

No. 817,177.

PATENTED APR. 10, 1906.

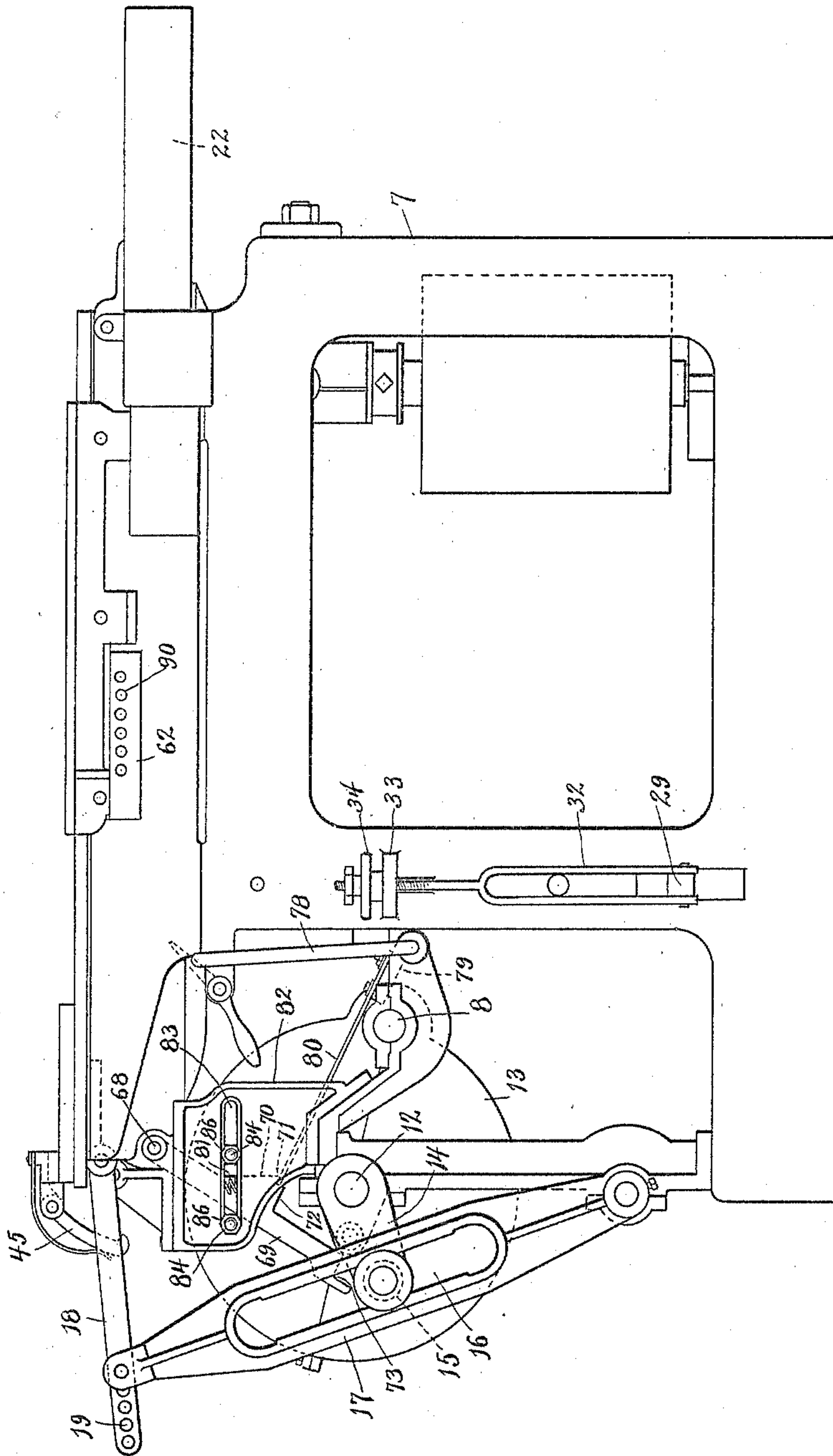
W. H. KRATSCH & C. G. DAUBER.

SHINGLE MACHINE.

APPLICATION FILED MAY 7, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

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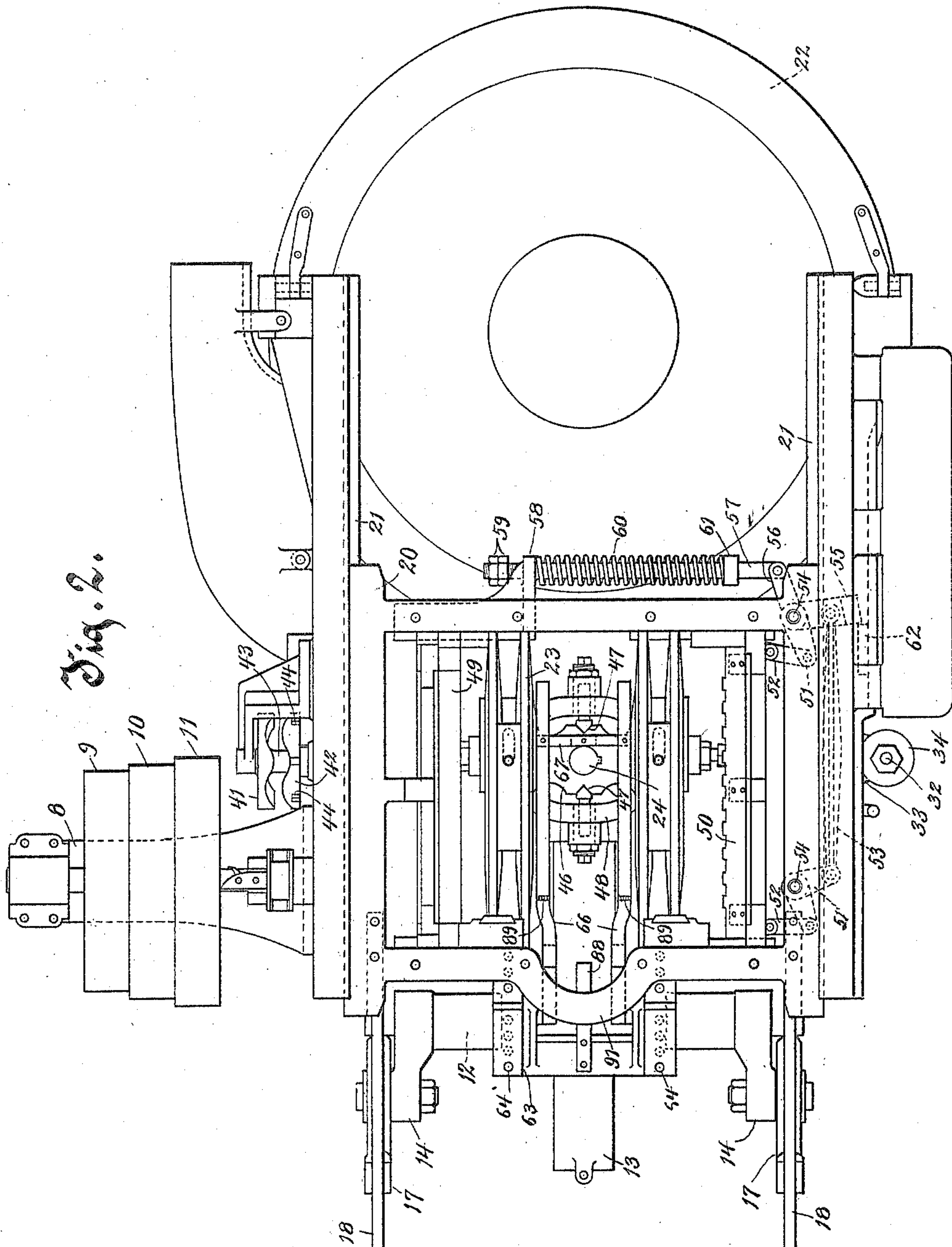
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5 SHEETS—SHEET 2.



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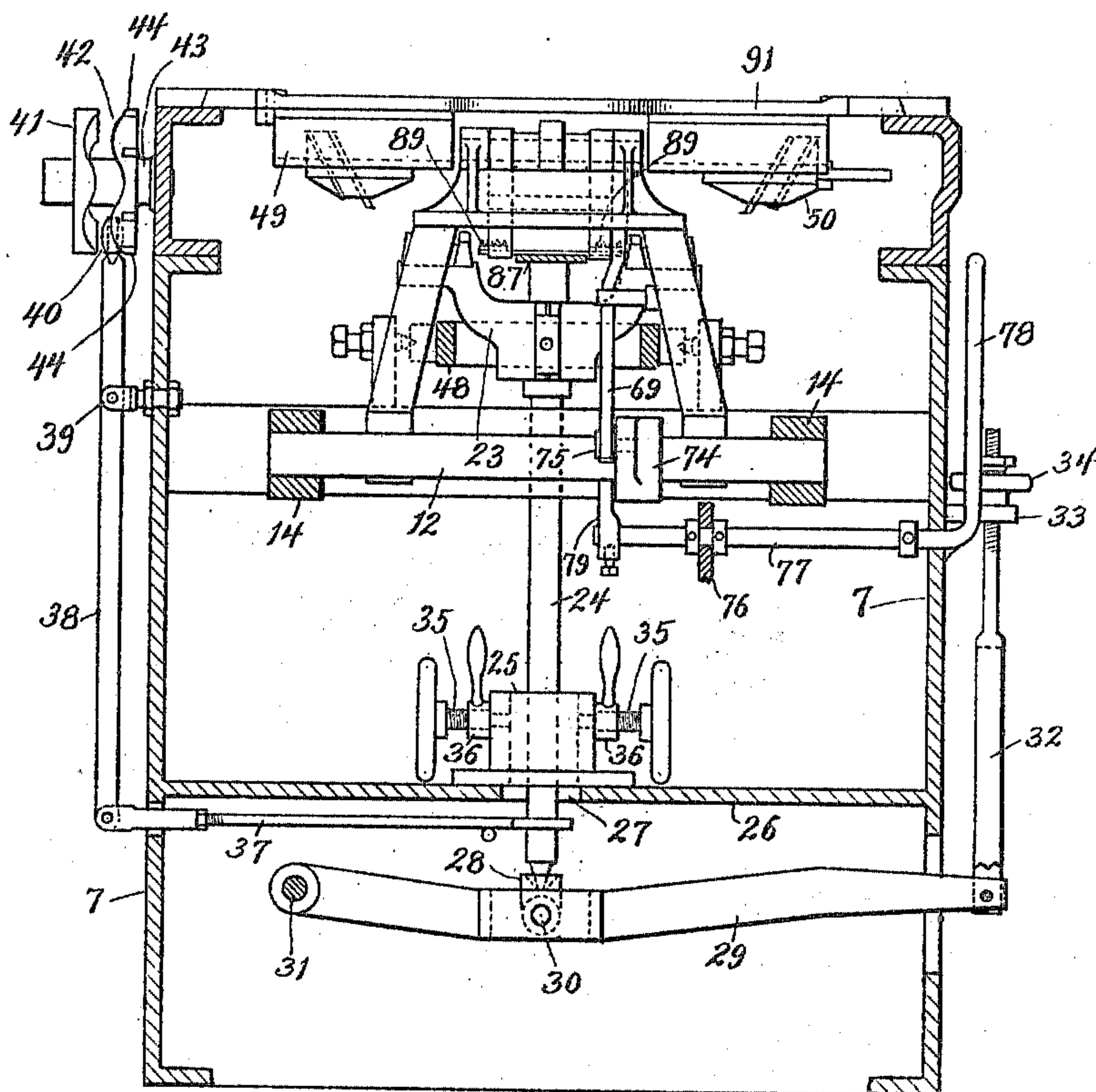
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5 SHEETS—SHEET 3.

Fig. 3.



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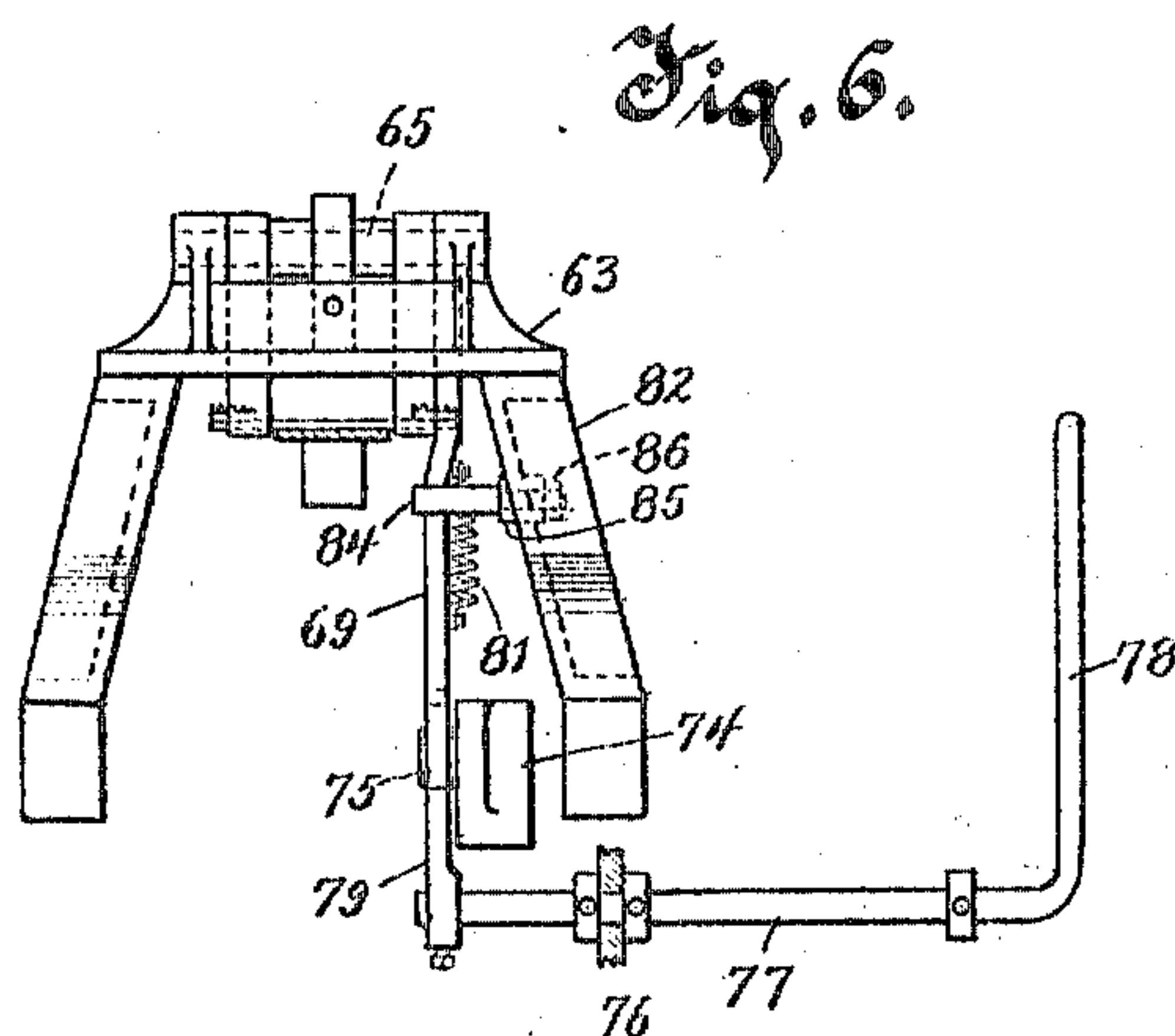
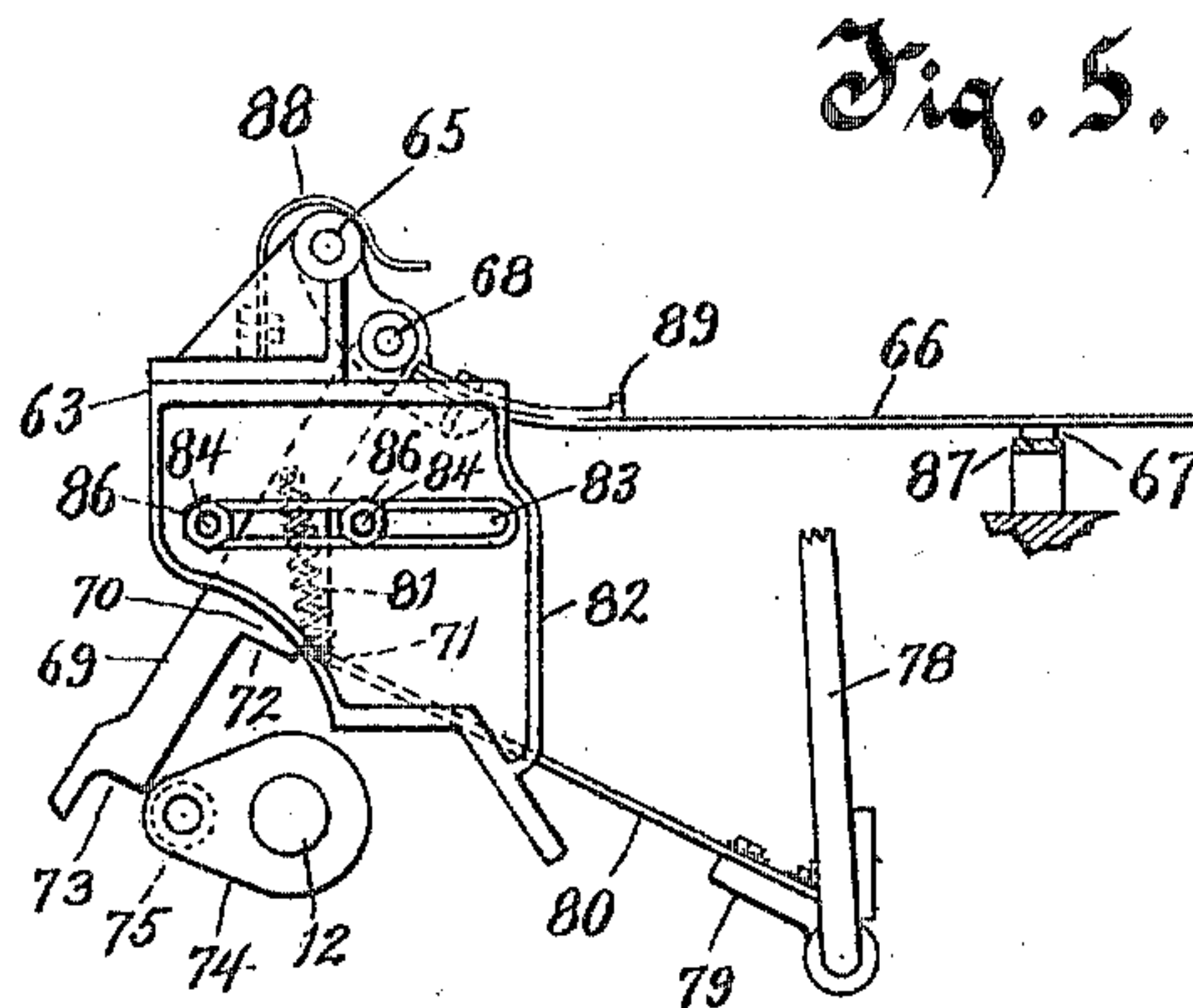
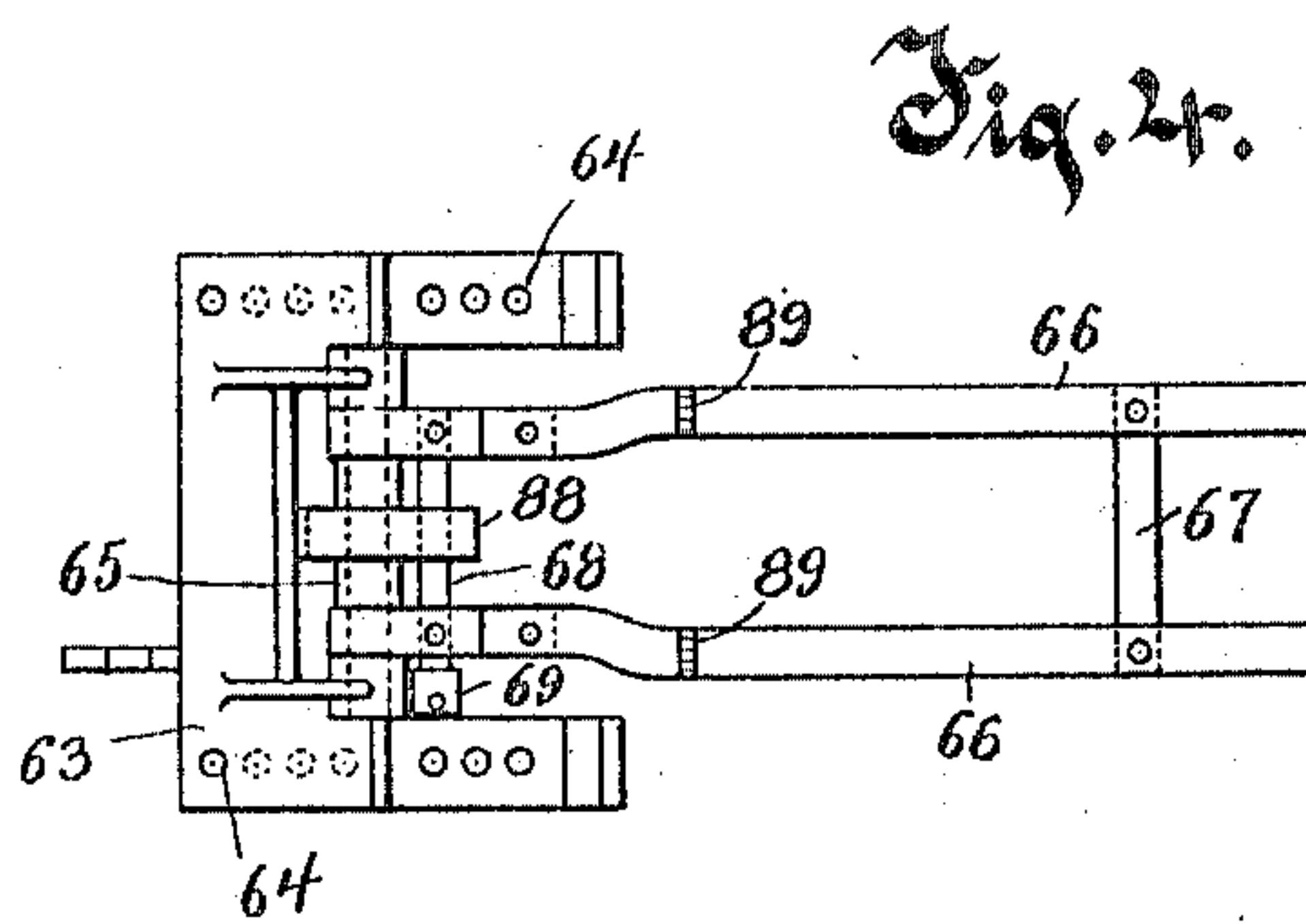
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6 SHEETS—SHEET 4.



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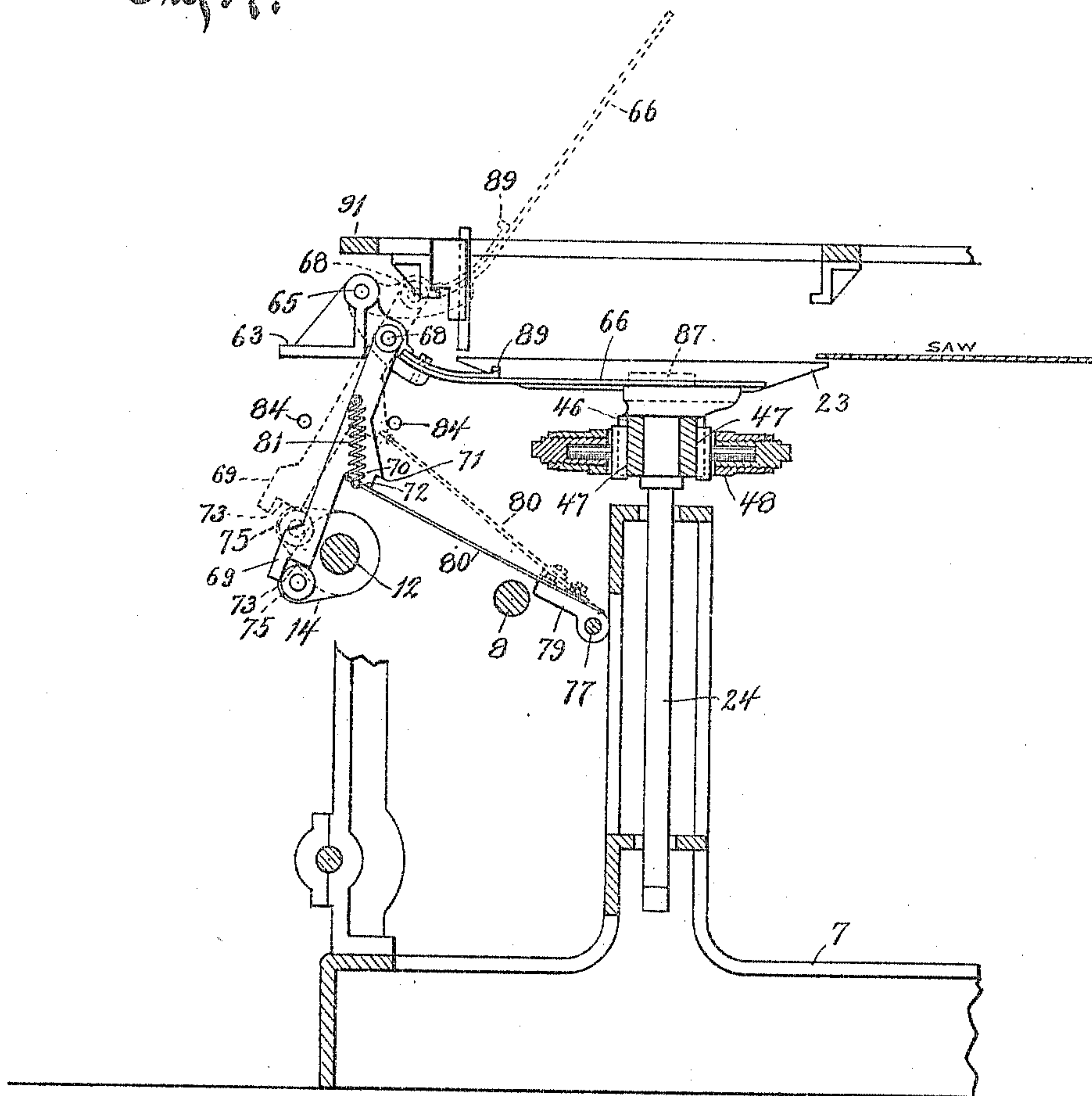
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5 SHEETS—SHEET 5.

Fig. 7.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## SHINGLE-MACHINE.

No. 817,177.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed May 7, 1904. Serial No. 206,799.

*To all whom it may concern:*

Be it known that we, WILLIAM H. KRATSCH and CHARLES G. DAUBER, residing in Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Shingle-Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention has relation to improvements in shingle-machines. In the ordinary form of machines of this character a reciprocating carriage is provided on which a block of wood from which the shingles are to be cut is placed. On the forward movement of the carriage the block of wood is carried over a circular horizontally-disposed rotating saw. This saw effects the cutting of one shingle from the block on each forward movement of the carriage. In thus cutting shingles from a block of wood there always remains when the block has been cut down as much as possible a part of the block, which must be removed from the carriage, and it has always been customary to remove these pieces by hand. This block may be large or small, depending on the quality of the timber from which the shingles are sawed. If the shingle-block be a sound one, the block remaining and which must be removed will be quite small, whereas if the shingle-block is a defective one that will not make good shingles the block to be removed may be quite a large one.

It is the primary object of our invention to provide a construction whereby the waste blocks of wood are thrown from the machine by mechanical means, and hence the necessity of removing them by hand, with its attendant dangers, is entirely avoided.

In the accompanying drawings we have illustrated our invention in connection with a complete shingle-machine of the form to which our invention is more especially applicable in order to illustrate the arrangement of our improvements with respect to the other parts of the mechanism and their co-operation therewith.

Referring to the drawings, Figure 1 is a side elevation of a shingle-machine equipped with our improvements. Fig. 2 is a top plan view of Fig. 1. Fig. 3 is a view of the left-hand end of the machine, the frame being in transverse section. Fig. 4 is a detail plan

view of our improvements. Fig. 5 is a side elevation of the machine shown in Fig. 4, and Fig. 6 is an end view of the machine shown in Fig. 4; and Fig. 7 is a vertical longitudinal section of a fragment of the machine, taken through the middle of the tilt-table and the carriage and showing the discharging device or ejector in one position in full lines and in the other position in dotted lines.

We will first describe in a general way the construction of the shingle-machine in connection with which our improvements are shown. The different elements or parts of the mechanism are mounted in any suitable framework, the principal parts of the framework shown in the accompanying drawings consisting of two side pieces 7 7. Journaled in these side pieces is a main drive-shaft 8, having mounted on one end thereof different sizes of pulleys 9, 10, and 11, around any one of which a drive-belt (not shown) leading from any suitable source of power is passed for the purpose of driving the main shaft. Between this main shaft and the counter-shaft 12 is a suitable system of gearing, which is shown as covered by a casing 13. This gearing serves to transfer the rotation of the main shaft to the counter-shaft. At opposite ends of the counter-shaft are cranks 14 14, and the outer ends of these cranks carry rollers 15, which engage the edges of elongated slots 16 in levers 17 17, said levers being pivoted at their lower ends and adapted to have an adjustable connection at their upper ends with links 18, the adjustable connection being secured by means of a pin extending from the upper end of each of said arms and engaging any aperture of a series of apertures 19, provided in the links. The inner ends of the links are pivotally connected to a carriage 20, which is adapted to reciprocate in ways 12 21, provided therefor in the framework. At one end of the frame and in line to engage a block of wood carried thereto by the reciprocable carriage is a horizontally-mounted circular saw 22, which is rotated by any desirable mechanism.

Beneath the carriage is a tilt-table 23, arranged to be tilted laterally and adapted for supporting the block of wood. This table is carried at the upper end of a standard 24, preferably square in cross-section. The standard passes through a box 25, supported by a horizontal member 26 of the frame, and



is extended downwardly through an elongated slot 27 in said horizontal member. Its lower extremity rests in a conical socket formed in a hardened oscillating pivoted cup 28. This cup is disposed in a slot formed in a bar 29 and is pivoted between the walls of said slot on a pivot-pin 30. The inner end of the bar is pivoted to the frame of the machine on a pivot-pin 31, and the opposite end of said bar extends through a slot in one of the side pieces of the frame and is pivotally connected to an upwardly-extending arm 32. The upper end of this arm 32 passes freely through an opening in an outstanding lug 33, and the arm is threaded from its upper end downwardly for a desired distance, and the thread receives an adjusting-nut 34. Turning through opposite ends of the box 25 are screws 35 35, which are provided on their outer ends with hand-wheels for convenience in turning the same. Locking-nuts 36 36 are also carried on these screws and are adapted to turn against the ends of the box to thereby hold the screws in adjusted position. The standard 24 when oscillated is adapted to contact with the inner ends of the screws 35, whereby the degree of tilting of the tilt-table 23 is regulated, and the regulation of the tilting of the table 23 of course regulates the taper of the shingle. By turning on the nut 34 at the upper end of the arm 32 the outer end of the bar 29 is thereby either raised or lowered, in accordance with the direction of turning of the nut, and in this manner the thickness of the shingle to be cut throughout its entire length is determined, inasmuch as by raising the bar the tilt-table carrying the block from which the shingle is to be cut is brought closer to the circular saw, and hence the thickness of the shingle throughout is diminished, whereas by lowering the bar the distance horizontally of the tilt-table from the circular saw is increased, and consequently the thickness of the shingle throughout its length is increased. The standard 24 is also engaged by the inner end of an arm 37. This arm extends through a slot in the side piece 7 of the frame which is opposite to the side piece through which the bar 29 extends. The outer extremity of this arm is pivotally connected to a lever 38. The said lever is pivoted between its ends on a pivot projection 39. The upper end of the lever 38 carries a small roller 40, which works between wave-surfaces formed on the inner faces of opposed cam-wheels 41 and 42, which cam-wheels are mounted to rotate together on a laterally-projecting stud 43. The inner cam 42 is provided peripherally and at equidistances apart with projections 44, and one of these projections is adapted to be engaged on each forward movement of the carriage by a dog 45, carried by the carriage. In this manner in the successive reciprocations of the carriage the cam-wheels are given

an intermittent rotary movement on each forward movement of the carriage in its reciprocation. The wave-surfaces of the cams are such that when said cams are given a partial rotation the lever 38 is turned on its pivot, and hence a movement is imparted to the arm 37, and this movement of said arm will cause the standard 24 to be tilted, and consequently a tilting of the tilt-table 23 is thereby effected, the said tilting of the table, as heretofore stated, being for the purpose of giving a tapered cut to the shingle. The next successive partial rotation of the cams will turn the lever 38 in an opposite direction, and hence through the described connections will effect an opposite tilting of the tilt-table, and thereby in the case of the next shingle which is cut tapering that shingle in the opposite direction to the taper given to the previous shingle, and so on throughout the operation.

The tilt-table 23 is rigidly attached to the upper end of the standard 24. On this standard is keyed a collar 46, said collar being planed with V-grooves in diametrically opposite sides. The collar with the table and standard are adapted to slide on the oscillating V-slides 47. The purpose of providing this sliding connection is to permit the upright 24 and the tilt-table 23, carried thereby, to be raised or lowered when the bar 29 is raised or lowered for the purpose of adjusting the thickness of a shingle. The pivots of the oscillating V-slides are mounted in an arbor 48.

The movable carriage is provided with oppositely-disposed clamping-jaws which are adapted to clamp the block of wood from which the shingles are to be cut, so that said block of wood may be carried along with the carriage to and from the saw. One of these jaws (designated by the numeral 49) is normally fixed, and the other jaw (designated by the numeral 50) is movable toward and away from the fixed jaw. Referring to the mechanism for moving the movable jaw, the numerals 51 51 indicate bell-crank levers. Corresponding arms of these bell-crank levers are connected to the movable jaw by means of links 52 52. The other arms of the said bell-crank levers are connected together by means of a long link 53. The bell-crank levers are mounted on shafts 54 54, and one of these shafts has rigidly mounted thereon and extending therefrom a trigger 55.

The shaft 54, from which the trigger 55 extends, has also extending therefrom an arm 56, which connects to one end of a horizontal spring-actuated rod 57. The rod 57 passes freely through a lug 58, and its extremity extending beyond the lug carries nuts 59, which act as stops to limit the movement of the rod in one direction. The said rod 57 is encircled by a coiled spring 60, the said spring being confined between the lug 58 and a collar 61 on the rod, the spring acting to normally



force the rod outwardly. The trigger 55, hereinbefore referred to, is adapted to be acted upon by an adjustable shoulder 62 just before the reciprocating carriage completes its rearward return movement.

When the machine is in the position shown in Figs. 1 and 2—that is to say, in such position that the carriage is at the limit of its rear movement—the movable clamping-jaw 50 is in its out or releasing position by reason of the shoulder 62 having acted upon the trigger 55 and being still in engagement therewith. It will be understood that when the carriage is moved rearwardly and the trigger brought into engagement with the shoulder 62 the shaft 54, from which the trigger extends, is rotated in a direction to cause the connected bell-crank levers 51 to pull outwardly on the movable clamping-jaw, and at the same time the arm 56 is turned in a direction to cause the rod 57 to push inwardly against the action of the coiled spring 60. The block of wood from which the shingles are to be cut is placed on the table 23 and is supported on said table in the tilted position to which the table had been previously turned. If now the machine is started, the carriage will be moved forwardly, and the moment the trigger 55 leaves the shoulder 62 the spring 60 will recoil and push the rod 57 outwardly. This out movement of said rod will through the described connections cause an in movement of the movable clamping-jaw 50, and the block of wood will be thereby clamped in its tilted position between the said jaw 50 and the opposite fixed jaw 49. With the continued forward movement of the carriage the block of wood is brought entirely off the table 23 and up against the saw, and the shingle is thereby cut. After the block of wood leaves the table 23, as just described, the tilting mechanism comes into play and acts to tilt the table 23 in an opposite direction ready for the next shingle. The carriage now moves rearwardly, and when the trigger 55 reaches the shoulder 62 the movable clamping-jaw 60 is moved outwardly to releasing position, and the block of wood is thereby permitted to fall on the reversely-tilted table 23 ready for the next reciprocation of the carriage, and in the forward movement of the carriage on this next reciprocation the shingle is cut with an opposite bevel or taper to the bevel or taper of the first shingle, and so on throughout the operation.

It is believed that the above description of the construction and operation of the shingle-machine in connection with which our improvements are especially adapted will be sufficient to give a clear understanding of the application of the improvements and the operation thereof. The improved mechanism is shown in detail in Figs. 4, 5, and 6, and this mechanism, as stated at the outset of the speci-

fication, is designed for removing from the framework small pieces of wood which are left in the machine by reason of the sawing operation and which it has been customary to remove by hand. Referring to this mechanism, the numeral 63 indicates a substantially U-shaped frame which is connected to the main frame of the machine. It is preferably so connected to said main frame as to be adjustable longitudinally thereon, this adjustment being secured by providing each forwardly-extending member of the said frame 63 with a series of openings 64. The main frame is provided with an opening for each of the series of openings 64. The frame 63 is moved longitudinally to the extent desired, and pins are passed through those openings of the two series of openings which are in registration with the openings of the main frame at the desired adjustment of the frame 63 and said frame held in this manner in adjusted position. Supported in the forwardly-extending members of the frame 63 are the ends of the pivot-pin 65, upon which are pivotally mounted two forwardly-extending discharging-arms 66 66. These discharging-arms are connected by a transverse strip 67, which strip prevents said arms from spreading. The arms 66 near their outer ends support the ends of a transverse pin 68. One end of this pin is extended laterally beyond one of the discharging-arms, and on this extended end is swingingly hung an arm 69. The inner edge of the arm 69 is provided medially with a projecting lug 70. The edge of this lug is on an incline or bevel to the plane of the longitudinal edge of the arm, as most clearly shown in Figs. 1 and 5. The lug at its lower end is cut inwardly to form a shoulder 71, and the lower edge of said lug forms another shoulder 72. The lower extremity of the arm is also incut at its inner edge to form still another shoulder 73. Mounted on the counter-shaft 12, between the ends of said shaft, is a crank-arm 74. The outer end of this arm carries a roller 75, which when the arm 69 is moved inwardly to the extent permitted is in line to act against the lower shoulder 73 of the arm 69.

Journalled in one of the side pieces 7 and in an intermediate portion 76 of the framework is a rock-shaft 77. The outer end of this shaft is formed with a handle 78 for convenience in operating it. The inner end of the rock-shaft has projecting diagonally therefrom a short arm 79, and connected to and extending from this short arm is a catch-bar 80. This catch-bar normally engages the upper shoulder 71 of arm 69, and thereby holds said arm in its outwardly-swung position, so that the crank-arm 74 in its revolution will clear the lower shoulder 73 of the arm 69. A coiled spring 81 is connected at its upper end to the arm 69 and at its lower end to the forward end of the catch-bar 80.



In the depending side piece 82 of the frame 63 is a horizontal slot 83. Into this slot extend the outer ends of pins 84 84. Each pin is provided with a shoulder 85, bearing against the inner side of the depending side piece 82, and the outer extremities of the pins are threaded to receive nuts 86 86. By loosening the nuts the pins may be adjusted in the slots closer together or farther apart. The pins extend inwardly a sufficient distance to permit the arm 69 to pass therebetween, the inner pin being adapted to act against the beveled edge of the lug 70 of said arm.

The transverse connecting-strip 67 of the discharging-arm 66 normally rests on a buffer 87, of leather or other desired material, suitably supported by the standard 24.

To assist in returning the discharging-arms 66 to normal position after said arms have been thrown upwardly, we employ a flat spring 88, secured at one end to the framework and having its free end extending over the transverse pin 68.

Each discharging-arm 66 is provided with an upwardly-extending projection 89, having its edge provided with a series of teeth adapted to engage the small pieces of wood which are caught on the arms 66 and prevent the said pieces of wood from slipping on the arms when the said arms are thrown upwardly for the purpose of discharging the small pieces of wood.

It will be understood that every time a shingle-block is sawed down as far as possible it leaves one block which must be removed from the machine at once, inasmuch as if it is left on the tilt-table there would be danger of its being carried over the saw and wedged between the saw and the dogs of the carriage, thus injuring the saw. For this reason it is important that the block which remains after the sawing operation should be removed. It is further important that the block resulting from the sawing operation be removed from the tilt-table in view of the fact that the new block when placed in carriage would not rest properly on the tilt-table, and consequently the resulting shingles would be imperfect. The removal of the block is effected by our improved mechanism in the following manner: The handle 78 of the rock-shaft 77 is grasped and said handle pushed toward the left-hand end of the machine, Figs. 1 and 2. This will cause the end of the catch-bar 80 to describe the arc of a circle, and consequently bring said end of the catch-bar out of engagement with the shoulder 71 of the arm 69. The arm 69 will then immediately swing inwardly, so as to bring its lower end at such position that the roller 75 will act against the shoulder 73 at said lower end of the arm. As soon as the roller in the rotation of the crank-arm 74 is brought into engagement with the shoulder referred to the arm 69 is raised, and

the raising of this arm will necessarily cause an upturning of the discharging-arms 66 on their pivot 65. The arms 66 in their upward movement will carry therewith the waste block of wood supported thereon and forcibly throw the same over the left-hand end of the machine, Fig. 1. After the arm 69 has moved upwardly a certain distance, the action of the inner pin 84 against the inclined edge of the projecting lug 70 will cause the arm 69 to swing outwardly, and thereby permit the roller 75 on the crank-arm 74 to escape by the shoulder 73. The moment this occurs the discharging-arms 66 will drop by gravity, assisted by the action of the spring 88, and again assume their normal position. (Shown in Fig. 6.) The swinging outwardly of the arm 69 will cause the disengagement of the shoulder 72 with the end of the catch-bar 80, and the action of the spring 81 will again bring the end of the catch-bar into engagement with the upper shoulder 71 of the arm 69, so that all the parts are returned to normal position.

From the above description it will be seen that we provide simple mechanism for accomplishing that which it has been heretofore necessary to accomplish by hand, whereby all the dangers incident to removal of the small pieces of wood by hand are avoided.

While we have herein shown and described the means for discharging the waste blocks of wood as consisting of two or more arms 66 connected together so as to move in unison, yet we do not wish to be understood as restricting ourselves to this specific arrangement, inasmuch as any desirable form of arm or frame adapted to support the block of wood which remains after the sawing operation and for discharging the same over the left-hand end of the machine by a movement of the discharging device we would consider to be within the spirit and scope of our invention.

In the use of shingle-machines the horizontal circular saw of course after the lapse of some time becomes worn away, and it then becomes necessary to adjust the throw of the reciprocal carriage in order to increase to a slight extent its forward movement. This is accomplished in the machine illustrated in the drawings by the provision of the adjustable connection between the upper ends of the lever 17 and the outer ends of the links 18. When this adjustment is effected, it of course becomes necessary to also adjust the stop 62, and for this purpose the said stop is provided with a series of openings 90, any one of which is adapted to receive a pin to thereby hold said stop in adjusted position. Of course when the reciprocal carriage and the stop are adjusted for the purpose of compensating for the wear of the saw it is necessary to adjust the U-shaped frame 63, upon which the discharging-arms 66 are pivoted.



This is provided for by the provision of the openings or apertures 64 in the forwardly-extending members of said U-shaped frame.

Whenever the U-shaped frame 63 is adjusted to another position, however, it becomes necessary to remove the arm 69 and substitute therefor another arm of proper length and shape to be acted upon by the crank 74, as it is obvious that if this change should not be made the original arm 79 would not be acted upon, or at least properly acted upon, by the crank 74 on account of the adjusted position of the arm 63.

In order to regulate the time when the roller 75 of the crank-arm 74 leaves the shoulder 73 of the arm 69, and thereby regulate the extent of the up movement of the discharging-arms 66, we mount the pins 84 adjustably in the horizontal slot 83—that is to say, said pins are provided on their outer ends with the nuts 86, and when these nuts are loosened the said pins may be moved closer together or farther apart and held in their adjusted position by again tightening the nuts. The closer together the pins are the sooner will the arm 69 be tripped and thrown out of engagement with the roller 75, inasmuch as the inclined edge of the projecting lug 70 will be acted upon by the inner pin sooner than would be the case if the pins were adjusted farther apart. When this contact occurs, the arm 69, as stated, is tripped, and the discharging-arms of course cease their upward movement and return to their normal horizontal position.

What we claim as our invention is—

1. In combination with a shingle-machine provided with a tilt-table, a pivoted discharging device extending below the plane of the supporting-pieces of the tilt-table, and means for turning said device upwardly on its pivot to thereby engage the under side of the waste block of wood supported by the supporting-pieces of the tilt-table, and raise said block upwardly and eject the same from the machine.

2. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, and means for turning said device upwardly on its pivot and thereby discharging said block of wood contained thereon.

3. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, mechanism for turning said discharging device upwardly on its pivot, said mechanism being normally in a non-operative position, but adapted to be adjusted so as to be operated by the mechanism of the shingle-machine, and when so operated to be moved so as to effect the turning of the discharging device upwardly on its pivot and thereby effect the discharge of the

block of wood contained on said discharging device, the said discharging device after the discharging operation adapted to return to normal position, and means for returning the operating mechanism of the discharging device to normal non-operative position.

4. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, means for turning said discharging device upwardly on its pivot so as to effect the discharge of said block of wood therefrom, and a spring having its free end bearing on the discharging device, and adapted for returning said discharging device to normal position.

5. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, means for turning said discharging device upwardly on its pivot and thereby discharging said block of wood therefrom, means for returning the discharging device to normal position, and a stop for limiting the return movement of the discharging device.

6. In combination with a shingle-machine having a reciprocable carriage adjustable longitudinally of the frame of the machine, and a saw toward and from which the carriage, in its reciprocations, is adapted to be moved, and also provided with a tilt-table, a frame, a pivoted discharging device carried by said frame and extending below the plane of the supporting-pieces of the tilt-table, and adapted to receive thereon the waste block of wood resulting from the sawing operation, means for turning said discharging device upwardly on its pivot to thereby engage the under side of the waste block of wood supported by the supporting-pieces and raise said block upwardly and eject the same from the machine, and means for adjustably connecting the discharging-device frame to the main frame of the shingle-machine, so that said discharging-device frame may be adjusted longitudinally of the main frame, when the longitudinal position of the reciprocable carriage with relation to the saw is adjusted.

7. In combination with a shingle-machine, a pivoted discharging device, consisting of two connected arms adapted to receive thereon the waste block of wood resulting from the sawing operation, and means for turning said discharging device upwardly on its pivot and thereby discharging said block of wood therefrom.

8. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, the pivot being so disposed as to provide for an up-and-down turning of the discharging device on said pivot, an arm connected to and extend-



ing from the discharging device, said arm being normally in such position as not to be acted upon by the operating mechanism of the shingle-machine, but when moved out of its normal position to be acted upon by said operating mechanism and thereby actuated in a direction to cause a turning of the discharging device upwardly on its pivot to thereby discharge said block of wood from said discharging device, and means for throwing the arm into and out of position to be acted upon by the operating mechanism of the shingle-machine.

9. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation the pivot being so disposed as to provide for an up-and-down turning of the discharging device on said pivot, an arm connected to and extending from the discharging device, said arm being normally in such position as not to be acted upon by the operating mechanism of the shingle-machine, but when moved out of its normal position to be acted upon by said operating mechanism and thereby actuated in a direction to cause a turning of the discharging device upwardly on its pivot to thereby discharge said block of wood from said discharging device, means for throwing the arm into position to be acted upon by the operating mechanism of the shingle-machine, and means for automatically throwing the arm out of position to be acted upon by said operating mechanism, after the discharging device has effected the discharge of the waste block of wood.

10. In combination with a shingle-machine having a shaft mounted in the frame thereof, said shaft provided with a projection, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, an arm pivotally connected to and extending from the discharging device, one of the longitudinal edges of said arm provided with shoulders, one of said shoulders projecting outwardly a greater distance than the other, a catch-bar normally engaging the shoulder of the pivoted arm which projects outwardly the greatest distance from said arm, a rock-shaft from which the catch-bar extends, said shaft when rocked in one direction adapted to release the catch-bar from the farthest-projecting shoulder, to thereby permit the pivoted arm to swing on its pivot in a direction to allow the catch-bar to engage with the other or least-projecting shoulder, whereby the pivoted arm is in position to be engaged by the projection from the shaft of the shingle-machine, and when so engaged to be actuated in a direction to cause a turning of the discharging device on its pivot in order to effect the discharge of the waste block of wood from said discharging device, and means after the

waste block of wood is discharged for returning the several parts to normal position.

11. In combination with a shingle-machine, having a shaft mounted in the frame thereof, said shaft provided with a projection, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, an arm pivotally connected to and extending from the discharging device, one of the longitudinal edges of said arm provided with shoulders, one of said shoulders projecting outwardly a greater distance than the other, a catch-bar normally engaging the shoulder of the pivoted arm which projects outwardly the greatest distance from said arm, a rock-shaft from which the catch-bar extends, said shaft when rocked in one direction adapted to release the catch-bar from the farthest-projecting shoulder to thereby permit the pivoted arm to swing on its pivot in a direction to allow the catch-bar to engage with the other or least-projecting shoulder, whereby the pivoted arm is in position to be engaged by the projection from the shaft of the shingle-machine, and when so engaged to be actuated in a direction to cause a turning of the discharging device on its pivot and the discharge of the waste block of wood from said discharging device, means after the said block of wood has been discharged for returning the pivoted arm to normal position out of the path of movement of the projection from the shaft of the shingle-machine, and a spring adapted to act on the catch-bar in order to bring said catch-bar again in engagement with the farthest-projecting shoulder of the pivoted arm, after said pivoted arm is returned to its normal non-operative position.

12. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, an arm pivotally connected to and extending from the discharging device, said arm provided on one of its longitudinal edges with a lug having a beveled or inclined edge, said arm being normally in such position as not to be acted upon by the operating mechanism of the shingle-machine, but when moved out of its normal position to be acted upon by said operating mechanism and thereby actuated in a direction to cause a turning of the discharging device on its pivot in order to effect the discharge of the waste block of wood from said discharging device, means for throwing the arm in a position to be acted upon by the operating mechanism of the shingle-machine, and projections between which the pivoted arm, when actuated to operate the discharging device, is adapted to move, one of said projections acting on the inclined lug of the arm and thereby swinging said arm out of position to be acted upon by the operating mechanism of the shingle-machine.



13. In combination with a shingle-machine, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, an arm 5 pivotally connected to and extending from the discharging device, said arm provided on one of its longitudinal edges with a lug having a beveled or inclined edge, said arm being normally in such position as not to be acted 10 upon by the operating mechanism of the shingle-machine, but when moved out of its normal position to be acted upon by said operating mechanism and thereby actuated in a direction to cause a turning of the discharging device on its pivot so as to effect the discharge of the waste block of wood from said 15 discharging device, means for throwing the arm in a position to be acted upon by the operating mechanism, and projections, one adjustable toward the other, and between 20 which projections the pivoted arm, when actuated to operate the discharging device, is adapted to move, one of said projections acting on the inclined lug of the arm and thereby 25 by swinging said arm out of position to be acted upon by the operating mechanism of the shingle-machine.

14. In combination with a shingle-machine having a shaft mounted in the frame 30 thereof, the said shaft provided with a projection, a pivoted discharging device located to receive thereon the waste block of wood resulting from the sawing operation, an arm pivotally connected to and extending from 35 the discharging device, said arm provided on one of its longitudinal edges with a lug having an inclined edge, the said lug provided with a shoulder at its lower edge, and another shoulder being formed below the lug, a catch- 40 bar engaging the shoulder at the lower end of the lug, a rock-shaft from which said catch-bar

extends, said catch-bar when the rock-shaft is rocked in one direction adapted to be disengaged from the shoulder at the lower end of the lug to engage under the shoulder formed 45 by the lower edge of said lug, whereby the pivoted arm is permitted to turn on its pivot, and thereby be in line to be acted upon by the projection of the shaft of the shingle-machine, and when so acted upon to cause a turning of the 50 discharging device on its pivot, whereby the discharge of the waste block of wood contained on said discharging device is effected, and projections between which the pivoted arm is disposed, one of said projections adapted 55 to act on the inclined edge of the projecting lug of the pivoted arm, when said arm is moved between the projections, and to thereby turn the pivoted arm out of the path of movement of the projection of the shaft of 60 the shingle-machine, and means, when the pivoted arm is so turned out of operative position for again engaging the catch-bar with the shoulder of the projecting lug of the arm.

15. In combination with a shingle-machine, a pivoted discharging device located 65 to receive thereon the waste block of wood resulting from the sawing operation, the said discharging device provided with a projection having a series of teeth adapted to engage 70 the waste block of wood, and means for turning said discharging device upwardly on its pivot and thereby discharging said waste block of wood contained thereon.

In testimony whereof we affix our signatures in presence of two witnesses. 75

WILLIAM H. KRATSCH.  
CHARLES G. DAUBER.

Witnesses:

A. D. RICE,  
J. A. POWERS.