

(No Model.)

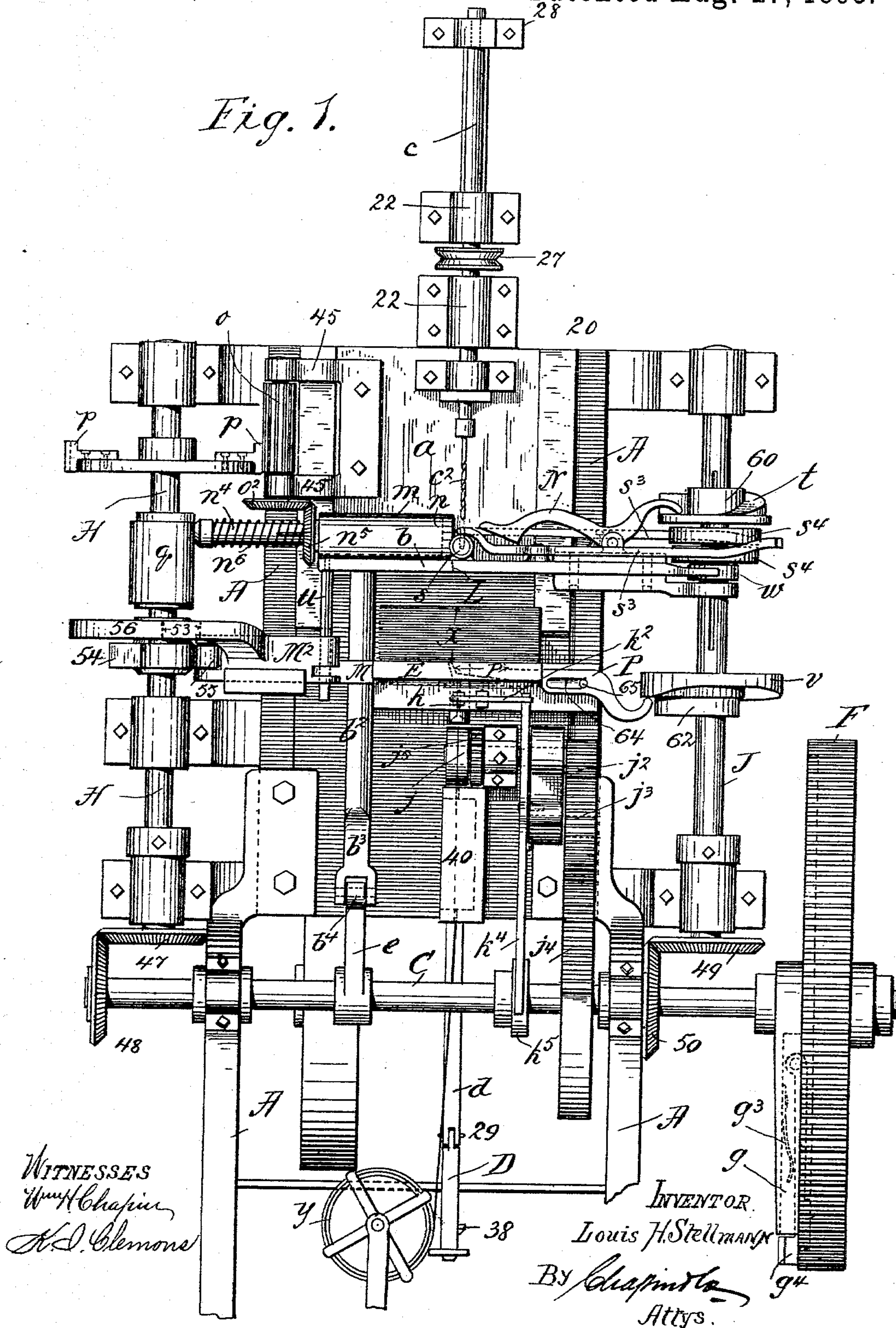
4 Sheets—Sheet 1.

L. H. STELLMANN.
MACHINE FOR WIRING PAPER PACKETS.

No. 545,419.

Patented Aug. 27, 1895.

Fig. 1.



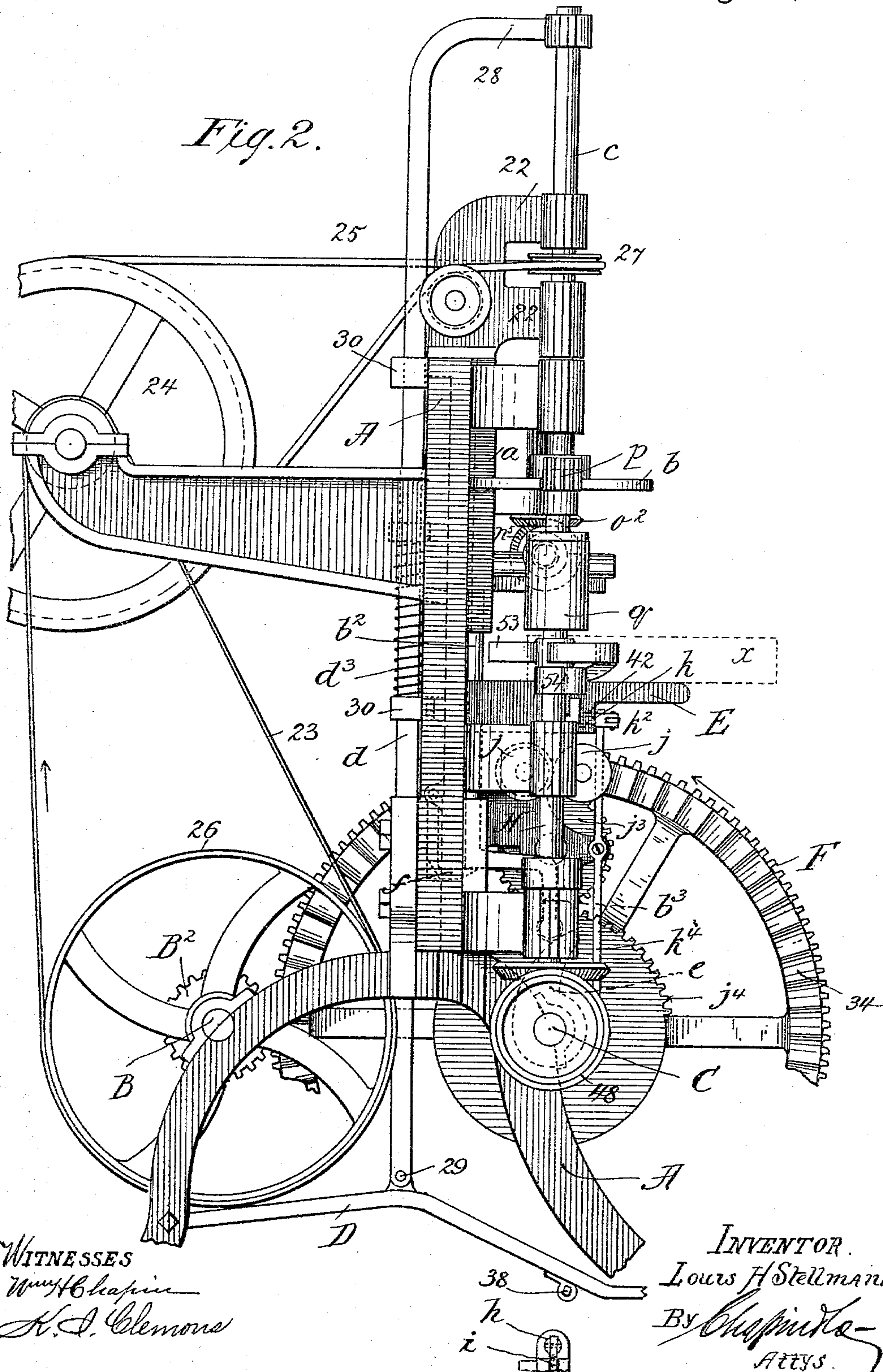
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4 Sheets—Sheet 2.

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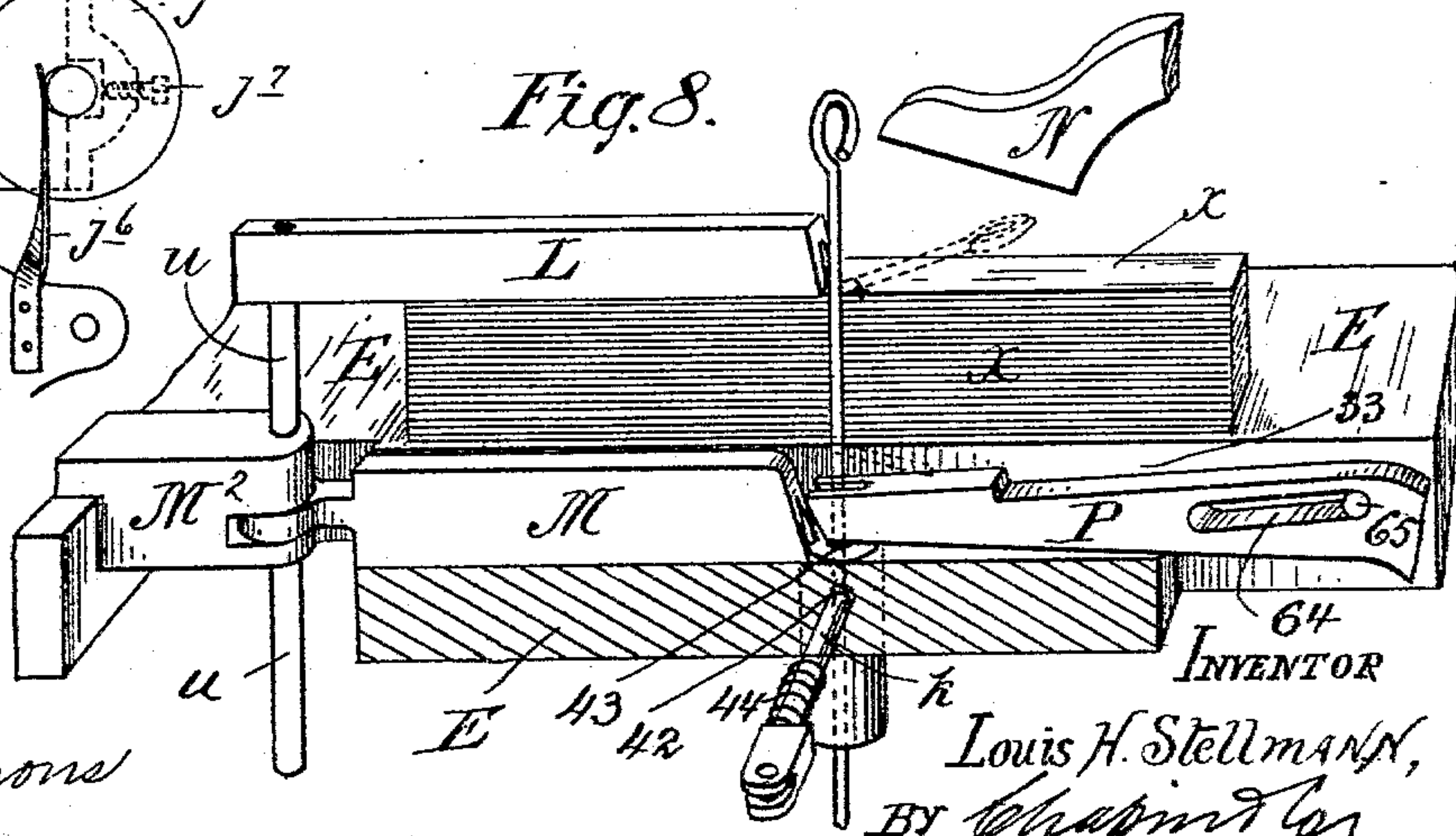
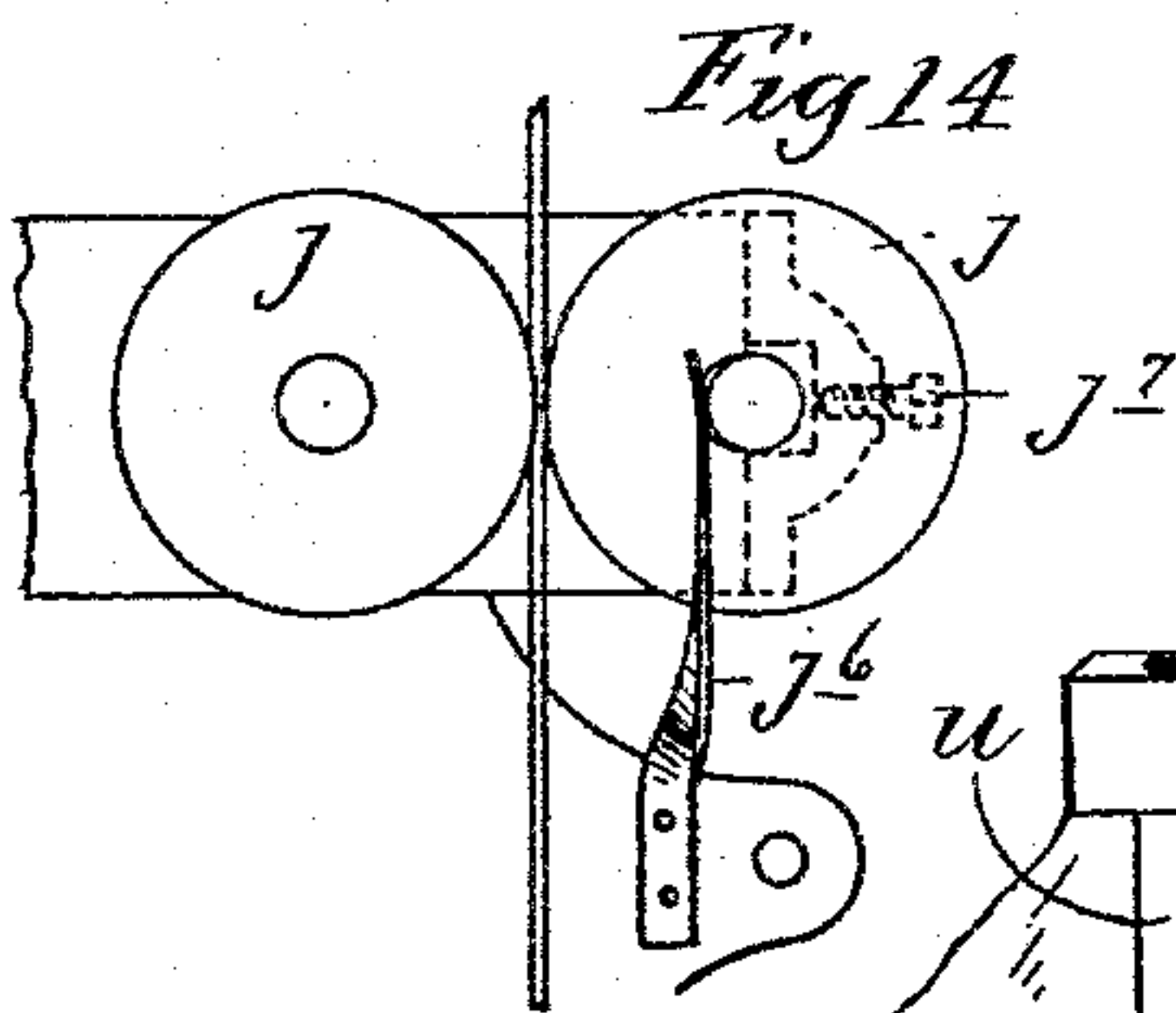
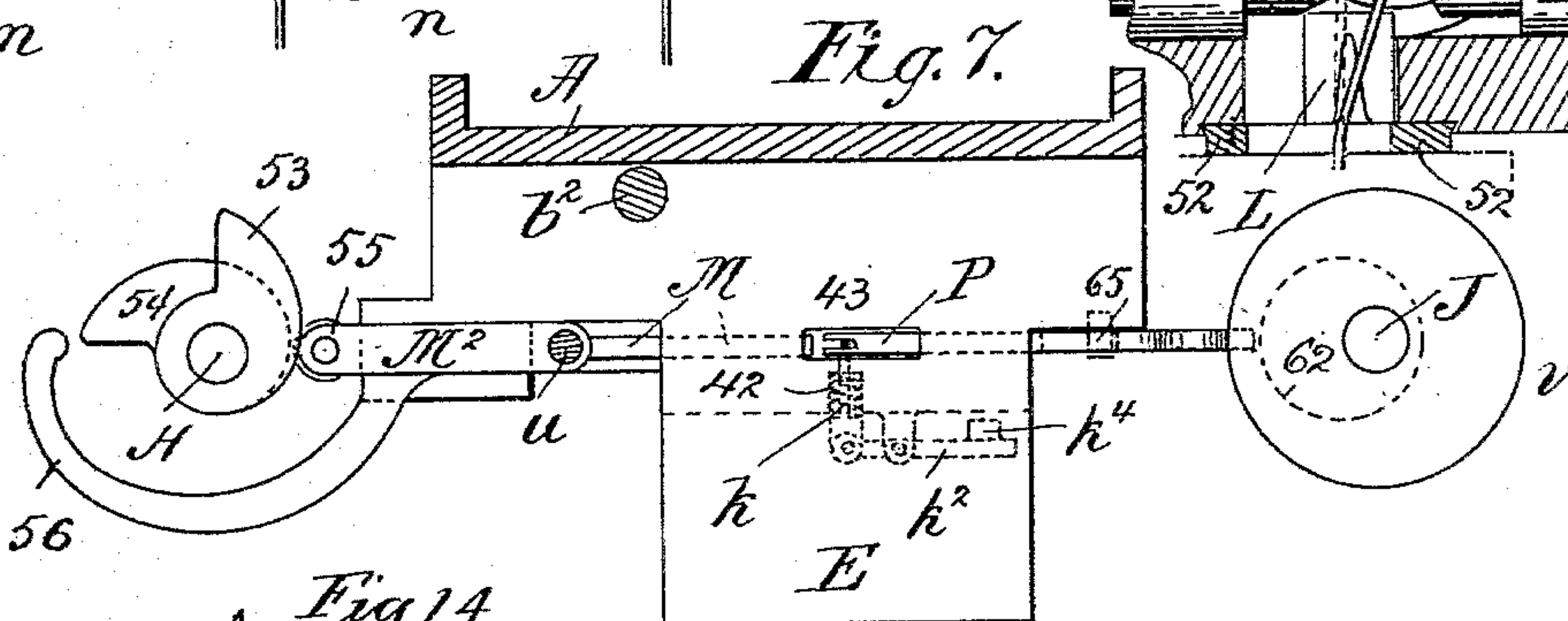
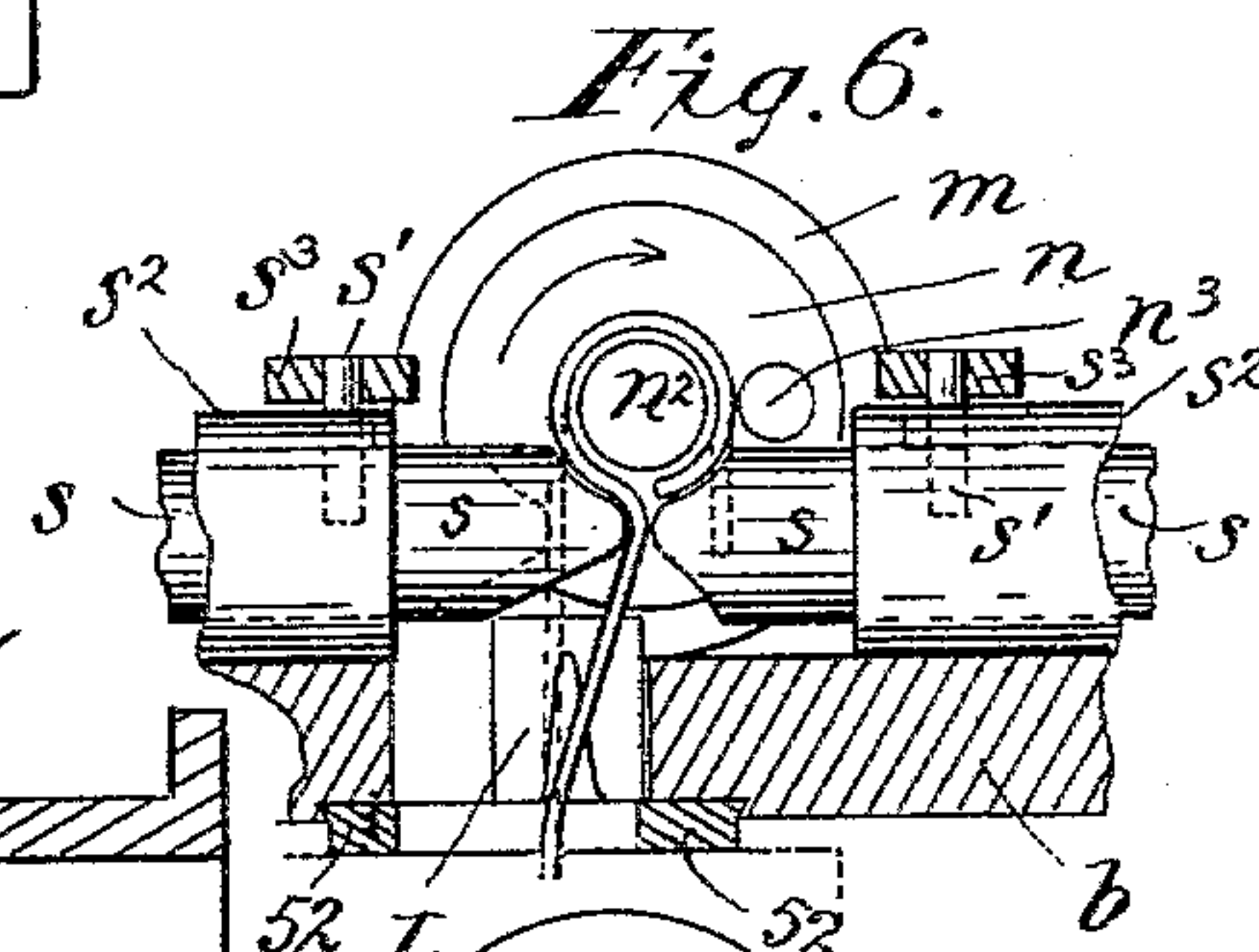
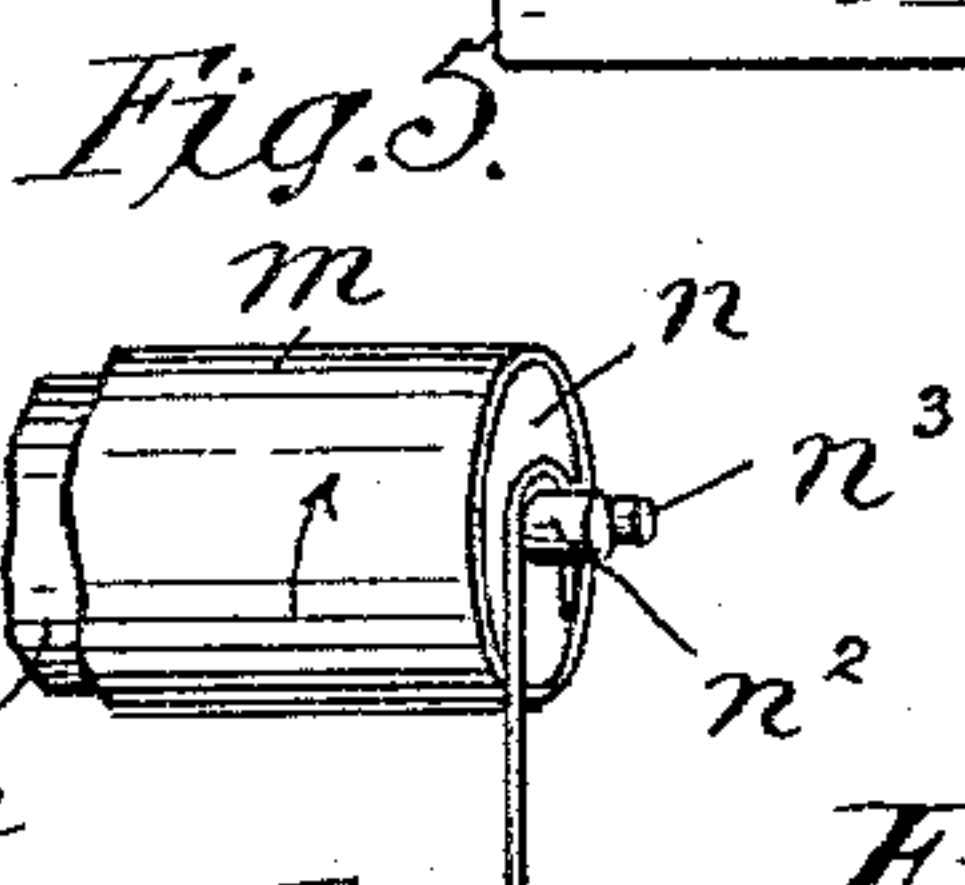
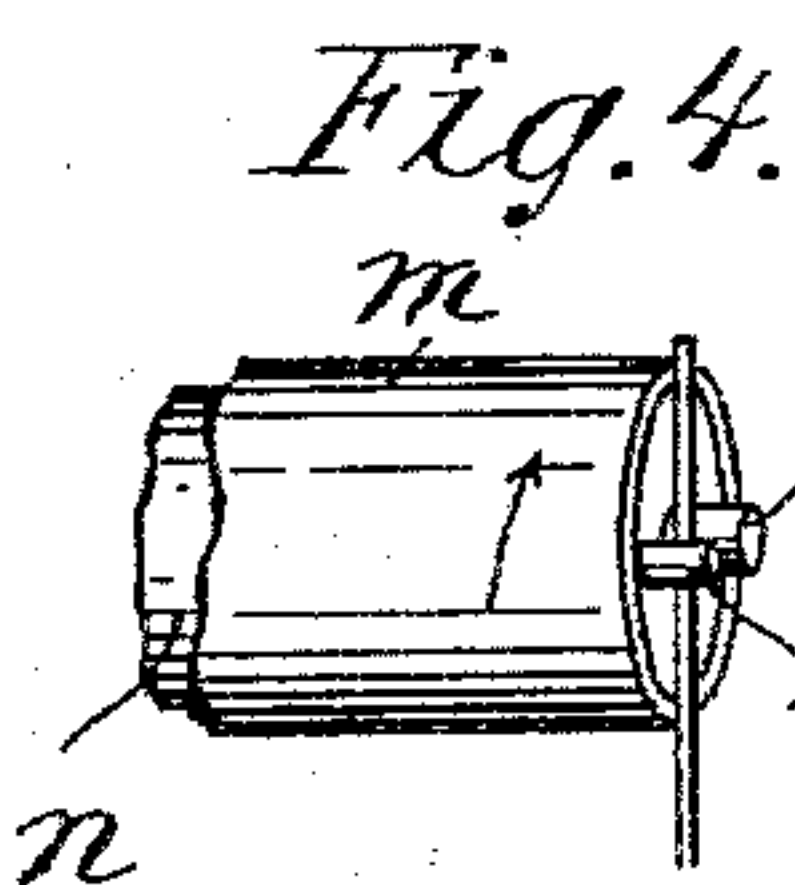
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4 Sheets—Sheet 3.

No. 545,419.

Patented Aug. 27, 1895.



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4 Sheets—Sheet 4.

No. 545,419.

Patented Aug. 27, 1895.

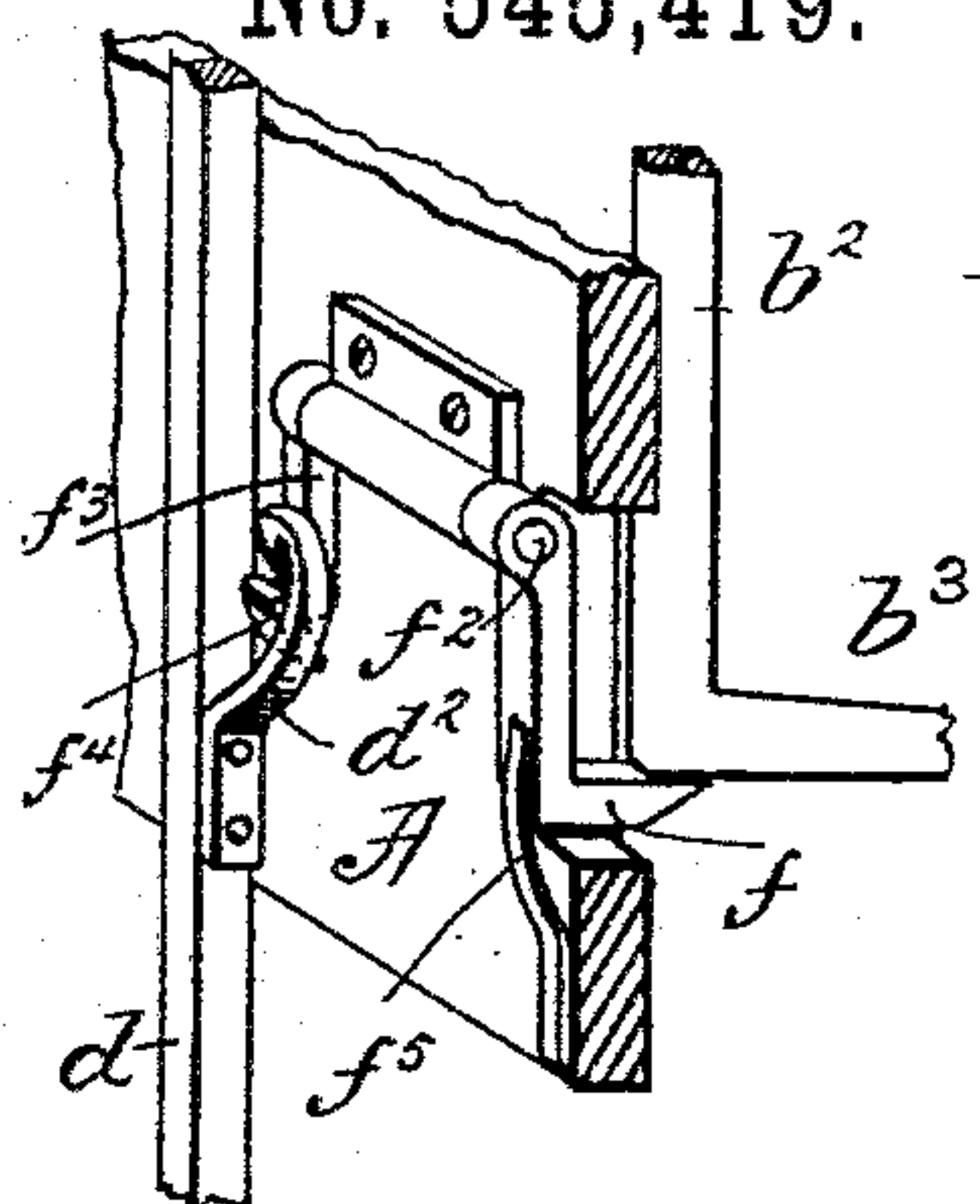


Fig. 10.

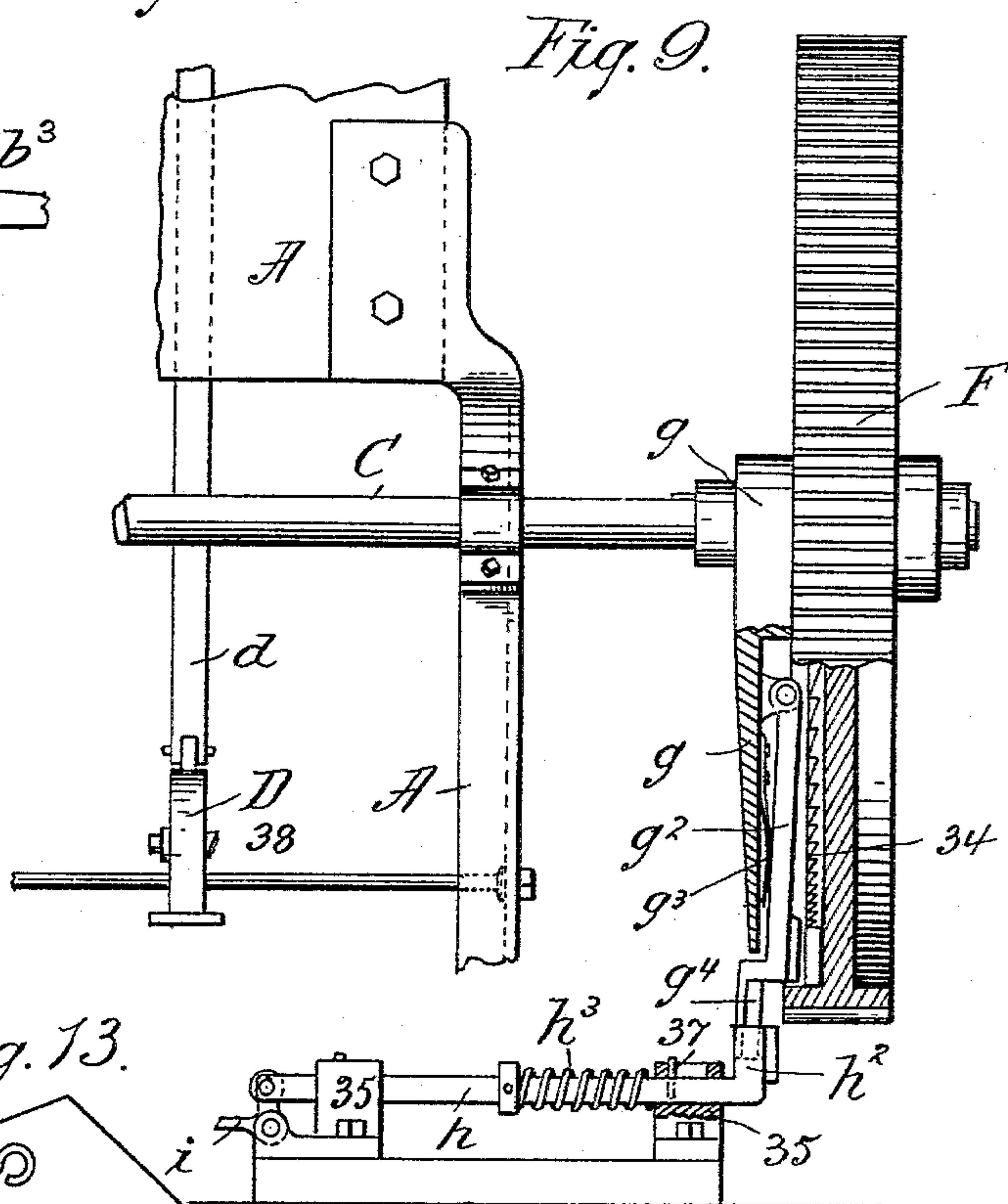


Fig. 9.

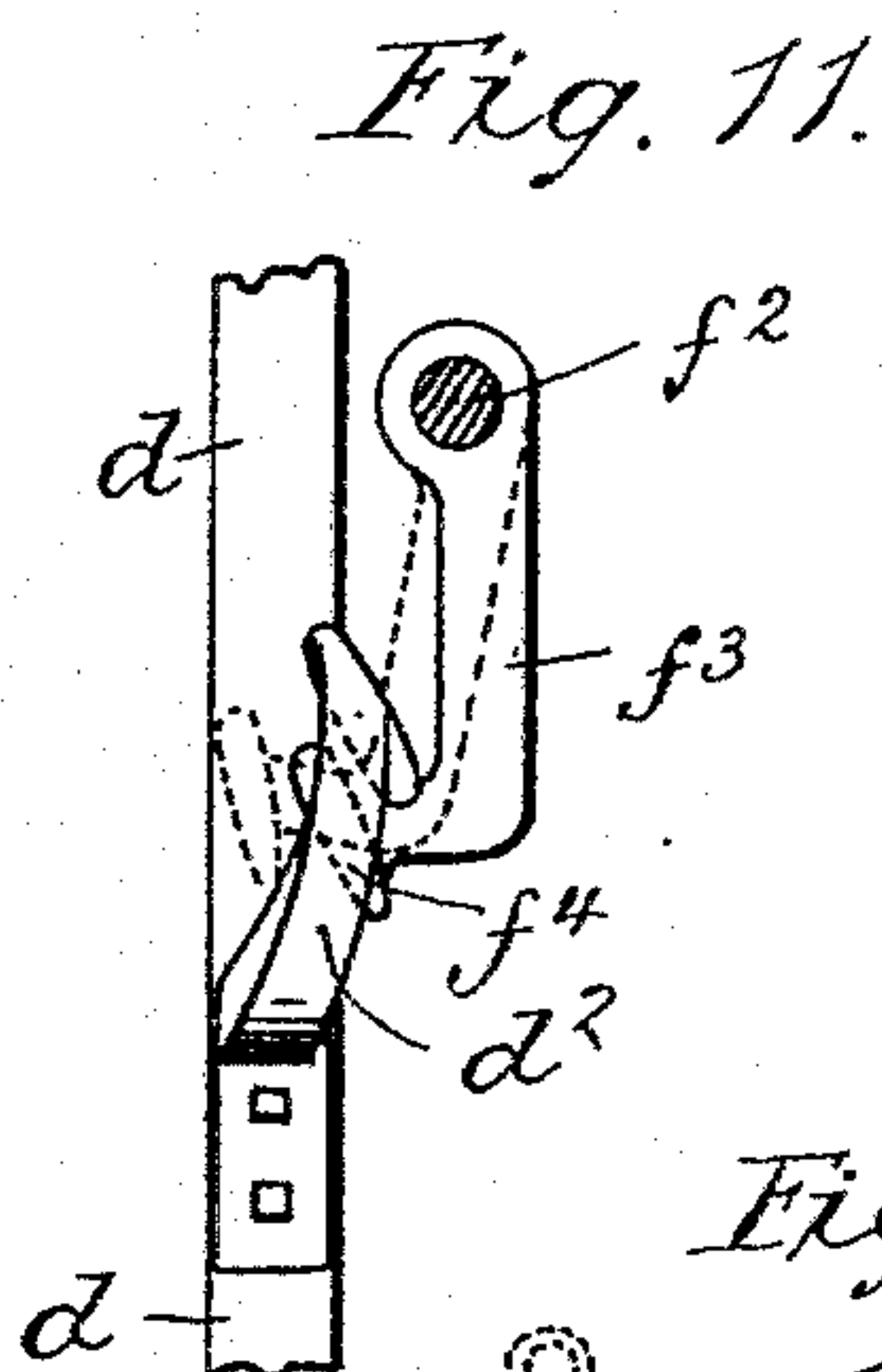


Fig. 11.

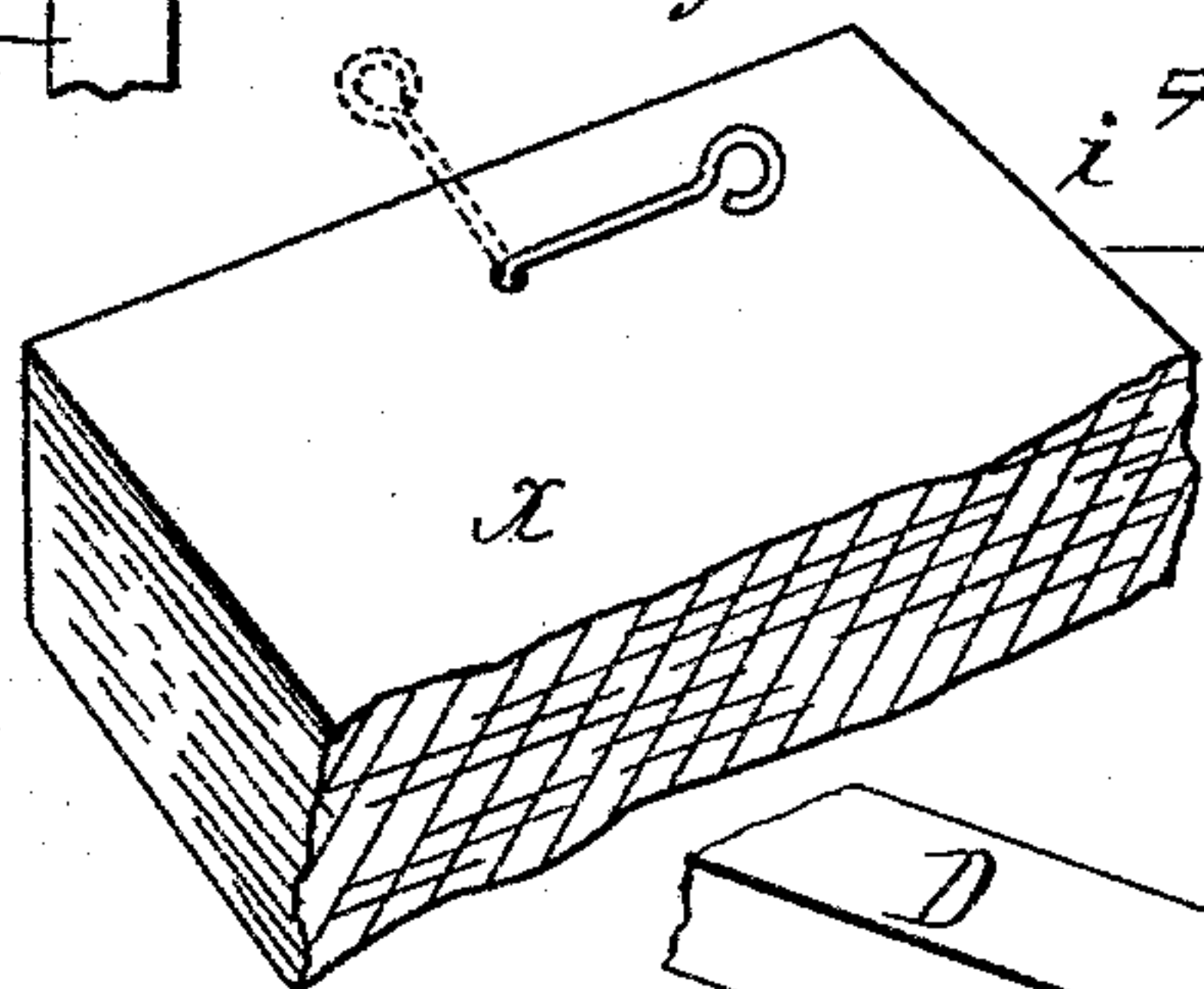


Fig. 13.

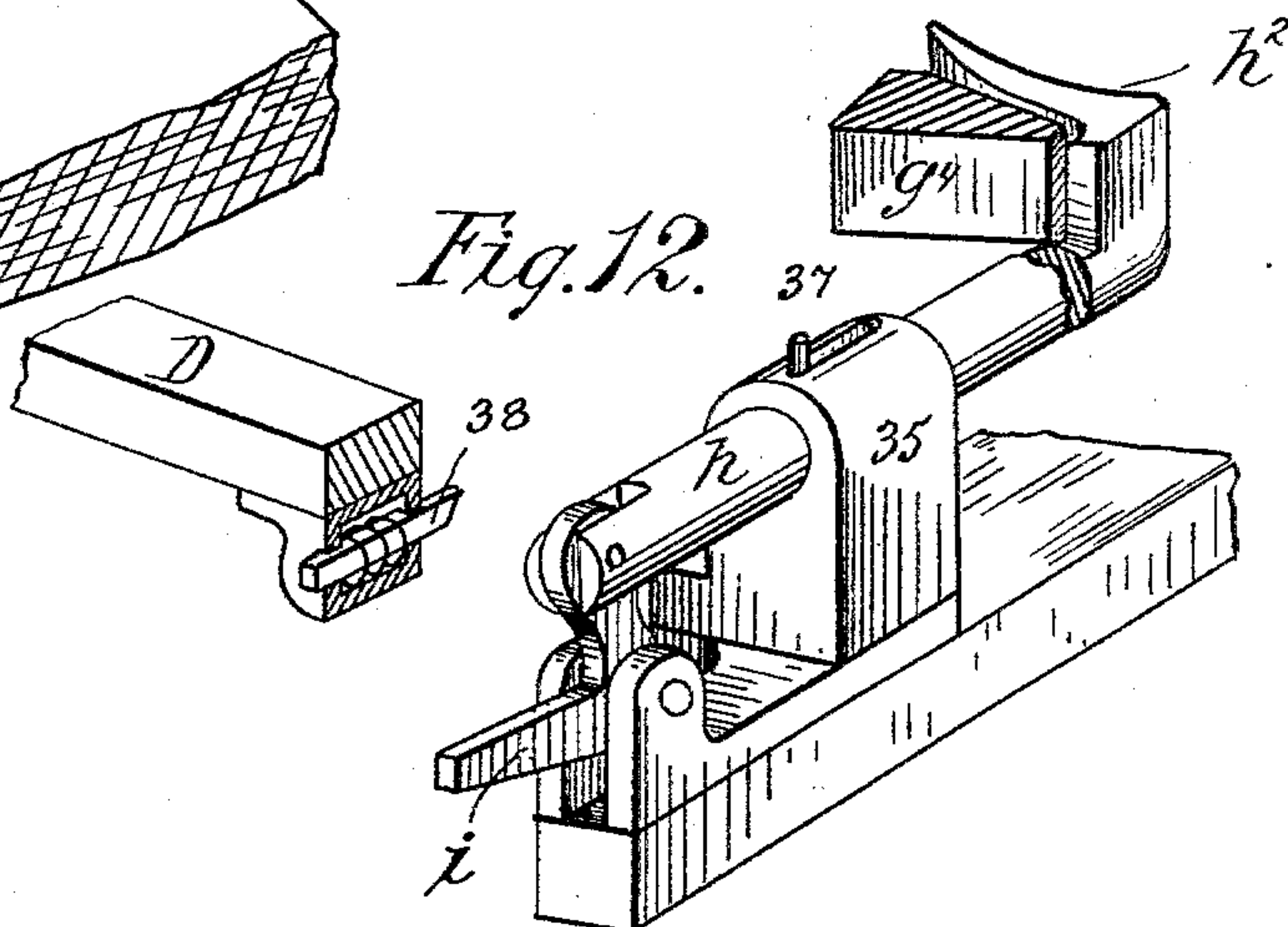


Fig. 12.

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UNITED STATES PATENT OFFICE.

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TWENTY-SEVEN FIFTIETHS TO FRANK J. HOLMAN, OF SAME PLACE,
AND CHARLES B. HOPKINS, OF HINSDALE, NEW HAMPSHIRE.

MACHINE FOR WIRING PAPER PACKETS.

SPECIFICATION forming part of Letters Patent No. 545,419, dated August 27, 1895.

Application filed February 23, 1895. Serial No. 539,325. (No model.)

To all whom it may concern:

Be it known that I, LOUIS H. STELLMANN, a citizen of the United States, residing at Brattleborough, in the county of Windham and State of Vermont, have invented new and useful Improvements in Machines for Wiring Paper Packets, of which the following is a specification.

The object of this invention is to produce a machine for applying upon layers or packets of toilet or other paper the suspension-wire therefor with great rapidity and in an entirely satisfactory manner; and the invention consists in constructions and combinations of parts, all substantially as will be hereinafter fully described, and set forth in the claims.

The machine which embodies the present improvements comprises mechanism for fulfilling functions as follows: for supporting and firmly holding the bundle or packet of paper, for drilling a hole through the packet, for introducing the wire through the perforation, for forming an eye in one extremity of the wire and for cutting off the wire at the opposite side of the packet, and for bending and pressing the eye-formed end, and also the other end of the wire, closely against the opposite sides of the packet.

In the drawings accompanying and forming part of this specification, Figure 1 is a front elevation of the paper-wiring machine. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the mechanism comprised in the upper part of the machine. Figs. 4 and 5 are perspective views of parts comprised in the eye-forming mechanism. Fig. 6 is a vertical cross-sectional and partial elevation on a larger scale of the eye-forming mechanism, as seen about on the line 6 6, Fig. 3, looking to the left. Fig. 7 is substantially a plan view of the mechanism which cuts off the wire (after the same has been entered through the perforation in the bundle of paper) and bends the extremities thereof down upon the faces of the bundle. In this view is also shown a device which holds the wire, which runs from the supply-reel, at a place adjacent the point of the cutting off thereof. Fig. 8 is a perspective view of the

portions of the last-mentioned devices which directly act upon the wire. Fig. 9 is a front elevation, with parts in section, of the treadle-operated starting and automatic stopping mechanism. Fig. 10 is a perspective view of detail parts comprised in the last-mentioned mechanism. Fig. 11 is a view showing details of construction of parts seen in Fig. 10. Fig. 12 is a perspective and sectional view of parts of the operating device for starting automatically and stopping the machine, to be hereinafter more particularly referred to. Fig. 13 is a perspective representation of the wired packet. Fig. 14 is a view of the wire-feed rolls.

Similar characters of reference indicate corresponding parts in all the views.

The machine comprises a suitably-designed upright frame, which affords supports for the various parts and mechanisms.

B is the main shaft, and C is a counter-shaft. The main shaft is continuously rotated, and the counter-shaft has its rotation intermittently imparted thereto for each wiring operation and as controlled by the operator through the treadle D. The frame has about midway of its height the forwardly-extended table E, on which the bundle of paper (indicated by *x*) is placed. The front of the upright of the framing A is formed with the slideway 20, in which is the slide *a*, having formed thereon or affixed thereto a forwardly-extended shelf-like part *b*, which will be hereinafter termed the "upper table."

The framing comprises forwardly-extended members 22 22, having vertically-bored hubs to constitute journal-bearings for the vertical drill-spindle *c*, carrying the drill *c*² at its lower end. The drill-spindle has its rotary movement imparted to it by the driving connections, of a manifest character, (indicated by 23, 24, and 25,) between the pulley 26 on the main shaft B and the pulley 27 of the drill-spindle. The drill-spindle is vertically movable and has its movement imparted by being hung at its upper end to rotate in and yet have no axial movement relative to the forwardly-extended arm 28 of the bar *d*. This bar extends from above the frame of the machine to a point near the floor, at which it is, as seen

at 29, pivotally connected to the treadle D. Suitable straps or guides 30 are provided at the back of the frame for the constraint, within its proper course, of this vertically-reciprocatory bar. The upper table b has the depending post b^2 , with the forwardly-extending member b^3 , which is provided with the roller-stud b^4 thereon, that is subject to the impingement of the elevating-cam e on the intermittently-rotating counter-shaft C. The upper table, lifted by the elevating-cam e , is, preparatory to the placing of the bundle of paper x upon the main table E, held elevated by the latch f , the toe of which extends under and in suitable supporting engagement with an angularly-bent part of the post b^2 . The latch f is mounted on the rock-shaft f^2 , which is supported for its rocking movement on the rear side of the framing, as seen in Fig. 10, and has the depending arm f^3 , with the offset inclined or cam projection f^4 , which is adjacent the aforesaid bar d . The bar d has thereon an arm d^2 , which coacts with the cam projection f^4 on the descent of the bar d to swing the arm f^3 in a rearward direction to cause the rocking of the shaft f^2 and the swinging of the latch f against its spring f^5 to permit the upper table b to fall by gravity. The weight of the upper table and of the mechanisms supported thereby is so great as to firmly clamp the bundle of paper between it and the lower main table E. The upper table is suitably apertured, as seen in Fig. 3, to permit the passage of the drill c^2 through it, so as to bore through the bundle of paper, and the lower table E is suitably channeled or grooved, as seen at 33, Fig. 8, so that the point of the drill, after passing through the paper, will not be injured by contact with any metallic part.

It is to be understood from the foregoing that soon after the commencement of the depression of the treadle to move the bar d downwardly, and with it the drill, the upper table is unlatched and in practice falls somewhat faster than the foot-pressure and movement of bar d and the drill, so that before the point of the drill reaches the bundle of paper the latter is clamped. The foot-treadle having been fully depressed and the pressure thereon released, the treadle and bar d are elevated to their original position because of the reaction of the comparatively powerful spiral spring d^3 , applied in an obvious manner, as seen in Fig. 2. After the treadle is depressed as aforesaid and as it and the drill resume their elevated positions the machinery, driven by the counter-shaft C, is started by reason of the throwing into clutch of the constantly-rotating gear-wheel F with the countershaft C, on which shaft the said gear is loose and constantly driven by the pinion B², Fig. 2, on the main shaft B.

The clutching devices are seen to consist in parts and features as follows: The said constantly-rotating gear F has on its inner face the ratchet-like clutch-teeth 34. The

counter-shaft C has keyed thereon the radial extended arm g , on the face of which toward the clutch-teeth of the gear-wheel F is pivotally mounted the dog g^2 , having the spring g^3 applied thereto to exert the reaction thereon to throw the said dog into clutch. The dog has at its lower end the angular and offset depending projection g^4 , with the beveled side, in engagement with which is the upstanding cam-lug h^2 of the bar h , which has a certain degree of horizontal sliding movement in bearings 35 therefor supported on the floor adjacent the plane of vertical movement of the treadle D. (See Figs. 9 and 12.) The spring h^3 maintains the bar h normally in its position for impingement, (seen in Fig. 9,) and the pin and slot seen at 37 prevent the bar from having any rotational movement. The bar has connected to its end which is toward the treadle the angular lever i . The treadle has the spring pawl or latch 38, which recedes as the treadle is depressed, so as to snap under the horizontal arm of the angular lever. Therefore as the pawl 38 on its upward movement swings lever i , bar h is moved to carry its cam projection h^2 from its restraining engagement with the clutch-dog g^2 , whereupon the spring g^3 of the latter will throw the dog into clutch with the wheel F, and whereupon the arm g and the clutch-dog immediately take up their motion of revolution and are carried past the position of part h^2 before the latter has been, by the spring h^3 , snapped back to its original position. Thus the clutch-dog g^2 will remain in clutch with gear-wheel F during substantially a whole revolution, and of course the counter-shaft will have imparted thereto a complete rotation. Now, as the revolution of the arm g and the dog g^2 is completed the part g^4 of the dog impinges against the upstanding cam-lug h^2 of the slide-bar h and the parts are unclutched, so remaining until the treadle shall have been again depressed and permitted to return to its normal elevated position.

The mechanisms dependent for their actuation upon the counter-shaft C are the feed-motion for introducing the wire through the hole drilled in the bundle of paper and a device for temporarily holding the wire after it has been bent up, the mechanism which forms the eye in the upper end of the wire, that for cutting off the wire below the under side of the bundle, and the mechanisms for pressing the end portions of the wire against the faces of the bundle, and these mechanisms will be now described in the succession named. The wire is carried on the reel beneath the machine, as seen at y , and thence has its free end carried upwardly through the straightening-box 40, concerning which no novelty is claimed, as the straightening-box is of a construction commonly employed in various machines for manipulating wire. Above the straightening-box and below the main table are the two axially-horizontal wire-feed rolls $j j$, their contacting faces being coincident

with the line of the drill. One of the feed-rolls j has its arbor provided with the pinion j^2 , in mesh with which is the spur-gear j^3 , intermediate between it and the mutilated gear j^4 , which is fast on the counter-shaft C. The feed-rolls $j j$ are geared the one to the other, so as to rotate in unison, which gearing is in a manner indicated in Fig. 1 at j^5 . The number of teeth comprised in the mutilated gear (which may be interchangeable or have an interchangeable toothed rim) accord with the length or amount of upfeed of the wire for differing requirements occasioned by varying thicknesses of the packets.

Noting Figs. 7 and 8, in connection with Figs. 1 and 2 of the drawings, it will be perceived that the table E has under the forwardly-projecting shelf-like portion thereof the horizontal perforation 42, which transversely penetrates the said portion of the table to intersect the aperture 43, through which the wire is upwardly passed. The stud or finger k is fitted to freely move within its perforation 42, having the spring 44 applied thereto to force it outwardly. To the outer end of this finger k is pivotally connected the intermediately-pivoted lever k^2 , the swinging movement of which is in a horizontal plane, and this lever is connected to the vertical intermediately-pivoted lever k^4 , which has its lower end in operative proximity to the cam k^5 on the counter-shaft C, all whereby, by the form and adjustment or timing of the cam, the finger k will be pressed against the wire and there held during the remaining operations to be performed by the machine and until the next upfeed of the wire is to take place. The spring 44 throws the finger into its position of release when the cam recedes to permit.

Describing the eye-forming mechanism, it will be perceived that the vertically-reciprocatory upper table b , which is as a part of the slide a , has thereon the endwise-open cylindrical case m , which constitutes a journal-bearing for a cylinder n , which rotates and also has an axial movement therein and which has at its end nearer the line of the wire-feed the two studs, one (n^2) extending as a continuation of the axis of the cylinder and the other (n^3) extending parallel therewith, but having its location at a point eccentrically of the axis. (See Figs. 4, 5, and 6.) This intermittently rotary and endwise-movable cylinder n has the extension-spindle n^4 , which is splined through the bevel-pinion n^5 , for which suitable bearings are provided at the outer end of the cylindrical case m . The slide a has the brackets 45, which are outwardly and forwardly extended, whereby to provide journal-supports for the gudgeons of the axially-vertical and quite long spur pinion-wheel o . This pinion has as a fixture thereof the bevel-pinion o^2 , in mesh with the pinion n^5 .

Now, at the left of the machine, Fig. 1 and also Fig. 2, is a vertically-journaled shaft H, having at its bottom the bevel-gear 47, which

is in mesh with the bevel-gear 48 on the counter-shaft, whereby the vertical shaft H derives its intermittent rotations by reason of and in conjunction with the counter-shaft, and toward the upper end of this shaft H are supported thereupon the diametrically-opposing sector-gears $p p$, which may, as the shaft H rotates, be brought into mesh with the long pinion o . The end of the spindle extension n^4 of the cylinder n is maintained by the spring n^5 in contact against the cam or eccentric q on the shaft H. Now it will be explained that when the wire is fed up through and above the bundle of paper and the upper extremity thereof projects through the aperture (indicated in black at b^5 in Fig. 3) in the upper table b and assumes a position between the studs n^2 and n^3 of the cylinder, which parts are in their inward projection and in the positions relative to the wire seen in Fig. 4, as the shaft H rotates one of the sector-gears p causes a partial rotation of the cylinder n , whereby the eccentric stud n^3 describes half a revolution and stops, while the shaft H and the sectors continue their movements. This makes a crook or return-bend in the upper end of the wire, as seen in Fig. 5, accomplishing a part of the eye-forming operation. The eye is closed and brought to the form seen in Figs. 6 and 8 by the followers $s s$, arranged endwise and at right angles to the length of the cylinder n and with their axes, which are coincident, slightly below the axis of cylinder n and its stud n^2 . The ends of the followers $s s$ are convergent and curved or rounded, as seen in Fig. 6. The followers have their approaching and separating sliding movements in the cases s^2 therefor, which are on the vertically-movable upper table b . The movements are imparted to these followers by the swinging of the lever-arms $s^3 s^3$ (which are connected to the followers by the studs s' , which pass through the slots s^6 in the cases s^2) and by the actuating-cams $s^4 s^4$ and the retracting-spring s^5 . The said levers $s^3 s^3$ are pivoted for their swinging movements in horizontal planes upon a part or extension of the upper table b . The cams $s^4 s^4$, as also the cam t , shortly to be mentioned, are spline-engaged on the vertical shaft J, so that they may have their rising and falling movements in conjunction with the upper table. Said shaft J receives its rotation intermittently by being, through means of bevel-gears 49 and 50, connected with the counter-shaft. The followers $s s$, having completed the eye in the upper end of the wire, while the same remains upon the stud n^2 of the cylinder n , which stud at this time is stationary, retreat in opposite directions. While the upper table still remains in its position of clamping upon the bundle of paper x the slides L and M have imparted to them their movements horizontally inward across the line of the wire, the lower one M acting as a shear, in conjunction with the upper surface of the table E, on which it slides, to cut off the wire and also to

bend the portion of the wire which protrudes below the bundle angularly to the portion which penetrates the bundle, and the upper slide L acting to overturn the upwardly-protruding portion of the wire comprising the eye also downwardly into proximity to the upper face of the bundle, all as indicated in Fig. 8. It will be perceived in Fig. 8 that the portion of the working end of the slide M at its base, which constitutes the shear, is slightly in advance of the part which strikes the wire above the point at which it is severed. The upper slide L slides in a way or aperture in the bottom of the upper table *b* and is supported by the apertured plate 52. (Seen in Fig. 6.) The slides L and M have their movements to overturn the wire, as stated, by means of the cams 53 and 54, secured in different planes on the shaft H, and which operate to impart reciprocatory movements to the part M² (which may be regarded as a part of the slide) by contact with the members 55 and 56 of said part M². (See Figs. 1 and 7.) In order that the slide L may be slid in connection with the aforesaid sliding parts M M² and yet be moved bodily vertically with the upper table, the slide L has affixed thereto the sufficiently-long depending dowel or rod *w*, which has a close sliding fit through the hole provided therefor vertically in the said part M².

The final operations performed on the overturned extremities of the wire—viz., the pressing thereof closely against the upper and lower faces of the bundle—are accomplished by the pressers N and P. The upper presser N is pivoted on a sliding base N² on the upper table, while the lower presser P is fulcrumed in the aforementioned aperture 33 (seen in Fig. 8) within the thickness of the main table E. The pressing extremity of the part N is enabled to reach the bundle of paper, or the overturned wire lying adjacent thereto, by being downturned to pass through the aperture 65 in the upper table. The pressing swinging movements are imparted to the pressers by the helical or similarly-inclined faces of the cam *t* (which, as aforementioned, is splined on the shaft J) and of the cam *v*, which is fixed on said shaft J. In order that these pressers may be caused to reach inwardly as far as the line of the perforation through the paper, so as to have their bearings on the whole of the overturned portions of the wire, and yet without being in the way of or interfering with the operation of the slides L and M at the time that the wire is being sheared and overturned, the pressers, in addition to their swinging movements on their fulcrums, have imparted to them endwise reciprocatory movements by the impingements against the ends thereof of the peripheral portions 60 and 62 of the cams *t* and *v*, which, as will be perceived, are double cams. The upper presser N moves on its slide N², and is retracted by the spring 63. The lower presser is slotted, as seen at 64, whereby it may slide on its fulcrum-stud 65, the latter being as a forward

projection of a part of the table. This presser P, after it has been inwardly forced by the peripheral part 62 of cam *v*, is retracted by the abutment against its end of the shearing-slide M. It will be here mentioned that the cylinder *n* has in good time receded endwise outwardly within the case *m* therefor, as permitted by the cam *q*, and before the counter-shaft C is automatically thrown out of clutch. The second sector-gear has been, therefore, brought around to mesh with the long pinion *o*, so as to bring the stud *n*³ at the forward side of the stud *n*² in readiness to properly receive between these two studs the next length of wire which is to be upfed through the next bundle placed in the machine to be wired. This meshing of the second sector-gear may be after the elevation of the upper table *b*, as seen in Fig. 1. It will be explained that as the upper table moves upwardly the cams *s*⁴ *s*⁴ and *t* have their upward movements on the splined shaft J by the lifting yoke or collar *w*, movable as a part of the upper table. The weight of these said cams may be relied upon to insure their descent with the upper table. Were the gravity not sufficient, the outer end of the presser-lever N, which overlies cam *t*, would assist or positively effect the carrying down of the cams on the shaft in unison with the descending movement of the table.

In practice, in the operation of this machine the wire-feed rollers *j*, *j* have such degree only of pressure on the wire that as soon as the upper end of the wire is brought against the under side of the working end of the presser N (which at this time has its position across the line of feed) the presser will act as a positive stop for the wire, and the feed-rolls, while they may still have more or less rotational movements, will slip on the wire. One of the feed-rolls is set in a fixed journal-box, while the other has a movable journal with a spring *j*⁶ for forcing the roll away from its fellow. The screw *j*⁷ is applied as a stop to limit this degree of separation. The screw is adjusted with reference to the diameter of the wire, so that it will merely impart the upfeed of the wire thereto until extra resistance is imposed by the stop.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for wiring paper packets, in combination, a support and clamp for the packet, mechanism for perforating the packet whereby the wire may be introduced there-through, devices for forming the eye in one extremity of the wire, and means for overturning an extremity of the wire in proximity to the face of the packet, substantially as described.

2. In a machine for wiring paper packets, in combination, a support and clamp for the packet, mechanism for perforating the packet, means for feeding the wire through the perforation, devices for forming the eye in one

extremity of the wire, a shear for cutting off the wire from the length running from the supply, and means for overturning an extremity of the wire in proximity to the face of the packet, substantially as described.

3. In a machine for wiring paper packets, a support and clamp for the packet, and mechanism for perforating the packet, a feed motion for introducing the wire through the perforation, mechanism for forming a loop in one end of the wire, a mechanism for cutting off the wire from the length running from the supply, and devices for overturning both of the extremities of the wire and pressing them closely against the opposite sides of the packet, substantially as described.

4. In a machine for wiring paper packets, in combination, a support and clamp for the packet, and mechanism for perforating the packet, a feed motion for introducing the wire through the perforation, mechanism for forming a loop in one end of the wire, a mechanism for temporarily confining the wire at a point between its place of severing and the supply, a mechanism for cutting off the wire from the length running from the supply, and devices for overturning both of the extremities of the wire and pressing them closely against the opposite sides of the packet, substantially as described.

5. In a machine for wiring paper packets, in combination, a supporting table and clamp for the packet, mechanism for perforating the packet, a mechanism for feeding the wire through the perforation in the packet, an intermittently operating wire-confining device, and devices for forming an eye in one extremity of the fed wire, substantially as described.

6. In a machine for wiring paper packets, the combination with a shaft, table, the reciprocatory clamp-table, *b*, and a latch therefor, a wheel continuously loosely rotatable upon said shaft, and having clutch-teeth, a clutching dog carried by and revolving with said shaft, and a device for restraining the dog from clutching, of a treadle adapted to release the upper table to descend upon and clamp the packet, and to operate the clutch-restraining device for permitting the engagement of the clutch-dog with the said wheel whereby the shaft will be rotated and the eye-forming and wire-bending devices which are primarily operated by said shaft, will be actuated, substantially as described.

7. In a machine for wiring paper packets, the combination with the means for supporting and clamping the packet, and the vertical bar, *d*, carrying the vertical drill-spindle and having connection at its lower end with the treadle, *D*, which is provided therefor and which has the spring-pawl, 38, of the shaft, *C*, having the arm, *g*, fixed thereon and having the continuously running wheel, *F*, loose thereon, the clutch-dog movably mounted on the said arm and having a spring for throwing it into clutch, a device normally restraining said dog from clutching and operated by

the pawl on the treadle to release the dog to clutch upon the upwardly returning movement of the treadle, substantially as described.

8. In a machine for wiring paper packets, in combination, the counter-shaft, *C*, having the arm, *g*, fixed thereon and the continuously running wheel, *F*—loose thereon,—which is provided with clutch teeth, the dog, *g*², pivoted on the arm, *g*, and having the offset depending projection, *g*⁴, the sliding bar, *h*, having the cam projection, *h*², and the retracting spring, *h*³, for said bar, the angular lever, *i*, having one arm connected to said bar, *h*, and the treadle having the pawl, 38, which is adapted to trip said angular lever, *i*, substantially as and for the purposes set forth.

9. In a machine for wiring paper packets, in combination, the main table, *E*, and the upper vertically movable gravity table, *b*, having the depending post, *b*², the latch, *f*, for engaging said depending post for temporarily supporting the table, the treadle-operated reciprocatory bar, *d*, which operates the said latch and the cam, *e*, for elevating the said post and table, substantially as and for the purpose set forth.

10. In a machine for wiring paper packets, the combination with the post, *b*², depending below the upper, movable, table, *b*, of the rock-shaft, *f*², having the angular arm, which constitutes the latch, *f*, and having the second arm, *f*³, with the inclined projection, *f*⁴, the spring, *f*⁵, and the treadle-operated bar, *d*, provided with the arm, *d*², which has a portion thereof to impinge against the said incline, *f*⁴, substantially as and for the purpose set forth.

11. In a machine for wiring paper packets, in combination, the driving-shaft, *B*, and the counter-shaft, *C*, a pinion, *B*², fixed on the driving-shaft and the gear-wheel, *F*,—which has the clutch-teeth, 34,—loose on the counter-shaft, a clutch-dog carried by the counter-shaft and adapted to clutch the wheel, *F*, a device for restraining the dog from clutching and a spring for pressing the dog to clutch, the movable upper table, *b*, and a latch therefor, and the fixed main table, *E*, the bar, *d*, carrying the drill spindle and operative to control the latching device for the upper table, a treadle having a connection with said bar, *d*, and having a pawl, 38, to move said clutch-dog-restraining-device, and means for duly returning the upper table to its elevated position, substantially as described.

12. In a machine for wiring paper packets, the combination with means for supporting, clamping, and perforating the packet, and a mechanism for feeding the wire through the perforation in the packet, of the rotary cylinder, *n*, having on its end the axial and eccentric studs, *n*², *n*³, between which the extremity of the fed wire protrudes, and means for imparting, intermittently, rotational movements to the cylinder whereby the eccentric stud revolves about the axial one, substantially as and for the purpose set forth.

13. In a machine for wiring paper packets, the combination with means for supporting, clamping, and perforating the packet, and a mechanism for feeding the wire through the perforation in the packet of the endwise reciprocatory, rotary cylinder, n , having on its end the axial and eccentric studs, n^2, n^3 , between which the extremity of the fed wire protrudes, means for imparting, intermittently, rotational movements to the cylinder whereby the eccentric stud revolves about the axial one, and also means for imparting, periodically, to the cylinder an endwise movement, substantially as and for the purpose set forth.
14. In a machine for wiring paper packets, the combination with means for supporting, clamping and perforating the packet, and a wire feed motion, of the rotary cylinder, n , having on its end the axial and eccentric studs, n^2, n^3 , between which the extremity of the wire protrudes, means for imparting, intermittently, rotational movements to the cylinder, and the followers, s, s , movable at right angles to and at opposite sides of the axis of the cylinder, and in a line adjacent the end thereof, and means for imparting to them reciprocatory movements, substantially as and for the purposes set forth.
15. In a machine for wiring paper packets, the combination with the main table, E , and the vertically reciprocatory upper table, b , and means for operating it, drilling mechanism for the packet and a wire feed motion, of the rotary cylinder, n , mounted on and bodily movable with the upper table, and having on its end the axial and eccentric studs, n^2, n^3 , between which the extremity of the fed-up wire protrudes, and means for imparting, intermittently, rotational movements to the cylinder, whereby the eccentric stud revolves about the axial stud, all substantially as described.
16. In a machine for wiring paper packets, the combination with the main table, E , and the vertical reciprocatory upper table, b , and means for operating it, a mechanism for perforating the packet and a wire feed motion, of the rotary cylinder, n , mounted on and bodily movable with the upper table, and having on its end the axial and eccentric studs, n^2, n^3 , means for imparting, intermittently, rotational movements to the cylinder, the followers, s, s , also mounted on the upper table, movable at right angles to and at opposite sides of the axis of the cylinder, and in a line adjacent the end thereof, and means for imparting duly to them their reciprocatory movements, substantially as and for the purposes set forth.
17. In a machine for wiring paper packets, the combination with the main table, E , and the vertically reciprocatory upper table, b , and means for operating it, mechanism for perforating the packet and a wire feed motion, of the cylinder rotatably mounted on the upper table and having on its end the axial and eccentric studs and also provided with the gear-wheel, n^5 , the shaft, H , having thereon the sector gears, p, p , the pinion, o , adapted to be engaged by the sector gears successively, and having as a part thereof the gear, o^2 , in mesh with said gear, n^5 , substantially as described.
18. In a machine for wiring paper packets, the combination with the cylinder, n , having the axial and eccentric studs, n^2, n^3 , and having the spindle extension, n^4 , and means substantially as described for imparting intermittently rotational movements to the cylinder, of the shaft, H , having thereon the cam, q , substantially as described.
19. In a machine for wiring paper packets, in combination, the slide, a , having the upper table, b , and the long pinion, o , carried by the slide, the cylinder, n , having studs, n^2, n^3 , the spindle, n^4 , and the gear, n^5 , the shaft, H , having thereon the cam, q , and sector-gear, p, p , and the gear, o^2 , movable with said pinion, o , and in mesh with gear, n^5 , all substantially as and for the purposes set forth.
20. In a machine for wiring paper packets, the combination with means for supporting, clamping, and perforating the packet, and a wire-feed motion, of the rotary cylinder, n , having on its end the axial and eccentric studs, n^2, n^3 , the followers, s, s , arranged near the end of, and at right angles to the length of, the cylinder, and having combined therewith the levers, s^3, s^3 , the spring, s^5 , and the operating cams, s^4, s^4 , substantially as described.
21. In a machine for wiring paper packets, the combination with the table, E , and the movable upper table, b , and means for operating it, a drilling mechanism and a wire-feed motion of the rotary cylinder, n , on the upper table having on its end the axial and eccentric studs, the followers, s, s , arranged near the end, and at right angles to the length of the cylinder, the shaft, J , having the cams, s^4, s^4 , splined thereon and constrained to move vertically in unison with the upper table, the levers, s^3, s^3 , operated by the cams, and operating the followers, and the retracting spring, s^5 , all substantially as described.
22. In a machine for wiring paper packets, the combination with means for supporting, clamping, and perforating the packet, and a wire feed motion, devices for forming the eye in the up-fed extremity of the wire, of a means for severing the wire below the packet comprising the sliding shear-bar, M , the rotatable shaft, H , having thereon the cam for imparting the shearing movement to the shear-bar, and means for retracting the shear-bar, substantially as described.
23. In a machine for wiring paper packets, the combination with means for supporting, clamping, and perforating the packet, and a wire feed motion, devices for forming the eye in the up-fed extremity of the wire, of a means for severing the wire below the packet comprising the sliding shear-bar, M , having in con-

nection or continuation thereof the separated members, 55 and 56, in different planes, and the rotatable shaft, H, having thereon in different planes the cams, 53 and 54, substantially as described.

24. In a machine for wiring paper packets, in combination, means for supporting, clamping, and perforating the packet, and a wire-feed motion and devices for forming the eye in one extremity of the wire, of the bars, L and M, movable below and above the packet, angularly to and intersecting the line of feed of the wire, a connection between said bars, L and M, whereby they move in unison, and a cam having an operating connection with one of said bars, substantially as and for the purposes set forth.

25. In a machine for wiring paper packets, in combination, means for supporting the packet and the upper movable clamping table, a drilling mechanism and a wire-feed motion, devices for forming the eye in one extremity of the wire, the bar, L, having a slide support upon the upper table, and the bar, M, having a slide support below the plane of support for the bottom of the package, the depending rod provided to the slide, L, and having a vertically sliding connection with the lower slide, M, and means for imparting reciprocal movements to one of the slides, substantially as described.

26. In a machine for wiring paper packets, in combination, a supporting table having the intersecting perforations, 42 and 43, and a clamping device for the packet, mechanism for perforating the packet, a wire-feed motion, devices for forming an eye in one extremity of the up-fed wire, a shear for cutting off the wire from the length running from the supply, and an intermittently operating wire-confining device which consists in the stud or finger, k , movable in the perforation, 42, the lever, k^2 , intermediately pivoted, another intermediately pivoted lever, k^4 , the cam, k^5 , and a retracting spring, substantially as described.

27. In a machine for wiring paper packets, in combination, means for supporting and perforating the packet, and the movable upper table, b , devices for forming the eye in the upper extremity of the wire, a shear for cutting off the wire from the supply below the packet, means for overturning the portions of the wire protruding above and below the packet, and pressers for forcing the overturned extremities of the wire against the opposite faces of the packet, the same consisting of levers, (the upper one of which is pivotally mounted upon the upper table) and both of which have swinging movements toward and from the faces of the packet and means for imparting to them their swinging pressing movements.

28. In a machine for wiring paper packets, in combination, means for supporting and perforating the packet, and the movable upper table, b , devices for forming the eye in the upper extremity of the wire, a shear for cutting off the wire from the supply below the packet, the reciprocatory slide-bars, M and L, the former for shearing and overturning one part of the wire, and the latter for overturning the opposite part of the wire, and pressers for forcing the overturned extremities of the wire against the opposite faces of the packet, the same consisting of levers (the upper one of which is pivotally mounted upon the upper table) and both of which have swinging movements toward and from the faces of the packet, and also endwise movements to present their extremities across, and to withdraw them from their positions across, the line of wire-feed and means for imparting to these pressers their swinging and endwise movements, substantially as described.

29. The presser, N, combined with upper table, b , on which it is mounted, the slide, N^2 , on said upper table, and the double cam, t , splined on shaft, J, and operating to move the presser in its two directions, substantially as described.

30. In a machine for wiring paper packets, the combination of the main table, E, a feed mechanism for the wire, a mechanism for perforating the packet, and the wire-shearing and over-turning bar, M, of the presser, P, mounted to slide on the fulcrum upon which it has its swinging support, and the double cam, v , for imparting to the presser its swinging and its endwise movements, substantially as described.

31. The combination of cylinder, n , having axial stud, n^2 , and eccentric stud, n^3 , and means for imparting rotational movements to the cylinder, with the followers movable at right angles to the length of the cylinder at opposite sides thereof and having means for imparting thereto their approaching and receding movements, substantially as described.

32. In a machine for wiring paper packets, the combination of cylinder, n , having axial stud, n^2 , and eccentric stud, n^3 , and means for imparting rotational and also axial movements to the cylinder, with the followers movable at right angles to the length of the cylinder, at opposite sides thereof, and means for imparting thereto their approaching and receding movements, substantially as described.

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