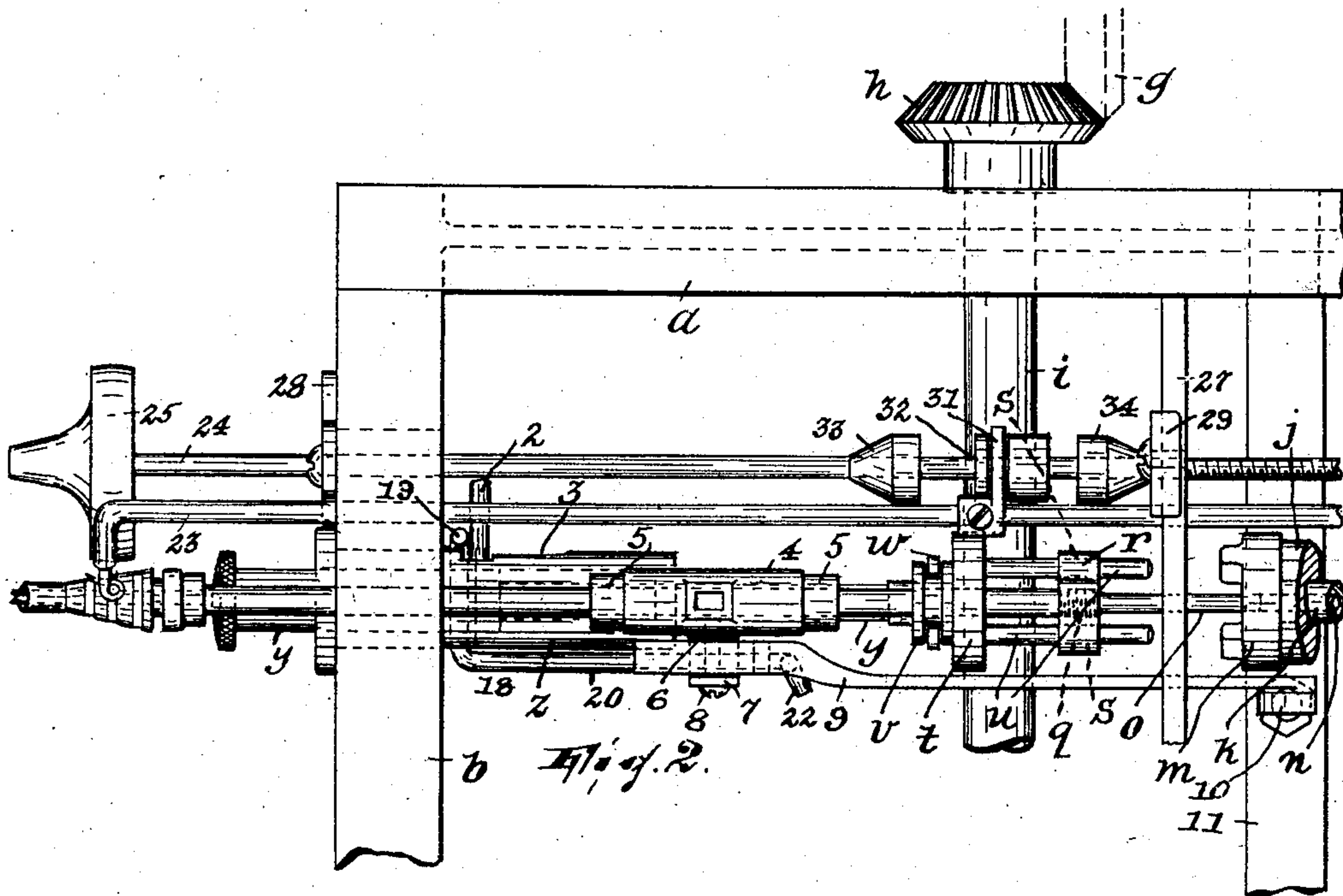
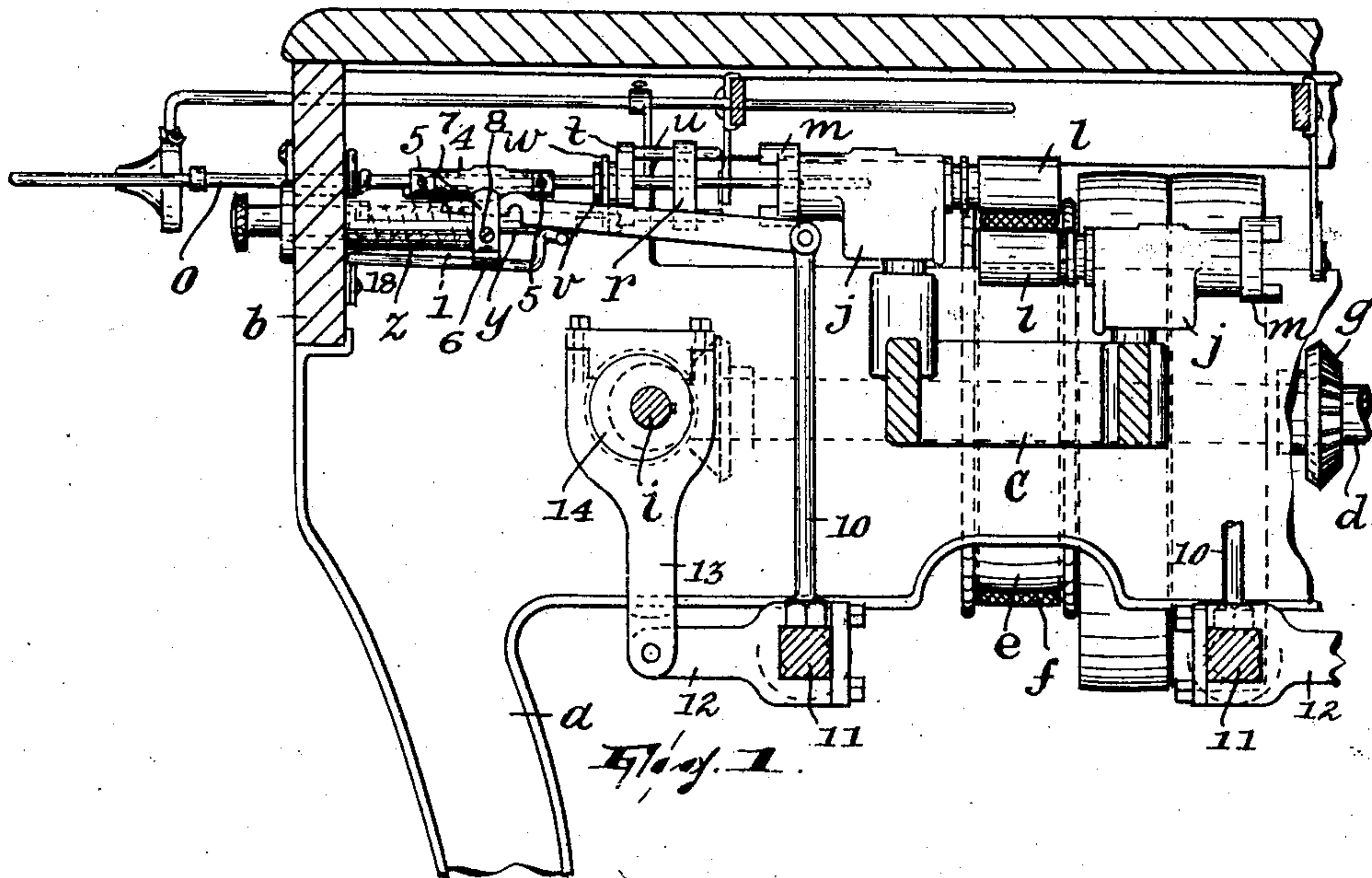


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QUILLING MACHINE.  
APPLICATION FILED SEPT. 23, 1907.

919,298.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

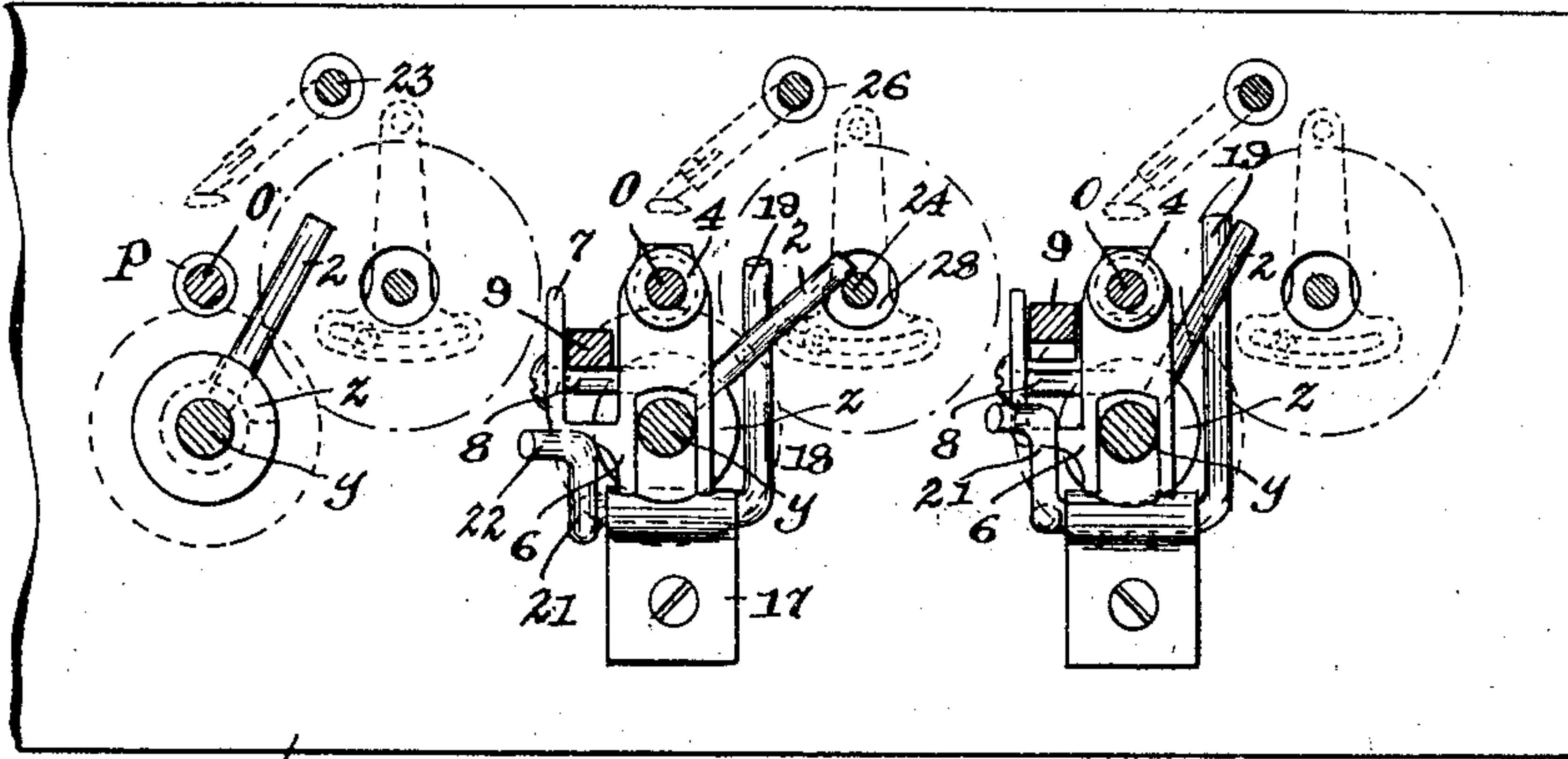


Fig. 3.

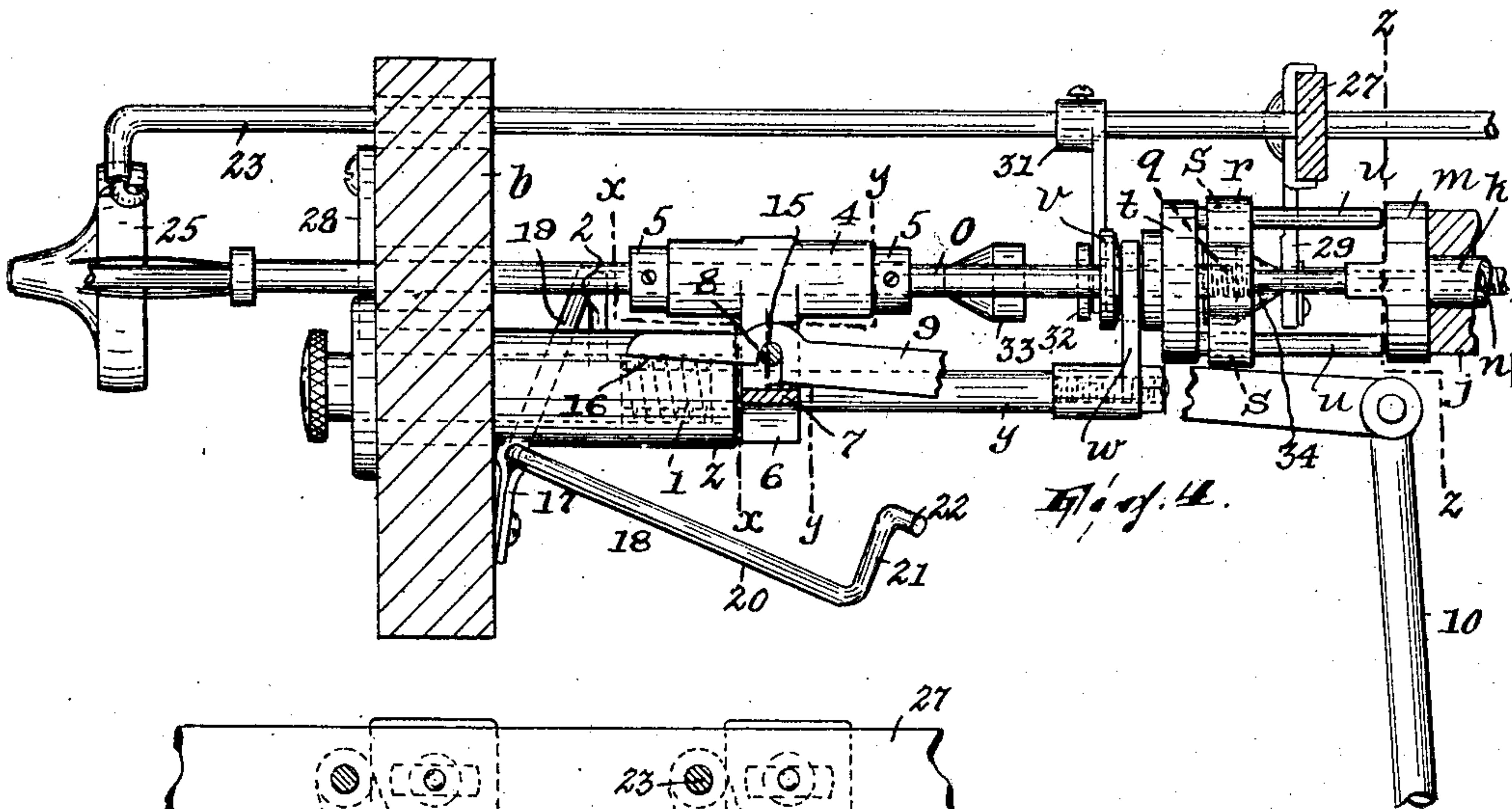


Fig. 4.

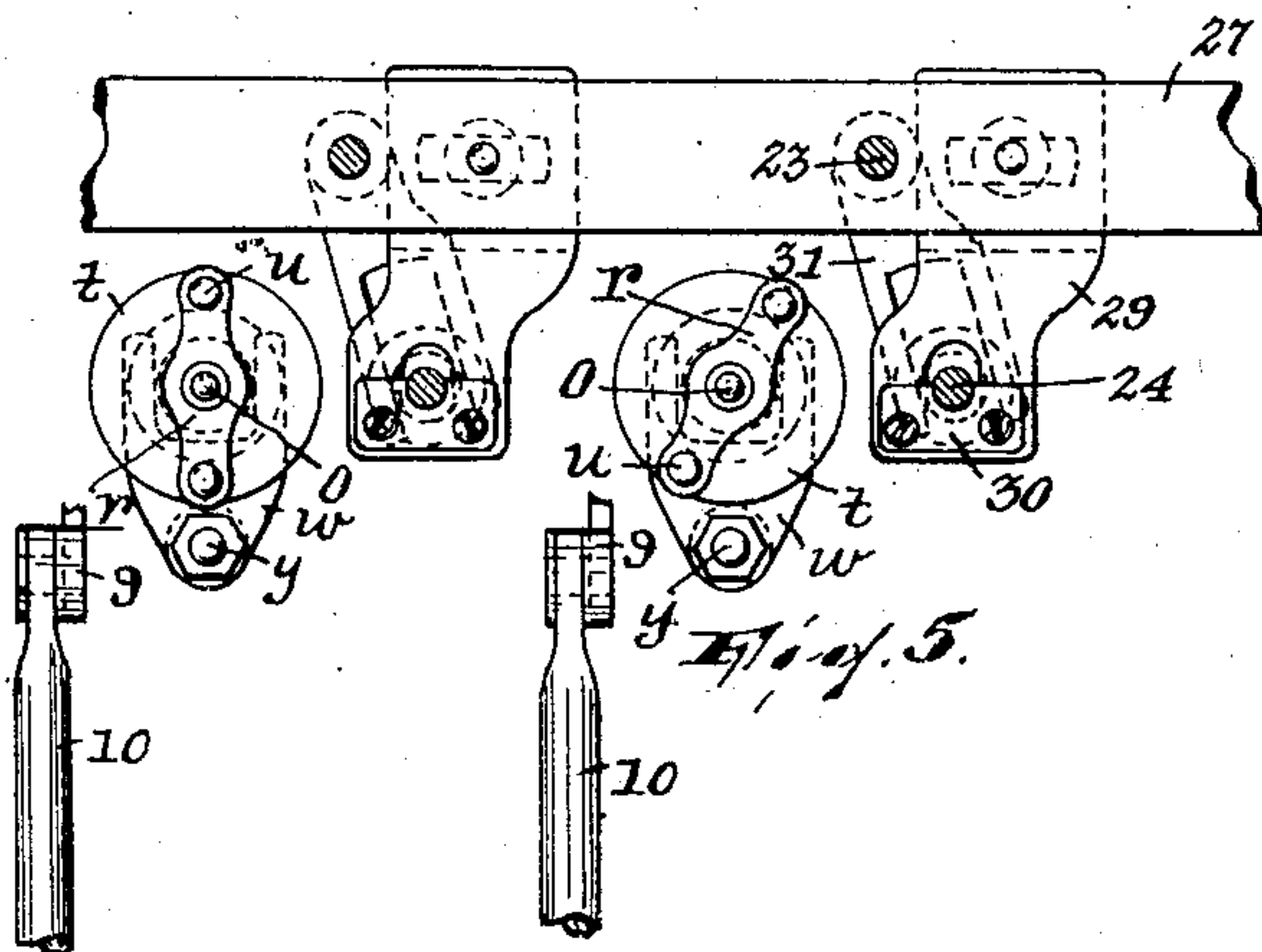


Fig. 5.

WITNESSES

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# UNITED STATES PATENT OFFICE.

GEORGE ADSIT, OF PATERSON, NEW JERSEY, ASSIGNOR TO THE BENJAMIN EASTWOOD COMPANY, OF PATERSON, NEW JERSEY.

## QUILLING-MACHINE.

No. 919,298.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed September 23, 1907. Serial No. 394,034.

*To all whom it may concern:*

Be it known that I, GEORGE ADSIT, a citizen of the United States, residing in Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Quilling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates to machines for winding quills, and it has reference particularly to machine of the character of that illustrated, for instance, in U. S. Letters Patent Nos. 757,081, 774,020 and 803,459 in which one of the essential features is a means whereby any spindle is automatically disengaged from its driving means by a spring controlled mechanism which is normally held under tension to be released by parts whose movements depend upon the extent to which the cop or quill has been built up.

The invention will be found fully illustrated in the accompanying drawings, wherein,

Figure 1 is a vertical sectional view of the machine; Fig. 2 is a top plan view on a larger scale of so much of the machine as includes one winding unit; Fig. 3 is a sectional view taken vertically inside of one of the breast-rails of the machine and showing three winding units, the plane of section of the winding unit to the left being on substantially the line  $x-x$  of Fig. 4 and the plane of section of the other two winding units being substantially on the line  $y-y$  of Fig. 4, certain parts being omitted in both instances; Fig. 4 is a view partly in section and partly in side elevation showing one of the winding units on the same scale as that of Fig. 2; and, Fig. 5 is a vertical sectional view taken substantially on the line  $z-z$  of Fig. 4 and looking toward the breast-rail, the clutch member  $m$  being omitted.

The frame of the machine comprises the standards  $a$ , the breast-rails  $b$  and intermediate rails  $c$ , and in the frame at one end is journaled the main drive shaft  $d$  carrying a pulley  $e$  over which and another pulley (not shown) arranged at the other end of the machine extends the endless spindle driving belt  $f$ ; shaft  $d$  also carries bevel pinions  $g$

which mesh with other bevel pinions  $h$  on the horizontal shafts  $i$ , which shafts are journaled in the standards  $a$ .

In the rails  $c$  are mounted the bolsters  $j$  which serve as bearings for the shafts  $k$ , each shaft carrying at one end a whirl  $l$  and at the other end a clutch member  $m$ . As in the patents above referred to, the sets of parts  $j$ ,  $k$ ,  $l$  and  $m$  are so arranged that their whirls stand alternately at the top and under sides of the upper stretch of the belt  $f$ , said sets projecting alternately in opposite directions. Each shaft  $k$  is formed with a bore  $n$  into which extends the rear end of the spindle  $o$  which near its forward end is journaled in a bearing  $p$  in the breast rail  $b$ . The spindle  $o$  has its rear end slightly reduced and is threaded at  $q$ , and onto its threaded portion is screwed a cross-head  $r$  provided with the holes  $s$  arranged parallel with the spindle  $o$ .

$t$  is a fork-shaped clutch-member which is arranged to slide on the spindle and the parallel studs  $u$  of which (forming its bifurcated portion) penetrate the holes  $s$  in the cross head  $r$  and are adapted to engage with the clutch-member  $m$ . The clutch member  $t$  has the peripherally channeled collar  $v$  with which engages a fork  $w$  fixed on the rear end of push rod  $y$  arranged to move in a tubular holder  $z$  in the breast rail, said push rod being normally pressed forward by a spring 1 but being adapted to be held back against the tension of said spring by a pin 2 projecting from the push rod through a slot 3 in the holder and adapted to engage with an offset portion of said slot, all as clearly indicated in the patents aforesaid. When the push rod is pressed back, the spring at that time automatically turning its pin 2 into the offset portion of the slot to hold the push rod in the new position, the clutch member  $t$  is made to engage with clutch member  $m$ , so that the spindle will be rotated from clutch member  $m$  through parts  $t$  and  $r$ .

On each spindle is arranged a sleeve 4 which is limited against endwise movement thereon by collars 5. The sleeve has a depending fork 6 which straddles the push-rod  $y$ , and this fork is formed at one side with a guide constituted by a hook-shaped projection 7 of said fork and a screw 8 traversing the space of said projection. This guide, which is thus open at the top, receives the end of a hook 9 which is pivoted to a crank 10 on one of two rock shafts 11. These rock-shafts



carry other cranks 12 pivotally connected with eccentric straps 13 on eccentrics 14 on the shafts *i*. Between the recess 15 of each hook 9 and its free end said hook is formed with a straight bearing portion 16 on its under side, the same being adapted to ride on the screw 8 and thus prevent the hook from dropping when not operatively engaged with screw 8 in the function of reciprocating sleeve 4, and consequently the spindle, in the manner hereinafter described.

Immediately under each holder *z* is a bracket 17 in which is fulcrumed a lever 18 having one arm 19 extending up beside the holder and across its slot 3 and its other arm 20 extending inwardly, then upwardly, as at 21, and then laterally, as at 22, the portion 22 being directly under hook 9; the construction of this lever is such that when it is raised and its portion 19 is substantially against the back of the breast-rail, its portion 19 is substantially against the back of the fork 6 of sleeve 4, so that sleeve 4 cannot be moved back until the lever is depressed.

The means for directing the thread or yarn to the quill-receiving portion of the spindle comprises, as usual, the thread-guide rod 23 and the rotary threaded rod 24 carrying a friction wheel 25 at its outer end which engages the cop; the rod 23 is arranged in a bearing 26 in the breast-rail and in a bar 27 disposed parallel with the breast-rail, while the threaded rod 24 is journaled in an adjustable bracket 28 on the breast-rail and a bracket 29 on the bar 27, said bracket having a knife 30 with which the threaded portion of rod 24 engages. The two rods 23 and 24 are caused to move together by a fork 31 on the former engaging a channeled collar 32 on the latter. The rod 24 carries a cone 33 which is adapted, when said rod has advanced sufficiently, *i. e.*, when the cop has been fully built up, to engage the pin 2 and thus effect the release of the push rod *y*; said rod also carries a stop 34 which engages the bracket 29 to limit the rearward movement of the rod when it is normally pushed back (with rod 23) in the breast-rail, thus raising its threaded portion out of engagement with knife 30.

The operation is as follows: Assuming that the whirls *l* are being rotated and that the parts stand in the relation shown in Fig. 4, the forks *w* on push rods *y* are holding clutch members *t* engaged with clutch members *m* on shafts *k*, so that the spindles *o* are rotating; at the same time, the rocking movement of the rock-shafts 11 is causing the hooks 9 to oscillate, and, their recesses having the screws 8 engaged therein, the sleeves 4, and consequently the spindles *o*, are reciprocated. The combined rotating and reciprocating movements of each spindle relatively to its threadguide causes the material being wound to be laid on the quill-receiving portion of the spindle in cross

wound coils, and as the spindle in its reciprocations occasionally brings the cop against the friction-wheel 25, the latter is rotated and caused to advance the thread-guide rod in the well known manner, so that the building-up of the cop proceeds progressively and uniformly. When the cone 33 ultimately brings against the pin 2 and causes the release of the push-rod, the latter acts, on the one hand, to cause its fork *w* to move the clutch member *t* forward relatively to the spindle, so as to break the clutch, and, on the other hand, to raise lever 20, this being effected by pin 2 engaging the arm 19 of said lever as the pin moves forward with the push-rod. When lever 20 rises, its portion 22 engages the under side of the hook 9 and raises the same out of connecting engagement with screw 8, the hook continuing to oscillate idly, riding on lever 20. (See Fig. 1). The operator now removes the filled quill and places a fresh one on the spindle. When the lever rises, its portion 21 assumes a position back of the fork 6, so that the sleeve cannot be moved back until lever 20 has resumed its normal (depressed) position. Thus, while the new quill is being placed on the spindle it is held against rearward displacement; the operator is therefore not subject to accidents which might be possible if the spindle were capable of backward movement by pressure thereon, permitting, as such movement would, the spindle to be suddenly started reciprocating while the hand of the operator is on it. In order to start the winding operation anew, the push-rod is pressed in, thereby causing the clutch members to engage and allowing the lever 20 to drop, which in turn permits hook 9 to descend and ride with its portion 16 bearing on screw 8 until said screw, in the reciprocation of hook 9, finds the recess 15 of the latter. (Fig. 4).

The usual superstructure for machines of this character having no part in the present invention the same is unnecessary to describe and show herein.

It is to be understood that I am not limited to the details of construction or specific arrangements and operations of parts herein shown and described.

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

1. In a quilling or other similar machine, the combination of a suitable support, a rotary spindle, driving and driven clutch members, comprising inter-engageable projections, said spindle being reciprocatory upon and rotatable with the projection of the driven clutch member, and means for reciprocating said spindle, substantially as described.

2. In a quilling or other similar machine, the combination of a suitable support, a ro-



tary spindle, driving and driven clutch members, comprising inter-engageable projections, said spindle being sustained in said support and the driving clutch member and being reciprocatory upon and rotatable with the projection of the driven clutch member, and means for reciprocating said spindle, substantially as described.

3. In a quilling or other similar machine, the combination of a suitable support, a rotary spindle, a cross-head fixed on the spindle and having holes parallel with the spindle, driving and driven clutch members, the latter being fork-shaped and having its bifurcated portion penetrating and slidable in the holes of said cross-head longitudinally of the spindle, and means for reciprocating said spindle, substantially as described.

4. In a quilling or other similar machine, the combination of a suitable support, a rotary spindle, driving and driven clutch members, comprising inter-engaging projections said spindle being reciprocatory upon and rotatable with the projection of the driven clutch member, means for reciprocating the spindle, said clutch members being normally retained engaged with each other, and means whereby to effect the disengagement of said clutch members, substantially as described.

5. In a quilling or other similar machine, in combination, with a suitable support, co-active parts for effecting the winding comprising a spindle and a threadguide, one of said parts being rotatable, means for reciprocating one of said parts, and means for automatically disconnecting said part from its reciprocating means, substantially as described.

6. In a quilling or other similar machine, in combination, with a suitable support, co-active parts for effecting the winding comprising a spindle and a threadguide, one of said parts being rotatable, means for reciprocating one of said parts, and means, actuative from the cop being wound, for disconnecting said part from its reciprocatory means, substantially as described.

7. In a quilling or other similar machine, in combination, with a suitable support, co-active parts for effecting the winding comprising a spindle and a threadguide, one of said parts being rotatable, an oscillatory hook engageable with one of said parts to reciprocate the same, and means for oscillating said hook, substantially as described.

8. In a quilling or other similar machine, in combination, with a suitable support, co-active parts for effecting the winding comprising a spindle and a threadguide, one of

said parts being rotatable, a going part, a hook pivotally connected with the going part and engageable with one of said first-named parts to reciprocate the same, and means, actuative from the cop being wound, for moving said hook on its pivot out of engagement with the part reciprocated thereby, substantially as described.

9. In a quilling or other similar machine, in combination, with a suitable support, a rotary spindle, a threadguide, a part penetrated by the spindle but limited against movement thereon longitudinally thereof, a going part, a hook pivoted in the going part and adapted to engage said first-named part to reciprocate the same and the spindle, and means, actuative from the cop being wound, for moving said hook on its pivot out of engagement with said first named part, substantially as described.

10. In a quilling or other similar machine, the combination of a suitable support, co-active parts for effecting the winding comprising a spindle and a thread-guide, one of said parts being movable longitudinally, and means, comprising a member movable into and out of the path of movement of said movable part, for locking the latter against movement in one direction, substantially as described.

11. In a quilling or other similar machine, the combination of a suitable support, co-active parts for effecting the winding comprising a spindle and a thread guide, one of said parts being movable longitudinally, a fulcrumed member movable into and out of the path of movement of the movable part for locking the latter against movement in one direction, and a manually actuated part controlling the position of said member, substantially as described.

12. In a quilling or other similar machine, the combination of a suitable support, co-active parts for effecting the winding comprising a spindle and a thread-guide, one of said parts being movable longitudinally, means for reciprocating said movable part, and means for disconnecting said reciprocating means from said movable part and thereupon locking said movable part against movement in one direction, substantially as described.

In testimony, that I claim the foregoing, I have hereunto set my hand this tenth day of September 1907.

GEORGE ADSIT.

Witnesses:

JOHN W. STEWARD,  
WM. D. BELL.