C. E. SACKETT.

HAT BRIM PRESS TO FORM WELT EDGES.

APPLICATION FILED JUNE 6, 1908.

936,364.

Patented Oct. 12, 1909.

5 SHEETS—SHEET 1.

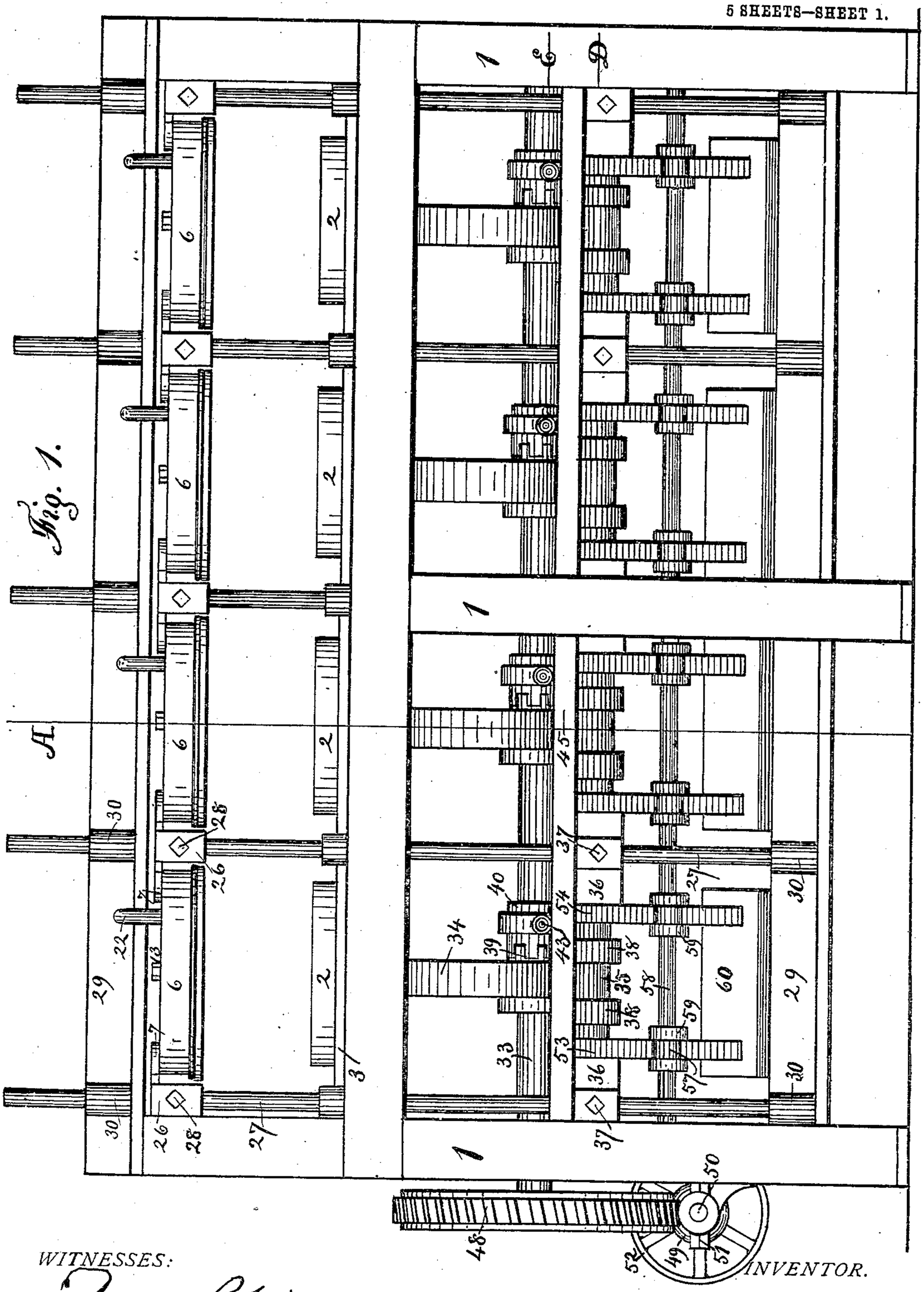

Fig. 1.

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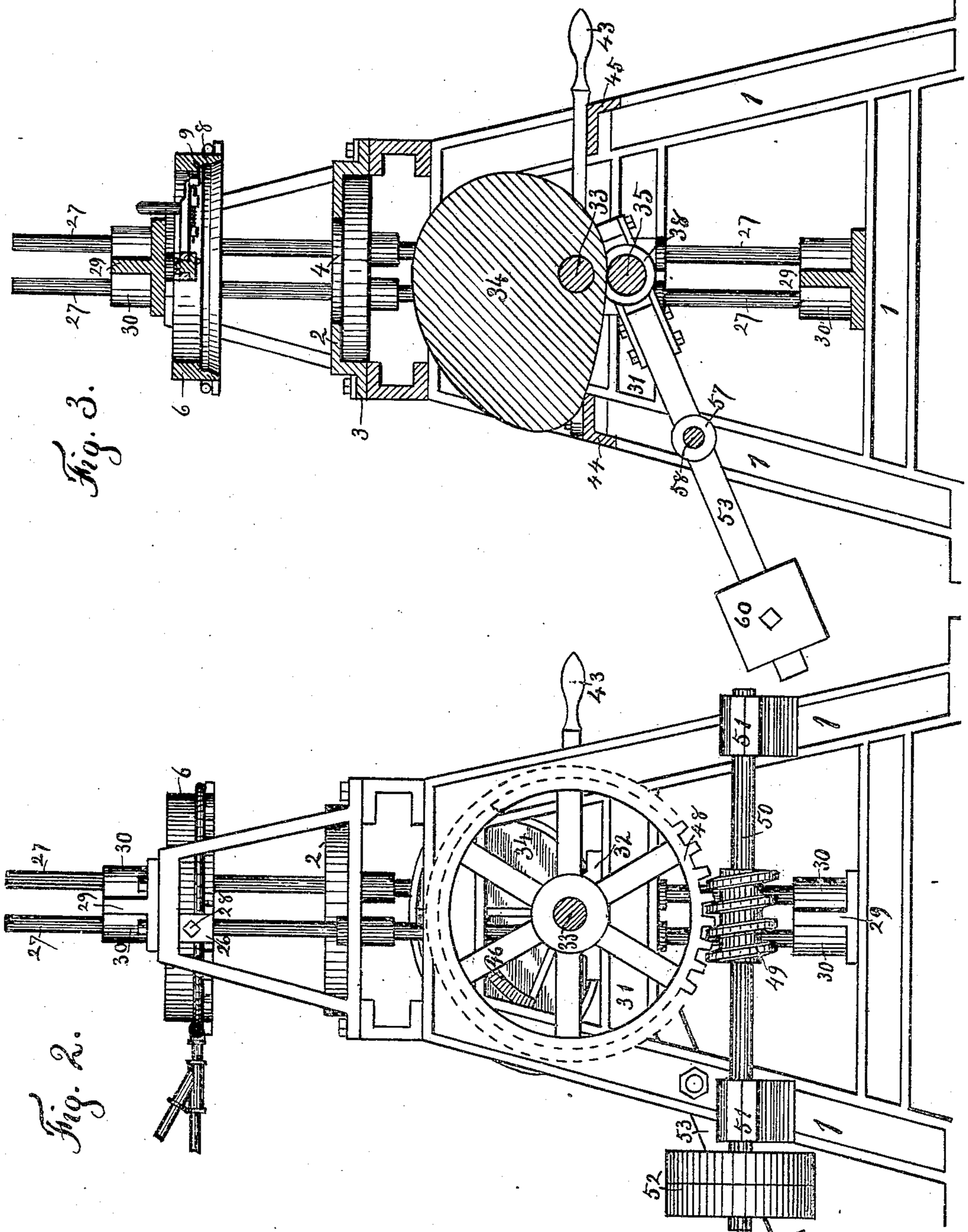

Fig. 3.

Fig. 2.

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Fig. 6.

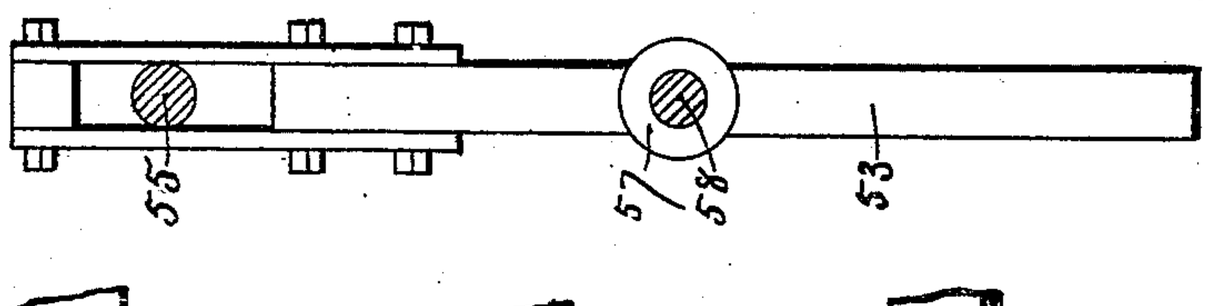


Fig. 5.

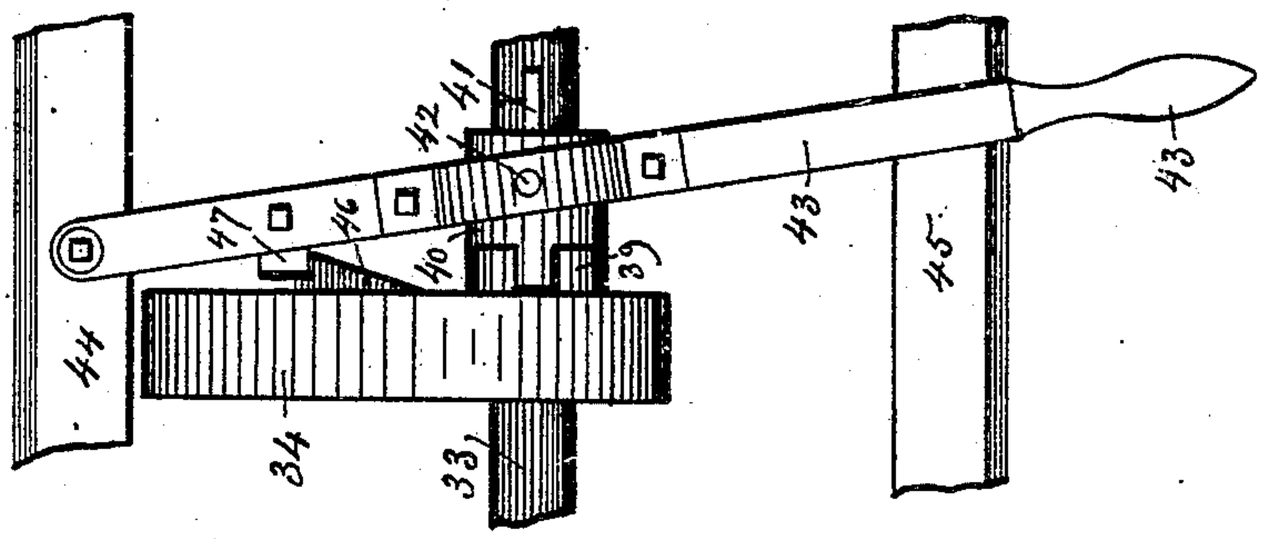
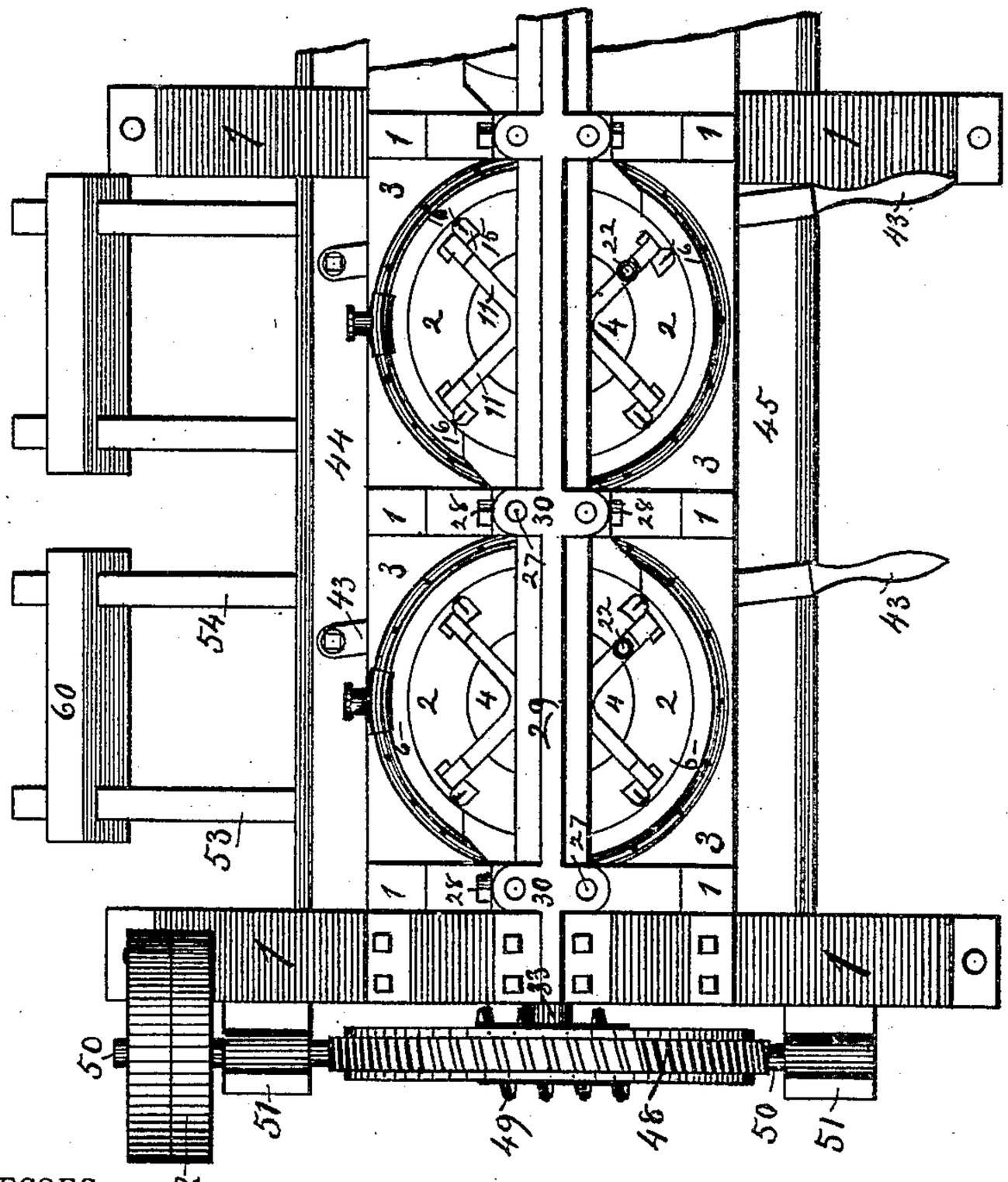


Fig. 4.



WITNESSES:

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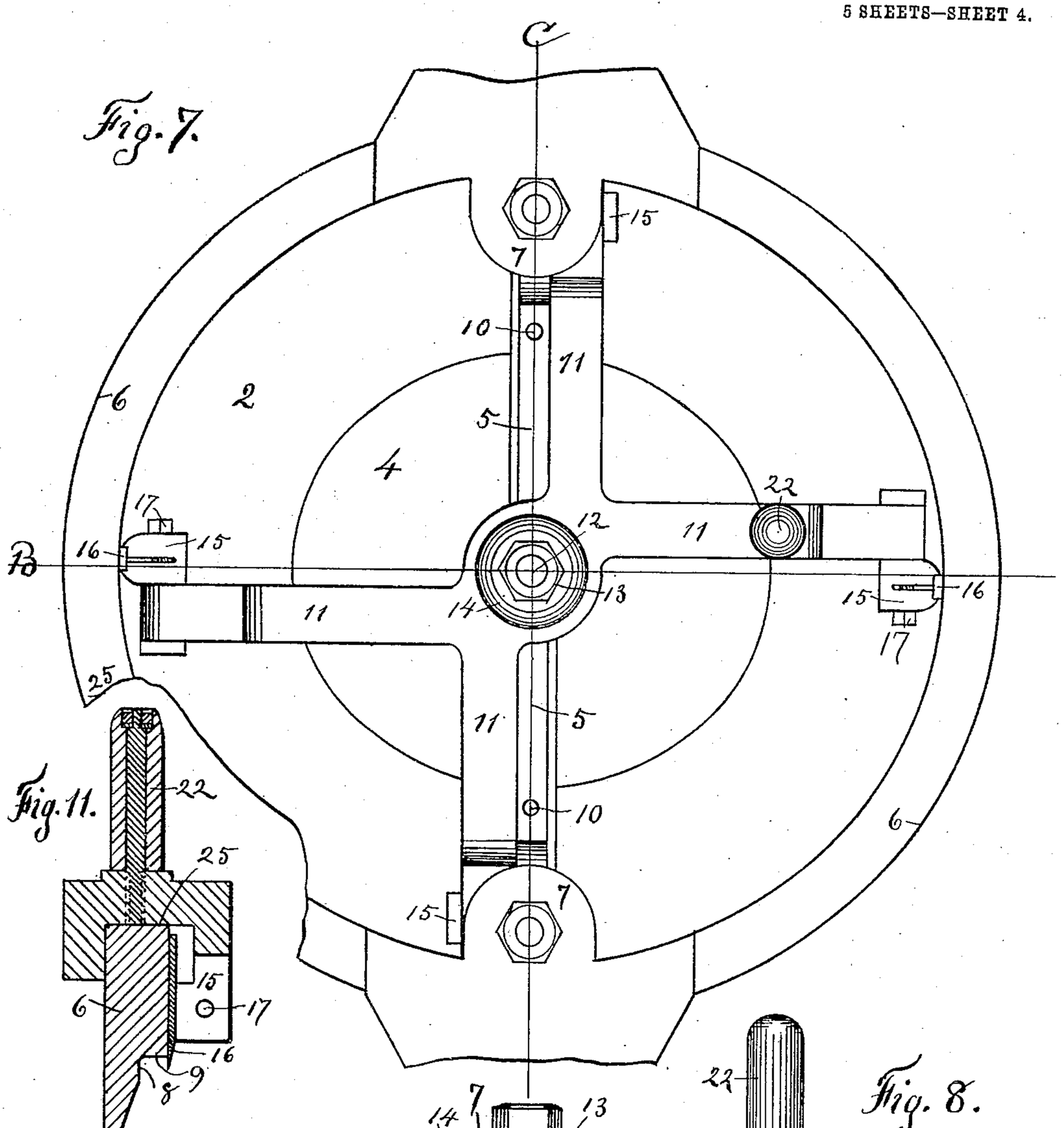
5 SHEETS—SHEET 4.

Fig. 7.



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5 SHEETS—SHEET 5.

Fig. 9.

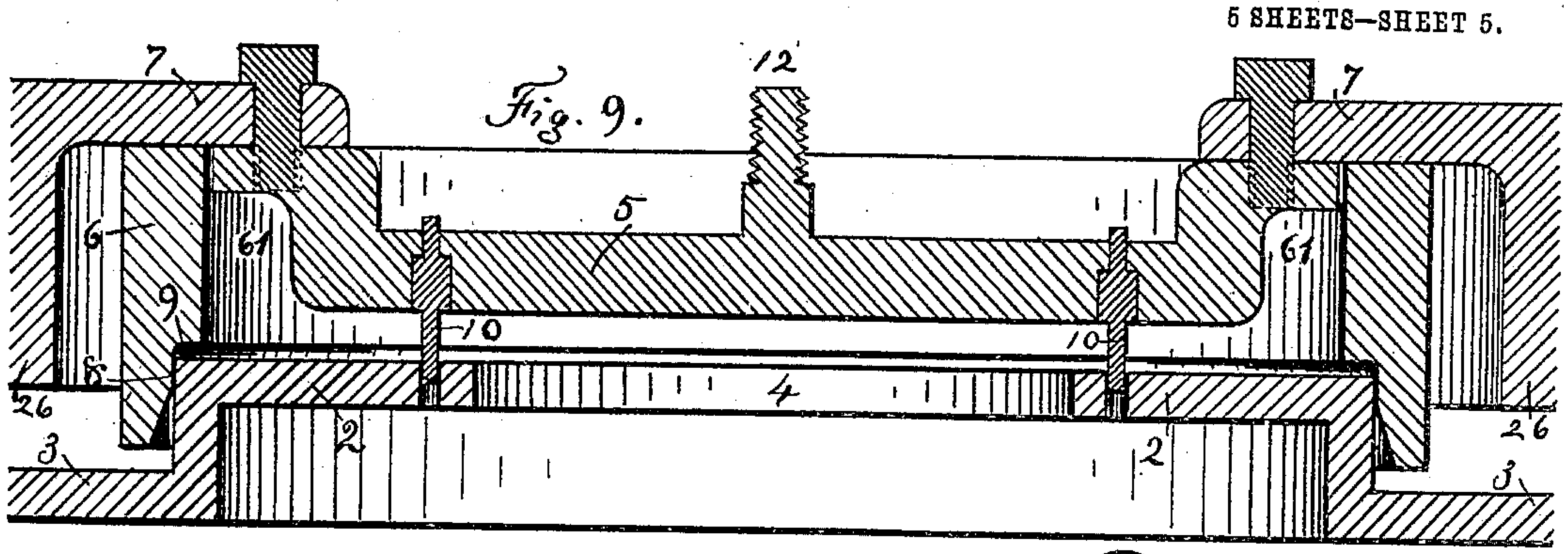


Fig. 10.

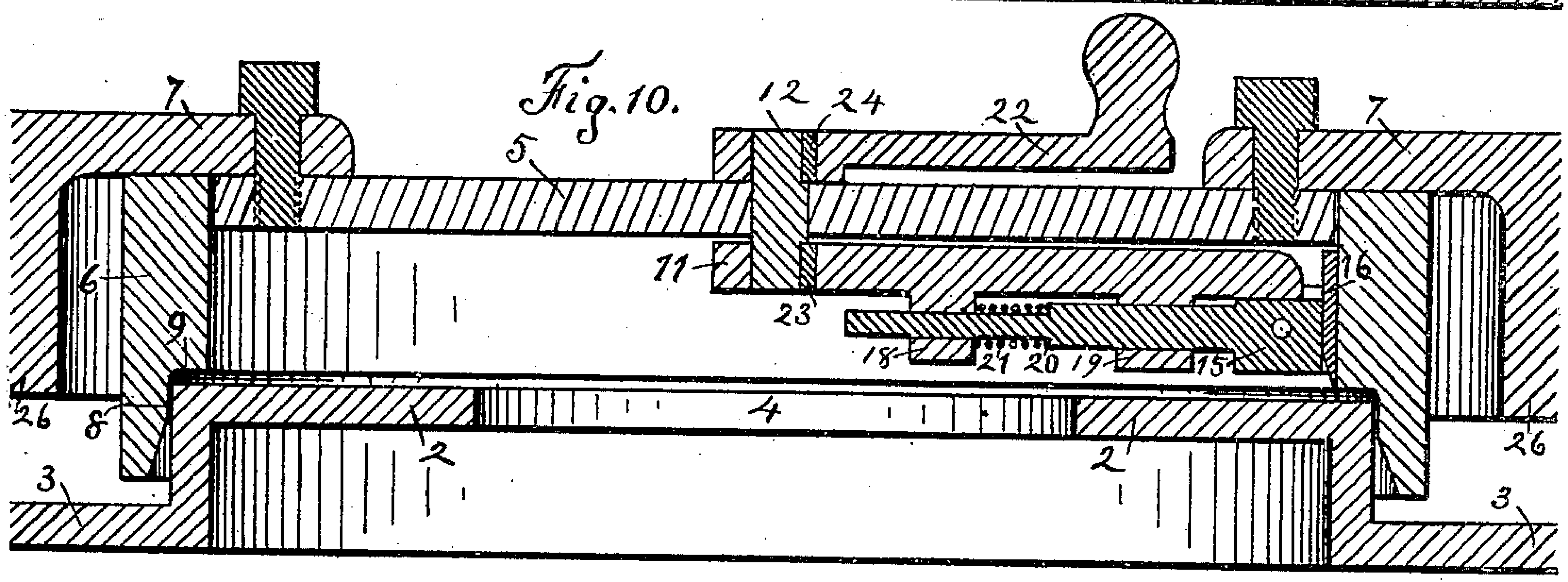


Fig. 12.

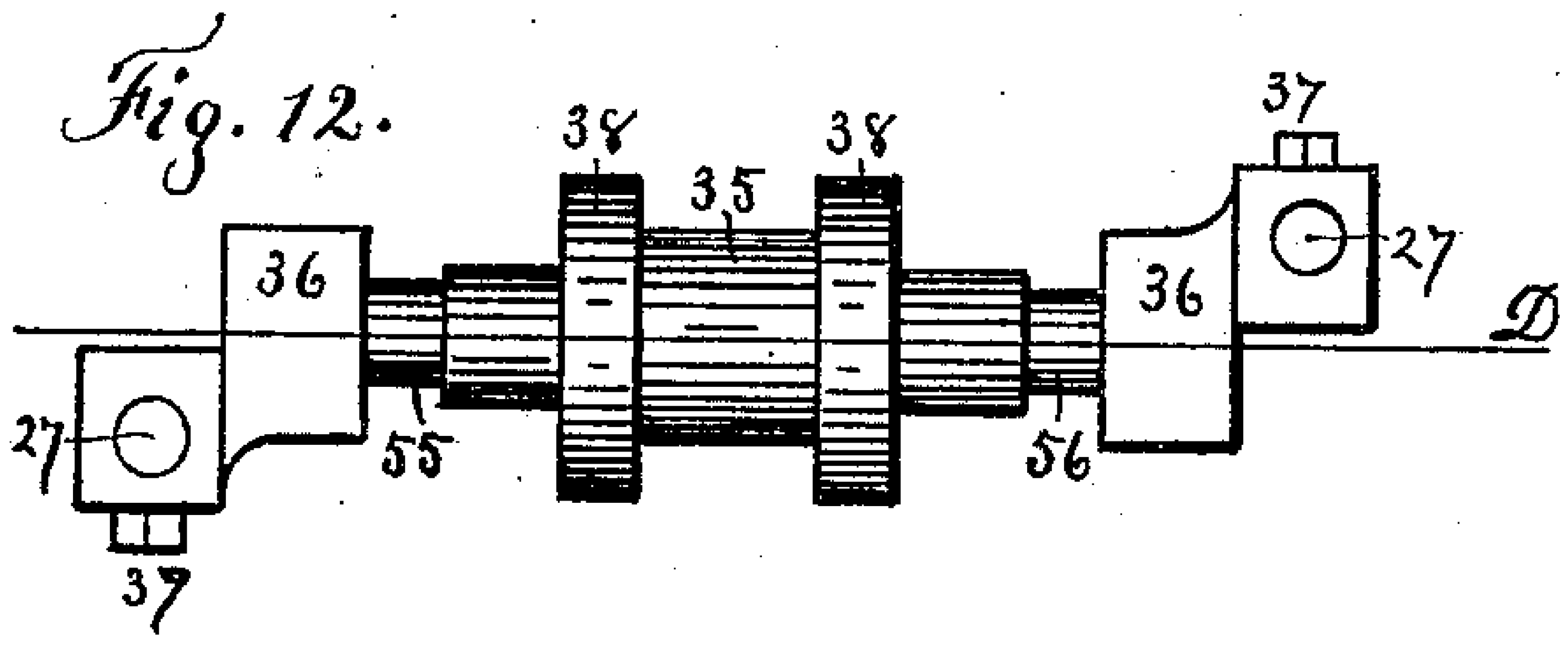


Fig. 14.

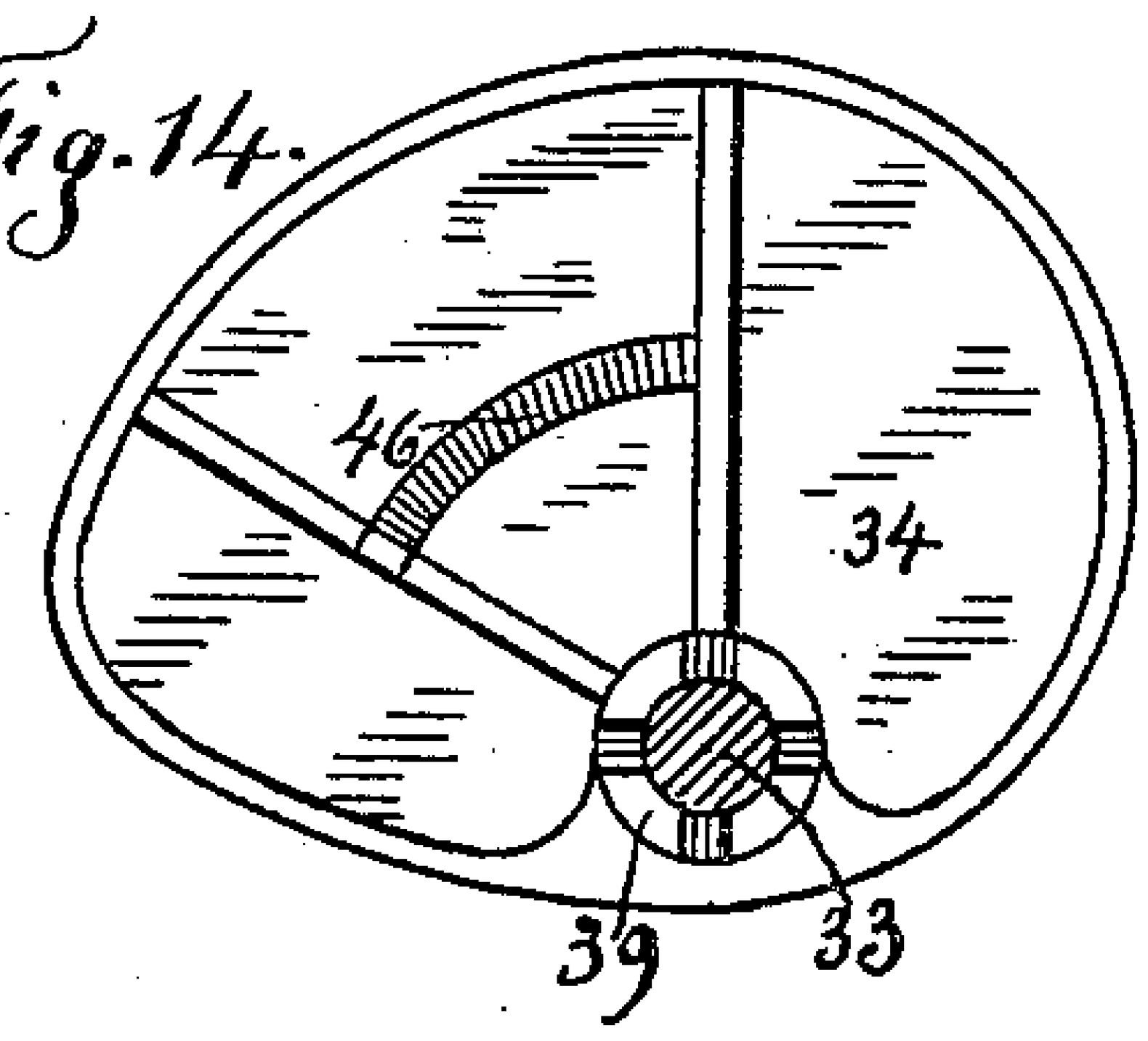


Fig. 13.

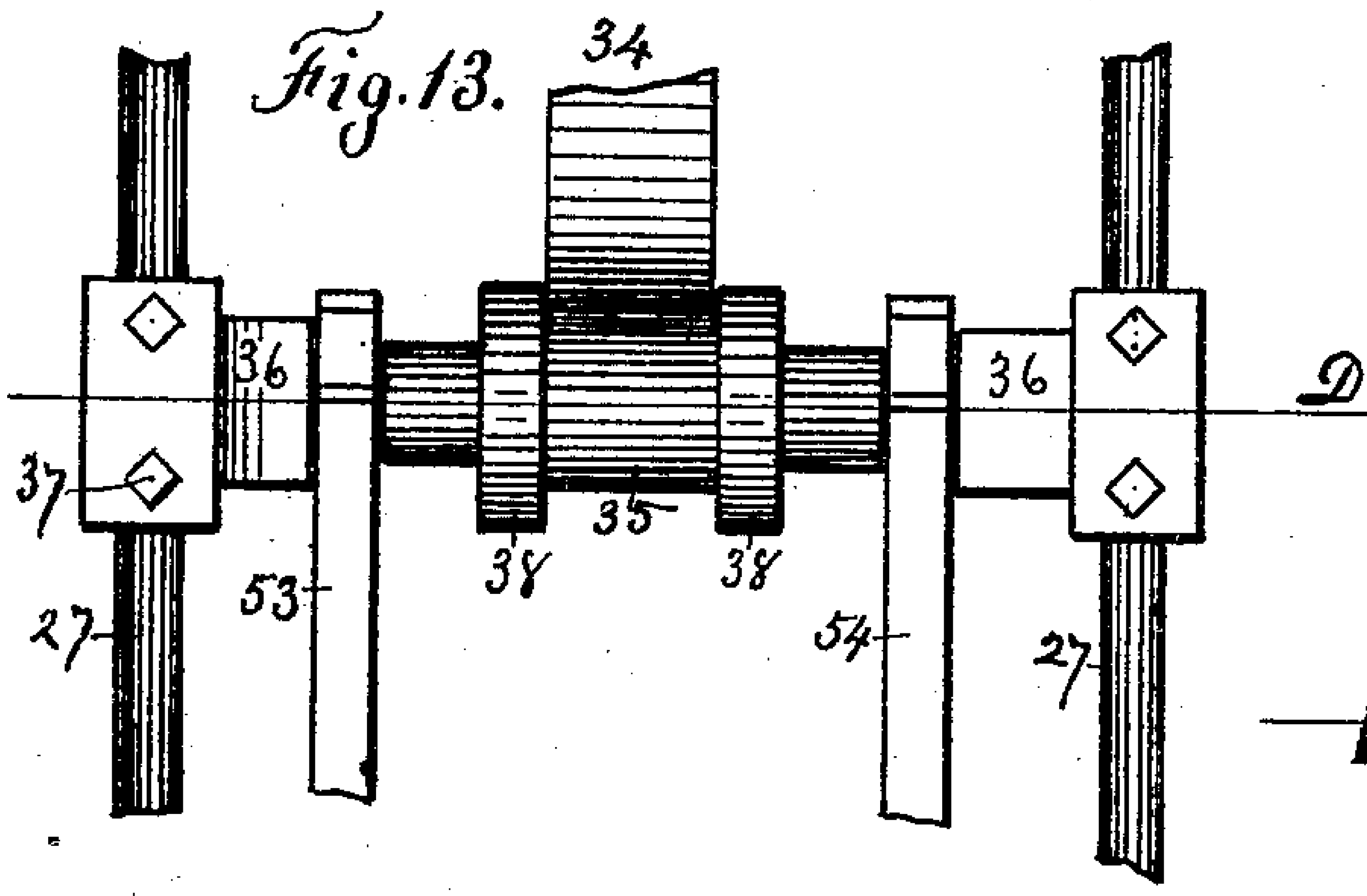
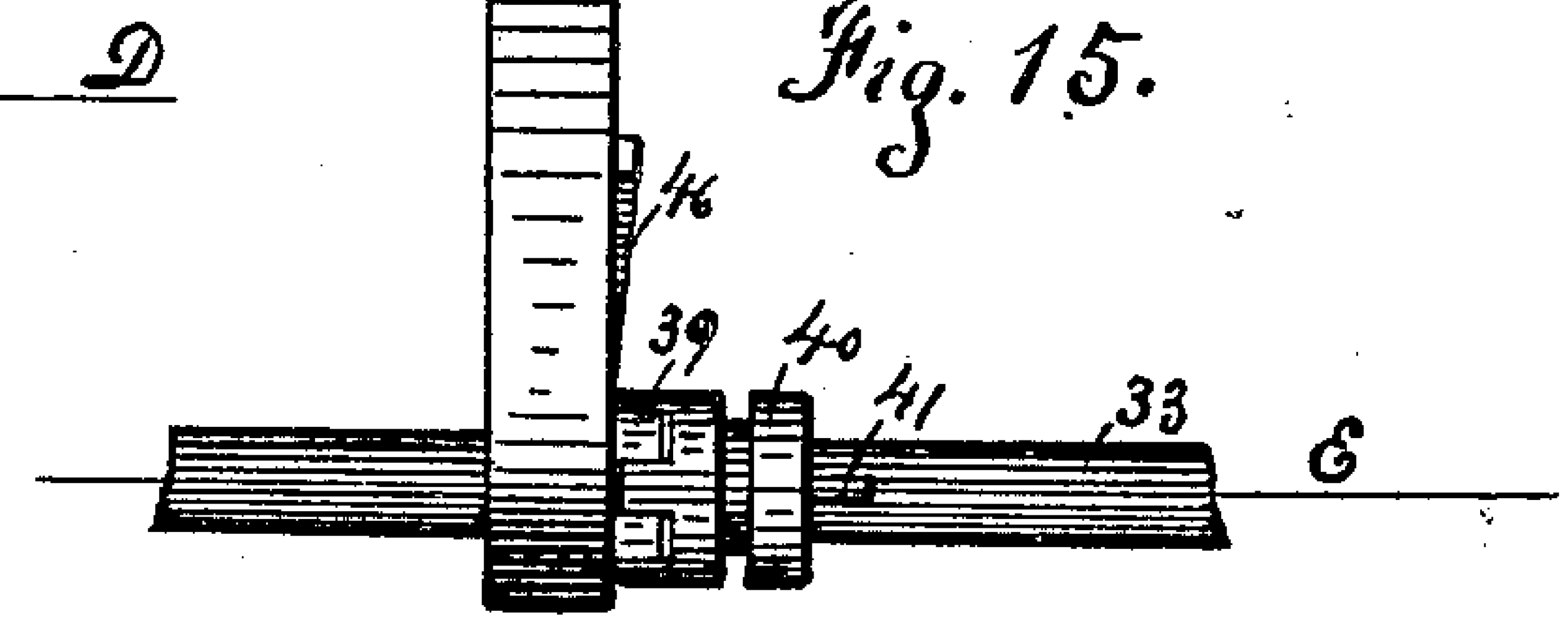


Fig. 15.



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UNITED STATES PATENT OFFICE.

CHARLES E. SACKETT, OF DANBURY, CONNECTICUT.

HAT-BRIM PRESS TO FORM WELT EDGES.

936,364. Specification of Letters Patent. **Patented Oct. 12, 1909.**

Application filed June 6, 1908. Serial No. 437,201.

To all whom it may concern:

Be it known that I, CHARLES E. SACKETT, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Hat-Brim Presses to Form Welt Edges, of which the following is a specification.

This invention relates to a mechanism for reinforcing the edge of a hat brim by doubling the felt back upon itself to form a welt. On the 27th day of April, 1908, I filed application Serial No. 429,425, for an invention having the same title and purpose. That invention related to a machine adapted to form the welt edge on only one size of hat, it was operated by hand-levers, and although the general principles of action are the same, the object of this invention is to construct a machine driven by power, adapted to all sizes of hats, to make the action principally automatic, and especially to provide a cutter known in the trade as a rounding jack, adapted to cut the rounding from any size of hat after the welt is formed. In application Serial No. 429,425, the cutter was fixed operating by direct pressure; in this invention the cutter is movable, operating with the drawing cut peculiar to hand rounding jacks.

Heretofore in rounding jacks operated by hand, the periphery of the crown of the hat forms the guide for the cutter on the brim. In some cases where machine rounding is done, a templet located above the crown guides a cutter moving around the brim. In this invention the cutter is guided at the very point where the cutting is done which makes it positive in its action.

The general principles of the invention having been fully described in the application referred to, this specification will be confined to the improvements peculiar to this invention.

In the accompanying five sheets of drawings, where parts are duplicated on the same sheet, only one set of parts or section will be indicated by the numerals.

Figure 1, is a front elevation of a four section machine. Fig. 2, is an end view. Fig. 3, is a vertical section through line A of Fig. 1. Fig. 4, is a two section partial plan view. Fig. 5, is a detail view on an enlarged scale of the starting-lever and automatic stop motion. Fig. 6, is a detail view on enlarged scale of the counterbalance weight levers. Fig. 7, is a plan view on enlarged scale of a four arm central rounding jack pivoted above the punch bridge. Fig. 8, is a section on line B, through Fig. 7. Fig. 9, is a section through the punch bridge on line C of Fig. 7, the rounding jack being removed from its pivot. Fig. 10, is a section on a line similar to line C of Fig. 7, the bridge carrying no punches, and a single arm rounding jack being pivoted to swing below the bridge. Fig. 11, on Sheet 3, is a single arm rounding jack adapted to travel on the platen-ring as a track, where a punch bridge is not required. Fig. 12, is a horizontal enlarged detail view of the vertical moving cam roller on central line D, of Fig. 1, the counterbalance levers, guide-rods and cam being removed. Fig. 13, is a vertical view of the same, the counterbalance levers, guide-rods, and cam being shown in position. Fig. 14, is a vertical side elevation of the cam. Fig. 15, is a front elevation of the cam with clutch and shaft section, on central line E, of Fig. 1.

In all the drawings like numerals relate to like parts.

1 is a suitable frame adapted to combine the several sections of different hat sizes in one harmonious machine.

Hat sizes differ in diameter by one eighth of an inch only. The sections are all constructed alike, the difference in construction as between only two sections being limited to the diameters of the press platens only, and in drawings of the scale shown, such difference is not perceptible.

2 is a raised oval platform whose outer periphery corresponds to the periphery of a single size of hat brim; it is cast with the table plate 3, and then bolted to the frame, or it is cast separately for convenience in turning, and then bolted to the table plate; in the center of the oval platform is a recess 4, designed to receive the crown of a hat, (see Fig. 4 and enlarged views 7 to 10).

6 is a movable ring platen having a depending flange with an inner vertical periphery 8, corresponding to the outer periphery of the raised platform which it closely surrounds in its descent, and having a horizontal pressing face 9, at right angles to face 8, which impinges upon the raised platform with pressure, when a hat brim is inserted. The pressing face of the platen is made the desired width of the reversed welt-edge; any excess of felt extending beyond it has to be

removed. In application Serial No. 429,425, I provided a fixed circular vertical knife for this purpose. In this invention I provide a movable rounding cutter constructed as follows. The descending platen 6, is provided with a bridge 5, which crosses its internal space centrally and is secured to it by being bolted to the overhead lugs 7, projecting from the side boxes; all of which are firmly attached to the descending ring platen by suitable bolts. The bridge carries punches 10, (see Figs. 7 to 9) which punch eyelet holes in the hat brim on the descent of the press, as these punches obstruct the annular space within the ring platen, and are not always required, I show three constructions of rounding arms provided with cutter-heads, whose working face and action are the same in all, (see Figs. 7 to 11).

In Fig. 7, is shown a rounding jack, composed of four arms 11, united at their center, and pivoted upon the fast pivot 12, fixed in the bridge support, they are retained in position to revolve horizontally by the nut 13, and washer 14; each arm is provided at its end with a yielding cutter-head 15, recessed on its face bearing against the vertical inside face of the platen ring, for the insertion of vertical knives 16, the head is split, and the knives clamped by means of the clamp screw 17. Back of the cutter-head (see Fig. 8) is a piston moving below the arms in boxes 18, 19, the piston has a shoulder 20, bearing against a spring 21, which thus holds the cutter-head yieldingly against the platen inside periphery and causes the knives to track with its contour. To one or more of the arms is attached handles 22 by means of which the rounding jack is revolved. The cutter heads are arranged in pairs to right and left of the arm ends so as to cut beneath the bridge ends 61, which are left open for that purpose (see Fig. 9); the bridge punches enter corresponding sockets in the raised platform 2. In Fig. 10, is shown a bridge 5, without punches to interfere with the revolution of the jack; here a single arm 11, is shown provided with a single cutter head of the same construction as above, to swing below the bridge, the arm is keyed to the loose pivot 12, at 23, below the bridge, and the handle 22 to operate it, is keyed to the pivot at 24, above the bridge. In Fig. 11 (Sheet 3) is shown the platen ring 6, in section without any bridge; here the rounding jack consisting of a single vertical cutter-head, is constructed to travel around the top of the ring platen using it as a track 25, it being faced and the jack recessed for that purpose; it is operated by the handle 22, pushed by the hand; either of these arrangements of cutter-heads will cut the welt edge true to the inner periphery of the platen ring when revolved; each ring is provided with its own rounding jack. The platen rings are provided with boxes 26 made fast to them at both sides; guide rods 27 pass through the boxes, and are firmly attached to them by set screws 28; the rods have a vertical movement in the frame by means of the over and under longitudinal cross bars 29, which are perforated at proper points to form boxes 30, in which the guide rods slide (see Figs. 1 to 4). Midway of the frame (see end view Fig. 2) and supported by its cross section 31, are boxes 32, in which is journaled a main driving shaft 33, carrying centrally under each press section a cam 34, which serves to lower the ring platen 6, and to exert pressure upon it; the cam operates against a movable roller 35, which is journaled at each end in boxes 36, also made fast by set screws 37, to the guide rods 27, at each side of the central section of the roller upon which the cam bears are shoulders 38, which serve to keep the cam in position as it travels loose upon the driving shaft; the cam has a clutch hub 39, (see Fig. 1, and detail views 14, 15) which registers with a corresponding clutch 40, made fast to the driving shaft as to its rotary movement by the key 41, but having a sliding horizontal movement upon the key permitting the opening and closing of the clutch jaws when operated by the clutch pin 42, made fast in the starting lever 43, at its circular section which surrounds the clutch, (see detail Fig. 5); the lever is pivoted at its fast end upon the horizontal frame bar 44, at the rear of the machine, and slides at its free end upon the horizontal frame bar 45, at the front of the machine.

At a point about midway in the vertical revolution of the cam, is cast a tapered section 46, having the same diametric center, which in its revolution gradually presses against an ear-piece 47, made fast to the lever at a corresponding point; and by its taper moves the lever horizontally, thereby drawing the clutch jaws apart and stopping that section of the machine automatically and at a predetermined point under pressure, while the other sections continue in motion, it being arranged that no two sections stop at the same time; this however is optional with the attendant, who after placing a hat upon the raised platform 2, throws in his clutch and moves to the next section, and so on, the cams each make one revolution before stopping themselves automatically, and the hat brim remains under pressure until the operator returns, cuts the surplus rounding with the jack, and throwing in the clutch, the platen rises giving ample time for the operator to remove the hat and replace it with another when the operation is repeated. The cams are all driven by the shaft 33, which is operated by a worm wheel 48, made fast to one end, and a worm 49, made fast to the shaft 50, which is journaled

in boxes 51, on the frame of the machine, and driven by fast and loose pulleys 52, from any convenient power. The driving shafts move continuously, and the main shaft 33, has a slow enough motion to allow sufficient time for the changing of the hats; the rounding is effected while each section is at rest under pressure. The action of the cam only exerts pressure to force the movable roller 35, downward, and with it the press platen, the cam has no lifting power, the return or upward lift of the press platen is accomplished by means of the counter-balance levers 53, 54, (see detail Figs. 6, 12 and 13, and Figs. 1 to 4) which are movably journaled upon the roller bearings 55, 56, of the movable roller 35, have a revolving central bearing 57, upon the horizontal round bar 58, made fast in the frame of the machine, are retained in their places on that bar by the fast collars 59, and support a weight 60, at their extremities, which slightly overbalances the weight of all the descending parts of each section. This weight is raised by the cam as it pushes the other parts downward, and the descent of the weight by its gravity returns the other parts including the press platen to their original positions.

Various changes in detail might be effected in the construction or movement of the sections or rounding knives, without altering the general principles of my invention. I do not limit myself as to details, but

Having described the novel features of my invention, what I claim and desire to secure by Letters Patent is:

1. In a hat brim press to form welt edges, the combination in one machine frame of a plurality of press sections, each section consisting of a press head and a press floor correspondingly arranged, each press head having an independent vertical movement upon said machine frame to and from said press floor, each section being adapted to form the welt edge upon a single size of hat brim, a common power driven shaft centrally arranged under all of said press sections, said shaft being journaled in boxes attached to said machine frame, cams located upon said shaft centrally under each press section, said cams having an intermittent connection with said shaft, arms carrying adjustable balance weights toward their extremities rotatably operated by the said cams under each of said press sections, the said cams when revolved by the said shaft operating to lower said press heads and exert pressure upon them at their lowest point, the said balance weights operating to return the said press heads to their highest position at each revolution of said cams, means whereby each of said cams is disconnected automatically from said power driven shaft, thereby stopping a corresponding press section at the end of its downward press movement, and means whereby each of said press sections may be started or stopped independently of any other section.

2. In a hat brim press to form welt edges, the combination in one suitable machine frame, of a plurality of press sections of similar construction, but differing sizes, each section comprising a platform supported by and secured to said machine frame, a centrally arranged elliptical section rising vertically from said platform, having a flat top surface constituting a press floor, the vertical sides of each of said raised sections being of the same ellipse as the periphery of a corresponding size of hat brim to be pressed thereon, each of said press floors terminating at said periphery, and an opening centrally arranged in each of said press floors, adapted to center the crown of a corresponding size of hat when laid upon said press floor.

3. In a hat brim press to form welt edges, the combination in one machine frame, of a plurality of independent press sections of similar construction but differing sizes, each section comprising a platform supported by said machine frame, a vertical section rising centrally therefrom, the top surface of said section constituting a press floor, an opening in said press floor, adapted to center the crown of a hat having a brim periphery corresponding to the periphery of said press floor, a press head centrally arranged above each of said press sections, each of said press heads having the form of an elliptical ring with vertical sides adapted to encircle its corresponding press floor, means to give said press heads a vertical movement upon said machine frame to and from said press floors, a power driven shaft arranged upon said machine frame, operating said press heads, with means for automatically and independently disconnecting the movement of each of said press heads from the movement of said shaft when at the extremity of their downward stroke, and while exerting pressure upon said press floor without affecting the movement of the other press heads.

4. In a hat brim press to form welt edges, the combination in one machine frame, of a plurality of independent press sections of similar construction but differing sizes, each section being provided with a press head having a vertical motion on said machine frame to and from a press floor centrally arranged on said frame, said press floor terminating at its periphery in vertical sides, said press head being provided with an interior annular recess, composed of a vertical and horizontal face in right angular conjuction, said vertical face extending downward, and being adapted to encircle the vertical sides of said press floor, said horizontal face extending laterally and being adapted to press upon

the surface of said press floor, the width of said horizontal face conforming to the width of a predetermined curl to be shaped upon a hat brim, a second vertical face formed upon the interior of said press head, extending upward from the interior edge of said horizontal face, said vertical face forming the templet guide, by which the inner edge of a curled hat brim may be trimmed while held under pressure and centered upon said press floor.

5. In a hat brim press to form welt edges, the combination of a machine frame, a platform supported thereon constituting a press floor, a press head centrally arranged above said press floor, having a vertical movement upon said machine frame to and from said press floor, said press head having an interior elliptical vertical face forming the templet guide by which the inner edge of a hat brim centered upon said press floor may be trimmed, a rounding knife mechanism mounted upon the top of said press head carrying a vertical knife blade adapted to bear yieldingly against the inner vertical face of said press head forming said templet guide, said knife blade being adapted to circulate in contact with the inner vertical elliptical face of said press head.

6. In a hat brim press to form welt edges, the combination of a machine frame, a platform supported thereon constituting a press floor, a press head centrally arranged above said press floor, having a vertical movement upon said machine frame to and from said press floor, said press head having an interior elliptical vertical face forming the templet guide by which the inner edge of a hat brim centered upon said press floor may be trimmed, a bridge member secured to and centrally crossing the interior open space of said press head, a rounding knife centrally pivoted in and supported by said bridge member, said rounding knife consisting of a pivot, a handle secured to the upper end of said pivot revolving above said bridge member, an arm secured to the lower end of said pivot, revolving below said bridge member, said arm carrying at its extremity a knife blade holder, in which a renewable knife blade is vertically clamped, said holder being mounted on the end of a resilient shaft surrounded by a spring, and sliding in bearings below said revolving arm, said knife mechanism being adapted to trim the inner reversed edge of a hat brim centered upon said press floor, to the same contour as that of the templet guide formed by the interior vertical face of said press head.

7. In a hat brim press to form welt edges, the combination of a machine frame, a platform supported thereon constituting a press floor, a press head centrally arranged above said press floor, having a vertical movement upon said machine frame, to and from said press floor, punches supported by said press head registering with punch sockets arranged in said press floor, means to give said press head a vertical movement to and from said press floor, whereby holes are punched in a hat brim centered upon said press floor at each side of the hat crown opening.

8. In a hat brim press to form welt edges, the combination in one machine frame of a plurality of independent press sections of similar construction but differing sizes, each section comprising a platform supported by said machine frame, a vertical section rising centrally therefrom, its top surface constituting a press floor, a press head centrally arranged above each of said press floors, said press head having an annular recess with a vertical face adapted to encircle and a horizontal face adapted to press upon a corresponding press floor, vertical lifting rods made movable upon said machine frame in boxes perpendicularly arranged above and below said machine platform, said lifting rods being rigidly attached to sliding collars upon the sides of said press head, a shaft journaled in boxes centrally arranged upon said machine frame below said platform, said shaft being centrally parallel with the sliding collars on the sides of all of said press heads, cams made fast to said shaft central under each press head, a roller operated by the revolution of said cams, said roller being journaled in sliding collars rigidly attached to said lifting rods, said sliding collars being perpendicularly arranged below the corresponding rigid sliding collars upon each side of said press head and parallel with them, said lifting rods descending with said roller bearings when depressed by the revolutions of said cam, and ascending with them when lifted by the power of a lever, said lever being journaled at one end on said roller, fulcrumed at its center upon the machine frame, and carrying at its other end a weight, whereby said press heads are given a vertical reciprocal movement to or from said press floors at each revolution of said cams, the apex of said cams being adapted to exert extreme pressure upon said press floors, at the termination of the downward movement of said press heads, and a worm wheel secured to one end of the shaft on which said cams are located, said worm wheel being engaged by a worm made fast to a shaft operated by power pulleys.

9. In a hat brim press to form welt edges, the combination in one machine frame, of a plurality of independent press sections of similar construction but differing sizes, each section being operated by a cam, secured to a power driven shaft arranged centrally beneath said sections, a clutch mechanism

rigidly attached to the side of each of said cams, engaging the jaws of a corresponding clutch sliding upon a key way joined to said shaft, a separate lever engaging each of said sliding clutches, whereby any of said press sections may be independently thrown into movement with the revolution of said shaft, or disconnected from it by a reverse movement of said lever.

10. In a hat brim press to form welt edges, the combination in one machine frame, of a plurality of independent press sections of similar construction but differing sizes, each section being operated by a cam secured to a power driven shaft arranged centrally beneath it, a clutch mechanism rigidly attached to the side of each of said cams, engaging the jaws of a corresponding clutch sliding upon a key way joined to said shaft, a separate lever engaging each of said sliding clutches, and a mechanism arranged upon the side of each of said cams adapted to press against the side of said lever at a predetermined point thereby causing the clutch mechanism to separate automatically, and the movement of any of said press heads to be arrested at the termination of its downward movement, and while exerting pressure upon a hat brim arranged upon a corresponding press floor, beneath said press head.

11. In a hat brim press to form welt edges, the combination in one machine frame, of a plurality of independent press sections of similar construction but differing sizes, each section being operated by a cam secured to a power driven shaft arranged centrally beneath it, a clutch mechanism arranged upon said shaft whereby any of said cams may be automatically detached from the power, said cams being shaped, and their revolutions timed, so that the press head of each section having a vertical movement to and from a corresponding press floor, shall be slowly lifted, and have a quick descent upon said hat brim, and means whereby the cams may be disconnected from the power when the apex of said cam is exerting its greatest pressure upon said hat brim.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 5th day of June 1908.

CHAS. E. SACKETT.

Witnesses:
JAMES P. WILSON,
PERRY WILSON.