

TESTER.

Patented Nov. 16, 1909.

3 SHEETS—SHEET 1.

940,482.



WITNESSES:

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TESTER.

APPLICATION FILED MAR. 10, 1909.

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3 SHEETS—SHEET 2.

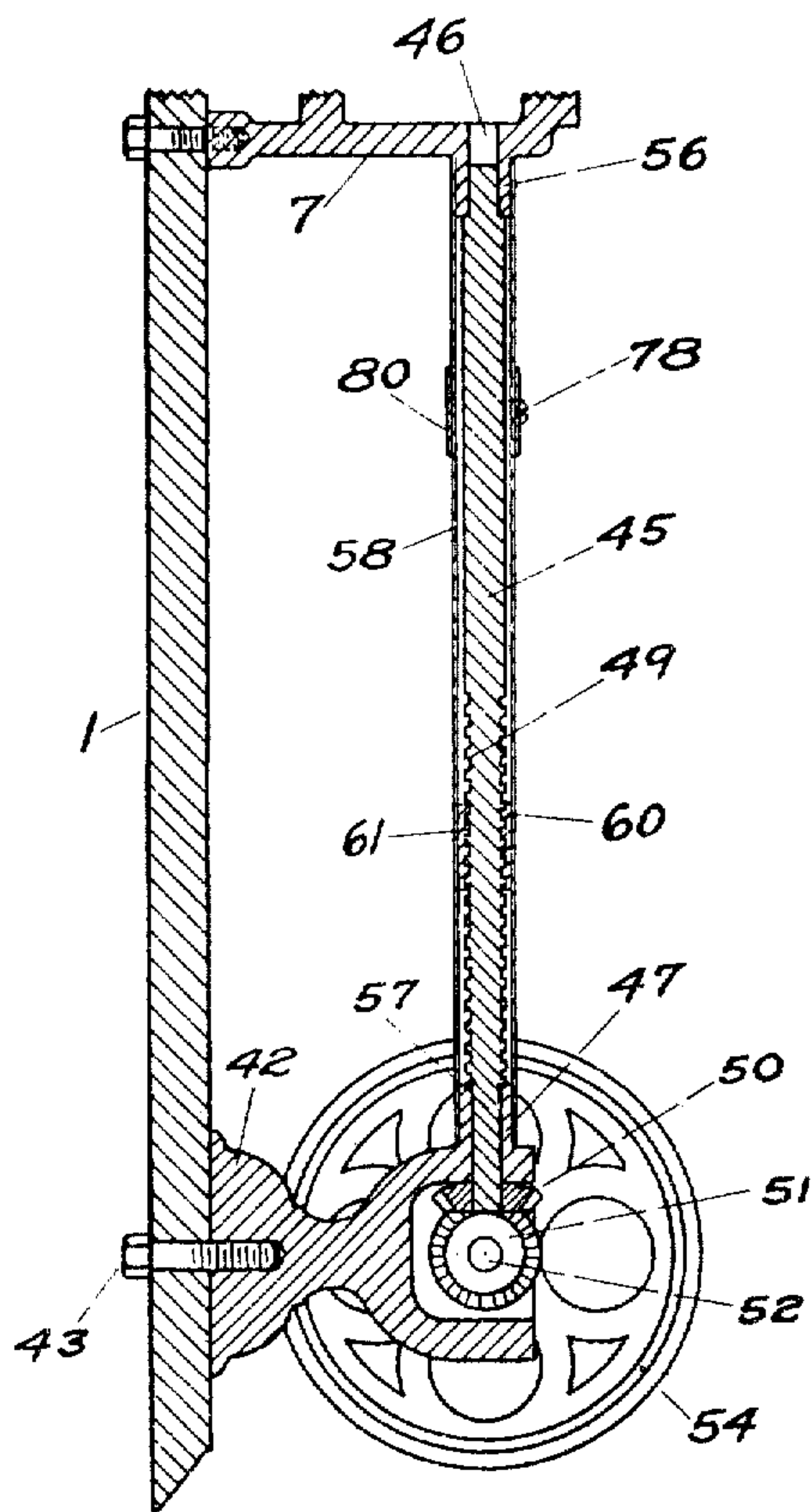


FIG-3

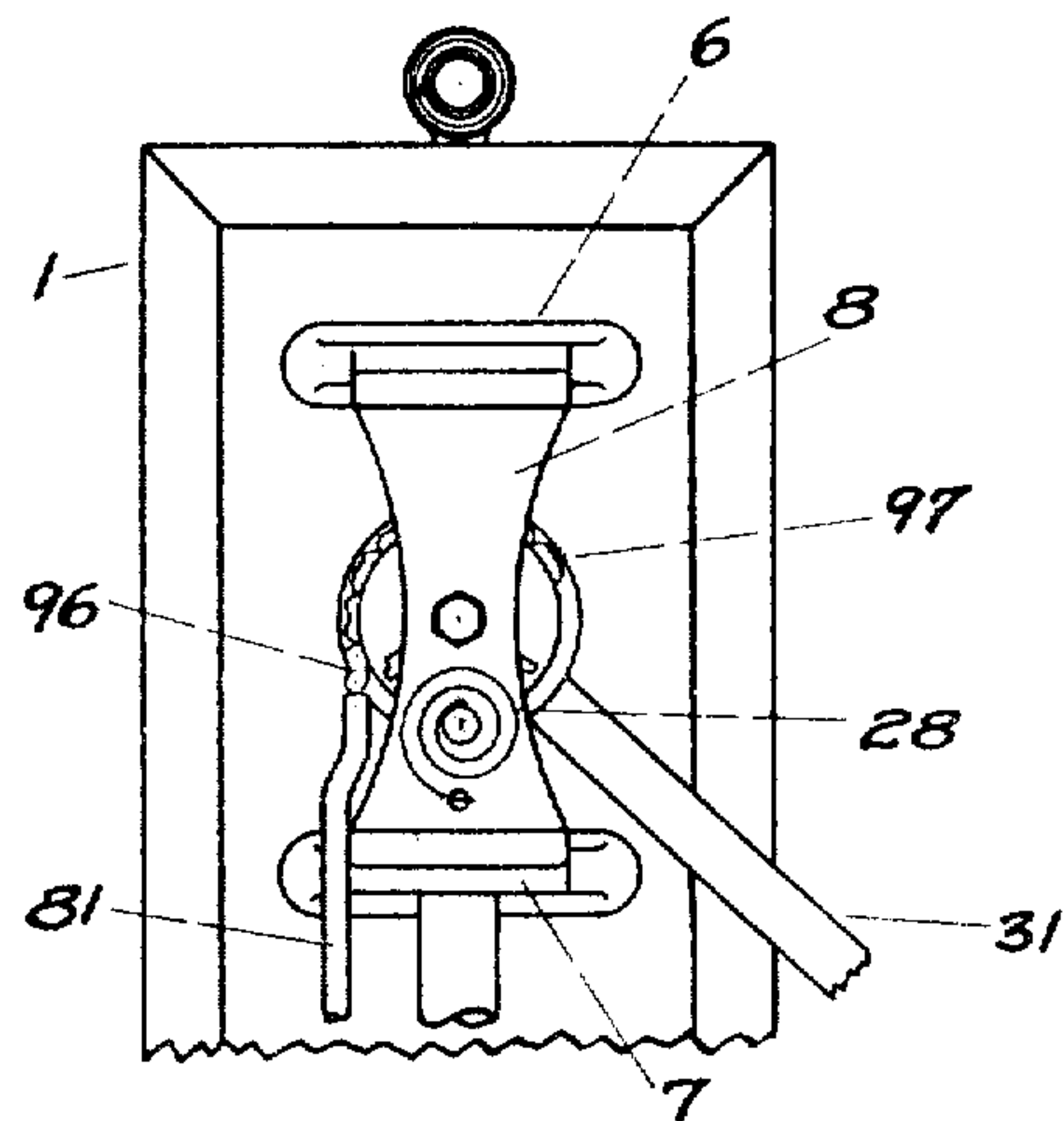


FIG-4

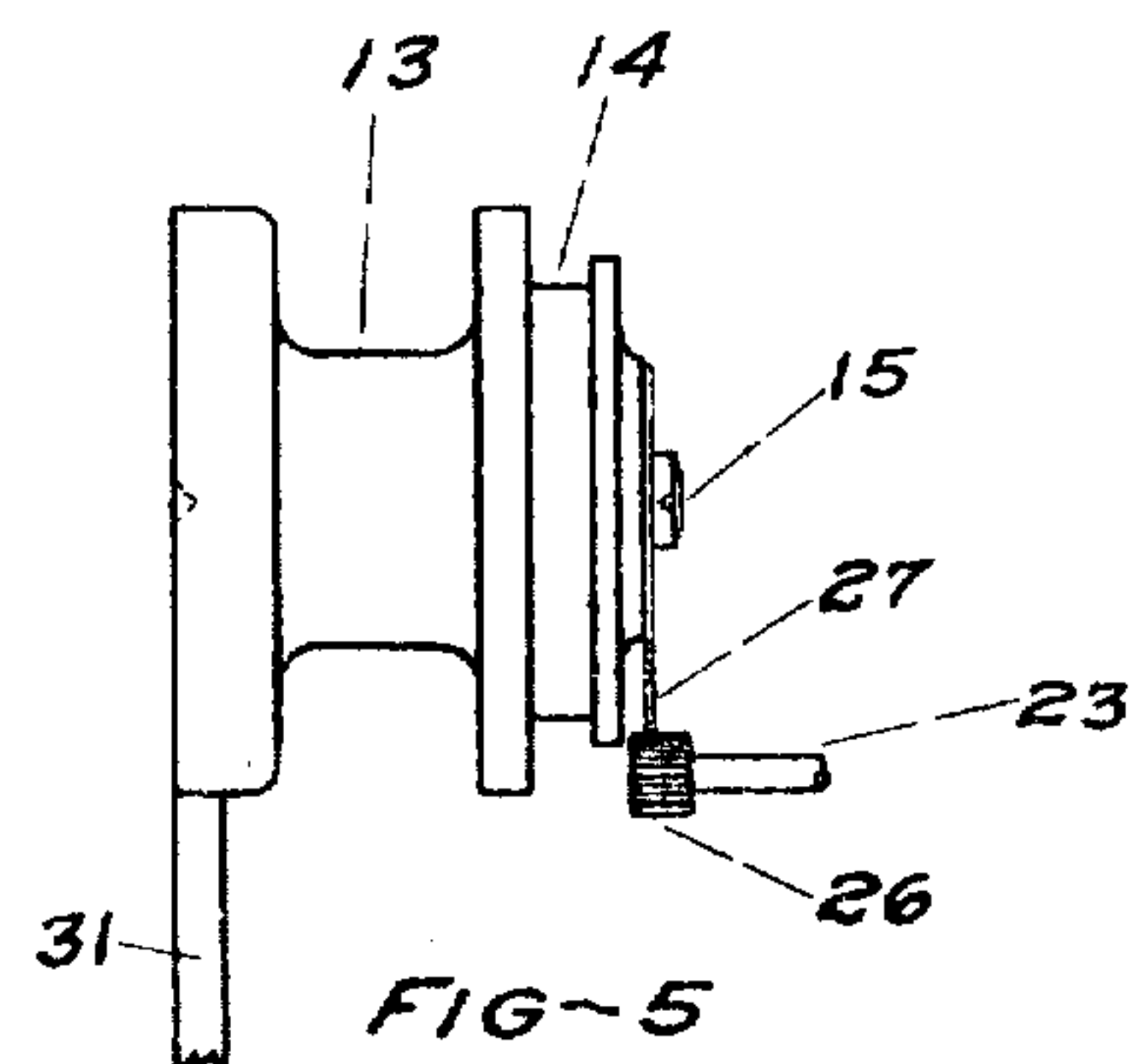


FIG-5

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3 SHEETS—SHEET 3.

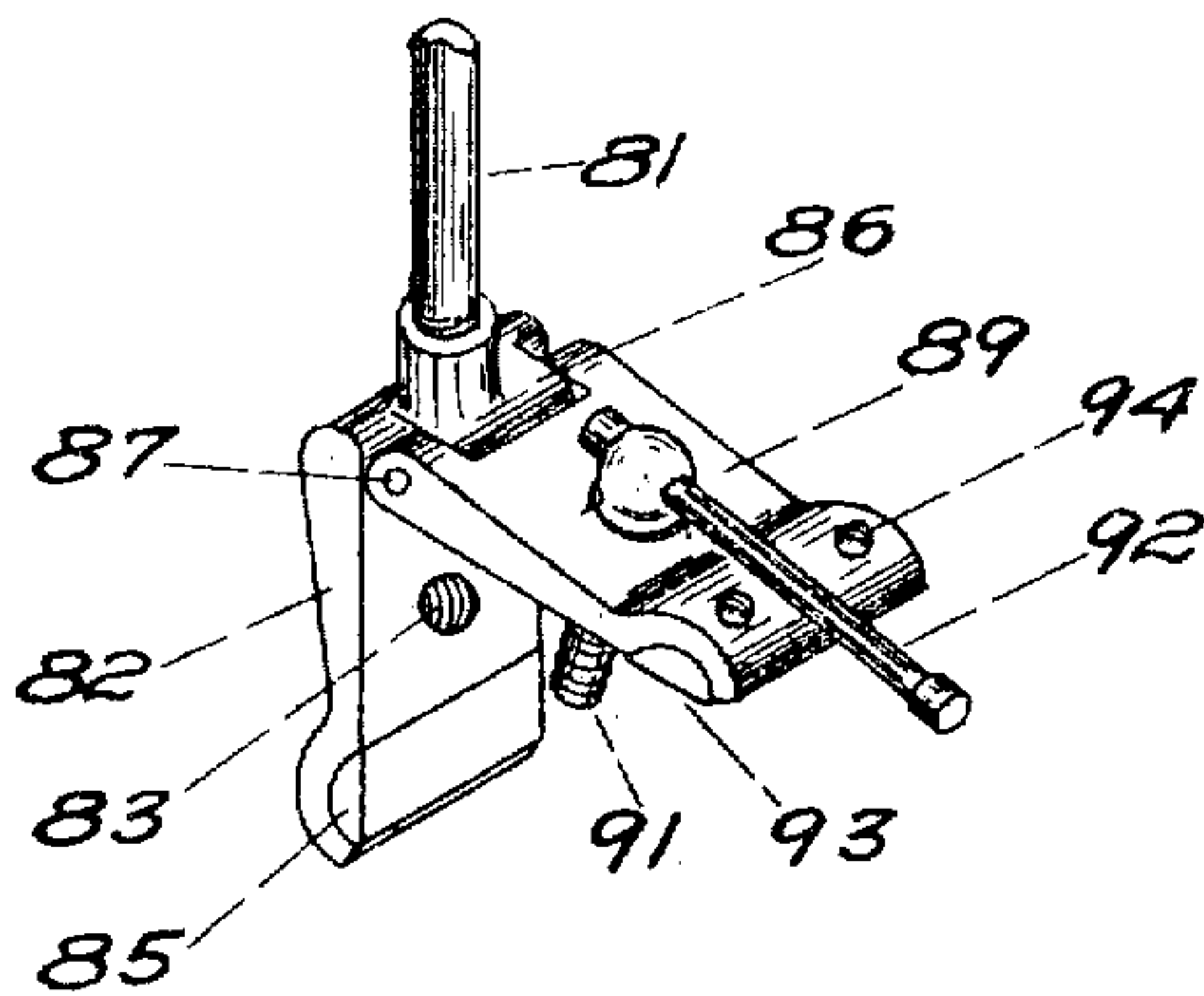


FIG. 6

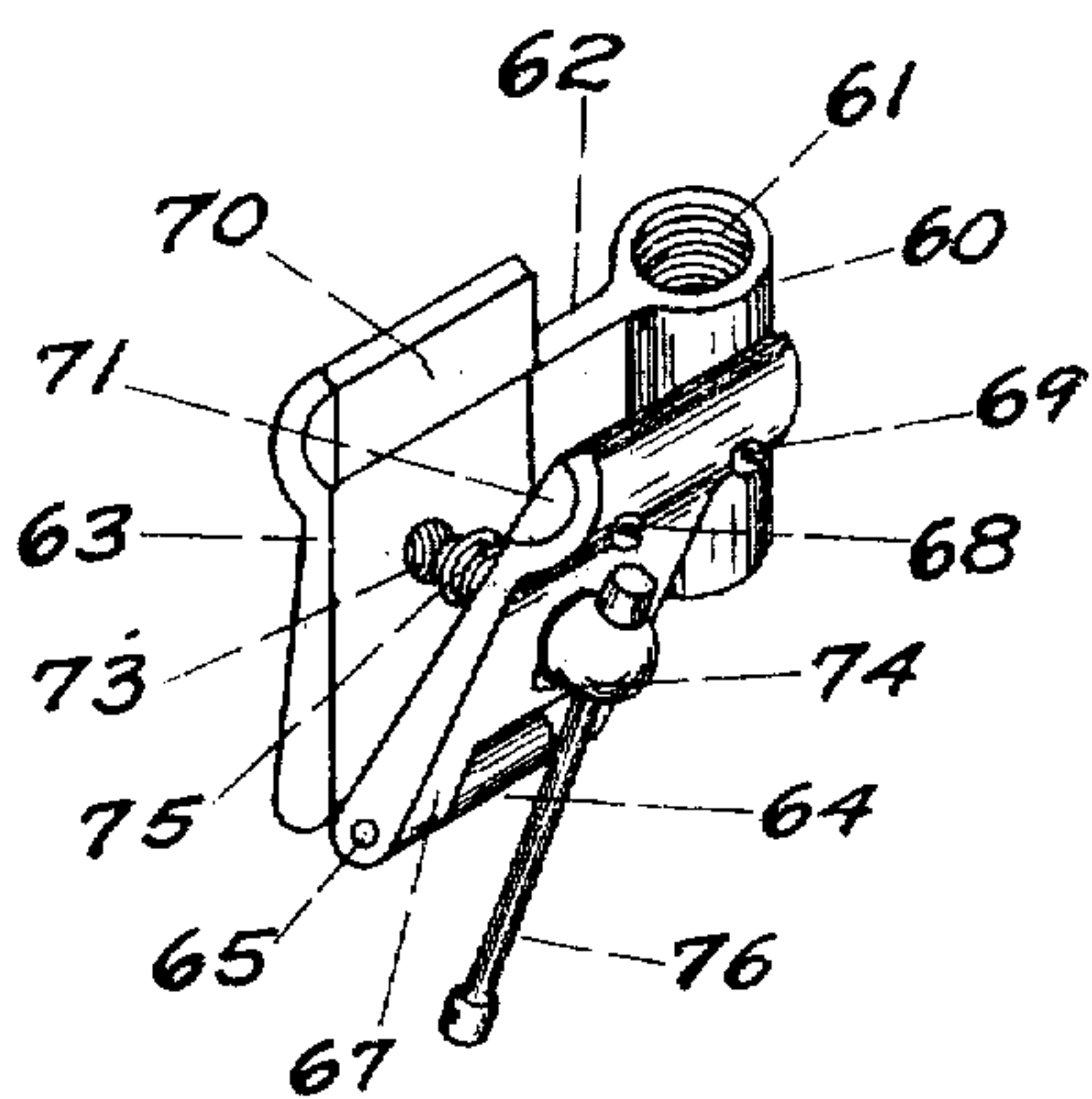


FIG. 7

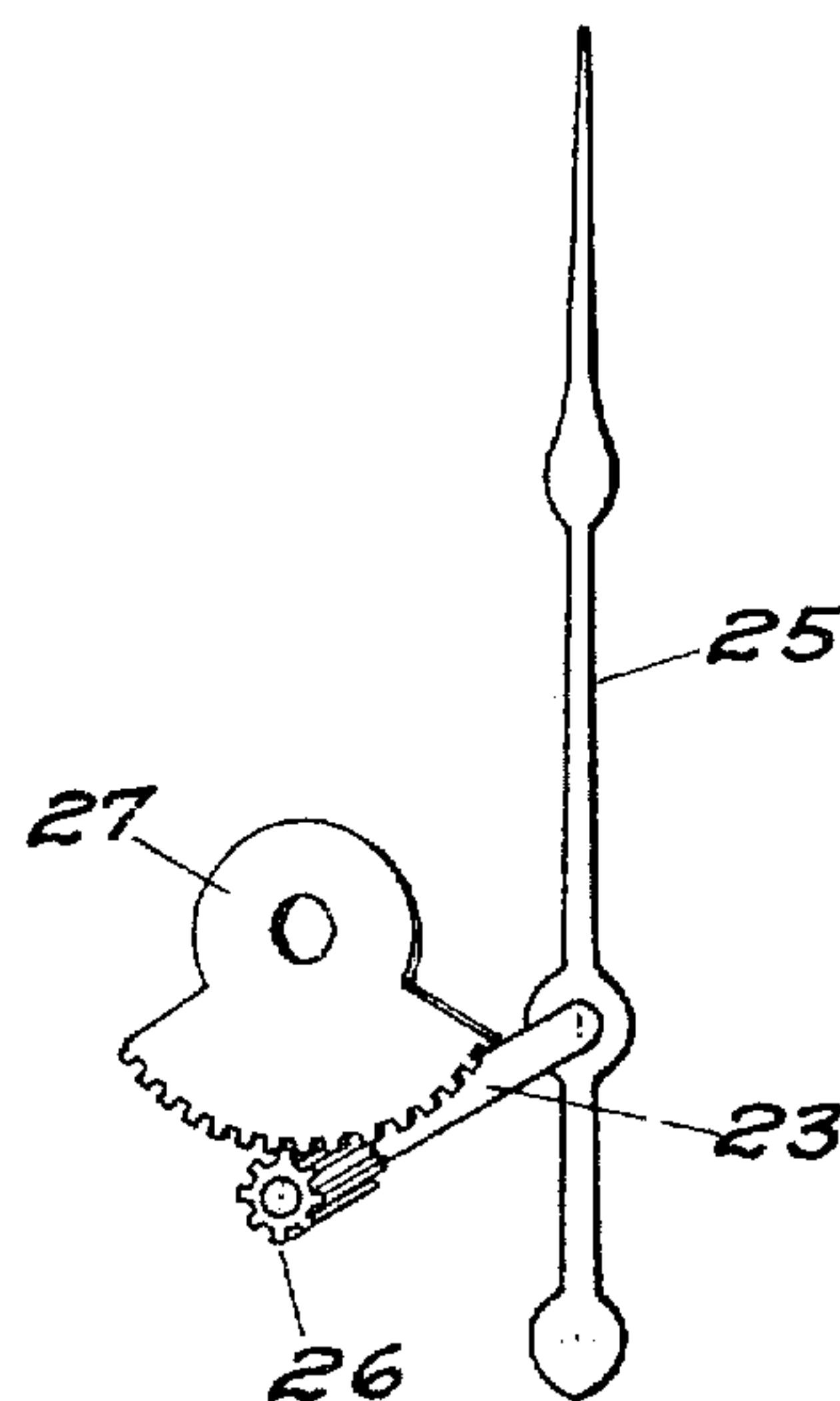


FIG. 8

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TESTER.

940,482.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed March 10, 1909. Serial No. 482,480.

To all whom it may concern:

Be it known that I, HENRY L. SCOTT, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Testers, of which the following is a specification.

My invention relates to testers, that is machines purposed to test the stress sustainable by yarns, cloth, and other articles.

The essential objects of the invention are simplicity, compactness, and strength. Also uniformity and accuracy of operation and results. Further, to facilitate operation upon cloth or other fabrics.

To the above ends essentially my invention consists in the novel construction, combination and mode of operation of parts set forth in and falling within the scope of the claims hereto appended.

In the drawings which accompany and form a part of this specification, Figure 1 is a side elevation of my novel tester, Fig. 2, a front elevation of the same omitting for perspicuity the gear case, Fig. 3, a section of the machine on line $x-x$ of Fig. 2, Fig. 4, a front elevation of the upper portion of the machine with the dial removed. Fig. 5, a detail view of the drum and adjacent parts, Figs. 6 7, perspective views of the upper and lower clamping members respectively, and Fig. 8, a detail view of the pointer, segment, and pinion.

Like reference numerals indicate like parts throughout the views.

In its present embodiment my machine comprises a back board, 1, to whose upper end is fixed a suspension ring, 3. Upon the face of the board are fixed by nuts, 4 and 5, horizontal arms or plates, 6 and 7, whose outer ends are connected by a vertical plate, 8. A second plate, 9, in the rear of and parallel with the plate, 8, is integral with plates 6 and 7. Rotatably mounted upon pivot points, 10 and 11, in plates 8 and 9 respectively is a drum, 13, provided with an annular groove, 14, near its forward end, and a hub or axial projection, 15, which is engaged by the pivot point, 10. Fixed by screws, 16 and 17, to projections, 18 and 19, upon the plate, 8, is a dial plate, 20, provided with marginal graduations, 21, upon its face indicating pounds from 0 to 200.

Rotatably mounted in the plate, 8, is a pintle, 23, extending through the center of the dial, 21, carrying upon its outer end a

pointer, 25, and upon its inner end a pinion, 26, which meshes with a toothed segment, 27, fixed to the hub, 15, of the drum. A spiral spring, 28, is fixed at its inner end to the pintle and at its outer end to a pin 29, in the plate, 8. Integral with the rear portion of the drum, 13, is a lever arm, 31, to which is fixed intermediate its length a weight, 32, and to whose free end is pivoted a pawl, 34, having intermediate its length a pin, 35. This pawl engages the teeth, 36, of a curved rack, 37, fixed by screws, 38 and 39, to studs, 40, and 41, to the back board.

Upon the lower portion of the back board is a bracket, 42, fastened by a screw, 43. This bracket may be inclosed when desired by a gear casing, 44. An operating spindle, 45, has its upper end in an opening, 46, in the plate, 7, while its lower portion has a bearing as at 47, in the upper portion of the bracket. The spindle is provided intermediate its length with a screw thread, 49, and has fixed to its lower end a bevel gear, 50, which meshes with a second bevel gear, 51, upon the end of a shaft, 52, mounted in a sleeve, 53, integral with the bracket. Upon the end of the shaft, 52, is a hand wheel, 54, for driving the shaft, 51, and connected parts. It will be understood that the shaft, 51, may be driven by any convenient power means such, for instance, as the power attachment described in my pending application Ser. No. 477,552.

Fixed to projections 56 and 57, upon the plate, 7, and bracket, 42, respectively, and concentric with but interspaced from the spindle, 45, is a tube, 58, provided with a longitudinal slot, 59. Within the tube is a nut or sleeve, 60, provided with internal threads, 61, which loosely engage the threads, 49, of the spindle. This sleeve is integral with a plate, 62, which passes through the slot, 59. Integral with the end of the plate or web, 62, is a clamping plate or jaw, 63, which has upon its lower portion a lateral lug, 64, in which is a pin, 65, upon which is hinged a second clamping jaw, 67. Fixed by screws, 68 and 69, to the jaws, 63, and 67, are bearing plates, 70 and 71, respectively. The clamping plates are provided intermediate their length with threaded openings, 73 and 74, to receive a clamping screw, 76, provided with a handle, 76. Fixed to the upper portion of the tube, 58, by a screw, 78, or otherwise is an arm, 80, in

whose end is slidably mounted a vertical rod, 81, having fixed to its lower end a clamping jaw, 82, provided with a threaded opening, 83, and having fixed to its margin by screws, 84, a bearing plate, 85. The jaw is provided at its base with a lug, 86, to which is hinged by a pin, 87, a companion jaw, 89, in which is mounted a clamping screw, 91, which enters the opening, 83, and is provided with a handle, 92. A clamping plate, 93, is fixed to a plate, 89, by screws, 94. Attached to the upper end of the rod, 81, is a chain or other flexible member, 96, having its other end fixed by a pin, 97, in the channel or groove, 14, of the drum.

The operation of my machine is as follows: The material to be tested is placed in the upper and lower clamping jaws and engaged between the bearing faces thereof by their screws, 75 and 91. The shaft, 52, is then rotated, which through the gears, 51 and 50, rotates the spindle, 45, thus sliding the sleeve, 60, downwardly upon the threaded portion of the same thus exerting an increasing tension upon the material under test, pulling downwardly the rod, 81, rotating the drum, 13, and forcing the weighted arm, 31, from its normal vertical position in the direction of an arc. The movement of the drum is communicated through the segment, 27, pinion, 26, and pintle, 23, to the pointer, 25, which indicated upon the graduation, 21, the number of pounds stress being undergone by the sample. The moment that the material is rent the pawl, 35, engages a tooth of the rack, 37, by which it is prevented from violent return to original position. The pointer, 25, thereupon returns to original position under the action of its spring, 28.

What I claim is,

1. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve loosely mounted upon the spindle within the tube, a web upon the sleeve extending through the slot, and slidably mounted means upon the end of the web for engaging and exerting tension upon a sample.

2. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame and provided with a screw thread, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve within the tube provided with a thread engaging the thread of the spindle, a web upon the sleeve extending through the slot, and slidably mounted upon the end of the web for engaging and exerting tension upon a sample.

3. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating

the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve loosely mounted upon the spindle within the tube, a web upon the sleeve extending through the slot, slidably mounted means for engaging one end of a sample and clamping means upon the end of the web for engaging the other end of a sample.

4. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve loosely mounted upon the spindle within the tube, slidably mounted means for engaging one end of a sample and means upon the sleeve and extending through the slot for engaging the other end of a sample.

5. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating the spindle, a tube upon the frame surrounding the spindle, and provided with a slot, a sleeve loosely mounted upon the spindle within the tube, means upon the sleeve extending through the slot for engaging one end of a sample, and slidably mounted yielding means in the frame for engaging the other end of a sample.

6. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve loosely mounted upon the spindle within the tube, means upon the sleeve and extending through the slot for engaging one end of a sample, an arm fixed to the tube above the sleeve, and means slidably mounted in the arm for engaging the other end of a sample.

7. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, and provided with a screw thread, means for actuating the spindle, a tube upon the frame around the spindle provided with a slot, a sleeve within the tube provided with a thread engaging the thread of the spindle, a web upon the sleeve extending through the slot, a clamp upon the web, an arm fixed to the tube above the sleeve, a rod slidably mounted in the arm, and a clamp upon the rod.

8. In a tester, the combination with the frame, of an operating spindle rotatably mounted in the frame, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve mounted upon the spindle within the tube and movable relatively to the spindle, and means upon the sleeve extending through the opening and adjustable clamping means on the outer end of said last-named means for engaging one end of a sample.

9. In a tester, the combination with the frame, of an operating spindle rotatably

mounted in the frame, means for actuating the spindle, a tube upon the frame around the spindle and provided with a slot, a sleeve mounted upon the spindle within the tube
 5 and movable upon the spindle, means upon the tube extending through the slot for engaging one end of a sample, an arm fixed to the tube above the sleeve, a rod slidably mounted in the arm, a clamp upon the rod,
 10 a drum rotatably mounted in the frame above the arm, and a chain fixed to the drum and connected to the rod.

10. In a tester, the combination with the frame, of a dial fixed to the frame, a drum
 15 rotatably mounted in the frame adjacent the dial and provided with a hub, a gear fixed to the hub, a pintle mounted in the frame, a pointer upon the pintle cooperating with the dial, a pinion upon the pintle engaging
 20 the gear, a flexible member fixed to the drum, a rod attached to the flexible member, and means upon the rod for engaging a sample, an operating spindle, means for rotating the same and vertically movable means op-
 25 erated by said spindle and carrying clamping means for engaging the other end of a sample.

11. In a tester, the combination with the frame, of a dial fixed to the frame, a drum
 30 rotatably mounted in the frame adjacent the dial and provided with a hub, a gear fixed to the hub, a pintle mounted in the frame, a pointer upon the pintle cooperating with the dial, a pinion upon the pintle engaging
 35 the gear, a rack fixed to the frame, an arm fixed to the drum, a pawl upon the arm engaging the rack, a flexible member upon the drum, and means attached to the flexible
 40 spindle, means for rotating the same and vertically movable means operated by said spindle and carrying clamping means for engaging the other end of a sample.

12. In a tester, the combination with the
 45 frame, of a dial fixed to the frame, a drum rotatably mounted in the frame adjacent the dial and provided with a hub, a gear fixed to the hub, a pintle mounted in the frame, a pointer upon the pintle cooperating with the
 50 dial, a pinion upon the pintle engaging the gear, a coiled spring fixed to the pintle and to the frame, a rack upon the frame, an arm fixed to the drum, a pawl upon the arm adapted to engage the rack, a flexible mem-
 55 ber upon the drum, and means supported by

the flexible member for engaging a sample, an operating spindle, means for rotating the same and vertically movable means operated by said spindle and carrying clamping means for engaging the other end of a 60 sample.

13. In a tester, the combination of a back board, horizontal plates fixed to the upper portion of the board, a vertical plate connecting the horizontal plates, a second ver- 65 tical plate connecting the horizontal plates in the rear of the first vertical plate, a dial mounted upon the first vertical plate, pivot points in the vertical plates, a drum supported by the pivot points, a pintle in the 70 first vertical plate extending through the dial, a pointer upon the outer end of the pintle, means for operatively connecting the drum and pintle, a flexible member upon the drum, a member supported by the flexible 75 member for engaging one end of a sample, a bracket upon the back board below the horizontal plates, an operating spindle mounted in the bracket, and means upon the operating spindle for engaging the other end of a 80 sample.

14. In a tester, the combination with an operating spindle provided with a screw thread, of a sleeve provided with a screw thread adapted to engage the spindle thread, 85 a web upon the sleeve, a clamping jaw fixed to the outer end of said web and constructed to engage and put tension on a sample to be tested, a second clamping jaw pivotally connected at its margin with the fixed jaw, and 90 a clamping screw connecting intermediate portions of the two jaws.

15. In a tester, the combination with the drum, and the flexible member fixed thereto, of a depending rod connected with the flexi- 95 ble member, a clamping jaw fixed to the lower end of the rod, a second jaw pivotally connected with the first jaw, and a clamping screw connecting the jaws, a rotatable operating spindle, means for actuating the same, 100 a sleeve operable by the spindle, a lateral member carried by the sleeve and an adjustable clamping device carried by said lateral member.

In testimony whereof I have affixed my 105 signature in presence of two witnesses.

HENRY L. SCOTT.

Witnesses:

HORATIO E. BELLWS,
 LEONARD W. HORTON.