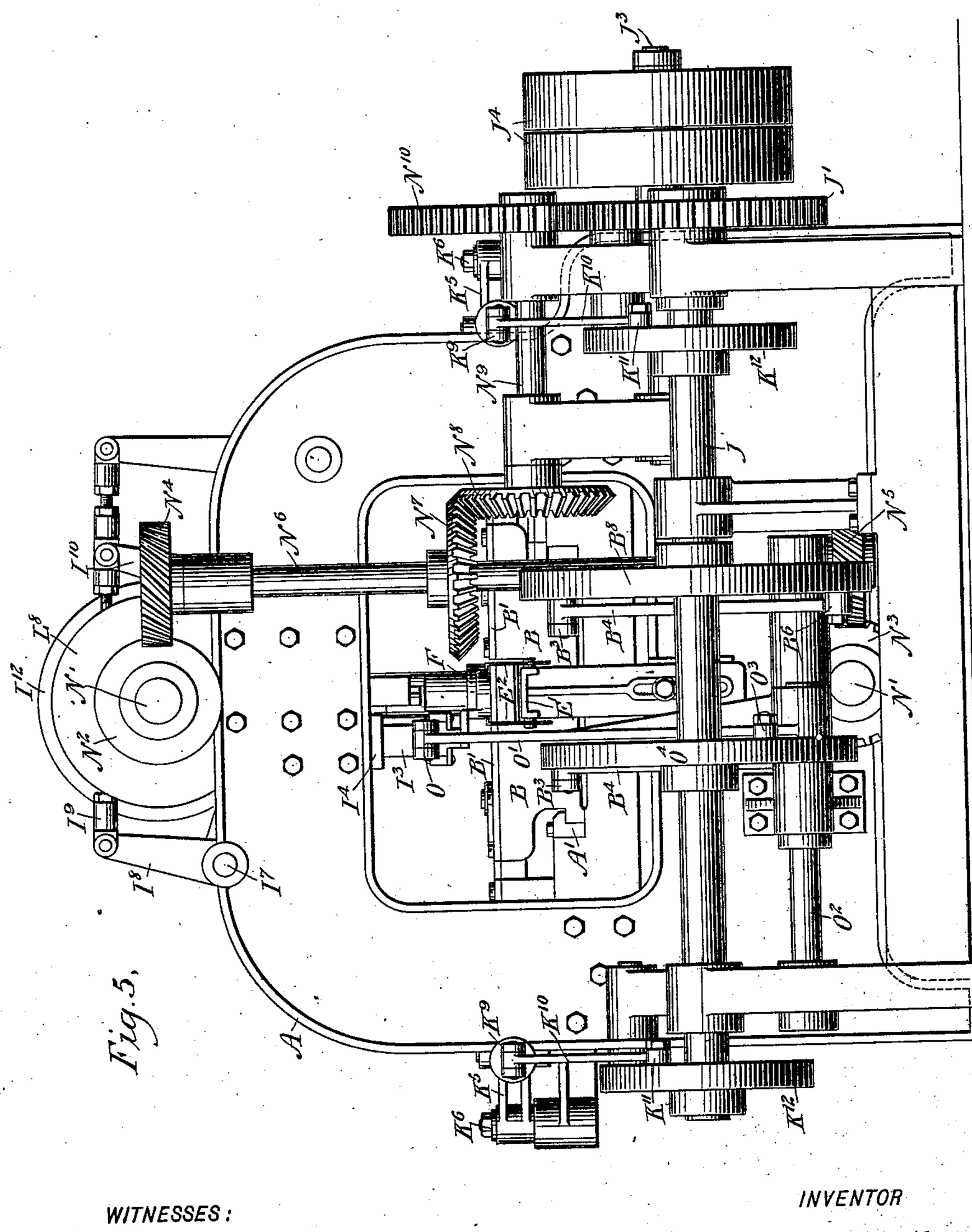

Fig. 5.

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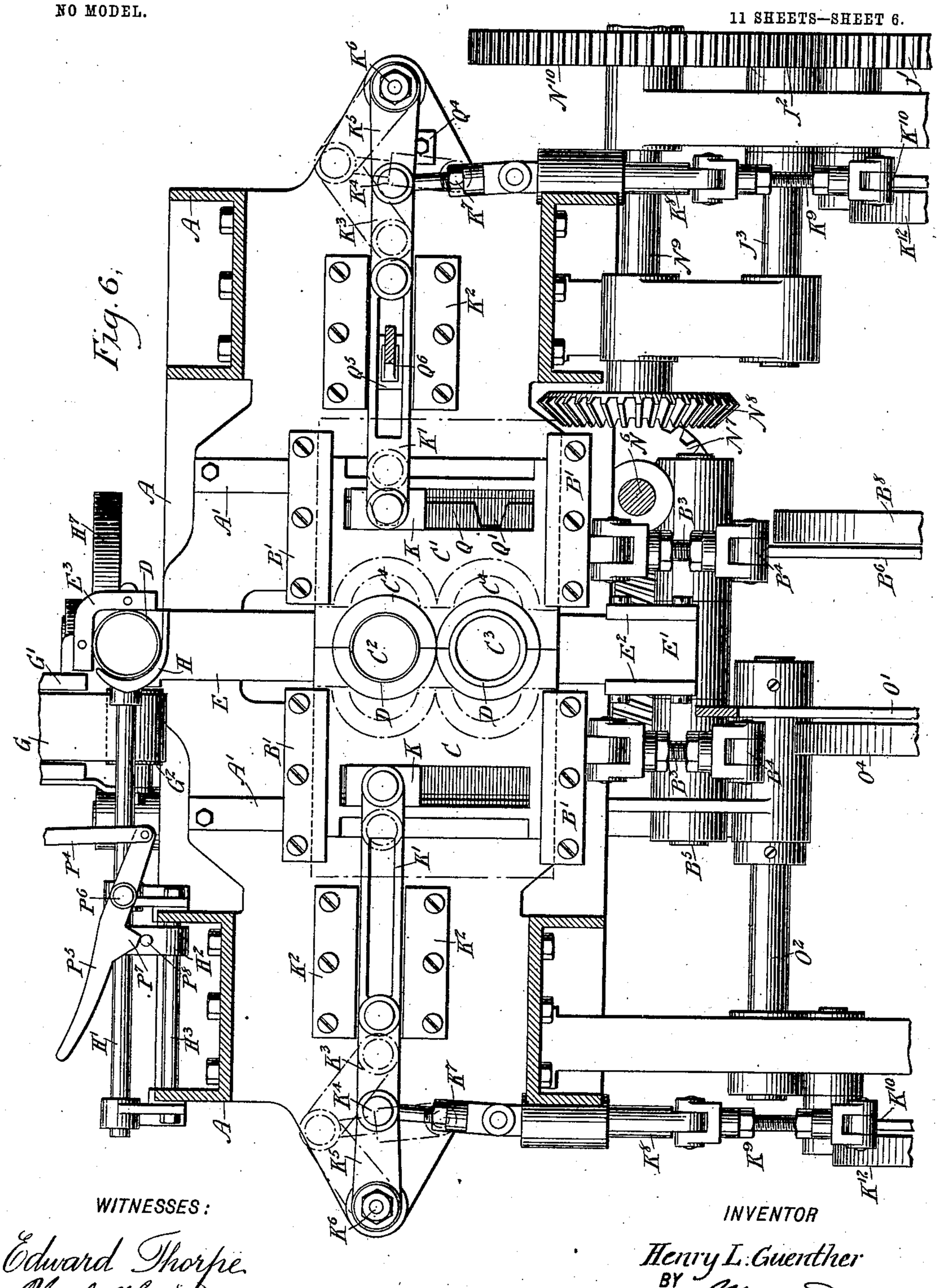
NO MODEL. 11 SHEETS—SHEET 6.

Fig. 6.



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NO MODEL. 11 SHEETS—SHEET 7.

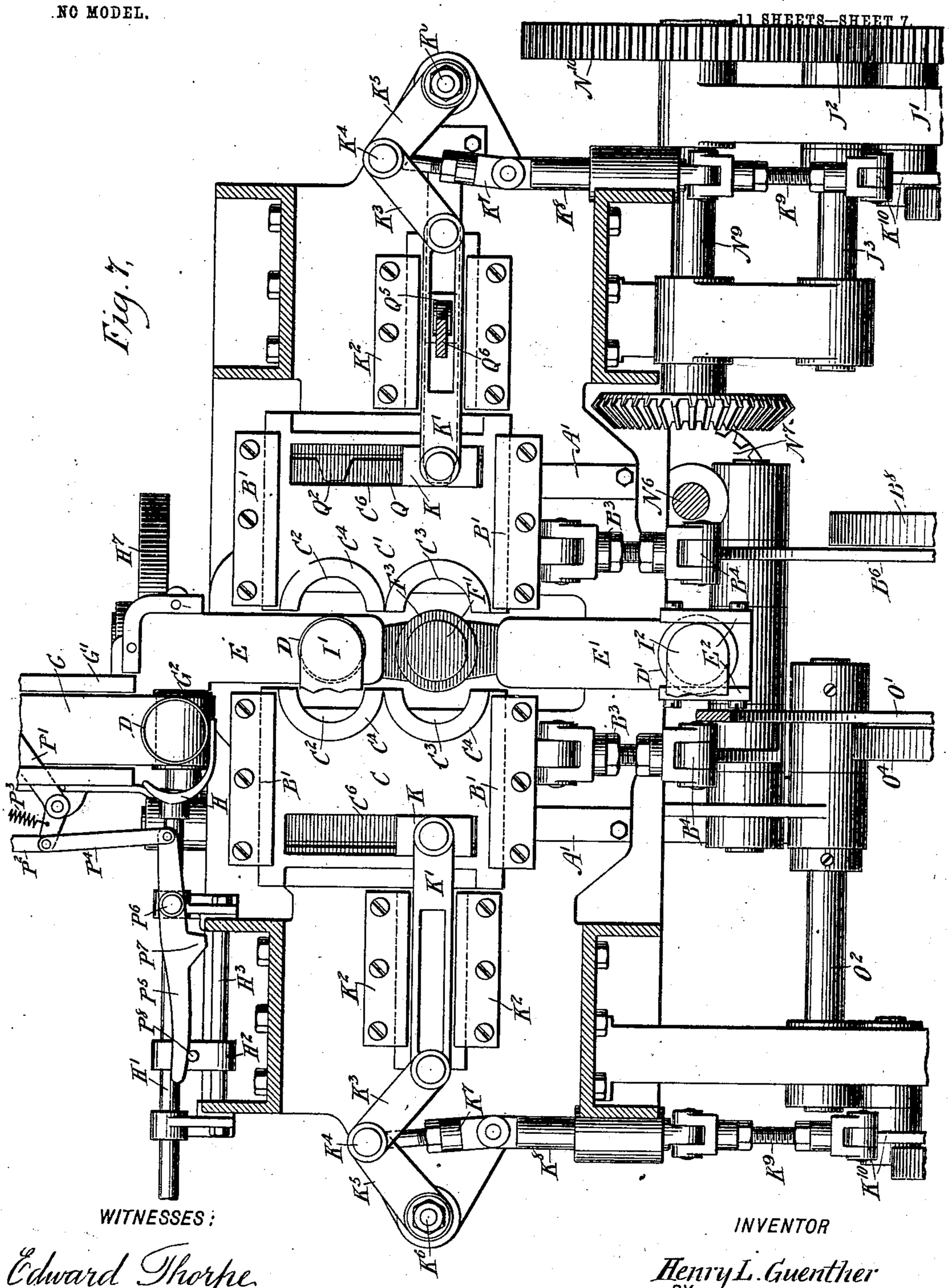

Fig. 7.

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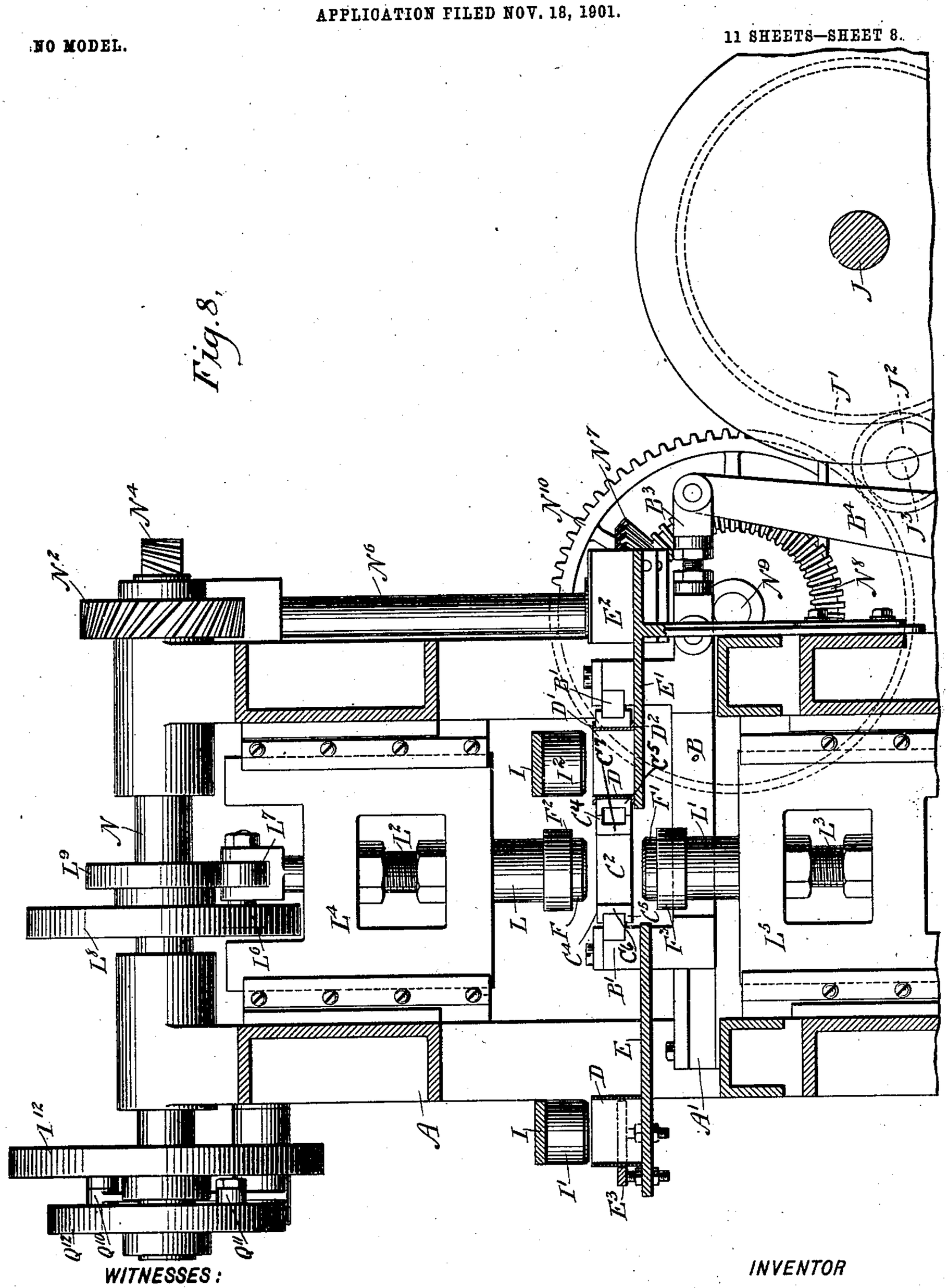
NO MODEL. 11 SHEETS—SHEET 8.

Fig. 8.



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NO MODEL. 11 SHEETS—SHEET 9.

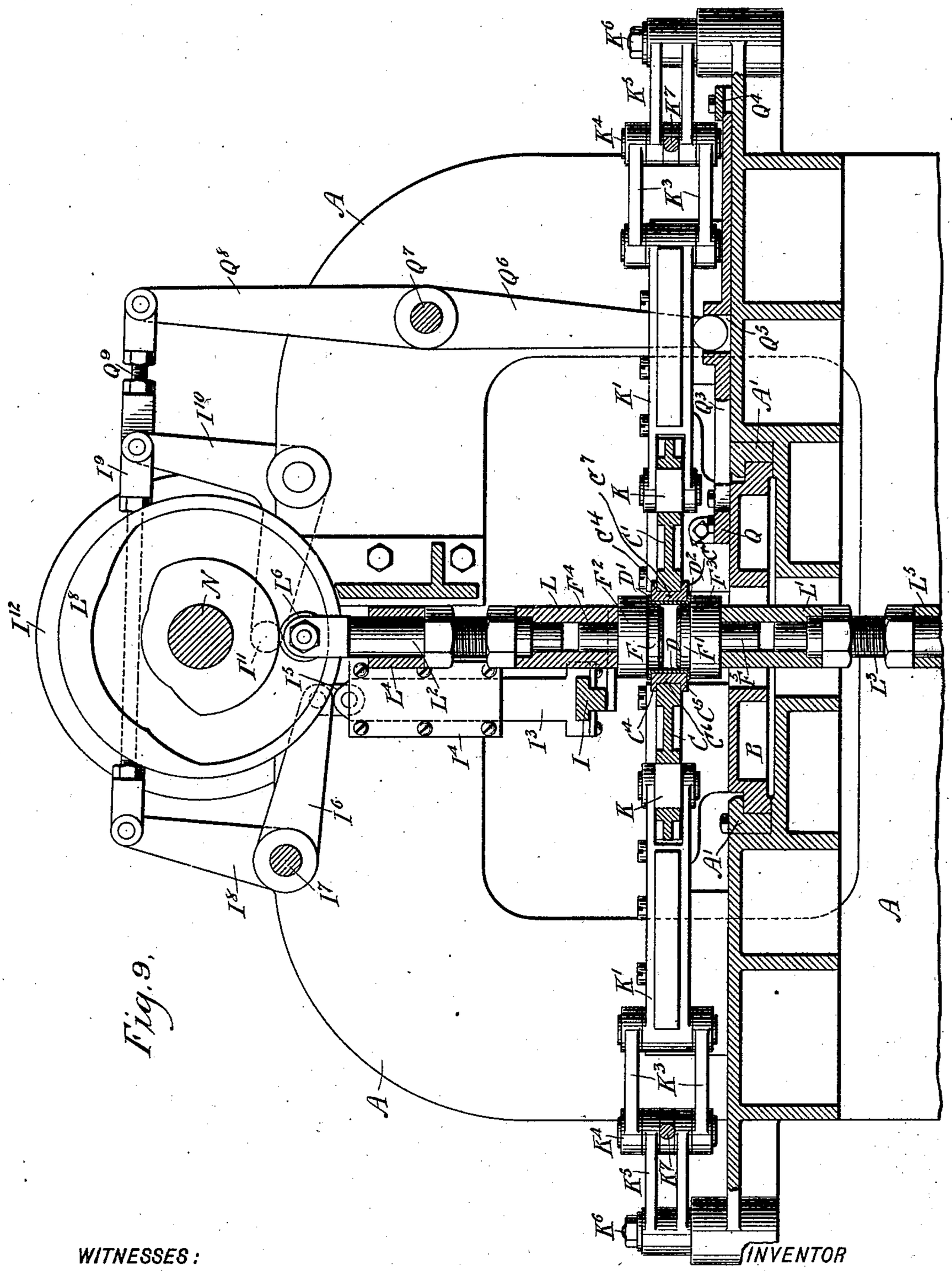

Fig. 9.

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NO MODEL. 11 SHEETS—SHEET 10.

Fig. 10.

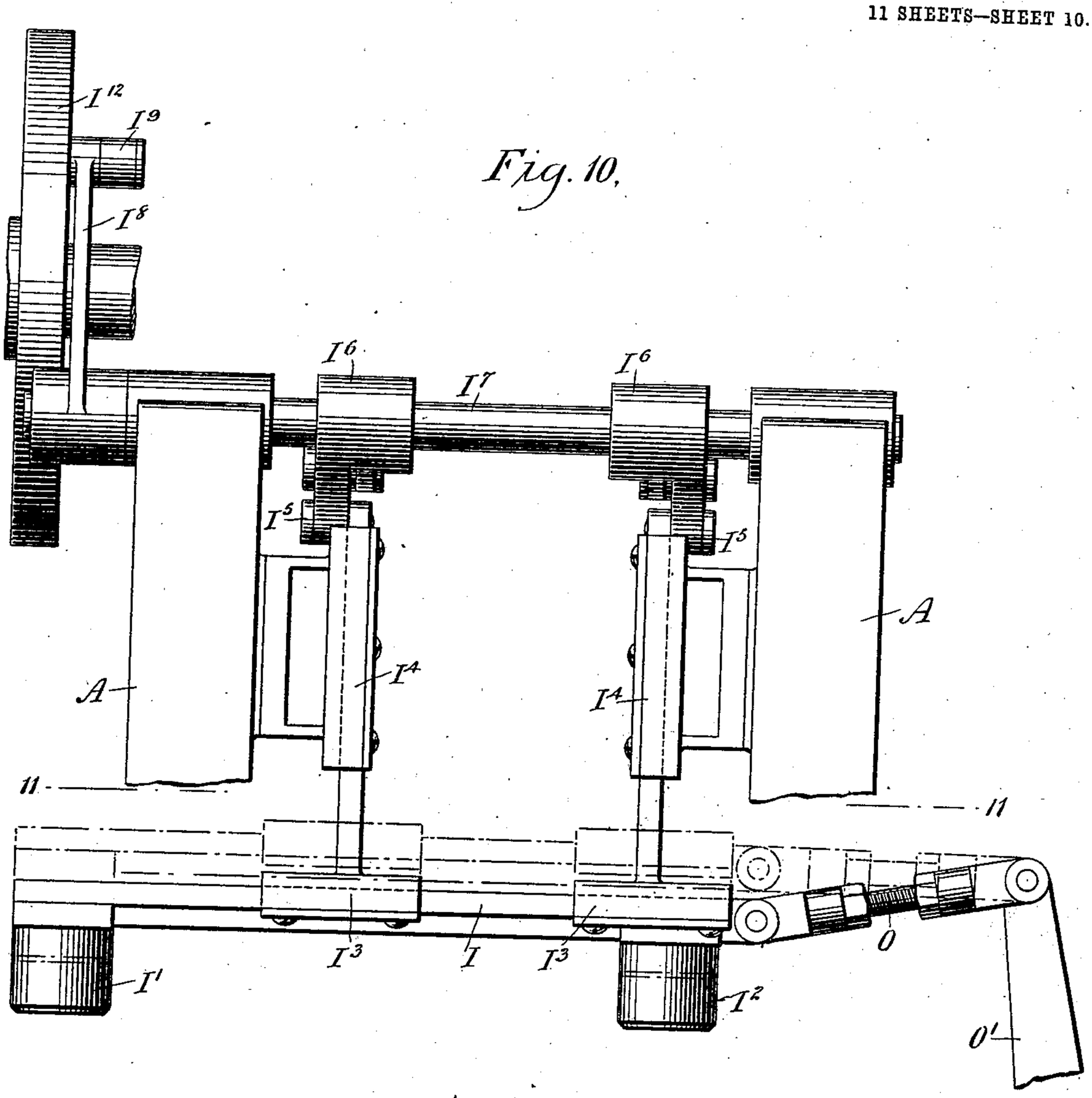
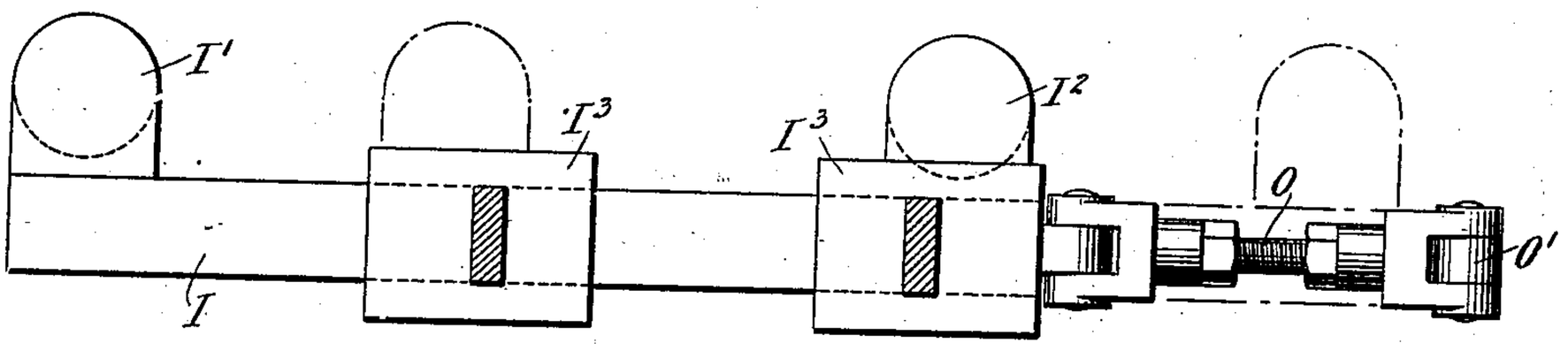


Fig. 11.



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NO MODEL. 11 SHEETS—SHEET 11.

Fig. 12.

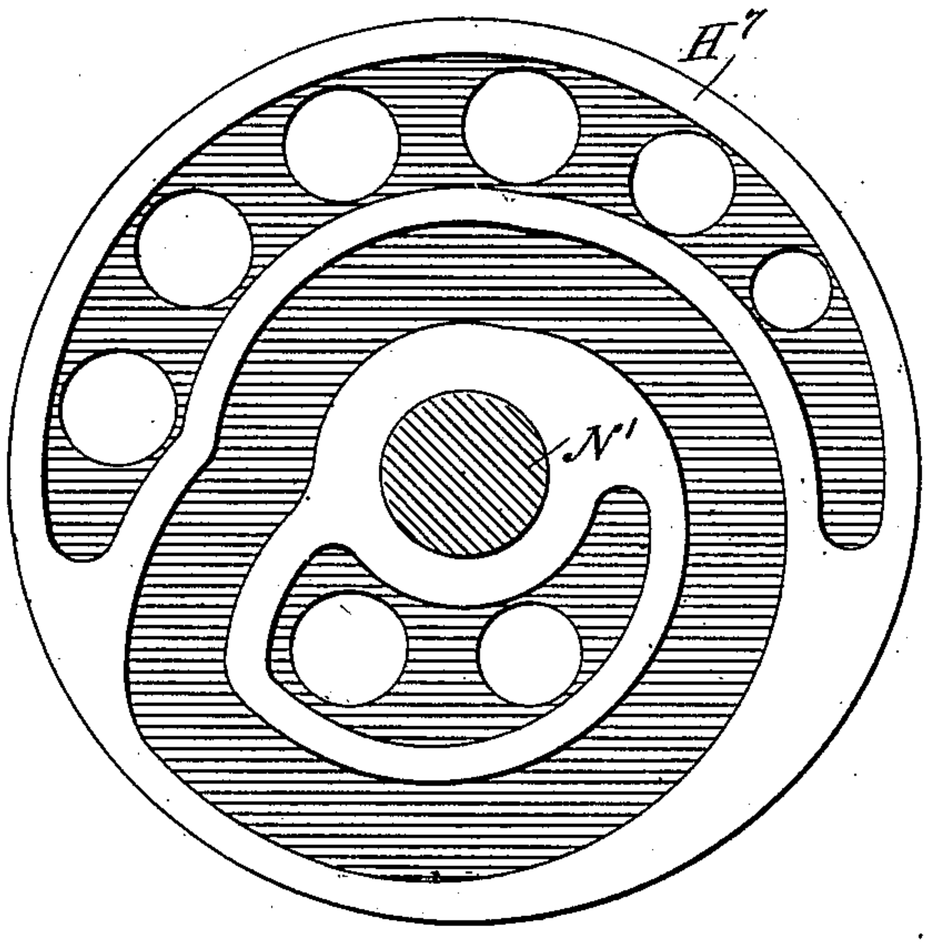


Fig. 14.

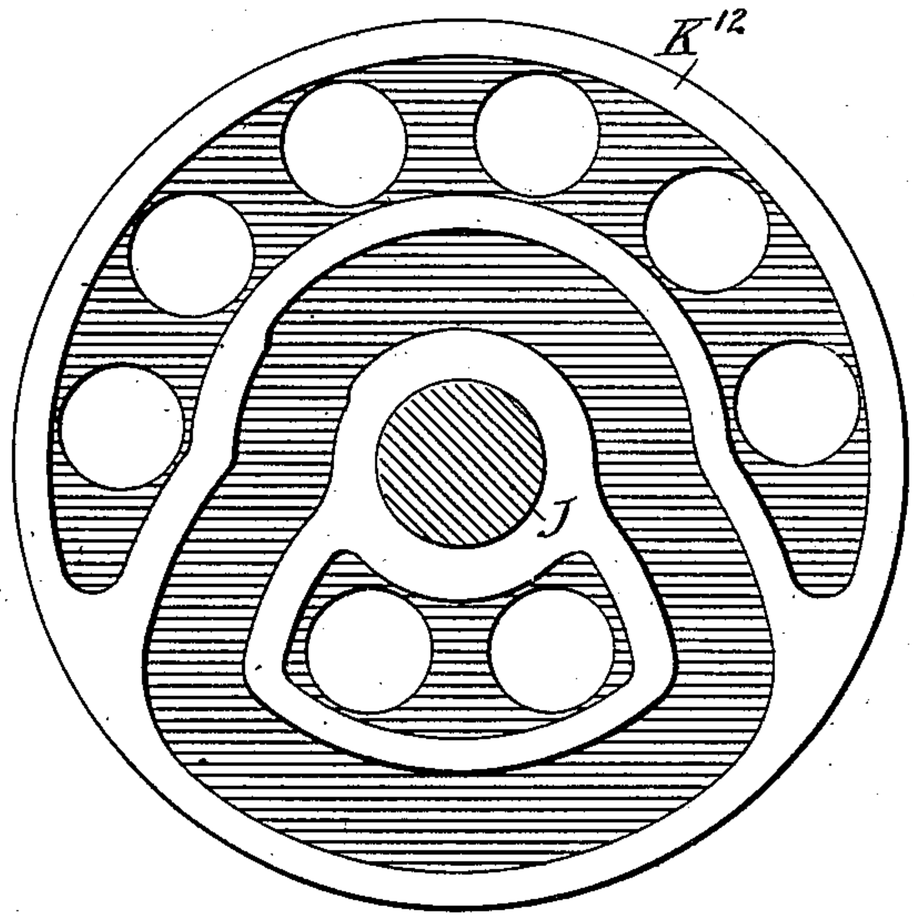


Fig. 13.

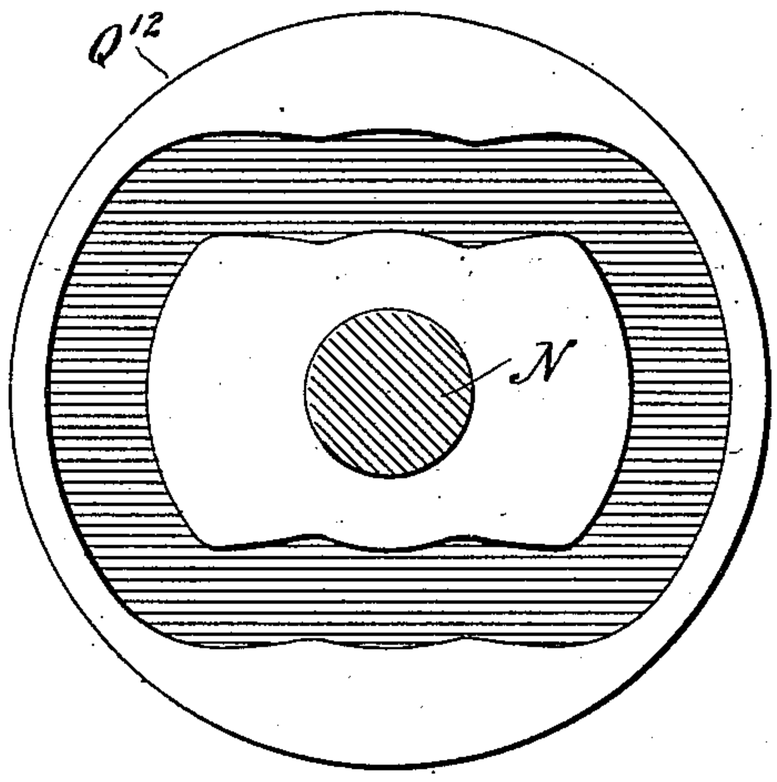
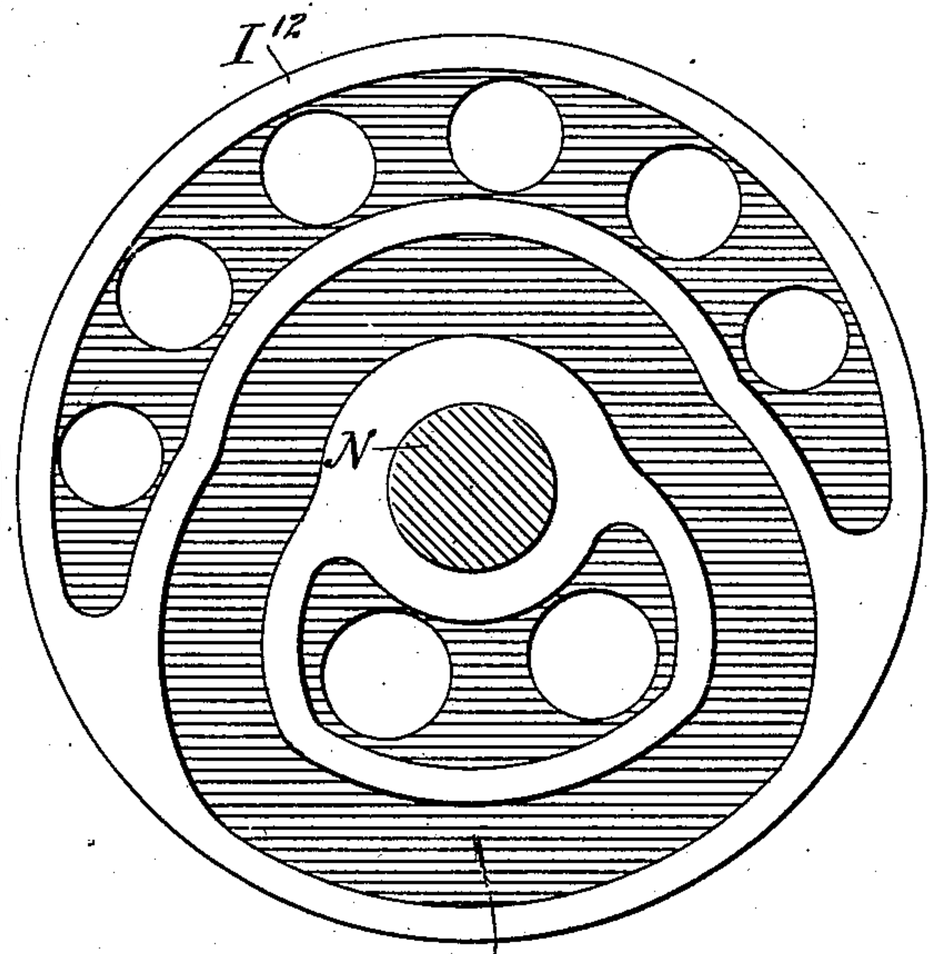


Fig. 15.



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UNITED STATES PATENT OFFICE.

HENRY L. GUENTHER, OF CHINOOK, WASHINGTON.

MACHINE FOR FLANGING CAN-BODIES.

SPECIFICATION forming part of Letters Patent No. 723,602, dated March 24, 1903.

Application filed November 18, 1901. Serial No. 82,659. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. GUENTHER, a citizen of the United States, and a resident of Chinook, in the county of Pacific and State of Washington, have invented a new and Improved Machine for Flanging Can-Bodies, of which the following is a full, clear, and exact description.

The invention relates to can-making machines, and more particularly to a type of special machines employed for forming flanges on the ends of cylindrical bodies of cans used for packing various food products.

The object of the invention is to provide a new and improved flanging-machine which is reliable and effective in operation and arranged to successively flange the top and bottom ends of cylindrical, oval, square, or other shaped can-bodies and to automatically remove the completely-flanged can-bodies from the machine.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 4. Fig. 3 is a left side elevation of the same. Fig. 4 is a rear end elevation of the same with the endless feeding-belt and adjacent parts in section. Fig. 5 is a front elevation of the improvement. Fig. 6 is an enlarged sectional plan view of the improvement. Fig. 7 is a like view of the same with parts in a different position. Fig. 8 is an enlarged transverse section of the same on the line 8 8 of Fig. 1. Fig. 9 is an enlarged sectional front elevation of the same on the line 9 9 of Fig. 1. Fig. 10 is an enlarged left-hand side elevation of the can-body-feed mechanism for moving the can-bodies to the anvil-clamp. Fig. 11 is a sectional plan view of the same on the line 11 11 of Fig. 10, and Figs. 12 to 15 are face views of the various cans.

The flanging-machine is mounted on a suitably-constructed frame A, having transverse guideways A′, in which reciprocates intermittently the carriage B, provided on its top with longitudinal guideways B′, in which reciprocate intermittently the sections C C′ of an anvil-clamp used for shifting the can-bodies D from a table E under the vertically and intermittently reciprocating dies F F′ and then to a discharge position on a table E′, from which the flanged body passes down a chute or onto a traveling belt (not shown) for delivering the can-bodies successively at one side of the machine.

The anvil-sections C C′ when closed form two apertures C^2 C^3, corresponding to the shape and size of the can-bodies D to be treated, and within the apertures are held the anvils C^6 C^7, having top and bottom annular flanges C^4 C^5, so that when the dies F F′ move toward each other and into a can-body D, held in the aperture C^2, then the said dies, with their annular shoulders F^2 F^3, engage and force the outer ends of the can-body, which ends project above and below the anvil-flanges C^4 C^5, upon the latter to form the flanges D′ D^2 on the can-body. (See Fig. 9.) When this has been done and the dies F F′ are still in engagement with the flanged can-body, then the clamp-sections C C′ open to the left and the right, after which the carriage B is moved transversely to the position shown in Fig. 7, and then said clamp-sections C C′ close to engage at the aperture C^2 a new can-body standing on the table E and to engage the already-flanged can-body at the aperture C^3, after which the dies F F′ move out of engagement with this flanged can-body, and then the carriage B moves back to its former position, (shown in Fig. 6,) carrying along the flanged and the unflanged can-bodies. The unflanged can-body is now moved between the dies F F′ and is flanged at the next action of the dies, and the previously-flanged can-body is moved upon the discharge-table E′.

The can-bodies D are carried to the machine by an endless conveyer-belt G, from which the can-bodies are periodically pushed upon the outer end of the table E by a pusher H, (see Figs. 2 and 7,) and then the said can-bodies on the outer end of the table E are pushed along the same by a feed mechanism to the position shown in Fig. 7 to be then engaged by the clamp-sections C C′, as previ-

ously explained. This feed mechanism consists of a transverse bar I, having a transverse and a reciprocating motion, (see Figs. 10 and 11,) and on the bar I are formed or secured depending lugs I′ I², of which the lug I′ is adapted to pass into the can-body standing at the outer end of the table E at the time to push the can-body to the position shown in Fig. 7. The other lug I² is adapted to pass into the can-body already flanged and which has been moved upon the inner end of the table E′ by the clamp-sections C C′, as above explained, and push this flanged can-body along the table E′ between guideways E² (see Fig. 7) and against a can-body previously moved to this position, so that the can-bodies will be successively pushed along to one side of the machine.

In order to give the desired movement to the carriage B, the following arrangement is made, special reference being had to Figs. 1, 2, 3, and 5: The forward end of the carriage B is pivotally connected by adjustable links B³ with the upper ends of arms B⁴, secured on a shaft B⁵, mounted to turn in suitable bearings carried on the frame A. One of the arms B⁴ is extended to form an angular arm B⁶, carrying at its free end a friction-roller B⁷, engaging a cam-groove in a cam B⁸, secured on a cam-shaft J, extending longitudinally and journaled in suitable bearings on the main frame A. On one end of the cam-shaft J is secured a gear-wheel J′, in mesh with a pinion J², secured on the main driving-shaft J³, carrying fast and loose pulleys J⁴, connected by belt with other machinery for imparting a rotary motion to said shaft J³. The rotary motion of the main shaft J³ is transmitted by the pinion J² and gear-wheel J′ to the cam-shaft J, so that the cam B⁸ imparts an intermittent swinging motion to the arm B⁶ and the arms B⁴ to cause the links B³ to impart the desired intermittent transverse reciprocating motion to the carriage B.

The desired intermittent reciprocating motion is given to the clamp-sections C C′ from the cam-shaft J, above mentioned, and for this purpose the outer sides of said clamp-sections C C′ are formed with transverse guides C⁶, in which is mounted to slide transversely a block K, pivotally connected with a slide K′, mounted to move longitudinally in guideways K², carried by the main frame A. The outer end of each of the slides K′ is pivotally connected with a toggle-lever K³, pivoted at K⁴ to a toggle-lever K⁵, fulcrumed at K⁶ on the main frame A, and the pivot K⁴ is pivotally connected by an adjustable link K⁷ with a rod K⁸, mounted to slide transversely in suitable bearings arranged on the main frame A. The forward end of each of the rods K⁸ is pivotally connected by an adjustable link K⁹ with a bell-crank lever K¹⁰, fulcrumed on the main frame, and provided with a friction-roller K¹¹, engaging a cam-groove in a cam K¹², secured on the cam-shaft J. Now it is evident that when the cam-shaft J is rotated the two cams K¹² impart an intermittent swinging motion to the bell-crank levers K¹⁰, so that the links K⁹ thereof impart a corresponding sliding motion to the rods K⁸, and the latter by the toggle-links K⁷ open and close the toggle-levers K³ K⁵ to impart a longitudinal sliding motion to the slides K′, so that the clamp-sections C C′ are simultaneously moved toward or from each other for the purpose previously described.

The dies F F′ are simultaneously moved toward and from each other, and for this purpose the following mechanism is provided, particular reference being had to Figs. 3, 5, 8, and 9: The dies F F′ have their shanks F⁴ F⁵ removably secured in holders L L′, respectively, attached to rods L² L³, adjustably secured to cross-heads L⁴ L⁵, mounted to slide vertically in suitable guideways on the main frame A. The rod L² carries at its upper end friction-rollers L⁶ L⁷, of which the friction-roller L⁶ engages a cam-groove in a cam L⁸, while the friction-roller L⁷ is in peripheral contact with a cam L⁹, both cams L⁸ L⁹ being secured on an overhead cam-shaft N, mounted to turn in suitable bearings arranged at the upper portion of the main frame A. The rod L³, previously mentioned, carries friction-rollers L¹⁰ L¹¹, similar to the friction-rollers L⁶ L⁷ and likewise engaging cams L¹² L¹³, similar to the cams L⁸ L⁹ and secured on the cam-shaft N′, journaled in suitable bearings arranged in the main portion of the frame A. On the ends of the cam-shafts N N′ are secured worm-wheels N² N³, respectively, in mesh with worms N⁴ N⁵, secured on the upper and lower ends of a vertically-disposed shaft N⁶, journaled in suitable bearings secured to the main frame A. On the shaft N⁶, at or near the middle thereof, (see Fig. 5,) is secured a bevel gear-wheel N⁷, in mesh with a bevel gear-wheel N⁸, fastened to a shaft N⁹, journaled in the main frame A and carrying at its outer end a gear-wheel N¹⁰, in mesh with a pinion J², secured on the main shaft J³. Now when the shaft is rotated a rotary motion is given by the gearing described to the shafts N⁹ N⁶ and N N′, so that the sets of cams L⁸ L⁹ and L¹² L¹³ impart (periodically) movement to the cross-heads L⁴ L⁵, and consequently to the dies F F′, so as to simultaneously move the same toward each other to form the flanges D′ D² on the can-body, as previously explained, and remain in the can-body a desired length of time while the clamp-sections C C′ open and to move said dies away from each other and disengage the dies from the can-body for the purpose previously set forth.

The feed-bar I has both an intermittent transverse sliding motion and an up-and-down motion for moving two can-bodies at a time, as described, and in order to give this movement to the feed-bar I the following mechanism is provided, special reference being had to Figs. 1, 3, 4, 5, 8, 9, 11, and 12: The feed-bar I is mounted to slide trans-

versely in bearings I^3, mounted to slide vertically in bearings I^4, secured to the main frame A, and the upper ends of the bearings I^3 are pivotally engaged by short links I^5 with arms I^6, secured on a rock-shaft I^7, journaled in suitable bearings carried by the main frame A. On one end of the shaft I^7 is arranged an outwardly-extending arm I^8, pivotally connected by a link I^9 with a bell-crank lever I^{10}, fulcrumed on the main frame A and carrying a friction-roller I^{11}, engaging a cam-groove in a cam I^{12}, secured on the cam-shaft N, previously referred to. When this cam-shaft N is rotated, the cam I^{12} imparts a rocking motion to the bell-crank lever I^{10}, so that the link I^9 imparts a swinging motion to the arm I^8 to rock the shaft I^7 and cause the arms I^6 to swing and move the bearings I^3 up and down. (See full and dotted lines in Fig. 10.) During the upward movement of the bearings I^3 the feed-bar I is lifted, so that the lugs I' I^2 move out of the can-bodies to allow of sliding the bar I transversely in the bearings I^3, after which the latter are lowered to lower the bar I and to move the lugs I' I^2 into another set of can-bodies.

In order to give the desired sliding motion to the feed-bar I in the bearings I^3, one end of the feed-bar is pivotally connected by an adjustable link O with a bell-crank lever O', fulcrumed at O^2 on the main frame and carrying a friction-roller O^3, engaging a cam-groove in a cam O^4, secured on the cam-shaft J, previously mentioned, so that when the shaft is rotated the cam O^4 imparts an intermittent swinging motion to the bell-crank lever O' to cause the link O to impart the desired transverse sliding motion to the feed-bar I.

By reference to Fig. 10 it will be seen that by having the link O between the feed-bar I and the bell-crank lever O' the said feed-bar can be readily raised or lowered without interfering with the transverse sliding movement given to the feed-bar by the bell-crank lever O' and the link O, as above mentioned.

The endless conveyer-belt G for carrying the can-bodies to the machine is mounted to travel in a frame G' and passes at its inner end over a pulley G^2 (see Figs. 1, 2, 3, 4, and 6) and at its outer end over a similar pulley (not shown) and driven from suitable machinery for imparting a continuous traveling motion to said conveyer-belt G. The pulley G^2 is journaled in a bracket G^3, (see Fig. 4,) vertically adjustable on the rear of the main frame A, and on this bracket is hung the forward end of the frame G'. On the bracket G^3 is secured the table E, previously mentioned, and upon the outer end of said table are pushed the can-bodies from the belt G by the pusher H. The top of the table E is approximately on a level with the upper run of the conveyer-belt G and is also in proper position relatively to the dies F F'. (See Fig. 8.) On the outer end of the table E is held a railing or guard E^3 (see Fig. 8) to prevent the can-bodies from being pushed too far by the pusher H.

In order to hold the can-bodies one behind the other on the conveyer-belt G at the inner end thereof, the following device is provided: The bell-crank levers P P' are fulcrumed on one side of the belt G and project through slots G^4 in the said frame G' somewhat above the upper run of the belt G, so that when said bell-crank levers are in an innermost position, as indicated in Fig. 7, then one can-body is held between the bell-crank levers, and when the latter swing outward said can-body is allowed to travel to the inner end of the belt, while the next following one is intercepted by the bell-crank levers P P', which now swing inward to hold the can-bodies temporarily at a standstill on the traveling belt G. The bell-crank levers P P' are pivotally connected with each other by a link P^2, and one of said bell-crank levers is pressed on by a spring P^3 to normally hold said bell-crank levers in an innermost position—that is, in the path of the can-bodies. The bell-crank lever P' is pivotally connected by a link P^4 with a lever P^5, fulcrumed at P^6 on the main frame A and having a cam projection P^7, adapted to be engaged by a pin P^8 projecting from the cross-head H^2, secured on the pusher-rod H', carrying the pusher H. When the pusher is in the position shown in Fig. 7, then the pin P^8 is on the outer end of the lever P^5, and when a longitudinal sliding motion is given to the pusher-rod H' to cause the pusher H to push the can-body D at the inner end of the belt G upon the table E then the pin P^8 finally engages the cam-lug P^7 and imparts a swinging motion to the lever P^5 to cause the bell-crank levers P P' to swing for a short time into an outermost position and allow the can-bodies to advance, as previously described. A return movement is given to the pusher H, so that the pin P^8 moves out of engagement with the cam-lug P^7 and allows the spring P^3 to immediately swing the bell-crank levers P P' back into an active position.

The cross-head H^2 of the pusher-rod H' is pivotally connected by a link H^4 (see Figs. 3 and 4) with a bell-crank lever H^5, fulcrumed on the main frame A and carrying a friction-roller H^6, engaging a cam-groove in a cam H^7, secured on the cam-shaft N', previously referred to. Thus when the machine is in motion the cam H^7 imparts a swinging motion to the bell-crank lever H^5 to give the desired sliding motion to the pusher-rod H' and the pusher H for the purpose above mentioned, it being understood that the pusher-rod H' controls the bell-crank levers P P' to allow a single can-body to advance at a time to the rear end of the conveyer-belt and be then pushed by the pusher H upon the table E.

During the time the carriage B is at a standstill it is desirable to lock the same in place, and for this purpose the following device is provided, reference being had to Figs. 1, 2, and 9: On the top of the carriage B, below

the clamp-section C′, is secured a transversely-extending bar Q, having spaced notches Q′ Q², adapted to be engaged by a bolt Q³, mounted to slide longitudinally in suitable bearings held on the frame A. (See Fig. 9.) On the bolt Q³ is formed a socket Q⁵, (see Fig. 9,) engaged by the free end of an arm Q⁶, depending from a transversely-extending shaft Q⁷, journaled in suitable bearings on the main frame A and carrying at one outer end an upwardly-extending arm Q⁸, pivotally connected by an adjustable link Q⁹ with a bell-crank lever Q¹⁰, carrying a friction-roller Q¹¹, engaging a cam-groove in a cam Q¹², secured on the cam-shaft N, previously mentioned. Now when the cam-shaft N is rotated the cam Q¹² imparts an intermittent rocking motion to the bell-crank lever Q¹⁰, which by the link Q⁹ and the arm Q⁸ imparts a rocking motion to the shaft Q⁷, so that the arm Q⁶ imparts a sliding motion to the bolt Q³ and moves the same alternately in or out of mesh with the notches Q′ Q² on the bar Q. The arrangement is such that the bolt Q³ moves out of engagement with a notch immediately previous to imparting a sliding motion to the carriage, and when the carriage has been shifted then the bolt is moved inward into engagement with the corresponding notch to lock the carriage in this position. As shown, the arm Q⁶ extends loosely through a slot in the link K′ of the block K, employed for shifting the clamp-section C′, as previously explained.

The operation is as follows: When the main shaft J³ is rotated, then a synchronous movement is given to the various mechanisms of the machine, so that the can-body on the innermost end of the conveyer-belt G is released by the bell-crank lever P′ and travels with the belt to the pusher H, which pushes the can-body on the outer end of the table E. The feed-bar I, with its lug I′, descends, and the lug I′ passes into this can-body, and then said feed-bar slides inwardly and moves the can-body along the table E to the position shown in Fig. 7. The carriage B is now locked in an outermost position, the clamp-sections C C′ being open, (see Fig. 7,) and as soon as the can-body arrives at the inner end of the table E then the sections C C′ close to confine the can-body in the opening C². The bar I now rises, and the lug I′ moves out of the can-body and moves back to an outermost position at the time the carriage is unlocked and is caused to slide inward to the position shown in Figs. 2, 6, and 9 to bring the can-body in vertical alinement with the dies F F′. The carriage B is then again locked, and the dies F F′ now move toward each other and into the ends of the can-body to form the flat flanges B′ B² thereon, as above described. When this has been done, the clamp-sections C C′ open, (see dotted lines in Fig. 6,) and then the carriage is unlocked and moved outward, after which the carriage is again locked and the clamp-sections C C′ are caused to close and the dies F F′ are caused to move out of the can-body. During this closing of the sections C C′ the flanged can-body is engaged by the clamp-sections at the aperture C³, and when the carriage is on its next inner stroke this flanged can-body is moved by the clamp-sections in an outward direction upon the table E′, along which it is moved in an outward direction by the lug I² of the bar I as soon as the latter is actuated, as previously described—that is, the distance to engage with its outer lug I′ a new can-body and with its inner lug I² the flanged can-body on the innermost end of the table E′. Thus when the bar I moves inward it pushes an unflanged can-body from the outer end of the table E to the inner end thereof and a flanged can-body from the inner end of the table E′ to the outer end thereof.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A can-body-flanging machine having an anvil-carrying clamp for holding the body with the ends projecting above and below the same, and a pair of reciprocating dies for entering the body at the top and bottom, the dies having annular shoulders for engaging the projecting ends of the body, to bend the ends outward and upon the anvil, as set forth.

2. A can-body-flanging machine having an anvil-carrying clamp for holding the body with its ends projecting above and below the anvil, and a pair of reciprocating dies for entering the can-body at the top and bottom, the dies having annular shoulders a short distance from their ends to engage the edges of the can and bend and press the same flat on said anvil, as set forth.

3. A can-body-flanging machine, provided with a can-body-feeding device, comprising a feed-bar having a plurality of spaced projecting lugs for entering several can-bodies at a time, means for imparting a longitudinal reciprocating sliding motion to the said bar, and means for imparting an up-and-down movement to the bar, as set forth.

4. A can-body-flanging machine having an intermittent reciprocating carriage, clamping-sections mounted to slide on the carriage at angles to the movement thereof, and dies for forming flanges on the can-body held in the clamping-sections, as set forth.

5. A can-body-flanging machine having an intermittently-reciprocating carriage, and clamping-sections mounted to slide intermittently on said carriage and at angles to the movement of the carriage, the sections being arranged to move toward and from each other, to alternately clamp, move and release a plurality of can-bodies at a time, as set forth.

6. A can-body-flanging machine having an intermittently-reciprocating carriage, clamping-sections mounted to slide intermittently on said carriage and at angles to the movement of the carriage, the sections being arranged to move toward and from each other, to alternately clamp, move and release a plu-

rality of can-bodies at a time, and means for locking or unlocking the carriage when in an outermost or an innermost position, as set forth.

7. A can-body-flanging machine having an intermittently-reciprocating carriage, clamping-sections mounted to slide intermittently on said carriage and at angles to the movement of the carriage, the sections being arranged to move toward and from each other, to alternately clamp, move and release a plurality of can-bodies at a time, means for imparting an intermittent reciprocating motion to the said carriage, means for locking and unlocking the carriage when in end positions, and means for imparting an opening and closing movement to the said clamping-sections, as set forth.

8. A can-body-flanging machine, comprising a can-body clamp made in sections adapted to open and close in a transverse direction, the clamp being also arranged to reciprocate longitudinally, and a feed-bar having a reciprocating and an up-and-down movement, the feed-bar being adapted to engage a non-flanged can-body and deliver it to the body-clamp, and to move a finished flanged body to one side of the machine, substantially as shown and described.

9. A can-body-flanging machine, comprising a can-body clamp made in sections adapted to open and close in a transverse direction, the clamp being also arranged to reciprocate longitudinally, a feed-bar having a reciprocating and an up-and-down movement, the feed-bar being adapted to engage a non-flanged can-body and deliver it to the body-clamp, and to move a finished flanged can-body to one side of the machine, and a pair of dies operating in conjunction with the clamp, to form flanges on the body, as set forth.

10. A can-body-flanging machine having a carriage, means for intermittently reciprocating the carriage, clamping-sections mounted to slide on the carriage at an angle to the movement of the carriage, means for moving the sections to open and close the same at the time the carriage is at a standstill, a pair of dies for flanging a can-body held in said sections, and means for imparting movement to the said dies, to cause the latter to form, simultaneously, both a top and a bottom flange on the can-body, as set forth.

11. A can-body-flanging machine having a carriage, means for intermittently reciprocating the carriage, clamping-sections mounted to slide on the carriage at an angle to the movement of the carriage, means for moving the sections to open and close the same at the time the carriage is at a standstill, a pair of dies for flanging a can-body held in said sections, means for imparting movement to the said dies, to cause the latter to form, simultaneously, both a top and a bottom flange on the can-body, a feed-bar having lugs for simultaneously engaging a non-flanged can-body and a flanged can-body, and means for imparting an up-and-down and a lateral reciprocating motion to said feed-bar, as set forth.

12. A can-body-flanging machine having a carriage, means for intermittently reciprocating the carriage, clamping-sections mounted to slide on the carriage at an angle to the movement of the carriage, means for moving the sections to open and close the same at the time the carriage is at a standstill, a pair of dies for flanging a can-body held in said sections, means for imparting movement to the said dies, to cause the latter to form, simultaneously, both a top and a bottom flange on the body, a feed-bar having lugs for simultaneously engaging a non-flanged can-body and a flanged can-body, means for imparting an up-and-down and a lateral reciprocating motion to said feed-bar, and fixed tables over which the can-bodies are moved by said feed-bar, said clamping-sections engaging a non-flanged can-body at one table and moving a flanged can-body onto the other table, as set forth.

13. A can-body-flanging machine having spaced tables at different levels, reciprocating dies, an anvil carrying clamping-sections for holding a can-body with its ends projecting above and below the anvil to permit the dies to bend the ends outward and upon the anvil, said clamping-sections being adapted to engage an unfinished can-body at one table and move a flanged can-body onto the other table, as set forth.

14. A can-body-flanging machine having a reciprocating table, an anvil carrying clamping-sections for holding a can-body with the ends projecting above and below said anvil, said clamping-sections reciprocating at right angles to the line of movement of the table, dies for engaging the ends of the can-body, to form the projecting ends into outwardly-extending flanges, and means for moving said dies simultaneously toward and from each other, to engage and disengage the can-body, as set forth.

15. A can-body-flanging machine having a reciprocating carriage, clamping-sections mounted to slide on said carriage at an angle to the movement of the carriage, said clamping-sections having guideways, blocks movable in said guideways, slides carrying said blocks, and toggle-levers for actuating said slides and imparting movement to said clamping-sections, as set forth.

16. In a can-body-flanging machine, a reciprocating table, can-body-clamping sections carried by the table and mounted to slide at right angles to the line of movement of the table, and operating means for the clamping-sections, said means being slidably connected with the clamping-sections, as and for the purpose set forth.

17. In a can-body-flanging machine, a reciprocating table, can-body-clamping sections carried by the table and having sliding movement at right angles to the line of movement

of the table, reciprocating slides for operating the clamping-sections, and a sliding connection between each of the said slides and the clamping-sections, as set forth.

18. In a can-body-flanging machine, a reciprocating table, can-body-clamping sections carried by the table and having sliding movement at right angles to the line of movement of said table, reciprocating slides, and blocks mounted to slide in the clamping-sections at right angles to the line of movement of said sections and with which the said slides are connected, as set forth.

19. In a can-body-flanging machine, a reciprocating table, can-body-clamping sections carried by the table and having movement at right angles to the line of movement of the table, slides, blocks mounted to slide in the clamping-sections at right angles to the line of movement of said sections and with which the said slides are connected, toggle-levers connected with the slides, and means for operating the toggle-levers, as set forth.

20. In a can-body-flanging machine, a reciprocating table provided with notches, a sliding bolt for engaging the notches of the table, a rock-shaft having arms, one of which engages the said bolt, and means for operating the rock-shaft, as set forth.

21. In a can-body-flanging machine, a reciprocating table, can-body-clamping sections carried by the table and having sliding movement at right angles to the line of movement of the table, reciprocating slides for operating the clamping-sections, one of the slides being slotted, a bolt for engaging the table to lock it stationary, a rock-shaft having an arm extending through the slot of the said slide and engaging the bolt, and means for operating the said rock-shaft, as set forth.

22. In a can-body-flanging machine, a feed device comprising a vertically-reciprocating support, and a bar mounted to slide horizontally in the lower end of said support and provided with projections for entering can-bodies, as set forth.

23. In a can-body-flanging machine, a vertically-sliding support, means connected with the upper end of said support for reciprocating it, a feed-bar provided with projections depending from the under face and mounted to slide horizontally in the lower end of the said support, and means connected with one end of the feed-bar for reciprocating it in the support, as set forth.

24. In a can-body-flanging machine, a die, a rod connected with the die, a sliding cross-head to which the rod is secured, and cams, one engaging the end of the rod and the other a lateral projection carried by the rod, as set forth.

25. In a can-body-flanging machine, a die, a sliding cross-head, a rod connected with the die and adjustably secured to the cross-head, said rod being provided with friction-rollers, one at its end and the other at its side, and cams with which the said friction-rollers engage, as set forth.

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

HENRY L. GUENTHER.

Witnesses:
JNO. D. MCGOWAN,
E. P. NOONAN.