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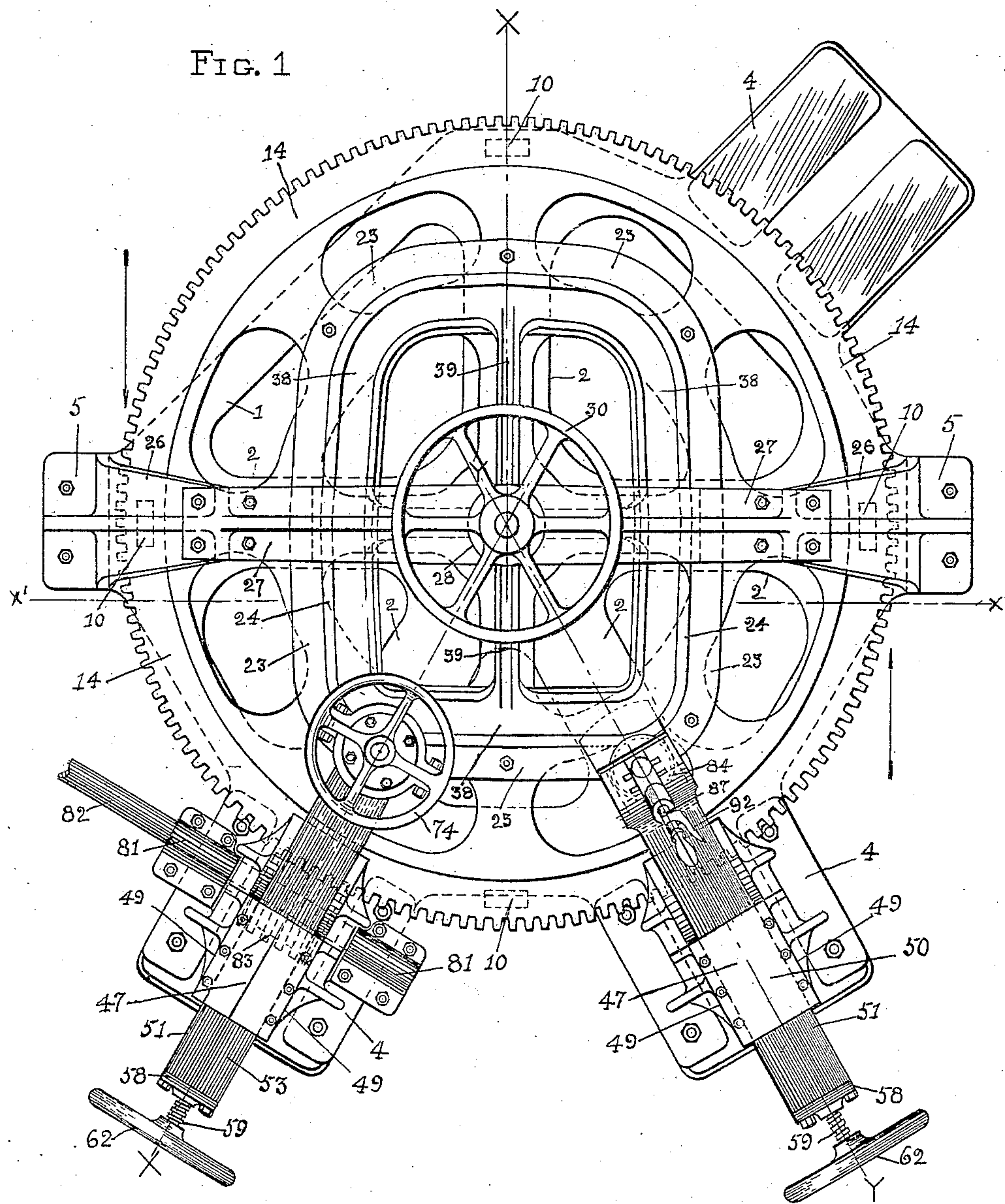
PATENTED MAY 21, 1907.

M. A. DUQUETT.

MACHINE FOR TRIMMING AND WIRING WHEELBARROW TRAYS.

APPLICATION FILED MAR. 30, 1906.

5 SHEETS—SHEET 1.



WITNESSES.

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*Grace Bowditch*

INVENTOR.

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*by Robt B Wilson*  
*Attorney*



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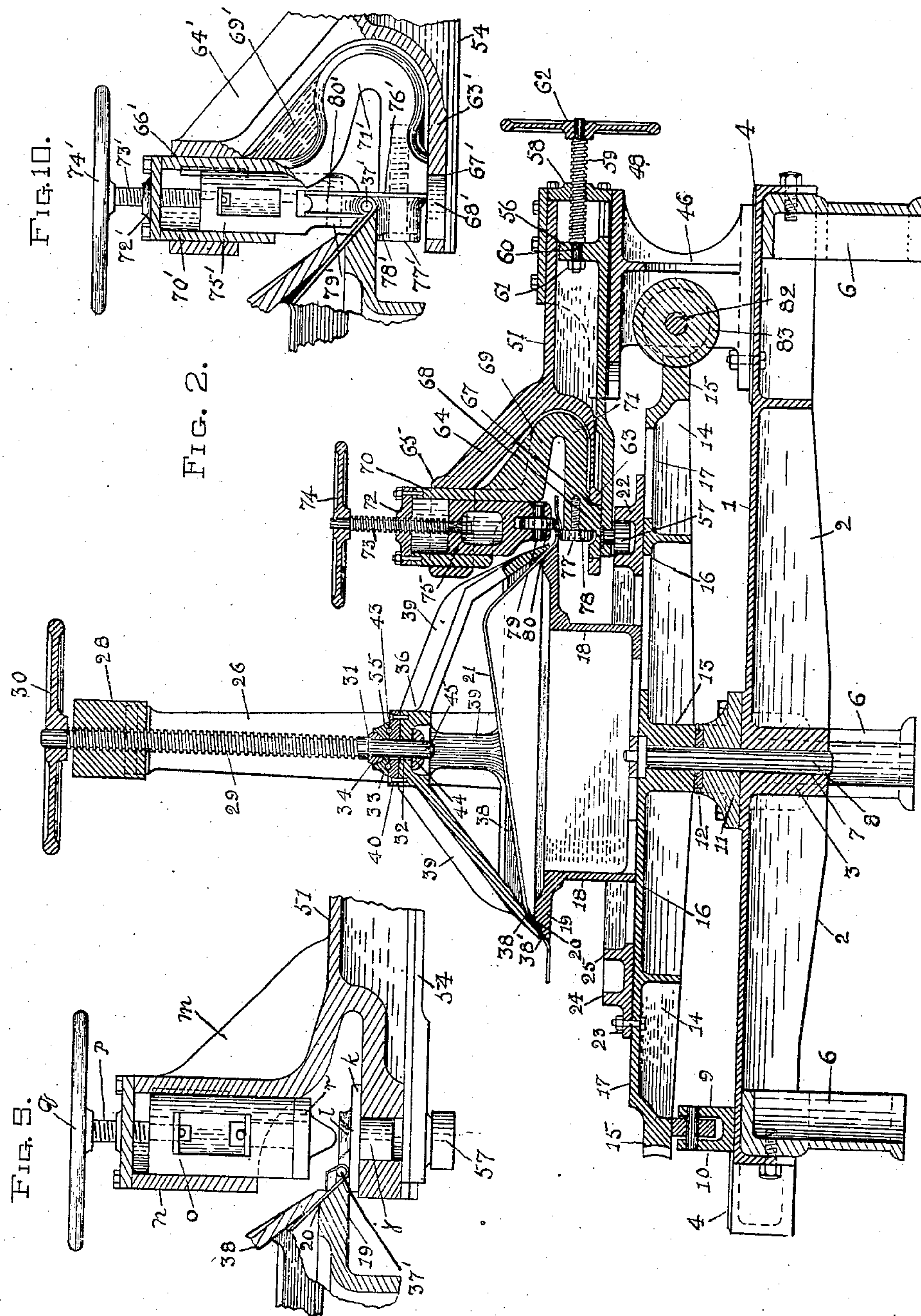
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5 SHEETS—SHEET 2.



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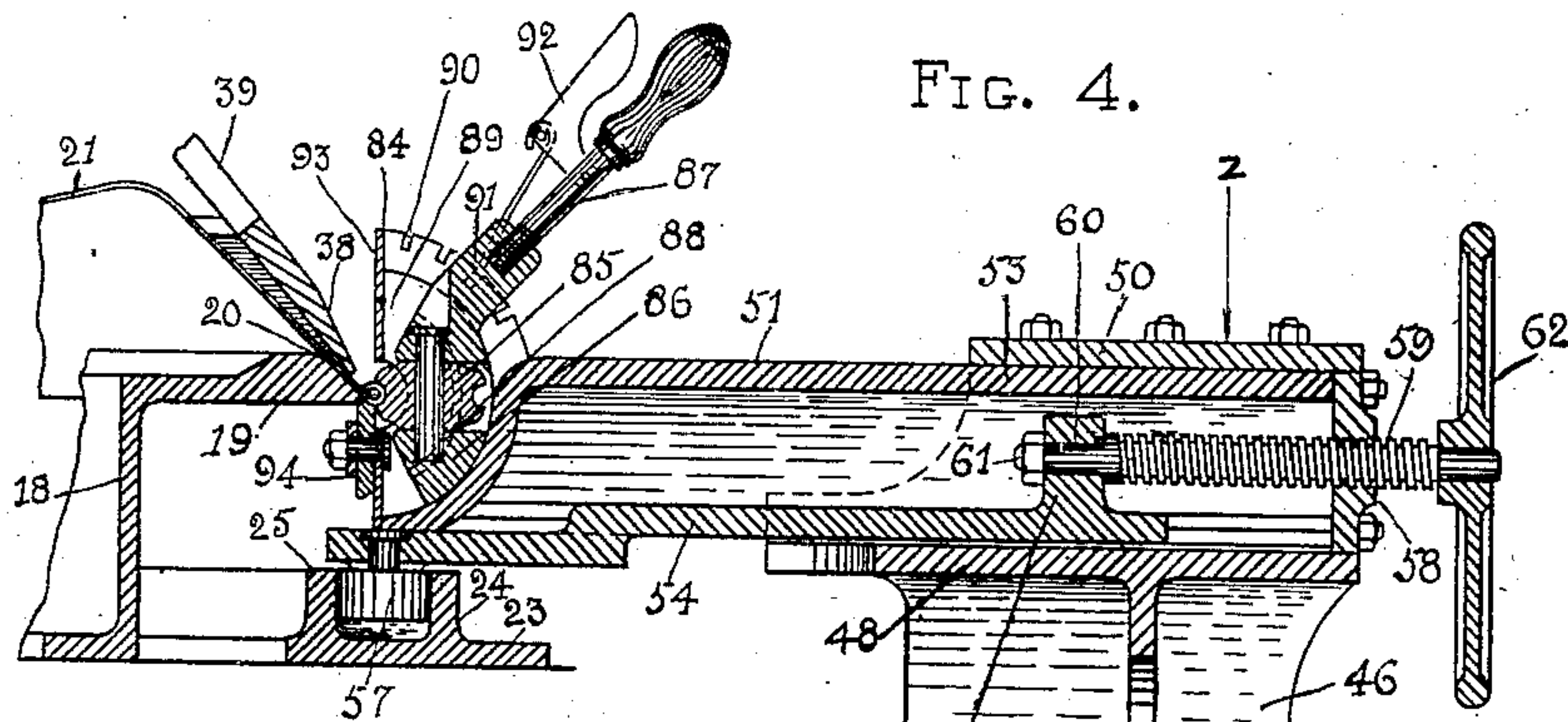


FIG. 4.

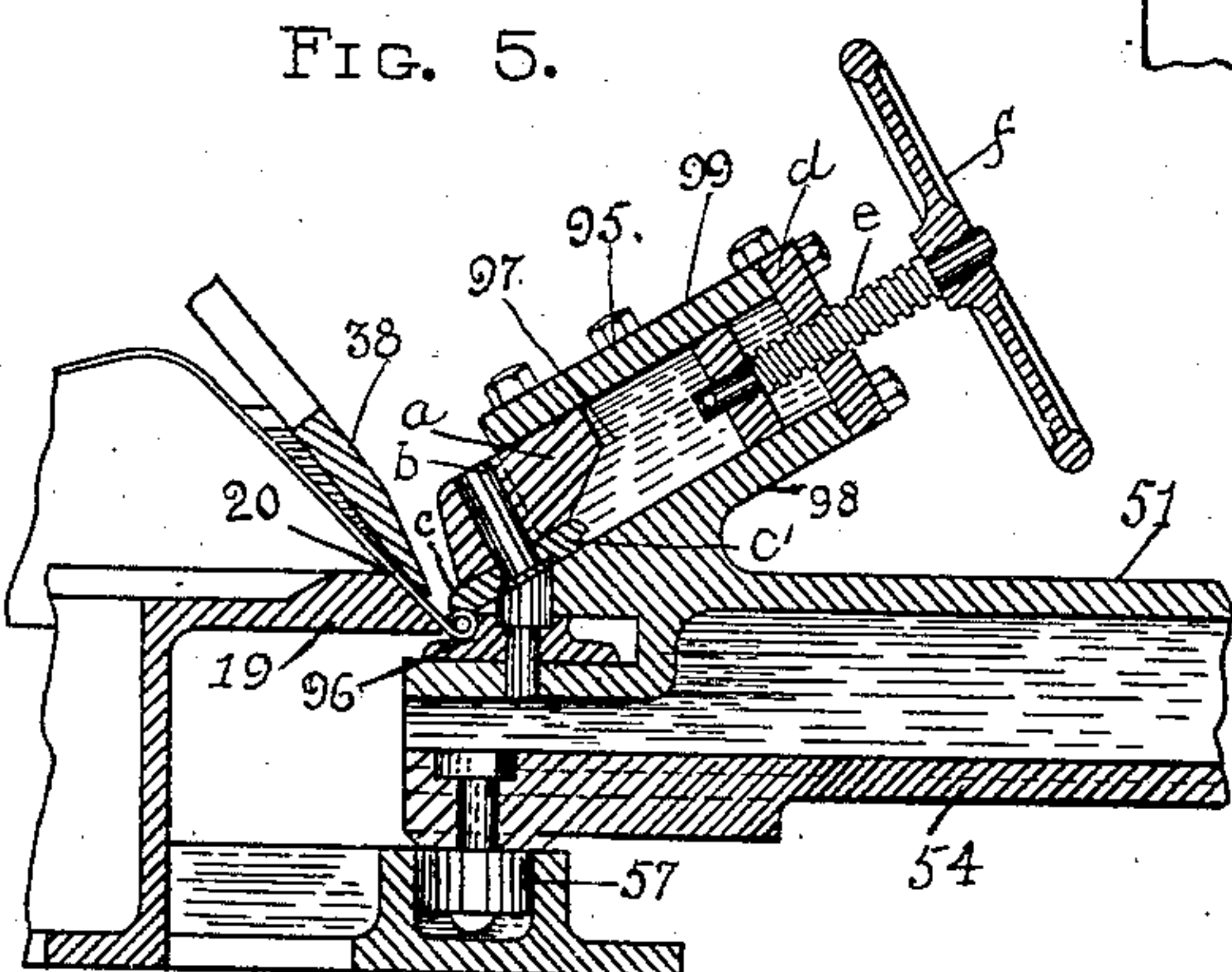


FIG. 5.

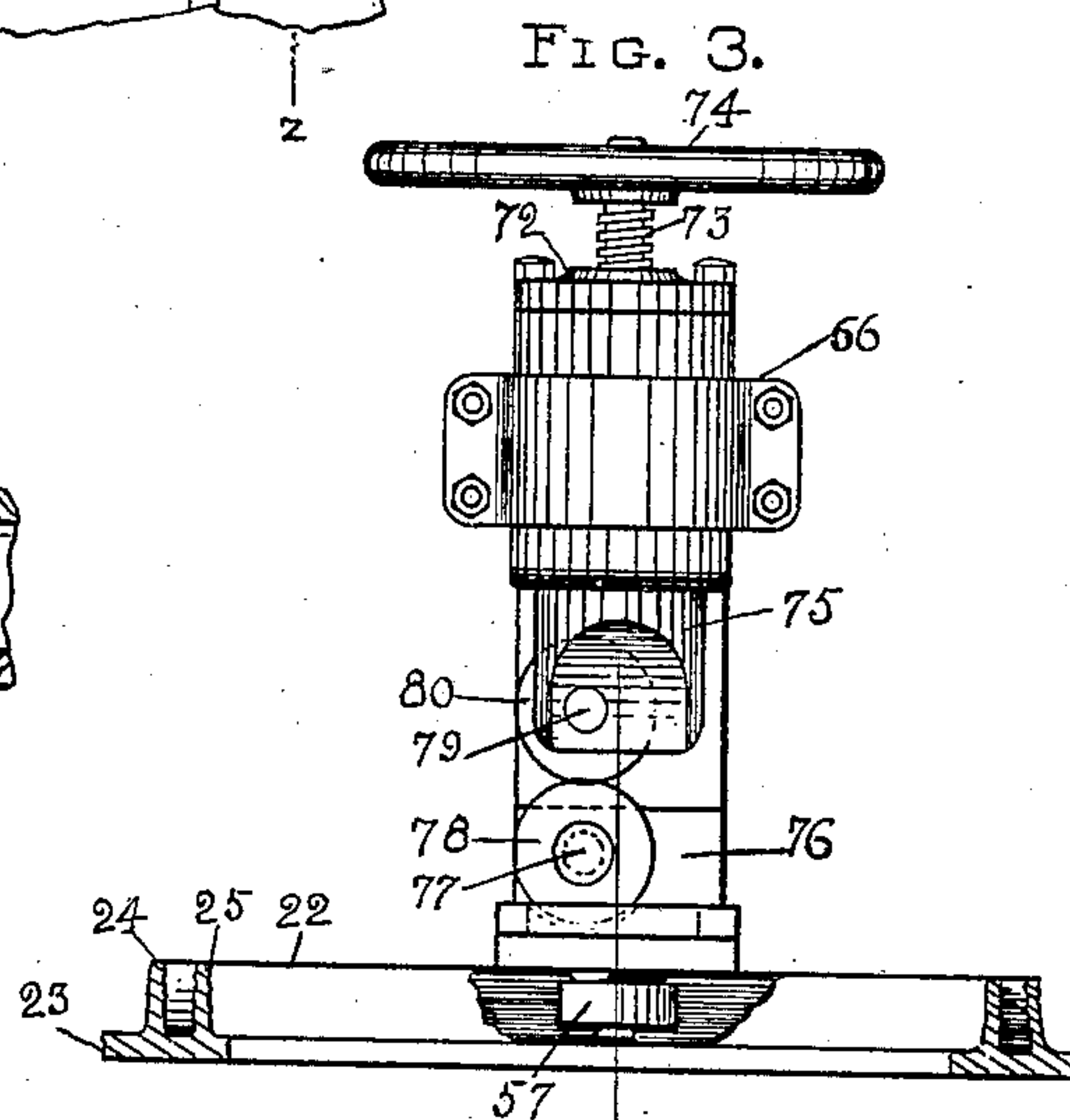


FIG. 3.

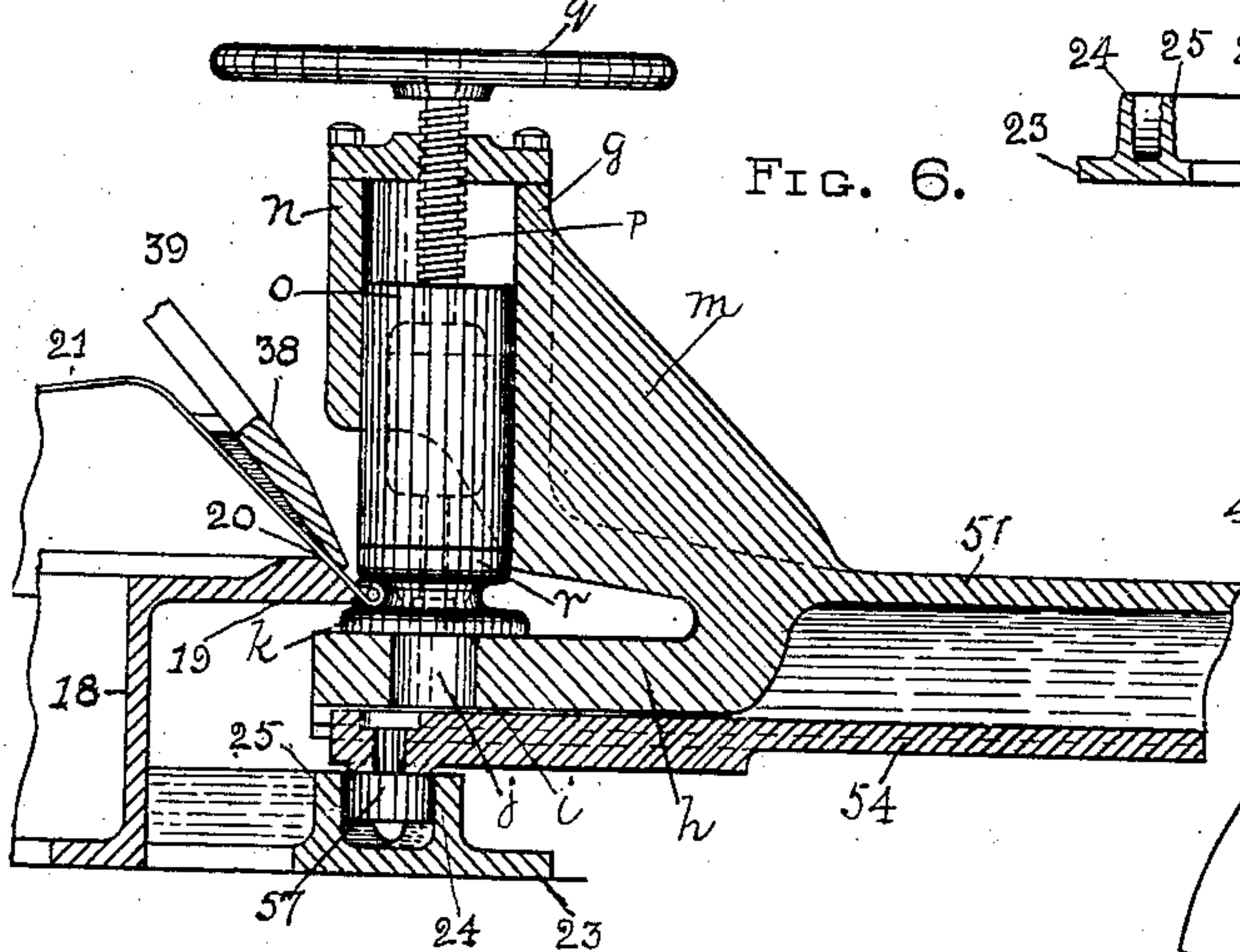


FIG. 6.

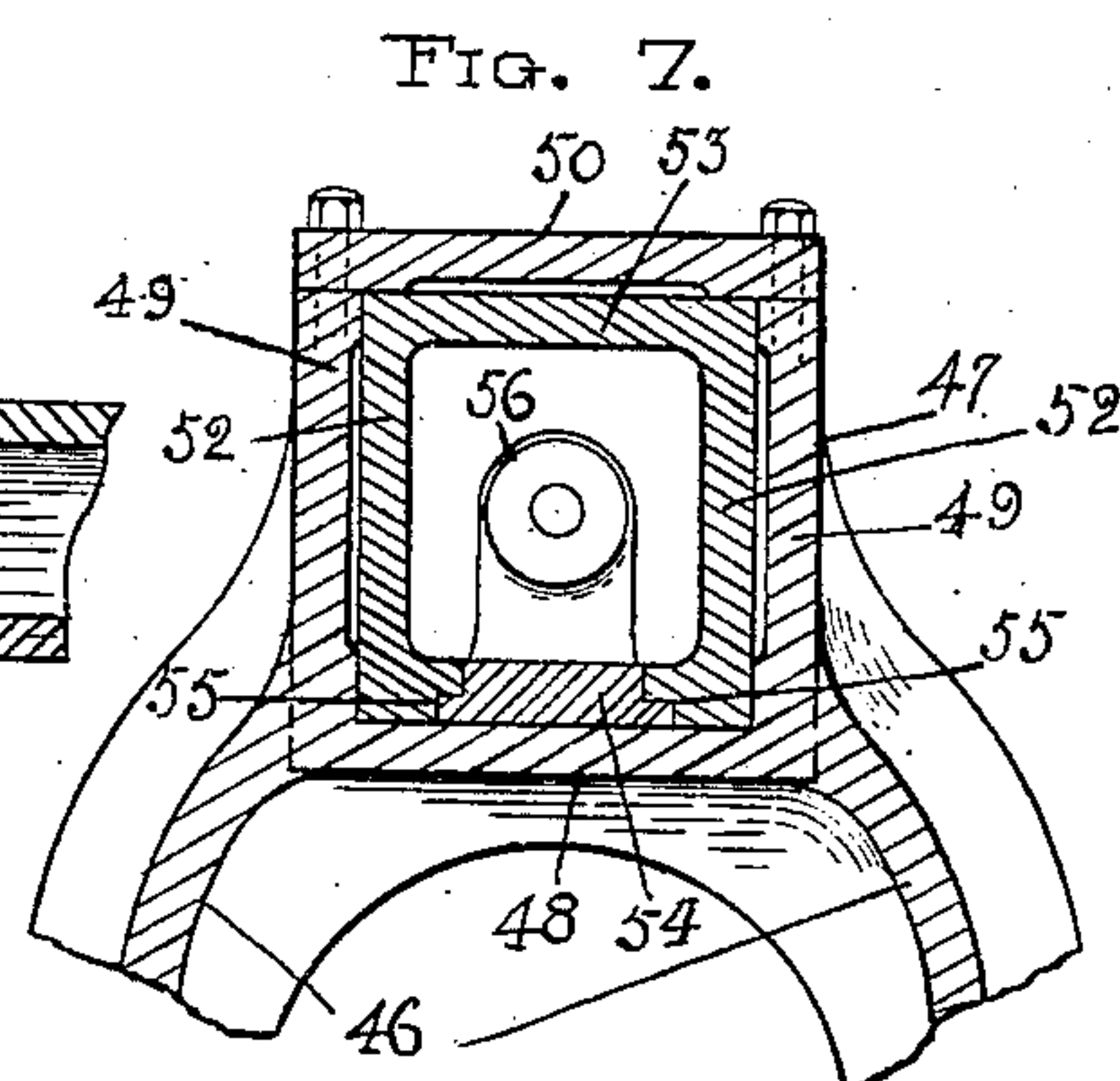


FIG. 7.

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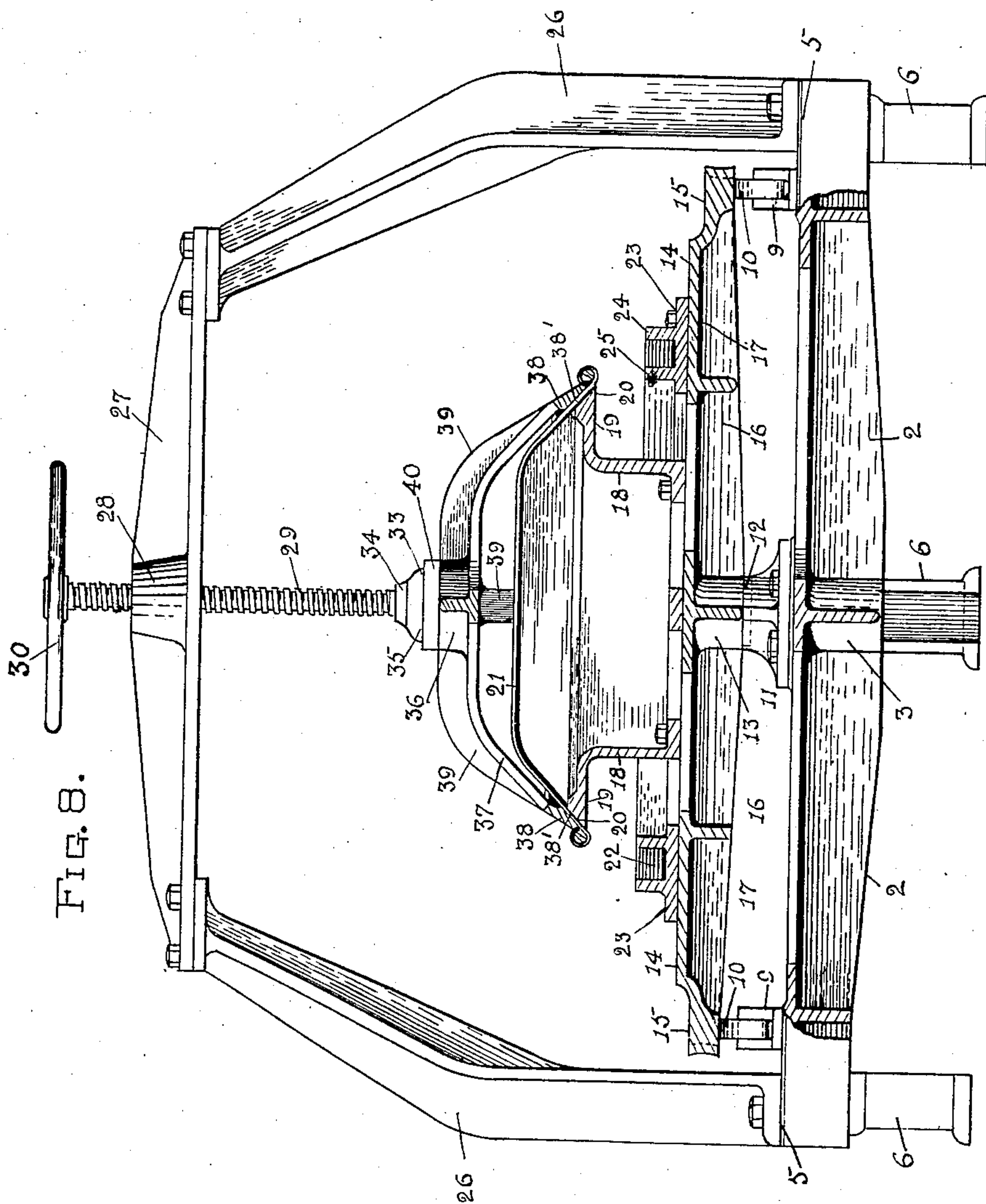
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

FIG. 12.

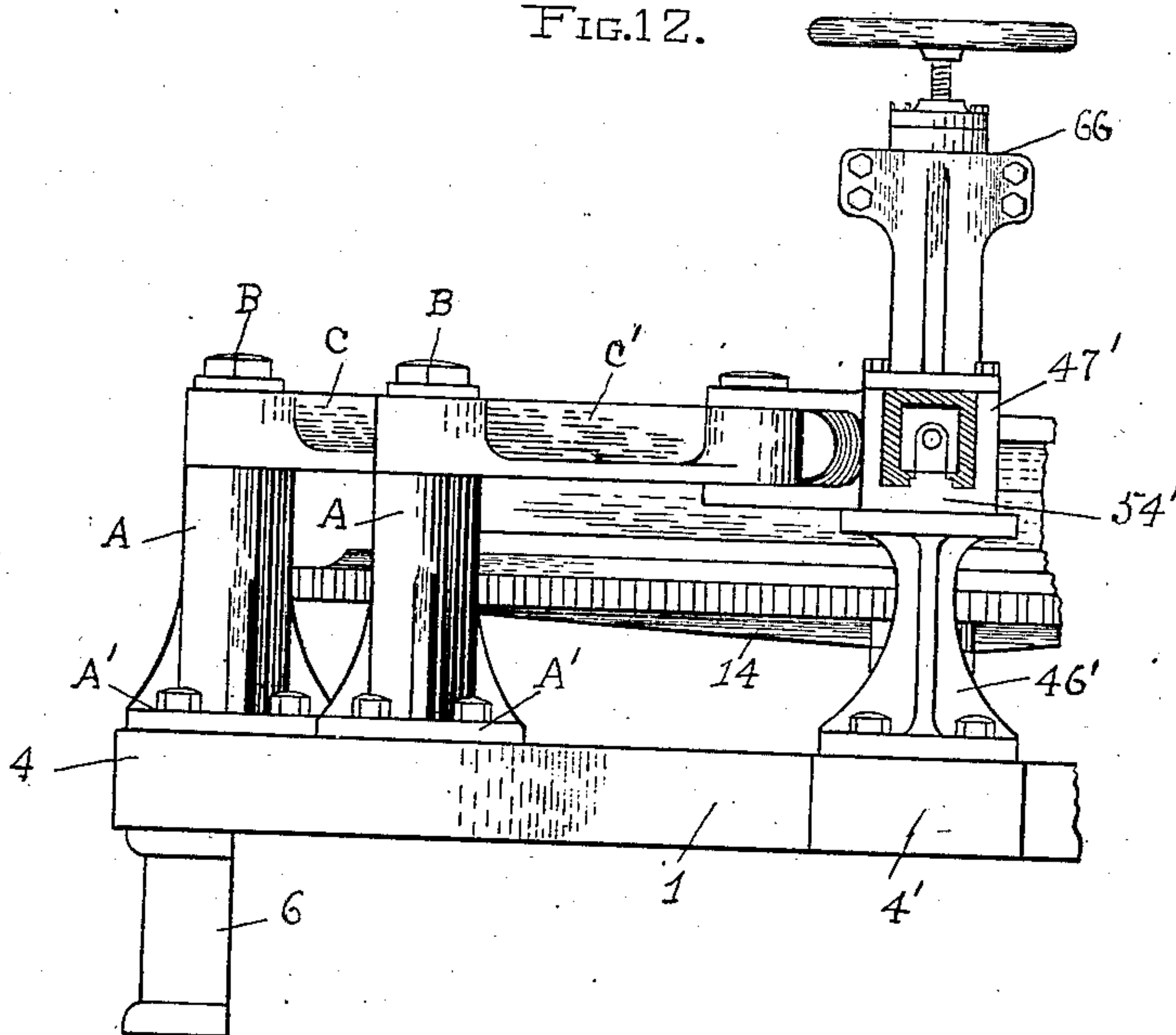
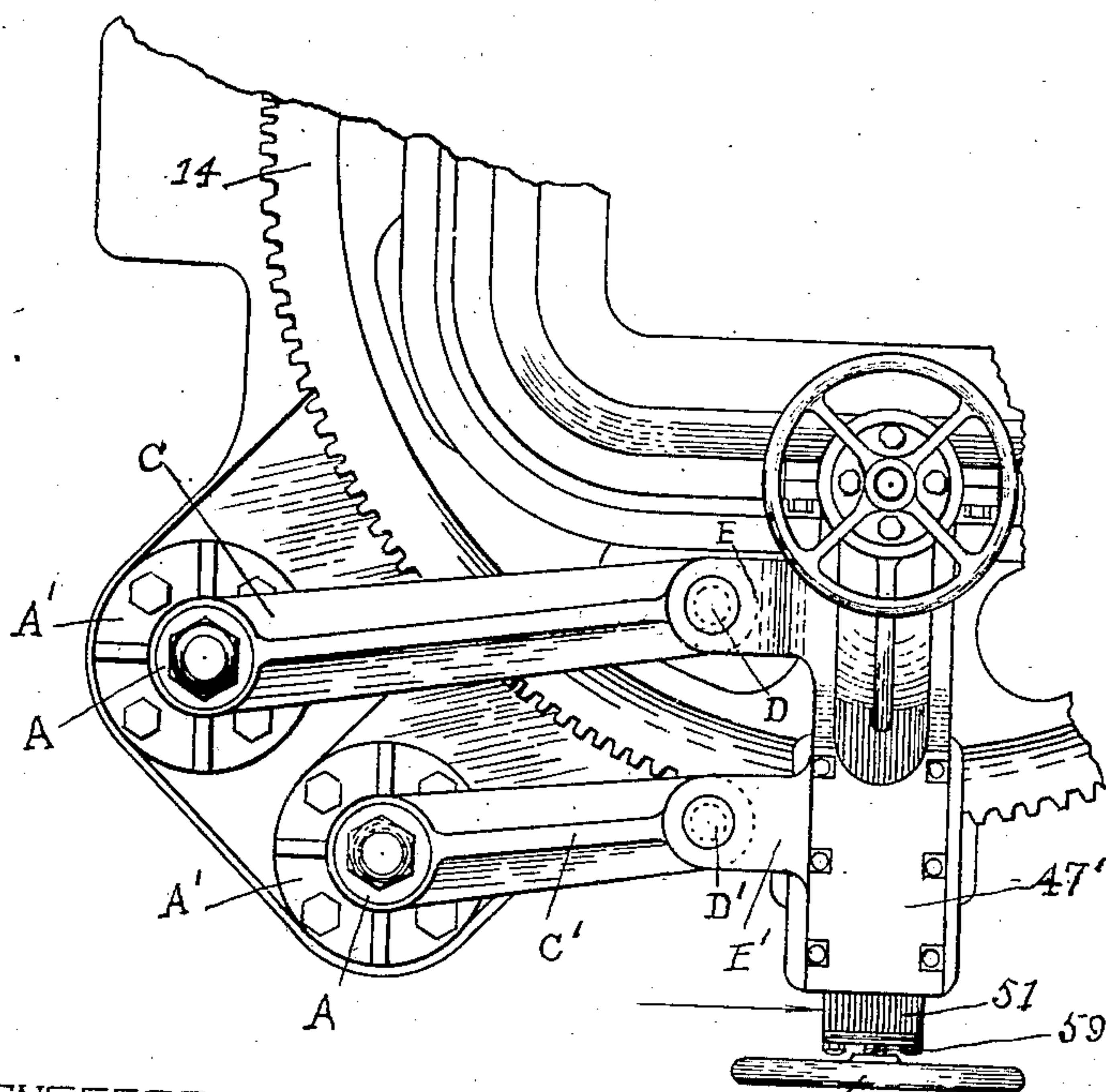


FIG. 11.



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# UNITED STATES PATENT OFFICE.

MAXIM A. DUQUETT, OF TOLEDO, OHIO, ASSIGNOR TO THE J. M. SKINNER BENDING COMPANY, OF TOLEDO, OHIO, A CORPORATION.

## MACHINE FOR TRIMMING AND WIRING WHEELBARROW-TRAYS.

No. 854,691.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed March 30, 1906. Serial No. 308,931.

*To all whom it may concern:*

Be it known that I, MAXIM A. DUQUETT, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Improvement in Machines for Trimming and Wiring Wheelbarrow-Trays, of which the following is a specification.

My invention relates to a machine for trimming and wiring wheelbarrow trays and the like and has for its object to provide an effective machine of the kind and for the purpose that is adapted to both trim and wire a wheelbarrow tray progressively at the same time. I accomplish this object by the novel construction, combination and operation of parts hereinafter described and illustrated in the drawings, in which

Figure 1 is a top plan view of my invention. Fig. 2 is a cross section of the same on line  $x-x$  of Fig. 1. Fig. 3 is a front end view of the trimming head. Fig. 4 is a longitudinal vertical section through a beading head on line  $y-y$  of Fig. 1. Fig. 5 is a similar view of a modified form of beading head. Fig. 6 is a similar view of a beading head. Fig. 7 is a cross section of Fig. 4 on line  $z-z$ . Fig. 8 is a cross section of Fig. 1 on line  $x'-x'$ . Fig. 9 is a view of the head shown in Fig. 6, showing the plunger raised. Fig. 10 is a vertical longitudinal section of a modified form of beading head. Fig. 11 is a plan view of a beading head mounted on swinging arms, and Fig. 12 is a side elevation of the same showing the arm of the beading head in cross section.

In the drawings 1 designates the base or bed plate upon which the operating mechanism is mounted, the base being provided on the under side with ribs 2 which radiate from a centrally located hub portion 3, and with radial platform projections 4 which form bases for radial cutting and beading heads, and the diametric projections 5 which form the bases of the press arch, the base 1 having portions cut away between the radiating ribs to lighten the base.

The base 1 is mounted at radial points on suitable standards or pedestals 6 which support the base at a suitable height.

The hub 3 is provided with a central vertical bore 7, in which is journaled a short shaft 8, and at four equidistant radial points from the axis of the shaft 8, located on dia-

metric lines crossing at right angles are mounted on the base 1, the brackets 9, in which are journaled the rollers 10. Upon the top of the hub 3 is mounted the pedestal bearing 11 which is secured to the base, concentric to the shaft, and is counterbored at the top to receive a suitable annular bearing plate 12.

Upon the top end portion of the shaft 8 is fixedly mounted the hub 13 of the master worm gear wheel 14, the rim portion 15 of which is supported on the rollers 10, which are adapted to support and maintain the wheel in a horizontal plane. The spokes 16 of the master wheel 14 are webbed on their upper faces and the web 17 is provided with suitable openings between the spokes to lighten the wheel.

Centrally of the master wheel, there is mounted on and secured to the web a tray pedestal 18, having its upper portion provided with a flange 19 extending around the top of the pedestal portion in a horizontal plane, and the flange is beveled from its lower outer edge, inwardly and upwardly to form a tray base 20, that is adapted to coincide with the inner rim face of the press drawn, untrimmed wheelbarrow tray 21, and support the tray in an inverted position.

Around and parallel with the lower outer edge of the tray base, which conforms to the inner rim of the tray, there is mounted and secured on the master wheel, a cam 22, which comprises the horizontal base 23, and the parallel vertical cam walls 24 and 25.

Diametrically spanning the master wheel there is mounted on the base projections 5, a press arch comprising the side sections 26 which are provided with suitable base flanges whereby they are mounted and secured on the base projections 5, and the top section 27, the end portions of which are adapted to be secured to the top ends of the side sections. The top section is centrally provided with an enlargement 28, which is centrally bored in vertical alinement with the axis of the shaft 8 of the master wheel, and internally threaded to receive a press screw 29, having a wheel 30 or any other suitable means for running the screw upward and downward through the arch. The lower end portion of the screw is reduced to form a shoulder 31 and a journal 32, which extends through an anti-friction bearing 33,



comprising a semi-spherical upper section 34, the flattened top of which shoulders against the shoulder 31 and the complementary socket section 35 having a flattened base, and through the central top portion 36 of a tray holder 37, having a rim portion 38, which is adapted to coincide with the tray base 20, or with the outer rim portion 38' of a tray 21' mounted on the tray base. The rim 38 is integral with the arms 39, radiating downwardly and outwardly from the top portion 36, as a hub.

The hub 36 is cylindrical above the arms, and flat at its upper end, upon which is mounted a bearing plate 40, which is provided with an annular groove on its upper face, which is complementary to a groove in the lower face of the socket section 35 of the bearing 33, the grooves being provided with balls 43, which receive the thrust of the screw when the tray holder is pressed by the screw down upon a tray mounted on the tray base 20 as shown in Fig. 2. The lower end portion of the journal 32 of the screw is provided with a washer 44 and a pin 45, below the washer, which adapts the screw when run upward to lift the tray holder from the tray base 20, a suitable distance to permit a tray that is to be wired to be mounted in position on the tray base. Thus constructed, when the tray holder is pressed down on a tray mounted on the tray base, the master wheel, the tray base, the tray, and the tray holder are revoluble together between the bearings 12 and 33.

Upon the base projections 4, are adapted to be mounted the pedestals 46, each of which has formed in the top portion thereof an elongated rectangular guide box 47 open at the ends and having the interiorly faced integral bottom 48 and sides 49, and the detachable top plate 50. The pedestals 46 are so mounted on their bases 4 that a line longitudinal and central of each box 47 is parallel with a line radial to the axis of the shaft 8, of the worm wheel 14.

In the boxes 47 are telescopically mounted the rectangular box shaped arms 51 of the trimming and beading heads, the arms comprising the sides 52 and top 53 integral with the heads, and the bottom plate 54 having rabbeted sides 55, interlocking with complementary rabbeted grooves in the sides 52, and a lug 56 central of the outer end portion of the sliding plate 54. To the under side of the inner end portion of the bottom plate there is pivotally mounted on a stud pivot a roller 57 which is located between the walls 24 and 25 of the cam 22.

The arms 51 have secured to the outer ends of the top and sides the end plate 58 which is provided with a central bore, and interiorly threaded to receive a screw 59, the inner end portion 60 of which is reduced and journaled in a suitable bore in the lug 56 of

the bottom plate. A portion of the journal 60 extending beyond the lug, is threaded and provided with a nut 61. On the outer end of the screw is mounted a hand wheel 62. By this construction the roller 57 of the bottom plate being between the inner and the outer walls of the cam 22, by turning the screw the arm and its head is adjusted inward and outward relative to the bottom plate according to the direction in which the wheel is turned.

The heads of the arms 51 are extensions from the tops and sides of the arms, and differ in construction.

The trimming head comprises the lower bearing jaw 63, which rests on and is adapted to slide along the top of the inner end portion of the bottom plate 54, and the upper jaw 64, angled upward and inward over the lower jaw, and is provided with an upper end portion 65, which forms one-half of a vertical split bearing 66, the other half of which is bolted thereto, and in vertical alinement with the bearing 66, the lower jaw is provided with a bearing 67, in which is journaled the lower journal 68 of a swivel head 69, which is provided with an upper enlarged cylindrical journal portion 70, which is journaled in the bearing 66 of the upper jaw, and is integral with an eccentric recessed middle portion 71, which extends outward into the opening between the upper and lower jaws of the head, and is adapted to swing therein on the journals 68 and 70. The upper journal portion 70 is provided with a cap plate 72, which is bored axial to the journal and interiorly threaded to receive the adjusting screw 73, the upper end portion of which is provided with the hand wheel 74 for operating the screw. The lower end portion of the screw is pivotally secured in a sliding plunger 75, which is movable by the screw upward and downward in the bore of the journal 70. Above the lower journal 68 of the swivel the lower portion of the swivel head is rabbeted to form a shoulder face 76, in a vertical plane of the axis of the screw 73 that is at right angles to a line extending the axis of the screw 59 of the arm 51, and abutting the shoulder face is pivotally mounted by a journal screw 77, the shear wheel 78 having a diameter to extend the wheel above the lower face formed by the recess of the swivel, and slightly above the plane of the lower face of the beveled flange of the tray base 20. The shear wheel 78 is journaled to one side of a line axial of the journals 68 and 70 of the swivel in the direction of the revolution of the master wheel, and above in a suitable incut in the lower end portion of the plunger 75 is journaled by a pin 79, a companion shear wheel 80, the outer face of which coincides with the plane of the inner face of the shear wheel 78, and the journal pin 79 of the wheel 80, is in the same vertical plane with the journal screw of the wheel 78. The periph-



eries of the shear wheels are oppositely beveled forming cutting edges, which shear past each other when the wheel 80 is moved downward by the screw 73. In suitable bearings 81, secured to or formed integral with the pedestal of the trimming head there is journaled a driving shaft 82, which has formed or secured thereon a worm 83, which engages suitable worm teeth formed on the periphery of the master wheel. The driving shaft is connected by suitable means not shown for operating the shaft. Thus constructed, to adjust the trimming head to trim the flange of a tray mounted on the tray base 20 the shear wheel 80 is raised a suitable distance by the screw 73, and the head is run inward by the screw until the shear wheel 78 is below the untrimmed flange of the tray a suitable distance from the outer edge of the tray base, with the tray flange extending into the recess of the swivel. Thus adjusted, the master wheel being set in motion by the driving shaft, the shear wheel 80 is pressed on top of the tray flange by the screw until it cuts through the flange, and as the master wheel revolves the flange of the tray is carried around with it between the shear wheels, the cam automatically adjusting the head to maintain the shear wheels at a uniform radial distance from the tray base, and the swivel automatically adjusting the shear wheels to the direction of pull, whereby the tray flange is trimmed to a uniform width suitable for the wiring of the tray.

Upon the remaining pedestals 46 there are mounted the arms 51 of the beading and wiring heads, the arms being in all respects constructed and mounted as described for the arm of the trimming head. The beading and wiring heads, however, may be of either of the several forms shown in Figs. 4, 5, 6, and 8, as may be best suited to the thickness of metal used in forming the tray, or they may be used singly, or in series, to complete the operation of wiring. When used in series, each succeeding head further advances the work of the preceding head, thereby advancing the operation by stages that make the work lighter for each.

In Fig. 4 is shown a beading head 84 wherein a grooved wheel 85 is mounted in a segment 86 that is movable through an arc by a lever 87, the segment being mounted in arc grooves 88 in the sides 89 of the head by pins not shown, one of which sides is provided with incuts 90, which are engaged by a dog 91, operated by a bell crank hand lever 92 adapted to be grasped with the handle of the lever 87, which construction adapts the wheel of the segment to be adjusted to any desired angle to the arc through which the segment moves. The head 84 has secured to its inner end a plate 93 which has a central opening through which projects the beading wheel 85, and below the opening the plate

has pivotally secured thereto parallel and abutting its inner face a bearing wheel 94, which engages the under side of the wiring flange of the tray below the point of its engagement by the beading wheel 85, and prevents the downward crushing of the flange by the beading wheel. The head 84, in trays formed of light metal, is adapted singly to complete the operation of wiring in a single revolution of the master wheel, but when heavier metal is used for forming the tray, it is adapted to advance the operation, each revolution of the master wheel, by adjusting the head at a different angle at the end of each revolution, until the operation is complete, or used with other beading heads it is adapted to advance the operation one stage.

In Fig. 5 is shown another form of beading and wiring head 95 formed on the inner end of an arm 51 which is provided with a horizontal recess opposite the tray flange in which is mounted on a suitable journal the grooved beading wheel 96, having a flange increasing the diameter of its lower face and extending underneath and supporting the flange of the tray. Above the beading wheel 96 the head 95 is provided with a rectangular box shaped enlargement, which is inclined outward and upward at a suitable angle, having the parallel sides 97 integral with the bottom portion 98, and to the tops of the sides is secured the top plate 99. The box thus formed is finished inwardly to receive the plunger *a*, in the lower end portion of which is journaled on a pin *b*, the beading wheel *c*, having a flange *c'* which is grooved complementary to the groove of the lower beading wheel 96. To the outer edge of the plunger box there is secured the end plate *d*, which is centrally screw tapped to receive the screw *e*, the inner end portion of which is pivotally secured to the upper end portion of the plunger *a*. The outer end of the screw is provided with a hand wheel *f*, by which the screw is operated to adjust the plunger. Thus constructed, when the head is adjusted inward until the flange of the beading wheel 96 is underneath the wiring flange of the tray, the outer edge of the tray flange is curved upward and slightly inward by the groove of the wheel 96 where it engages the groove of the upper beading wheel *c*, which completes the wiring. When the head is used in series with other heads, by adjustment of the beading wheels the head is made adapted to any one of the several stages of complete wiring, according to its location in the series.

In Fig. 6 is shown a form of beading head *g*, having the lower jaw *h*, provided with a vertical bearing *i*, in which is horizontally mounted by the journal *j*, the grooved beading wheel *k*, having a flange increasing the diameter of its bearing face and adapted when the wiring flange of the tray is engaging the groove of the wheel to extend beneath and



engage the under side of the tray flange. The beading wheel *k* is provided, with the axial bore 1 which extends through the journal *j*, and is countersunk in the body of the wheel. The head *g* is provided with an upper jaw *m*, which is provided with the cylindrical enlargement *n*, the axis of which is a vertical extension of the axis of the wheel *k*. The cylinder *n* has mounted therein a sliding cylindrical plunger *o*, which is adjustable upward and downward by a screw *p* operated by a hand wheel *q*, and journaled in the lower end of the plunger is a beading wheel *r*, that is complementary to the beading wheel *k*, and has a conical axial extension from its lower face that is adapted to enter the counter-sunk portion of the axial bore of the wheel *k*. Thus constructed, the operation of the head when it is used to perform the entire operation of wiring is as follows. The plunger *o* being first raised, the arm of the head is moved inward by its screw until the beading wheel *k* is moved into engagement with the wiring flange of the tray and the grooved portion has curved the flange upward and partially inward, in which position the plunger is moved downward until the wheel *r* is pressed on the upturned portion of the flange, and gradually further depressed after each revolution of the master wheel until the wiring is complete. The head *g* however, like the others described may be used to advance, by a single stage, the operation of completing the wiring in a single revolution of the master wheel by a series of heads, as before described.

In Fig. 10 is shown a beading head which in its construction is similar to the trimming head and comprises a lower jaw 63' adapted to slide on the bottom plate 54 of the arm, an upper jaw 64', provided with a split bearing 66' which is axially alined with a bearing 67' of the lower jaw, in which is journaled the lower journal 68' of a swivel head 69', which is provided with an upper cylindrical journal portion 70' which is journaled in the bearing 66' of the upper jaw, and is integral with an eccentric recessed middle portion 71' which extends into the opening between the upper and lower jaws of the head, and is adapted to swing therein on the journals 68' and 70'. The upper journal 70' is provided with a closure plate 72' which is bored and screw threaded to receive the adjusting screw 73' the upper end portion of which is provided with a hand wheel 74'. The lower end portion of the screw is pivotally secured to the upper end of a sliding plunger 75' which is movable upward and downward in the bore of the journal 70'. A portion of the swivel head above the lower journal 68' is cut away to form a vertical shoulder face 76' that is at right angles to the axis of the screw 59, if extended, and abutting the shoulder face is pivotally mounted by a journal screw 77' the

flanged beading wheel 78' having a flange diameter to extend the flange above the lower face formed by the recess of the swivel head, while the main body portion of the wheel 78' is of a diameter and length to project underneath and in engagement with the under face of the tray base. The main body portion of the wheel 78' is increased in diameter by an incurve toward and merging into the flange, whereby when the head is moved inward by the arm screw the incurve engages the outer edge of the tray flange, and curves it upward. Above and in alinement with the incurved flanged end of the beading wheel 78' the lower end of the plunger 75' is bifurcated to receive a complementary grooved beading wheel 80', which is rotatably mounted on a journal pin 79', the two wheels 78' and 80',—which are journaled off to one side of a line axial to the journals of the swivel (as shown in Fig. 3 for the trimming head),—when gradually brought into contact by the screw 73', with the tray flange between, being adapted to complete the wiring of the tray flange, (as shown in Fig. 10), in a series of revolutions of the master wheel, or to complete the wiring in one revolution when employed as one of a series of beading heads, each progressively advancing the operation of wiring.

Thus constructed when a tray to be wired is mounted on the tray base 20 and secured thereon by the tray holder 37, with a wire 37' around and parallel with the lower edge of the rim 38 and resting on the wiring flange of the tray, the operation is as follows. All of the beading heads are withdrawn and the trimming head, with the upper shear wheel slightly raised above the lower shear wheel to admit the wiring flange of the tray between them into the recess of the swivel head, when the shear wheels are adjusted to a suitable margin for the flange, the upper shear wheel is gradually pressed downward on the flange as the master wheel revolves until it cuts through the flange, after which as the trimmed portion reaches each beading head, the head is adjusted thereto to perform some portion of the operation of the beading. After the trimming is completed the trimming head is withdrawn, while the series of beading heads complete the operation of wiring. Or either one of the beading heads may be used to singly complete the operation in a series of revolutions of the master wheel, by changing the adjustment at the end of each revolution.

In Figs. 11 and 12 are shown a modified form of mounting the arms of the trimming and the beading heads wherein the pedestals 46 are omitted, and the guide box 47 is movably mounted on a pedestal 46', which is mounted and secured on a platform 4' radial to and projecting from the base 1' at a suitable distance from the platform 4, upon



which is mounted the columns A, having suitable flanged bases A' by which they are secured to the platform 4. The columns A are mounted on the platform 4 at different distances from the platform 4', but at the same radial distance from the master wheel, and the columns are provided with axial bores in which are mounted the journal pins B, upon which are respectively pivoted the outer ends of the long arm C and the short arm C', the opposite ends of which are pivoted by the pins D and D' respectively, to the bifurcated bracket arms E and E' respectively, of the guide box 47'. The bottom plate 54' of the guide box 47' is made integral therewith, so that the cam roller 57' pivotally secured thereto at the inner end is adapted to slide the guide box inward and outward on the pedestal 46' as the roller follows the cams of the master wheel, while the arms c and c' are adapted to maintain the guide box substantially radial to the axis of the master wheel. The guide box 47' being,—in all other respects excepting the bottom plate 54' being integral therewith,—the same in construction as the guide box 47, the arms 51 of the several trimming and beading heads described may be mounted therein without modification of their construction and the heads are adjustable by the screw 59 relative to the wiring flange of the tray in the same manner as already described. By so mounting the trimming and beading heads all lateral strain of the arms 51 in the guide box 47' by the pull of beading and shear wheels is wholly avoided, such pull being almost always directly in line with the long arm C, while the joint pivotal movement of the two arms C and C' is such as to greatly reduce the friction of the substantially radial adjustment of the head to the cam of the master wheel, and by reason of this reduced friction, the swinging heads are preferably used in heavy beading and trimming work.

What I claim to be new is

1. In a machine for trimming and wiring wheelbarrow trays and the like, the combination of a support, a wheel table revolubly mounted on the support, a tray base of any regular or irregular form other than a circle mounted and secured centrally on the table, a tray holder, means to press the tray holder on a tray mounted on the tray base, a trimming or a beading head mechanically and automatically adjustable radial to the tray base, means to mechanically adjust the head at a radial distance from the tray base, means to revolve the table and means to automatically maintain the head at such radial distance from all radial points of the tray base, as the table revolves, substantially as set forth.

2. In a machine for trimming and wiring wheelbarrow trays and the like, the combination of a support, a wheel table revolubly

mounted on the support, a tray base of any regular or irregular form other than a circle, mounted on the table centrally, a cam mounted on the table around the tray base, having a groove of uniform width, at equal radial distance at all points from the rim of the tray base, a tray holder, means to press the tray holder on a tray mounted on the tray base, a mechanically and automatically adjustable trimming head having a wheel adapted to follow the groove of the cam and to thereby move the head radially and maintain the head at a uniform distance from the tray base, and means to revolve the table, substantially as set forth.

3. In a machine for trimming and wiring wheelbarrow trays and the like, the combination of a support, a wheel table revolubly mounted on the support, a tray base of any regular or irregular form other than a circle, mounted centrally on the table, a cam mounted on the table around the tray base, having a groove of uniform width, at equal radial distance at all points from the rim of the tray base, a trimming head and a beading head, each movable radially to the wheel table, and each mechanically adjustable toward or from the tray base, and each having a follower wheel engaging the cam, and adapted to maintain the head at the radial distance from the tray base to which it is mechanically adjusted, and means to revolve the wheel table, substantially as set forth.

4. In a machine for trimming and wiring wheelbarrow trays and the like, the combination of a support, a wheel table revolubly mounted on the support, a tray base of any regular or irregular form other than a circle, mounted and secured centrally on the table, a cam mounted on the table around the tray base, and having a groove of uniform width at equal radial distance at all points from the rim of the tray base, a trimming head and a series of beading heads, each movable radially to the wheel table, each head being mechanically adjustable toward or from the tray base, and each having a follower wheel engaging the cam and adapted to maintain the head at the radial distance from the tray base to which it is mechanically adjusted, and means to revolve the wheel table, substantially as set forth.

5. In a trimming and beading machine, the combination of a main support, a wheel table revolubly mounted on the main support, a work holder mounted centrally on the wheel table, a cam mounted on the wheel table around the work support, a beading head support mounted on the main support, a guide box mounted on the beading head support in line parallel with a line radial to the axis of the wheel table, a beading head having an arm, and movably supported by the arm in the guide box, said arm having a base plate provided with a roller adapted to en-



gage the cam, and means to adjustably connect the base plate and the arm whereby the beading head is adapted to be adjusted radially inward or outward relative to the work holder and the cam independently of the base plate.

6. The combination in a trimming head of an upper and lower jaw, a recessed swivel head journaled in the jaws by upper and lower axially alined journals, a plunger mounted in the upper journal and adjustable upwardly and downwardly therein, a lower shear wheel journaled in the lower jaw, an upper shear wheel journaled in the plunger, and adjustable by the plunger to shear past the lower shear wheel, both of said shear wheels being journaled to revolve in coinciding vertical planes, transverse the swivel and with their centers off the axial line of the journals of the swivel, substantially as set forth.

7. In a machine for trimming and beading wheelbarrow trays, the combination of a support, a wheel table revoluble on the support, a tray base mounted centrally on the wheel table an arch mounted on the support diametrically spanning the wheel table, and having a threaded orifice in line with the axis of the table, means to hold a tray on the tray base comprising a tray holder, and a screw, the screw being threaded into the orifice of the arch, and pivotally connected to the tray holder, an anti-friction bearing interposed between the screw and the tray holder, and means to operate the screw to raise or lower the tray holder.

8. The combination in a beading head of an upper and lower jaw, a recessed swivel head journaled in the jaws by upper and lower axially alined journals, a plunger mounted in the upper journal and adjustable

upwardly and downwardly therein, a grooved beading wheel journaled in the plunger, and adjustable by the plunger relative to the lower beading wheel, both of said beading wheels being journaled to revolve transverse the swivel and with their centers off the axial line of the journals of the swivel and means to adjust the plunger upwardly and downwardly of the swivel, substantially as set forth.

9. In a machine for trimming and wiring wheelbarrow trays and the like, the combination with a horizontal base having a central bearing, and roller bearings located radial to the central bearing, of a master wheel journaled in the central bearing and having its rim portion supported on the roller bearings, a tray support secured centrally on the master wheel, an arch mounted on the base and diametrically spanning the master wheel, a screw in the arch in axial alinement with the axis of the master wheel, a tray holder adapted to hold a tray mounted on the tray support, said tray holder being pivoted on the lower end of the screw, and adapted to be raised and lowered by the screw and pressed thereby on the tray support, an anti-friction bearing interposed between the screw and the tray holder, and together with the roller bearings of the master wheel adapting the master wheel, the tray support, and the tray holder when pressed on the support by the screw to be revolved between the bearings, means to revolve the master wheel, and means to operate the screw.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses, this 14th day of February, 1906.

MAXIM A. DUQUETT.

In presence of:

GEO. P. KIRBY,  
MINNIE MILLER.