H. L. SCOTT.

TESTER POWER GEARING.

APPLICATION FILED FEB. 13, 1909.

924,693.

Patented June 15, 1909.

2 SHEETS—SHEET 1.

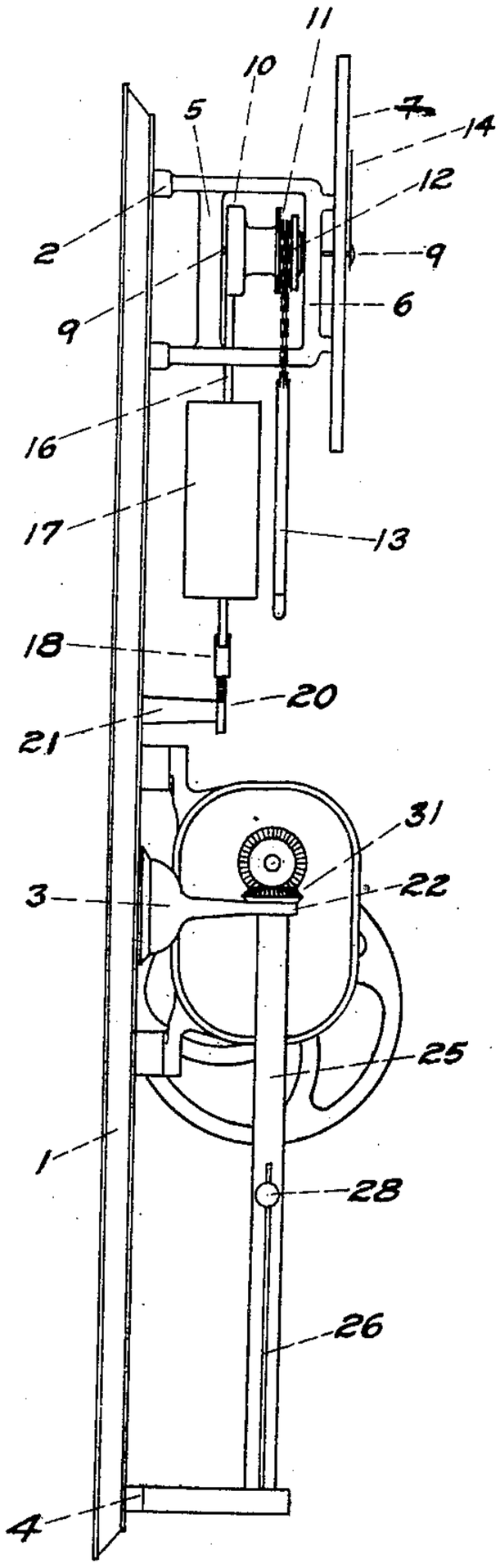

FIG. 1

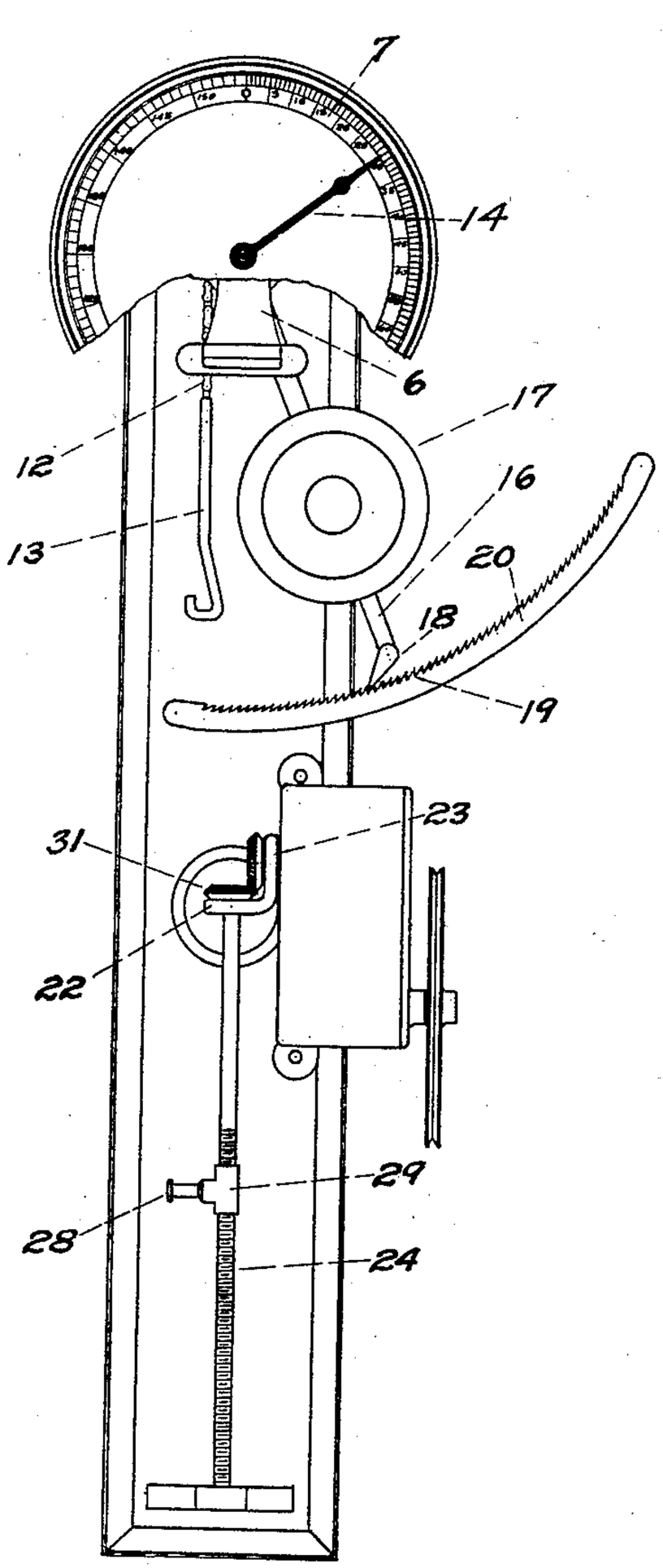

FIG. 2

WITNESSES:

George H. McLaughlin

William C. Stanton.

INVENTOR.

Henry L. Scott

BY

Horatio E. Belcher

ATTORNEY.

H. L. SCOTT.

TESTER POWER GEARING.

APPLICATION FILED FEB. 13, 1909.

924,693.

Patented June 15, 1909.

2 SHEETS—SHEET 2.

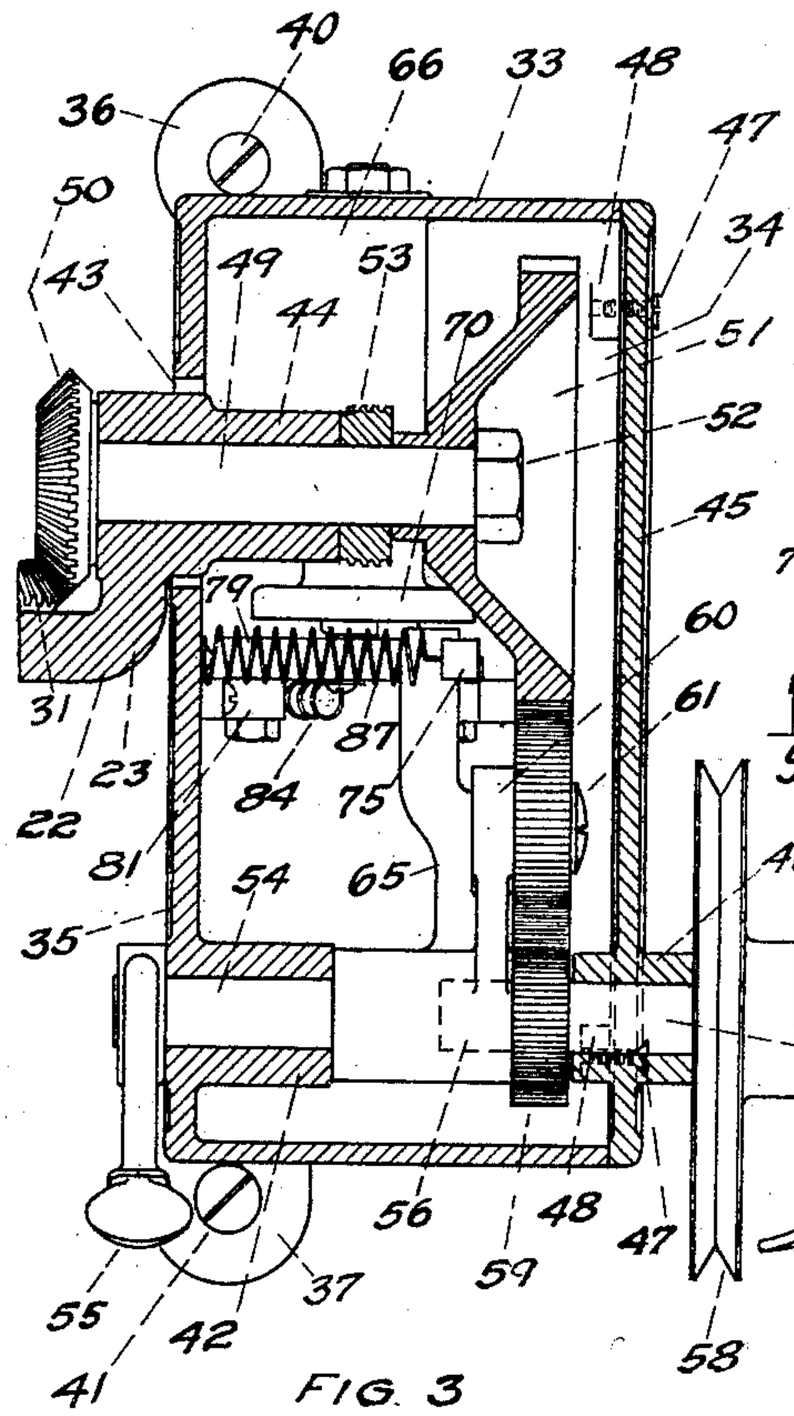

FIG. 3

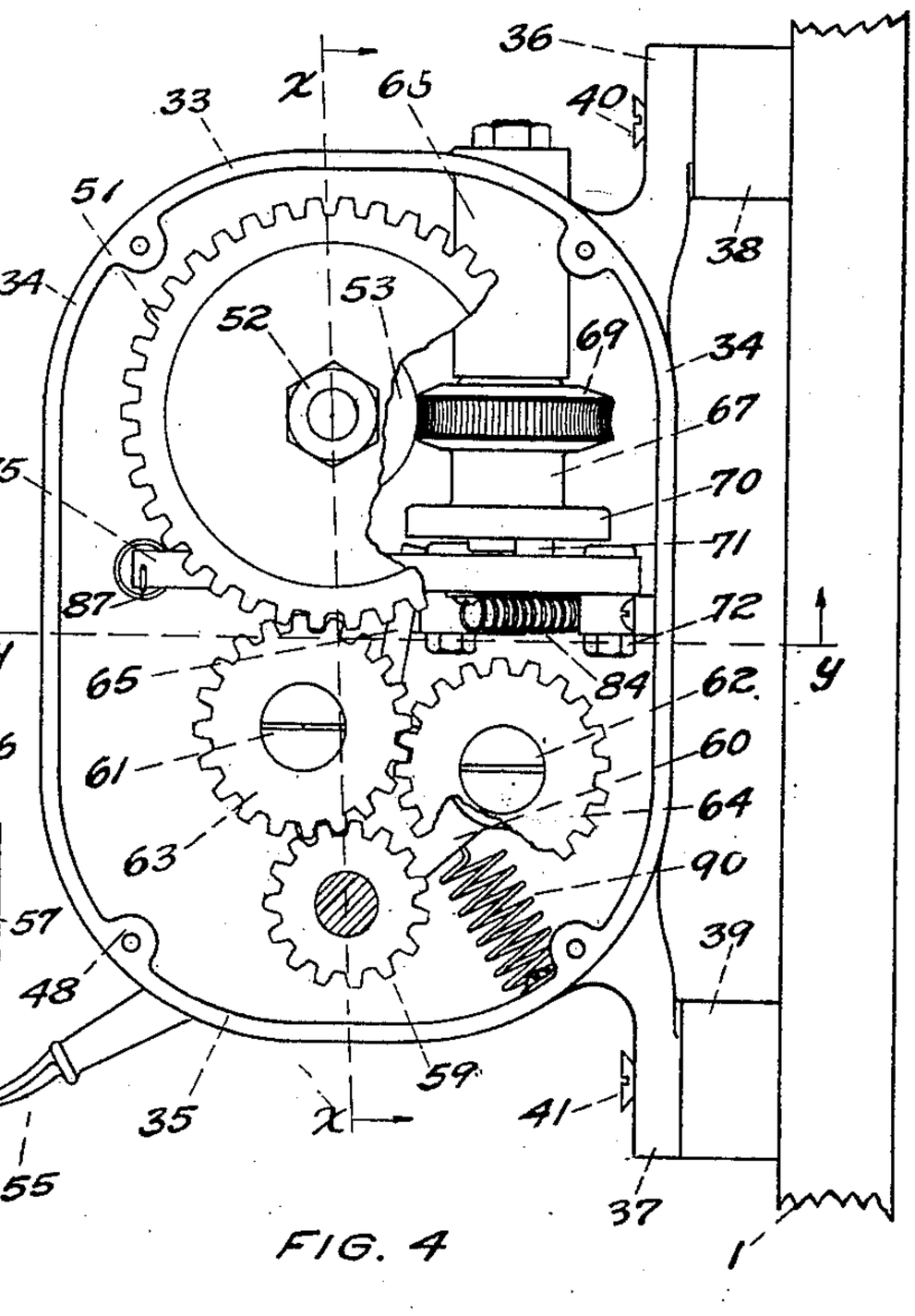

FIG. 4

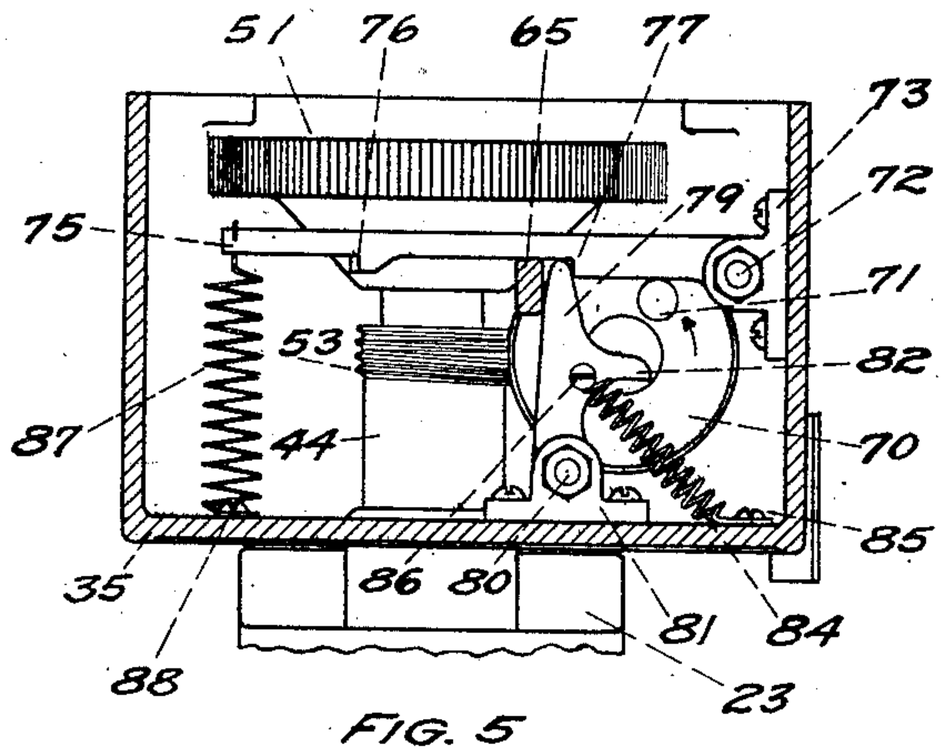

FIG. 5

WITNESSES:

George H. McLaughlin

William C. Stanton,

INVENTOR.

Henry L. Scott

BY

Horatio E. Bellows

ATTORNEY.

UNITED STATES PATENT OFFICE.

HENRY L. SCOTT, OF PROVIDENCE, RHODE ISLAND.

TESTER POWER-GEARING.

No. 924,693. Specification of Letters Patent. Patented June 15, 1909.

Application filed February 13, 1909. Serial No. 477,552.

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 Tester Power-Gearing, of which the following is a specification.

My invention relates to power attachments adapted to use upon testers for yarn, cloth, and other goods, and has for its essential objects, compactness, adaptability for attachment to testers of various types, and for assemblage and mounting of parts; the insurance of accuracy and uniformity of result in successive tests; and the avoidance of the uncertain result and labor incident to the manual operation of the mechanism.

To the above ends essentially my invention consists in the novel construction and combination of parts hereinafter described, and illustrated in the accompanying drawings, wherein,

Figure 1 is a side elevation of a yarn tester equipped with my novel attachment, Fig. 2, a front elevation of the tester with the dial partially broken away, Fig. 3, a section on line *x x* of Fig. 4, Fig. 4, a front elevation of the attachment with the front plate removed and certain gears partly broken away, and Fig. 5, a section on line *y y* of Fig. 4.

Like reference characters indicate like parts throughout the views.

The attachment is described in this instance in connection with a yarn tester, which comprises a back board, 1, provided with upper, intermediate and lower brackets, 2, 3 and 4 respectively. The bracket, 2, comprises parallel vertical plates, 5 and 6. Fixed to the outer plate, 6, is the usual graduated dial, 7, indicating the degree of stress on the goods tested. Upon a pintle, 9, in plates 5 and 6, is a roller, 10, provided with an annular groove or channel, 11, adapted to receive the chain, 12, whose end is fixed in the channel, and from which depends a hook, 13. Upon the outer end of the pintle, 9, is an indicator finger, 14. Fixed to or integral with the hub or roller, 10, is a tension lever, 16, provided intermediate its length with a weight, 17, and at its lower end with a pawl, 18, adapted to engage the teeth, 19, of an arcuate rack, 20, and which is mounted upon a stud or pin, 21, in the back board. The bracket, 3, comprises a horizontal bearing plate, 22, and a vertical bearing plate, 23. An operating or screw rod or spindle, 24, is rotatably mounted in the plate, 22, and bracket, 4, surrounded by a tube, 25, whose ends are fixed to the said plate and bracket, and which is provided with a longitudinal slot, 26. In this slot slides a pin, 28, fixed to an interiorly threaded sleeve, 29, which loosely engages the threaded rod, 24. Fixed to the top of the latter is a beveled gear, 31, through which motion is imparted to the rod, 24. The skein to be tested is placed upon the hook, 13, and pin, 28, and the downward travel of latter imparts the strain to the skein which expresses itself in pounds, through the described mechanism, upon the dial, 7. At the instant of breaking the pawl, 18, engages the rack teeth, 19, and retains the mechanical parts in the positions assumed at the instant of breaking.

In connection with the described yarn tester my power attachment is constructed and arranged as follows: It comprises an oval casing or housing comprising integral top, side, and rear walls, 33, 34 and 35, respectively. Upon the exterior of one side wall, 34, are lugs, 36 and 37, which rest against bearing blocks, 38 and 39, in contact with the back board, 1, and which are retained in position by screws, 40, and 41. The back wall of the casing is provided at its lower portion with an integral sleeve or bearing, 42, and above the latter, with an opening, 43, through which loosely extends a bearing plate, 23. The front wall of the casing consists of a plate, 45, provided with a bearing, 46, in alinement with the bearing, 42. This plate is fixed to the top and sides of the remainder of the casing by screws, 47, entering lugs, 48, upon the latter. Rotatably mounted in the bearing, 44, is a shaft, 49, upon whose rear end is a bevel gear, 50, meshing with the gear, 31. Also fixed to this shaft is a gear, 51, whose outer face abuts against a nut, 52, upon the inner end of the shaft. Fixed to an intermediate portion of the shaft is also a worm, 53. Mounted in the bearing, 42, is a rock shaft, 54, having fixed to its outer end a thumb lever, 55, and having its inner end recessed as at 56, to loosely receive the inner end of a driving shaft, 57, rotatably mounted in the bearing, 46, to which is fixed the driving pulley or wheel, 58, and a gear, 59. Integral with the rock shaft, 54, is a segmental

arm or plate, 60, upon which are studs or screws, 61 and 62, upon which are respectively mounted intermeshing gears, 63 and 64, horizontally disposed with relation to each other, and adjacent the driving gear, 59, and from the gear, 51. Also integral with the rock shaft is a reversing lever, 65. The gear, 51, is driven through one or the other of intermediate gears, 63, 64, by gear, 59. It is evident that the direction of rotation of gear, 51, is determined by which of the intermediate gears happens to be in mesh with the gears, 59 and 51. The mechanism for automatically performing this shifting of gears is the following: Rotatably mounted in a vertical bearing, 66, integral with the top wall, 33, of the casing is a shaft, 67, upon which is fixed a worm wheel, 69, engaged by the worm, 53. The shaft, 67, has integral with its lower end a disk, 70, upon whose lower face is a pin or lug, 71, located off center. Pivoted at one end by a screw, 72, to a plate, 73, fixed to the side wall of the casing is a horizontal lever arm, 75, provided along its margin with two interspaced shoulders, 76 and 77. The latter shoulder forms a stop for the inner end of a horizontal trigger or lever, 79, pivoted by a screw, 80, to a lug or plate, 81, fixed to the back wall of the casing, and provided with a lateral curved finger, 82, in the path of the depending pin, 71. The lever, 75, is also in the path of the pin, 71. The trigger is held against the shoulder, 77, by the retractile spring, 84, fixed at one end to a screw, 85, in the back of the casing, and at its other end to a screw, 86, in the trigger. A similar spring, 87, holds the arm, 75, against the end of the trigger. This spring being fixed at its ends to the arm and to a screw, 88, in the back of the casing.

The operation of my attachment is as follows: After the skein has been affixed as described, the lever, 55, is manually depressed while the wheel, 58, is in operation, which rocks the gear, 64, into mesh with the gear, 51, against the tension of a spring, 90, which connects the plate, 60, with the bottom of the casing, and which movement also moves the shifting lever or rod along the margin of the lever, 75, until it rests against the flat surface of the shoulder, 76, in contact with which it is held by the tension of spring, 90. The rotation of the gear, 51, imparts through gears 50 and 31 rotation to the spindle, 24, which causes the sleeve 29 and projection, 28, to gradually descend. Meanwhile, the rotation of shaft, 49, worm, 53, worm wheel, 69, and disk, 70, moves the pin, 71, in the direction of the arrow shown in Fig. 5, until the pin, 71, presses the arm, 75, sufficiently to release the rod, 65, which is immediately forced by the tension of spring, 90, against the trigger, 79, into the position shown in Fig. 5. This movement is also shared by the plate, 60, which brings the gear, 63, into mesh with the gears, 59 and 51, and the motion of the driven parts are then reversed, elevating the pin, 28, and causing the pin, 71, to travel in the direction opposite the arrow until it contacts with the finger, 82, and presses the arm, 65, and rock shaft, 54, gradually to the left until the gear, 63, is out of mesh and the machine stops, with the pin, 28, in its original position.

What I claim is,

1. In a tester, the combination of a driving shaft, a driving gear upon the shaft, a driven shaft, a driven gear upon the shaft, a spindle, operative connections between the spindle and driven shaft, an intermediate gear adapted to rock into and out of engagement with the driven gear, and means operated by the driven shaft for rocking the intermediate gear.

2. In a tester, the combination of a driving shaft, a driving gear upon the shaft, a driven shaft, a driven gear upon the shaft, an operating spindle, operative connections between the spindle and driven shaft, two intermediate rocking gears adapted to successively engage the driven gear, and means operated by the driven shaft for rocking the intermediate gears.

3. In a tester, the combination of a driving shaft a driving gear upon the shaft, a driven shaft, a driven gear upon the shaft, an operating spindle, operative connections between the spindle and driven shaft, two intermediate rocking gears adapted to successively engage the driven gear, and means operated by the driven shaft for rocking the intermediate gears.

4. In a tester, the combination of a driving shaft, a driving gear upon the shaft, a driven shaft, a driven gear upon the driven shaft, an operating spindle, operative connections between the spindle and driven shaft, means successively engaging the driven gear for changing the direction of rotation of the driven gear, and means operated by the driven shaft for actuating the engaging means.

5. In a tester, the combination of a driving shaft, a driving gear upon the shaft, a driven shaft, a driven gear upon the driven shaft, an operating spindle, operative connections between the spindle and driven shaft, a rock shaft concentric with the driving shaft, a plate on the rock shaft, two intermediate gears upon the plate adapted to successively engage the driven gear when the rock shaft is operated, and means actuated by the driven shaft for operating the rock shaft.

6. In a tester, the combination of a driving shaft, a driving gear upon the shaft, a driven shaft, a driven gear upon the driven shaft, an operating spindle, operative connections between the spindle and driven shaft, a rock shaft concentric with the driving shaft, a

plate on the rock shaft a plurality of gears upon the plate intermediate the driving gear and driven gear and radially disposed with relation to the rock shaft, means actuated by the driven shaft for moving the shifting lever in one direction, and spring means for moving the shifting lever in the opposite direction.

7. A power tester attachment comprising a casing, a driving shaft mounted in the casing, a driving gear upon the driving shaft, a driven shaft also mounted in the casing, a driven gear on the driven shaft, a rock shaft mounted in casing concentric with the driving shaft, a plate upon the rock shaft, a plurality of gears upon the plate intermediate the driving gear and driven gear and radially disposed with relation to the rock shaft, a shifting lever fixed to the rock shaft, a worm upon the driven shaft, a worm gear meshing with the worm, a shaft upon which the worm gear is mounted, a disk upon the worm gear shaft, a pin upon the face of the disk, a lever pivotally mounted in the casing in the path of the pin and in contact with the shifting lever provided with two lateral shoulders, a trigger pivotally mounted in the casing whose end rests against one of the shoulders, a finger upon the trigger in the path of the pin, a spring in the casing for holding the lever in contact with the shifting lever, a spring for pressing the trigger against the shoulder, and a spring attached to the plate for pressing the shifting lever toward the trigger.

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

HENRY L. SCOTT.

Witnesses:
HORATIO E. BELLOWS,
WALTER LOUIS FROST.