No. 871,275. PATENTED NOV. 19, 1907.

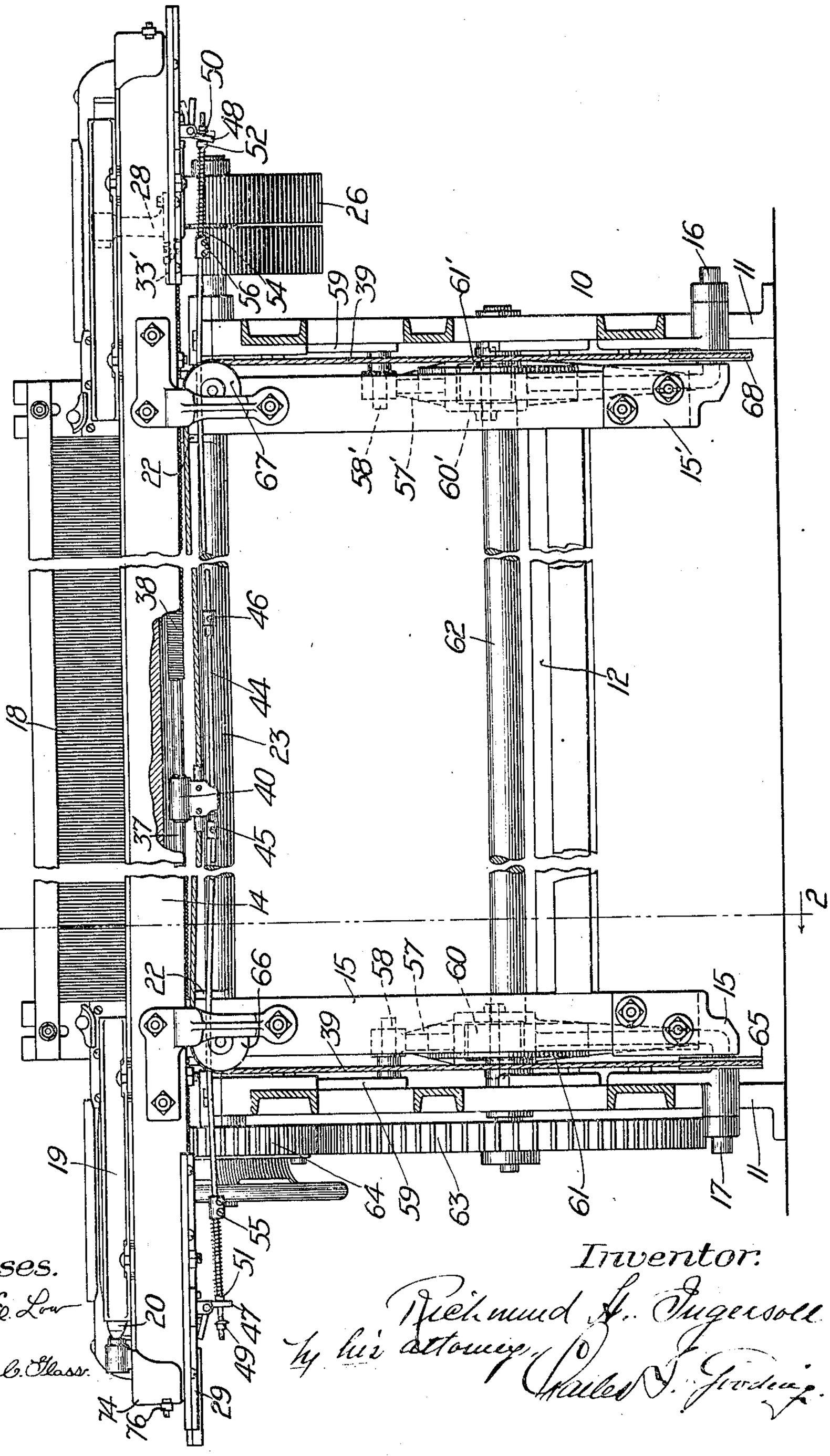
R. H. INGERSOLL.

PICKER MECHANISM FOR LOOMS.

APPLICATION FILED MAY 17, 1907.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

Franklin E. Low

William C. Glass.

Inventor:

Richmond H. Ingersoll

by his attorneys,

Charles J. Gordon Jr.

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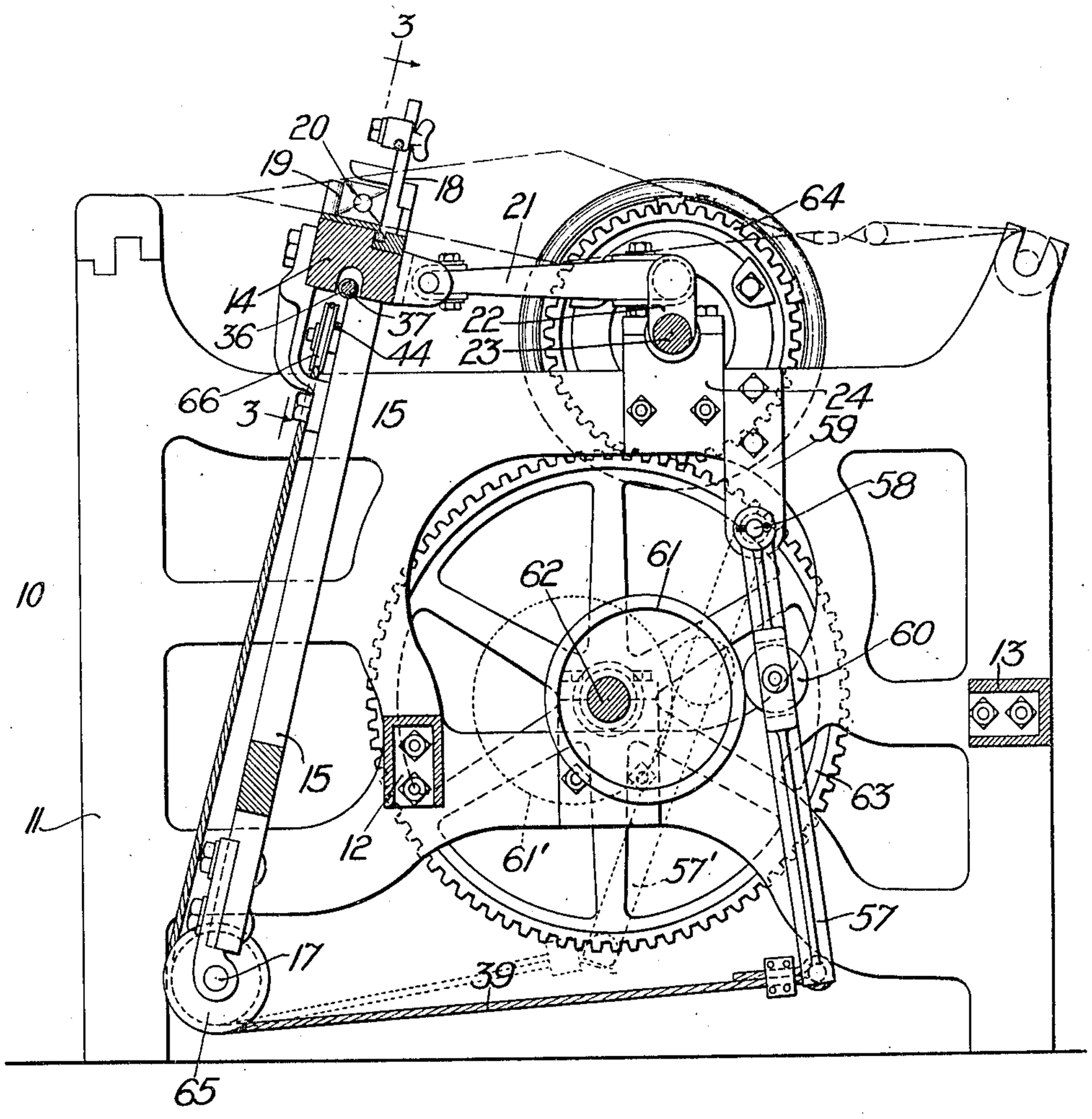

Fig. 2.

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4 SHEETS—SHEET 3.

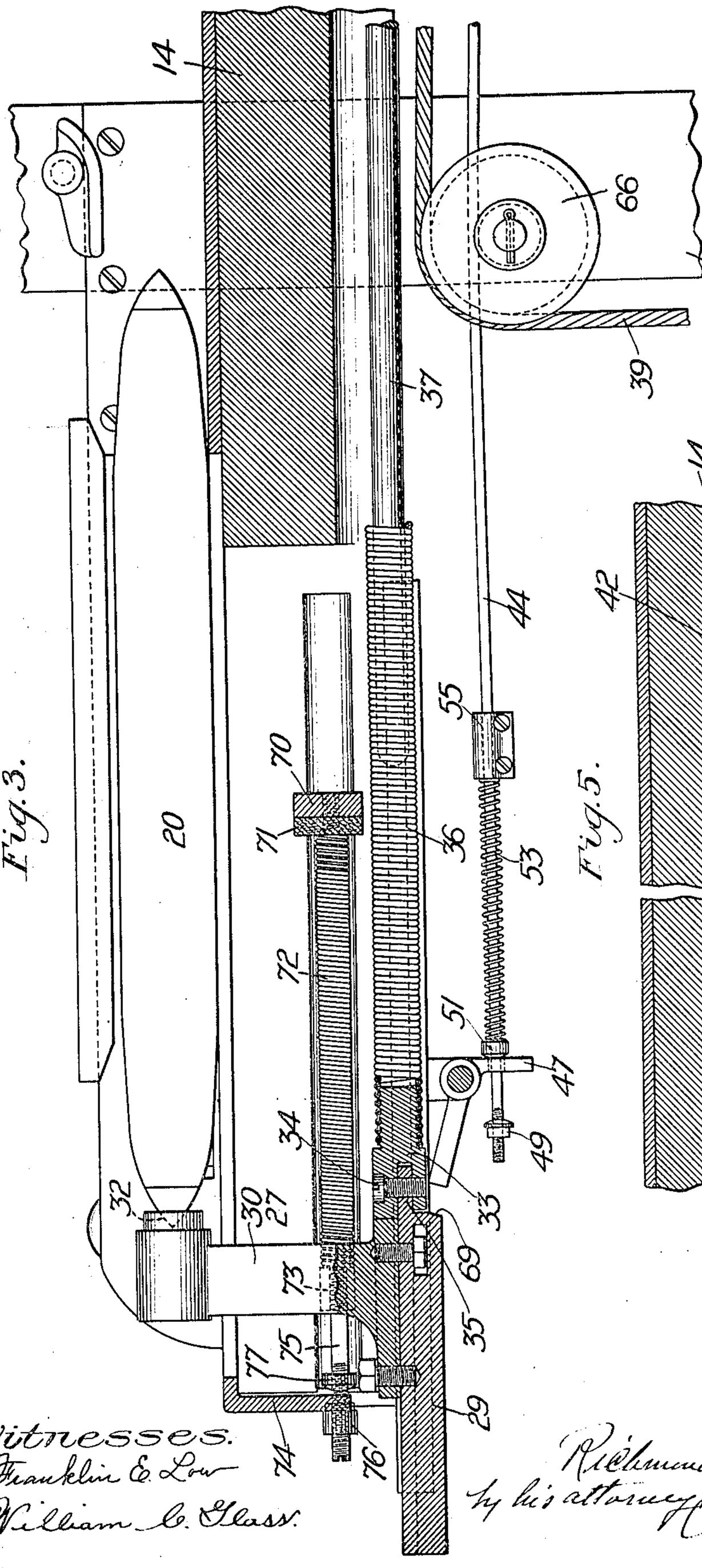

Fig. 3.

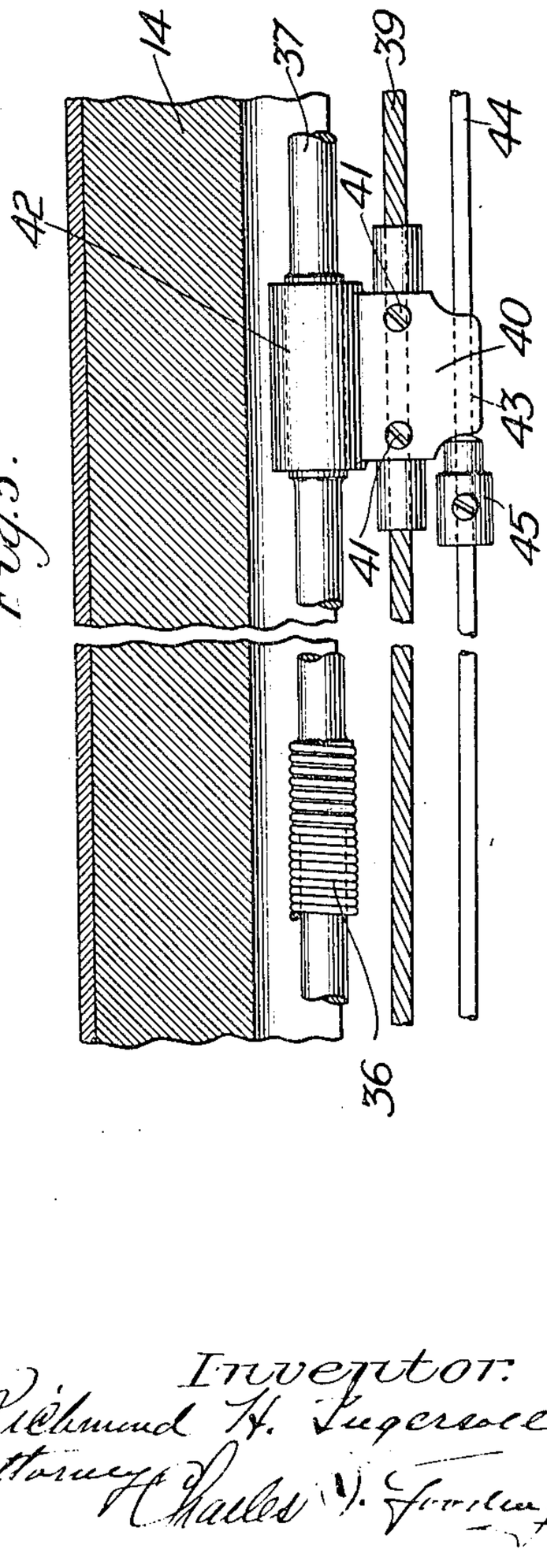

Fig. 5.

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4 SHEETS—SHEET 4.

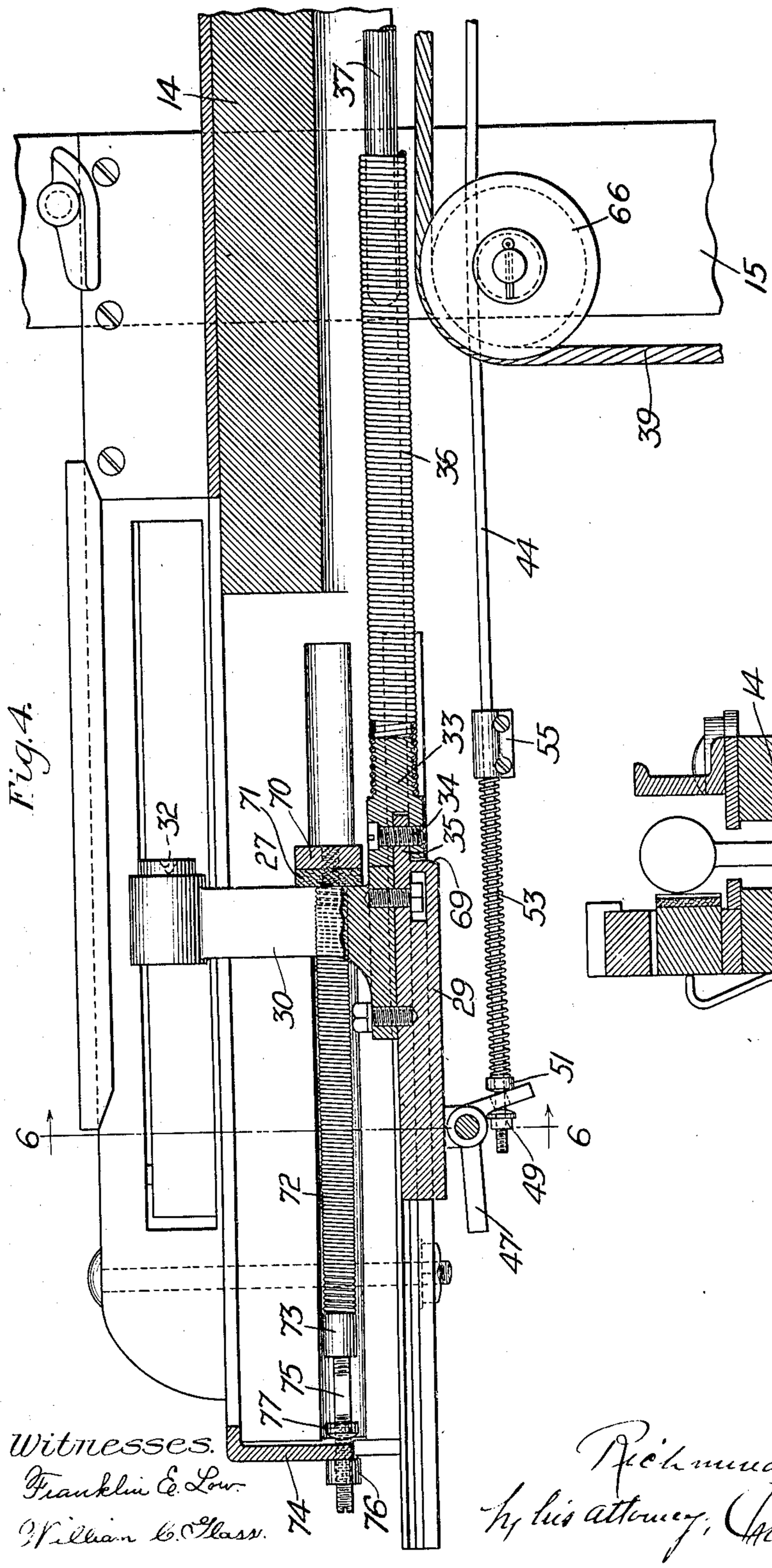

Fig. 4.

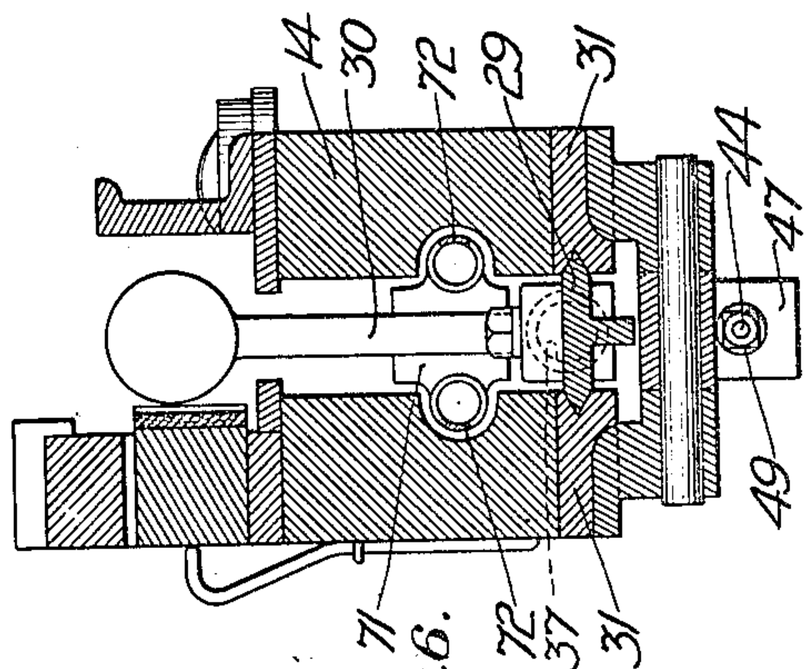

Fig. 6.

Witnesses.
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UNITED STATES PATENT OFFICE.

RICHMOND H. INGERSOLL, OF BIDDEFORD, MAINE.

PICKER MECHANISM FOR LOOMS.

No. 871,275. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed May 17, 1907. Serial No. 374,259.

To all whom it may concern:

Be it known that I, RICHMOND H. INGERSOLL, a citizen of the United States, residing at Biddeford, in the county of York and State of Maine, have invented new and useful Improvements in Picker Mechanism for Looms, of which the following is a specification.

This invention relates to improvements in looms, relating more particularly to the picker mechanism by which the shuttle is actuated.

The object of the invention is to improve the picker mechanism and means for actuating the shuttle and to eliminate the picker stick used in connection with the ordinary form of loom. The objection to the picker stick is well known to those skilled in the art and consists in the fact that said picker sticks are constantly breaking being subjected to a great deal of shock and wear when in use.

The object of the invention is further to provide a picker mechanism which will impart a perfectly straight impulse to the shuttle when throwing the same across the fabric between the warp threads and from one side to the other of the lay.

The object of the invention is further to so construct the mechanism by which the shuttle is actuated that when the same is thrown and when it is stopped it shall be by a spring cushioned picker.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a front elevation partly broken away and shown in section of a sufficient part of a loom to illustrate my improved picker mechanism in connection therewith. Fig. 2 is a sectional elevation taken on line 2—2 of Fig. 1 looking toward the left in said figure. Fig. 3 is an enlarged sectional elevation taken on line 3—3, Fig. 2, illustrating a portion of the picker mechanism with the shuttle engaged by one of the picker slides in readiness to throw said shuttle toward the right. Fig. 4 is a sectional elevation, similar to Fig. 3, illustrating the picker slide and a portion of the mechanism by which it is operated just after the shuttle has been propelled across the shed. Fig. 5 is a sectional elevation on line 3—3 of Fig. 2 illustrating in detail the means by which the tripper rod is actuated. Fig. 6 is an enlarged sectional elevation taken on line 6—6 of Fig. 4 looking toward the right in said figure.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the frame of the loom which may be of any suitable and ordinary construction, preferably consisting, however, of side standards 11, 11 joined together by cross ties 12, 13. The lay 14 is supported upon arms or lay swords 15, 15′ pivoted upon opposite sides of the frame, upon pivots 16 and 17 (Fig. 1). The lay has the usual reed 18 fast thereto and is provided with a raceway 19 to guide the shuttle 20 as it passes from one side to the other of the loom. The lay is rocked by a link 21 connected to a crank 22 formed upon a shaft 23 journaled to rotate in bearings 24 fast to the frame of the machine.

The driving shaft 23 is rotated by pulleys 26 in the usual manner. At opposite sides of the lay are picker slides 27 and 28. The construction and operation of said slides is the same except that they are arranged to operate upon the shuttle at opposite sides of the shed or at opposite ends of the raceway in the lay. Therefore, the following detailed description of the picker slide 27 will apply equally well to the picker slide 28. Referring, therefore, to Fig. 4, it will be seen that the picker slide 27 consists of two parts, the slide piece or base 29 to which is fastened the standard 30. The base 29 slides in ways 31, 31 fast to the lay. The standard 30 is provided with a recess 32 to receive the nose of the shuttle. An eye-piece 33 is fastened to the base 29 by a screw 34, said eye-piece being forked and straddling an ear 35 formed upon said base through which the screw 34 projects. The eye-piece 33 is provided with a screw-thread to receive and hold one end of a tension spring 36. The opposite end of said spring 36 is fastened to a rod 37, the opposite end of said rod 37 being fastened to another tension spring 38 which, in turn, is fastened at its right hand end (Fig. 1) to the picker slide 28 by means of another eye-piece 33′ and screw. An inter-

mittent reciprocatory motion is imparted to the rod 37 by a belt 39, which may be of wire, leather, or any suitable flexible material. The central portion of the belt 39 extends longitudinally of the lay and has fastened thereto a buffer 40 which is clamped by screws 41 to the belt 39 and extends upwardly from said belt (Fig. 5), terminating in a cylindrical sleeve 42 which is fast to the rod 37. Said rod 37 and buffer 40 thus constitute in effect a single member movable longitudinally of the lay.

The lower portion of the buffer 40 is provided with a hole 43 to receive a shipper rod 44. Said shipper rod has fastened thereto two collars 45 and 46 and engages at opposite ends thereof locking devices adapted to hold the picker slides against movement, as hereinafter described. Said locking devices consist of angle levers 47 and 48, the lever 47 having a hole therein through which the left hand end of the rod 44 projects (Figs. 1, 3 and 4). Nuts 49 and 50 have screw-threaded engagement with opposite ends, respectively, of the rod 44. Collars 51, 52 loose upon the rod 44 bear against the trip levers 47 and 48, respectively. Spiral springs 53 and 54 bear at one end against the collars 51 and 52, respectively, and at the opposite end against clamp collars 55 and 56, respectively.

Referring to Figs. 1 and 2 it will be seen that the belt or rope 39 is fastened at one end thereof to a cam lever 57 pivoted at 58 to a bracket 59 fast to the frame. Said lever 57 is provided with a cam roll 60 which bears against the cam 61 fast to a shaft 62 which is rotated by a gear 63, said gear being driven by a gear 64 fast to the main driving shaft 23. The belt 39 extends from the free end of the cam lever 57 partly around a pulley 65 rotatably mounted upon the pivot 17, thence said belt extends upwardly along the left hand side of the lay sword 15 and passes over a pulley 66 rotatably mounted upon the upper end of said lay sword. From the pulley 66 the belt 39 extends longitudinally of the lay to another pulley 67 rotatably mounted upon the lay sword 15′; thence extending downwardly, said belt passes around a pulley 68 rotatably mounted upon the pivot 16; finally the belt is fastened to a cam lever 57′ pivotally supported upon the frame of the machine and bearing against a cam 61′ fast to the shaft 62, said lever and cam being shown in dotted lines in Fig. 2.

The general operation of my improved picker mechanism for looms is as follows: Assuming the parts to be in the positions illustrated in Figs. 1, 2 and 3 and that the shed is open, as indicated in dotted lines (Fig. 2), the belt 39 will be moved by its cam levers toward the right (Fig. 1), carrying with it the buffer 40 and rod 37, thus through the spring 36 moving the picker slide 27 toward the right until the shoulder 69 upon the lower face of the base 29 abuts against the horizontal arm of the tripper lever 47, arresting further motion of the picker slide 27, but the movement of the rod 37 and belt 39 toward the right continues, thus extending the spring 36, one end of which, it will be remembered, is fastened to the rod 37 and the other to the eye-piece 33. The spring 36 will be extended until the buffer 40 engages the collar 46 upon the shipper rod 44, when said shipper rod will be moved toward the right from the position shown in Figs. 3 and 5 to that shown in Fig. 4, thus rocking the tripper lever 47 and disengaging the picker slide 27 which is immediately moved toward the right from the position shown in Fig. 3 to that shown in Fig. 4. The shuttle 20 is thus thrown from the picker slide 27 to the picker slide 28 through the shed and performs the operation of carrying the shuttle thread between the warp threads in the manner well known to those skilled in this art. Motion of the picker slide 27 toward the right is arrested by a stop-plate 70 which is preferably provided with a leather facing 71 and is fastened at opposite sides thereof, respectively, to spiral springs 72, 72 (Figs. 3, 4 and 6). The spiral springs 72 are each fastened at one end to the stop-plate 70 and at the opposite end to a screw-threaded holder 73 which is adjustably fastened to an extension 74 of the lay frame by a screw-threaded rod 75 and adjusting nuts 76, 77. The shuttle 20 is received by the picker slide 28, which slide is held and the blow of the shuttle thereon cushioned by the spring 38 which is attached to the right hand end of the rod 37, as hereinbefore described. Simultaneously with the unlocking of the picker slide 27 by the tipping of the tripper lever 47, the tripper lever 48 is tipped into the position shown in dotted lines (Fig. 1), the same corresponding in position to that of the tripper lever 47 (Fig. 3), so that said tripper lever 48 will be in position to lock the picker slide 28 against movement toward the left when the motion of the belt 39 is reversed in the same manner as the tripper lever 47 locked the slide 27 against movement toward the right during the first part of the movement of said belt and the rod 37 toward the right, as hereinbefore described, preparatory to the unlocking of the same and subsequent propulsion of the shuttle across the shed. After the shuttle has been driven, as hereinbefore described, from one side of the shed to the other and the warp threads have been changed as in the usual manner, the shuttle is returned from the right side of the loom to the left by the reversing of the di-

rection of movement of the belt 39, said belt being moved toward the left. The operation of releasing the picker slide 28 and throwing the shuttle from the right to the left is exactly the same as hereinbefore described in relation to the releasing of the picker slide 27 and throwing the shuttle toward the right. As the belt moves toward the left the rod 37 is moved by said belt and the buffer 40 until all of the tension is removed from the spring 36, whereupon said spring acts to push the picker slide 27 toward the left from the position illustrated in Fig. 4 to that illustrated in Fig. 3. At the latter part of the movement of the picker slide 28 toward the left the buffer 40 will engage the collar 45 and move the rod 44 toward the left, rocking the tripper lever 47 from the position shown in Fig. 4 into the position shown in Fig. 5, and during the latter part of the movement of the picker slide 27 toward the left the horizontal arm of the tripper lever 47 will be moved upwardly against the under side of the eye-piece 33 in readiness to engage the shoulder 69, as hereinbefore described.

It will be understood that the operation of the picker slide 28 is exactly similar to that of the picker slide 27.

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

1. In a loom, a lay, two picker slides adapted to slide in ways on opposite sides of said lay, a shuttle arranged to slide in a raceway on said lay, between said picker slides, a member movable longitudinally of said lay, springs connecting said member to said picker slides, and locks adapted to alternately lock and release said picker slides.

2. In a loom, a lay, two picker slides adapted to slide in ways on opposite sides of said lay, a shuttle arranged to slide in a raceway on said lay between said picker slides, a member movable longitudinally of said lay, springs connecting said member to said picker slides, mechanism adapted to impart a reciprocatory motion to said member, and locks adapted to alternately lock and release said picker slides.

3. In a loom, a lay, two picker slides adapted to slide in ways on opposite sides of said lay, a shuttle arranged to slide in a raceway on said lay between said picker slides, a member movable longitudinally of said lay, springs connecting said member to said picker slides, mechanism adapted to impart a reciprocatory motion to said member, locks adapted to lock said picker slides against the action of their respective springs, and means actuated by said member to operate said locks alternately to release said picker slides.

4. In a loom, a lay, two picker slides adapted to slide in ways on opposite sides of said lay, a shuttle arranged to slide in a raceway on said lay between said picker slides, a member movable longitudinally of said lay, springs connecting said member to said picker slides, mechanism adapted to impart a reciprocatory motion to said member, locks adapted to lock said picker slides against the action of their respective springs, and a rod engaging said locks at its opposite ends moved by said member alternately in opposite directions to operate said locks alternately to release said picker slides.

5. In a loom, a lay, pivots therefor, means to rock said lay, two picker slides adapted to slide in ways on said lay, locks to prevent said slides from moving, mechanism adapted to trip said locks and allow said slides to be moved, a belt supported upon said lay a portion of said belt extending longitudinally of said lay, mechanism to impart a reciprocatory motion to said belt, springs fast to said picker slides and means for connecting said springs to said belt, whereby said slides are moved by said springs alternately in opposite directions.

6. In a loom, a lay, pivots therefor, means to rock said lay, two picker slides adapted to slide in ways on said lay, locks to prevent said slides from moving, mechanism adapted to trip said locks and allow said slides to be moved, a belt supported upon said lay a portion of said belt extending longitudinally of said lay, mechanism supported upon the frame of said loom connected to opposite ends of said belt and adapted to pull said belt alternately in opposite directions, guide pulleys journaled on said lay, and guide pulleys journaled on said pivots adapted to guide said belt, springs fast to said slides and means connecting said springs to said belt, whereby said slides are moved by said springs alternately in opposite directions.

7. In a loom, a lay, two picker slides adapted to slide in ways on opposite sides of said lay, a shuttle arranged to slide in a raceway on said lay between said picker slides, a member movable longitudinally of said lay, springs connecting said member to said picker slides, locks adapted to alternately lock and release said picker slides, and stops to limit the movement of said picker slides after being released from said locks.

8. In a loom, a lay, means to rock said lay, two picker slides adapted to slide in ways on said lay, mechanism to impart a reciprocatory motion to said slides, locks to prevent said slides from moving, a reciprocatory rod adapted to alternately engage said locks and release said picker slides, a belt supported upon said lay a portion of said belt extending longitudinally of said lay, mechanism to impart a reciprocatory motion thereto, springs fast to said picker slides and

means for connecting said springs to said belt, whereby said slides are moved by said springs alternately in opposite directions, a buffer fast to said belt, and collars fast to said rod between which said buffer is adapted to play and alternately engage said collars, whereby said locks are operated to release said picker slides.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHMOND H. INGERSOLL.

Witnesses:
CHARLES S. GOODING,
LOUIS A. JONES.