

No. 730,477.

PATENTED JUNE 9, 1903.

M. B. RYAN.
EXERCISING MACHINE.
APPLICATION FILED SEPT. 13, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

FIG-4-

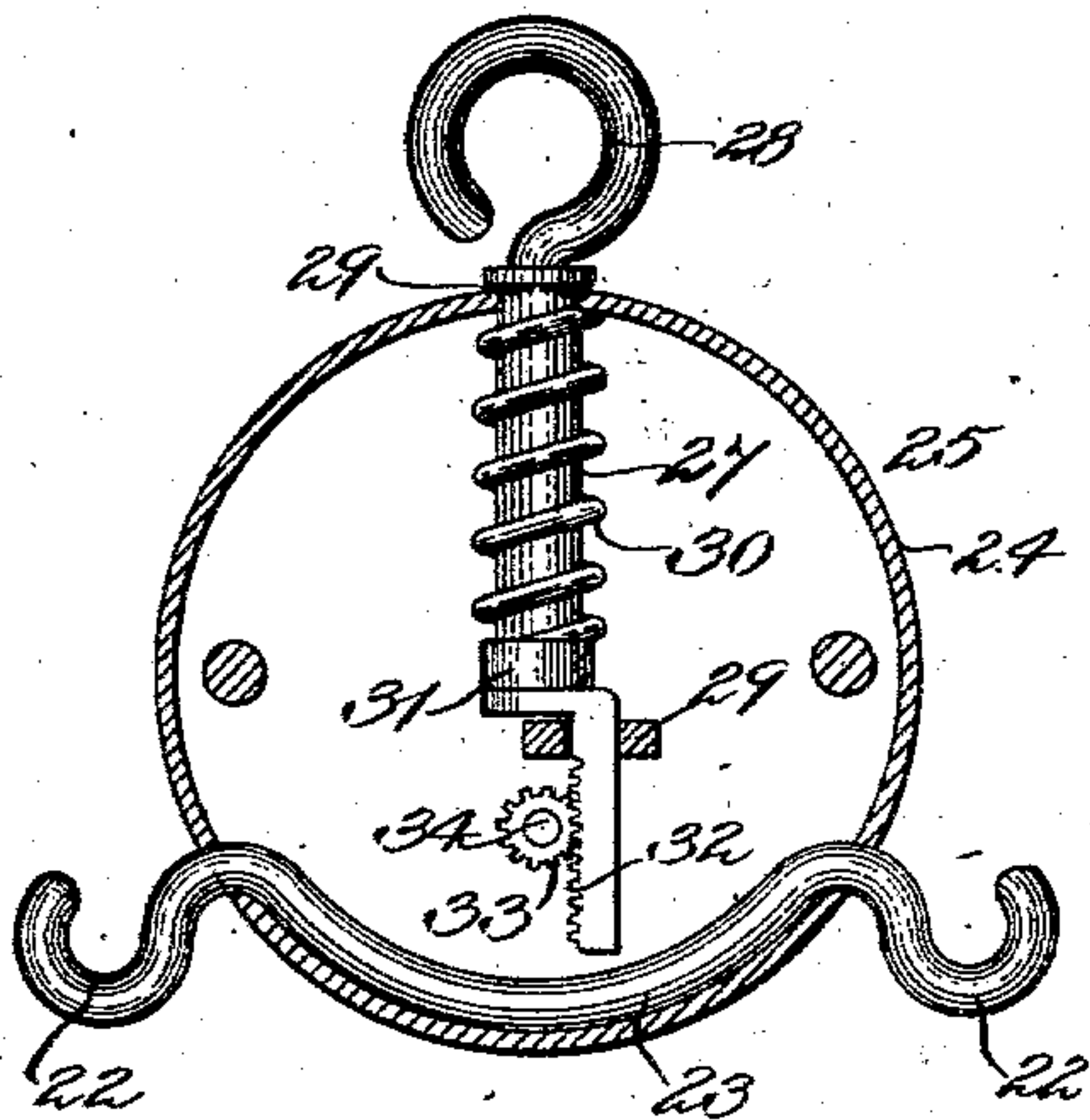


FIG-2-

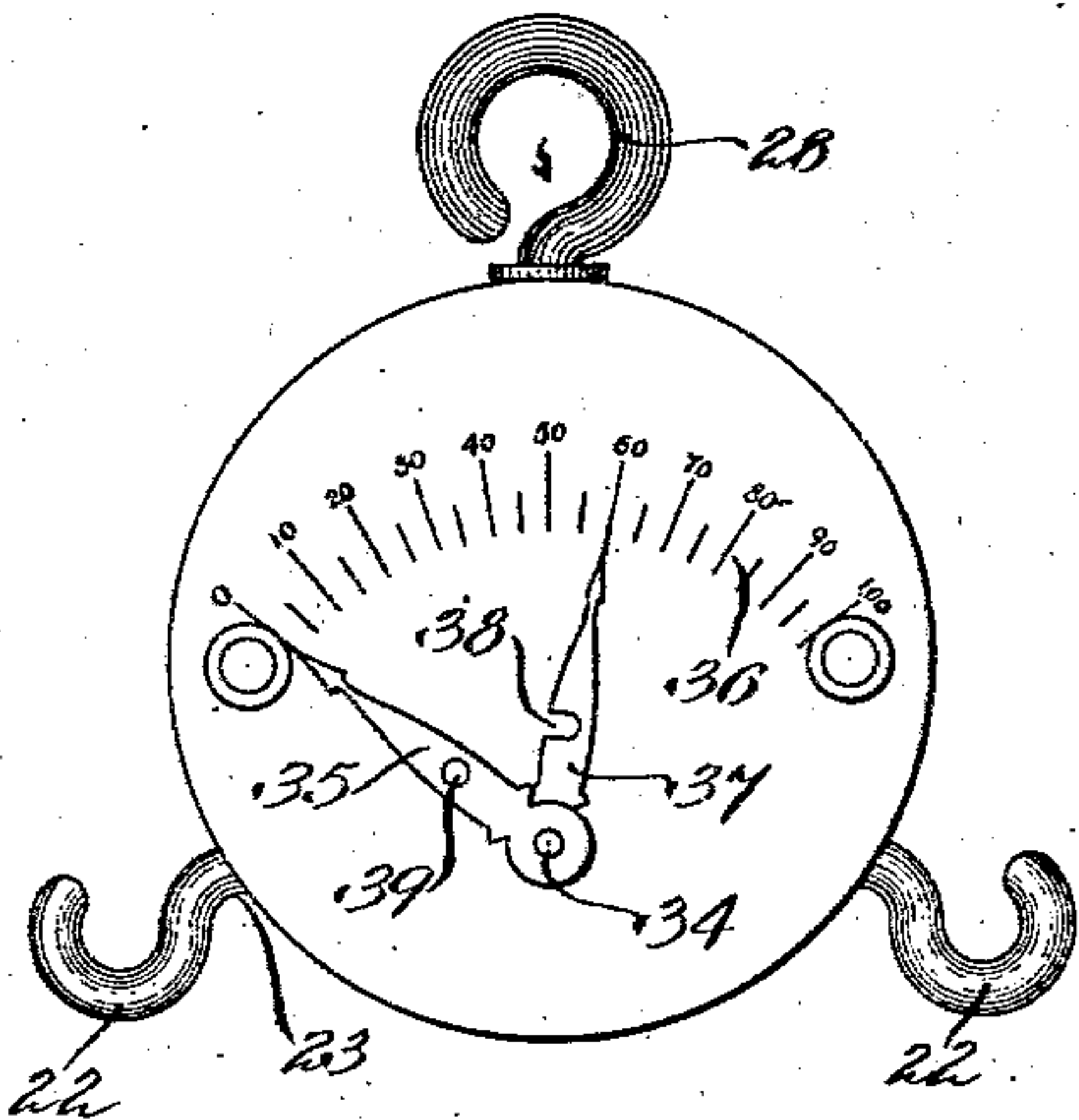


FIG-1-

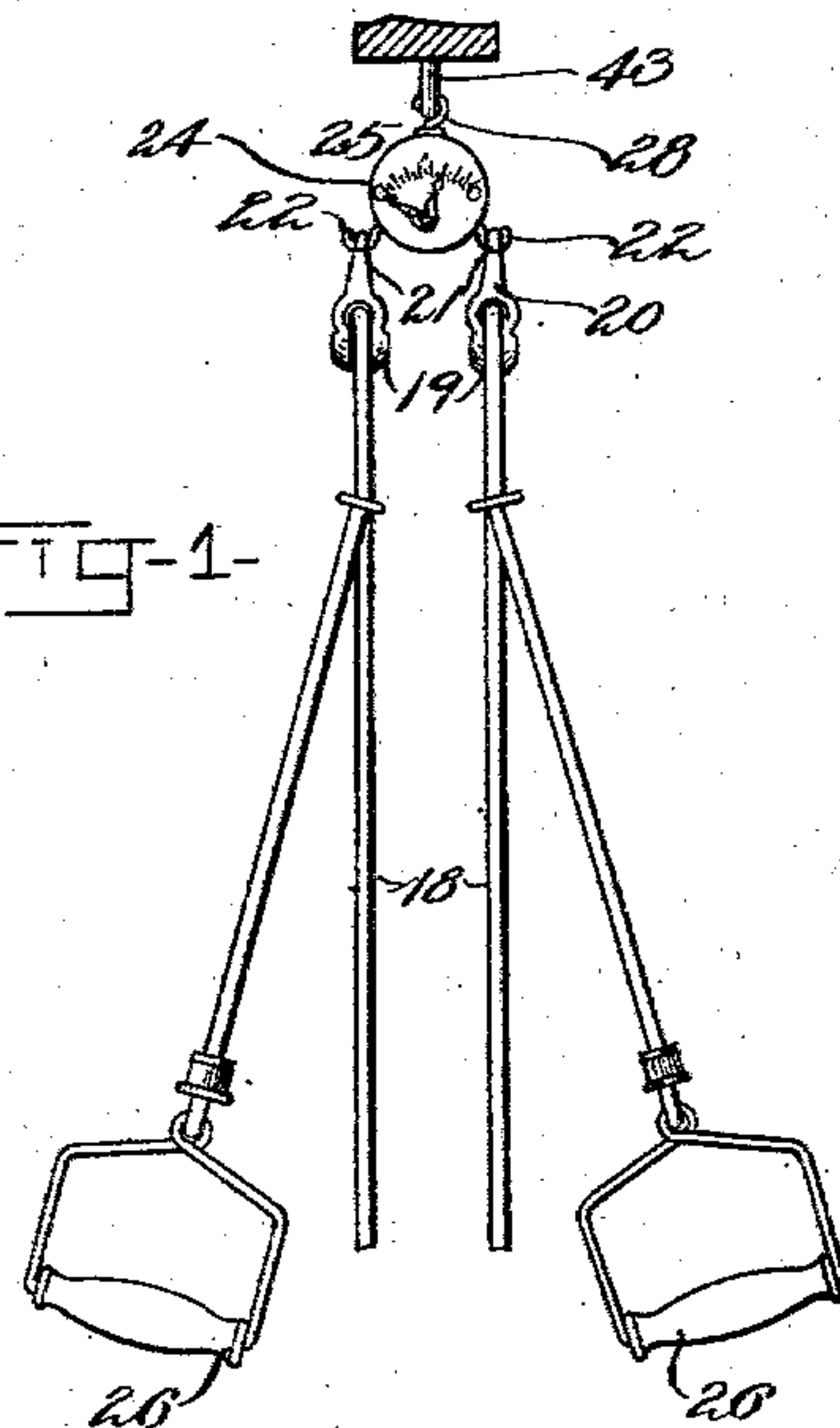


FIG-3

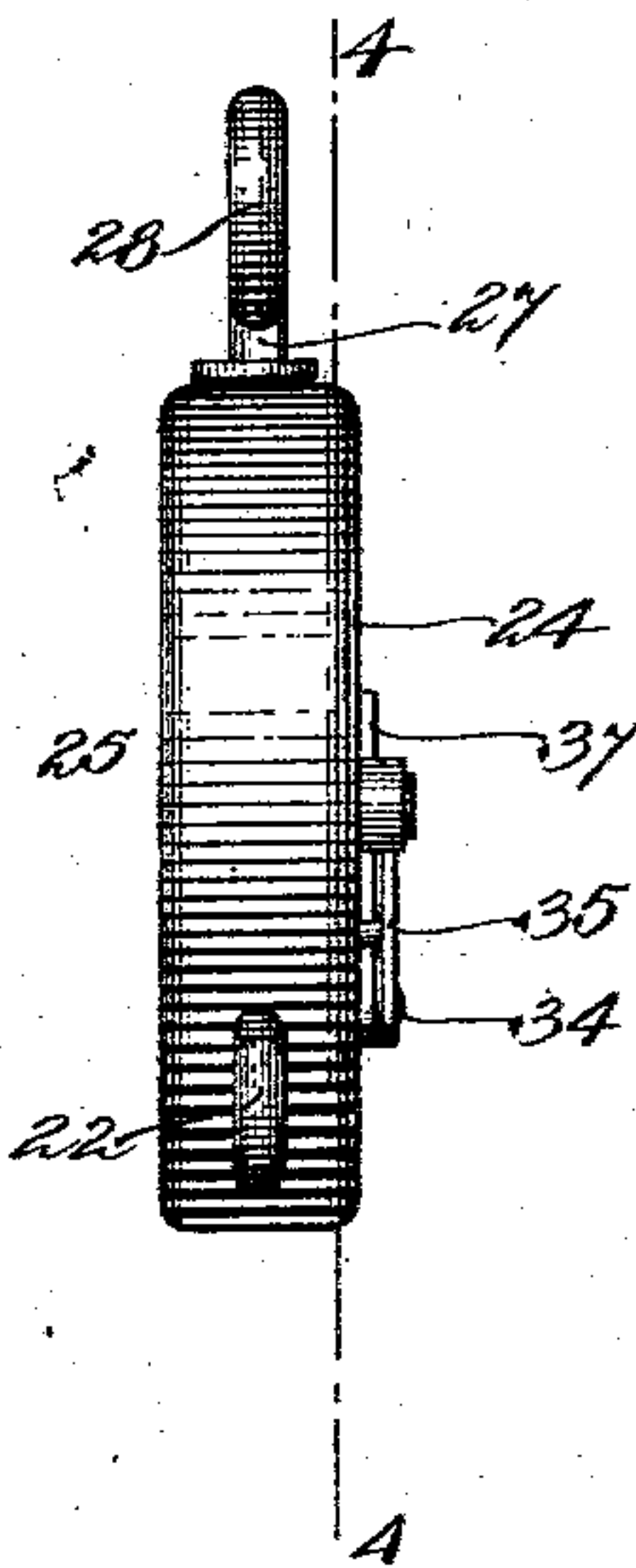
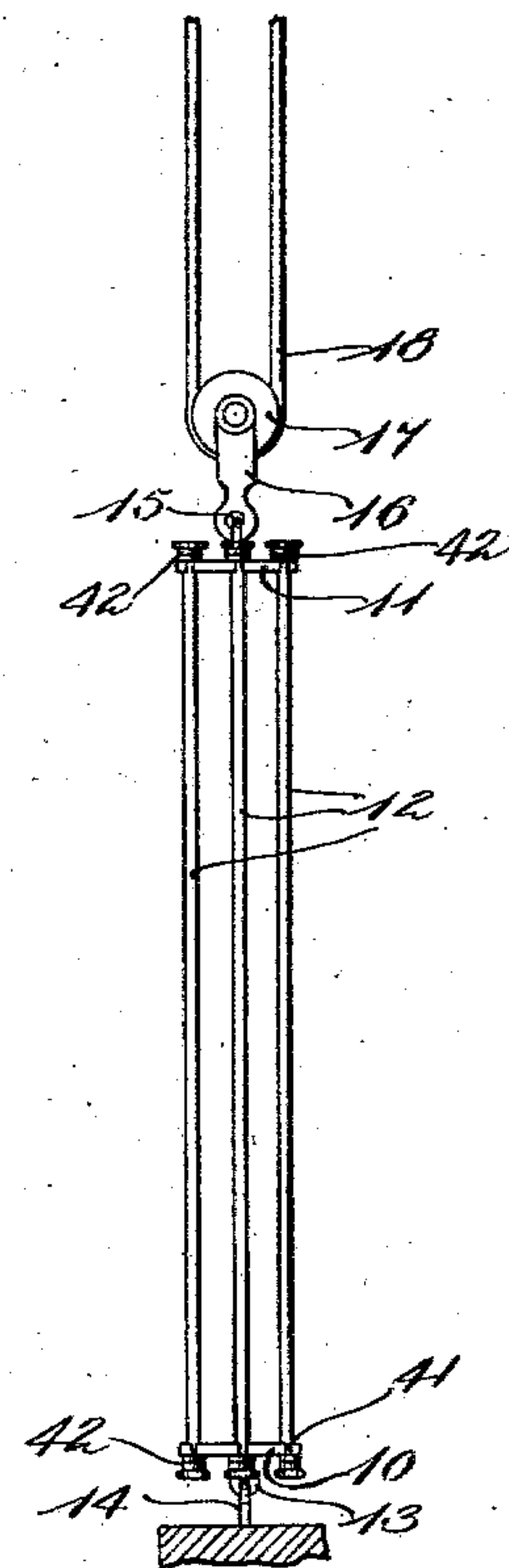
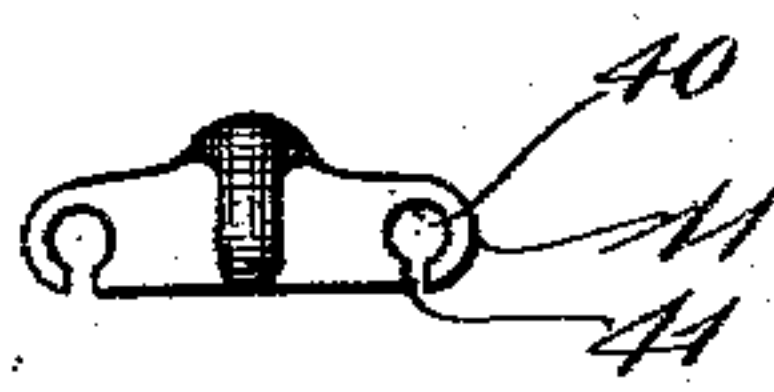


FIG-5-



WITNESSES-

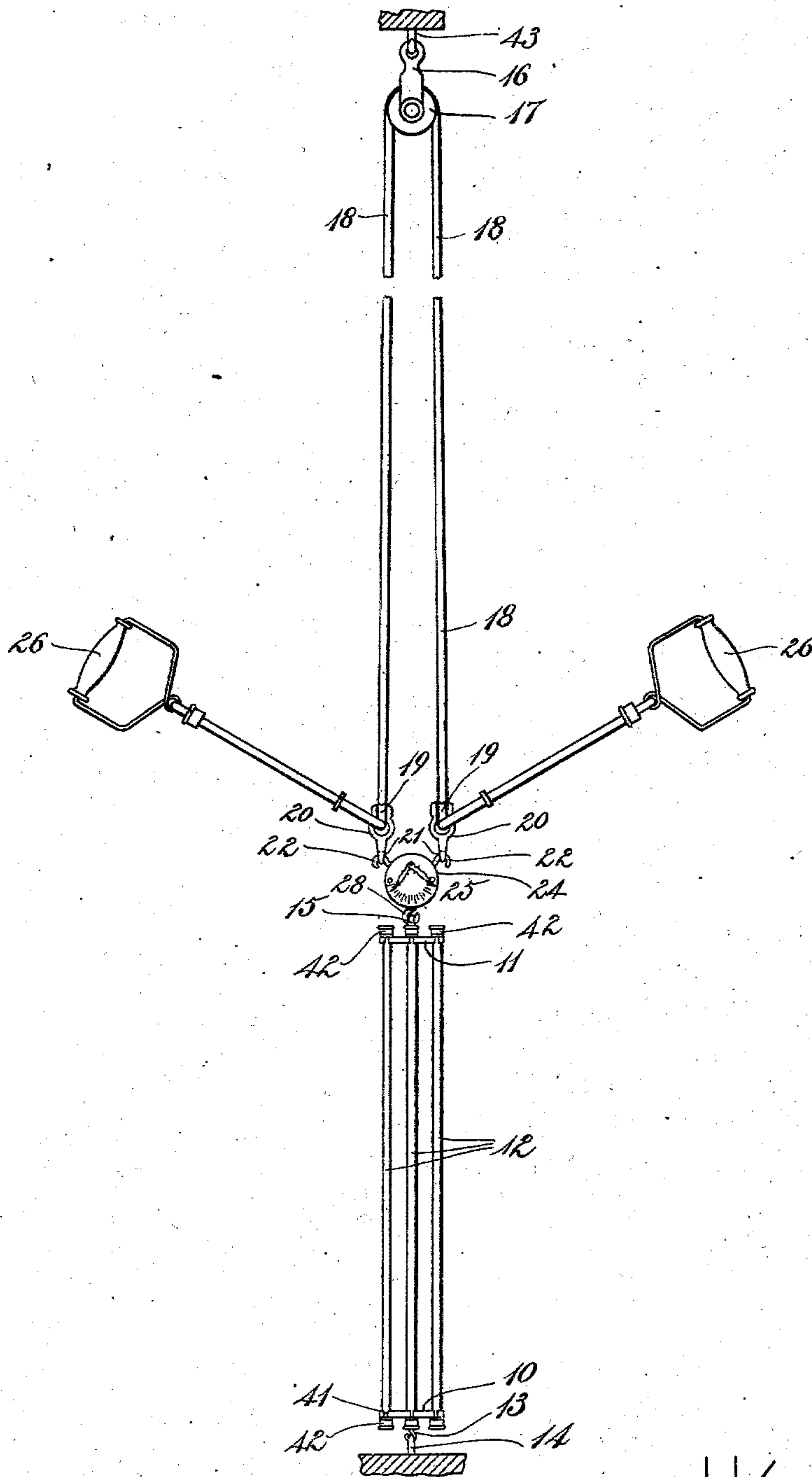
Wyand C. Teft.
Franklin O. Low.

INVENTOR:
Michael B. Ryan,
By his Attorney, *Charles S. Gooding.*

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APPLICATION FILED SEPT. 13, 1901.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

Franklin O. Low.
Annie J. Bailey.

FIG. 6.

INVENTOR:

Michael B. Ryan.

by his Attorney, Charles S. Gooding.

UNITED STATES PATENT OFFICE.

MICHAEL B. RYAN, OF COLOGNE, GERMANY.

EXERCISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 730,477, dated June 9, 1903.

Application filed September 13, 1901. Serial No. 75,350. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL B. RYAN, a citizen of the United States, residing at Cologne, in the Province of Rhineland, Germany, have
 5 invented new and useful Improvements in Exercising-Machines, of which the following is a specification.

The object of my invention is to supply an exercising apparatus by means of which the
 10 degree of force exerted in exercising with it can be determined, thus enabling this force to be regulated intelligently, so that, for example, it is possible for a physician to prescribe exercises involving a greater or less
 15 expenditure of force, according to the physical constitution of the person exercising.

In carrying out my invention I operatively connect a dynamometer to an exercising-machine in such a manner that said dynamometer is operated when the exercising-machine is in use. The dynamometer is provided with two indicators which move over a scale graduated in pounds and kilos. One of said indicators is moved by mechanism in the interior of the dynamometer-case, while the other
 25 can be moved by hand. A pin is fast to the indicator moved by said mechanism and engages the second indicator, moving the same over the graduations and indicating the maximum force exerted by the operator in using the exercising-machine. It will be understood that the pin on the indicator actuated by said mechanism and also the second indicator itself may be dispensed with, if it is
 35 not desired to indicate the maximum force exerted.

Referring to the drawings, Figure 1 represents an exercising-machine operatively connected to a dynamometer. Fig. 2 is a front
 40 elevation of the dynamometer. Fig. 3 is a side view of the same. Fig. 4 is a section taken on line 4 4 of Fig. 3. Fig. 5 is a plan view of one of the elastic-connection cross-bars. Fig. 6 is a view similar to Fig. 1, with the
 45 elastic cord, handles, and pulleys, together with the dynamometer, reversed and the pulley-block 16 suspended from the hook 43, while the eye 28 of the dynamometer is hooked into the hook 15 upon the elastic-connection
 50 cross-bar 11.

The exercising-machine is of well-known construction; and it consists of two cross-bars

10 11, joined together by elastic connections 12 12, said cross-bars having circular holes 40 extending therethrough and a slot 41 extending
 55 from each of said holes to the front of the cross-bars. The elastic connections 12 12 are provided at each end with cord-caps 42, which prevent the cords from being drawn out of the
 60 holes 40 lengthwise thereof, and when it is desired to remove one of said cords from the cross-bars it is slipped out of the hole 40 through the slot 41, and thus said elastic connections are detachably attached to the cross-
 65 bars 10 11, so that one or more of said connections may be removed to reduce the resistance of the exercising-machine. By this means the force exerted in exercising is likewise reduced.

The lower cross-bar 10 is provided with a hook 13, by which it is connected to an eye
 70 14, fixed to the floor or to any desirable stationary point. The upper cross-bar 11 is provided with a hook 15, upon which is mounted a pulley-block 16, provided with a pulley 17, arranged to rotate thereon.
 75

An elastic cord 18, provided with handles 26, passes around the pulley 17 and thence around two other pulleys 19 19, arranged to rotate upon pulley-blocks 20 20, said pulley-blocks being provided with eyes 21, each of
 80 which is supported upon a hook 22, formed at each end of a bent wire 23, fast to the casing 24 of the dynamometer 25. Said casing is preferably circular or cylindrical in shape. A reciprocating pin 27 has an eye 28 at its up-
 85 per end and is arranged to slide in bearings 29 29 in the casing 24. The said eye 28 engages a stationary hook 43. A spiral compression-spring 30 encircles the pin 27, one end thereof bearing against the interior of
 90 the casing 24 and the other against a shoulder 31, formed upon the pin 27, said spiral spring tending to hold the pin 27 downward.

To the lower end of the pin 27 is fastened a rack 32, which meshes a pinion 33, fast to a
 95 spindle 34. Said spindle projects through the casing 24 and has fast thereto an indicator-finger 35, which moves on the front of the casing 24, so that according to the degree of pulling force applied to the eye 28 or the
 100 hooks 22 the indicator 35 swings to a greater or less extent across the scale 36 upon the face of the casing 24.

In order to determine whether during ex-

exercising the force expended is the desired amount, a second indicator 37 is provided, which is loose upon the spindle 34 and is located beneath the indicator 35. In the indicator 37 is a notch 38, which is engaged by a pin 39, fast to the indicator 35, when said indicator 35 swings to a sufficient distance therefor, and by means of said pin the indicator 37 is moved around the spindle 34 as a center, passing across the scale 36. Upon the return movement of the indicator 35 when the tension of the exercising-machine upon the dynamometer is released the indicator 37 remains stationary and thus indicates the extreme point to which it is moved by the indicator 35. It is therefore evident that the indicator 35 will always indicate the maximum force exerted.

I have illustrated my improved dynamometer connected to an exercising-machine, with the dynamometer at the top of said exercising-machine and the handles pulling the elastic cord 18 downwardly; but it is evident that, if desired, the elastic cord, with the handles and pulleys thereon, together with the dynamometer, could be reversed, as shown in Fig. 6, in which figure the pulley-block 16 is suspended upon the hook 43, while the eye 28 of the dynamometer is hooked into the hook 15 upon the elastic-connection cross-bar 11, without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire by Letters Patent to secure, is—

1. In an elastic exercising-machine, a dynamometer comprising a casing, two hooks rigidly attached to said casing, a reciprocatory pin provided with an eye and located in a plane between said hooks upon the diametrically opposite side of said casing from said hooks, a rotary indicator, and mechanism operated by said pin to rotate said indicator; a pair of

pulleys mounted upon said hooks, a single pulley located at a distance from said pair of pulleys, and an elastic cord fitted with handles, said cord running over said pair of pulleys to said single pulley.

2. In an elastic exercising-machine, a dynamometer comprising a casing, two hooks rigidly attached to said casing, a reciprocatory pin provided with an eye and located in a plane between said hooks upon the diametrically opposite side of said casing from said hooks, a rotary indicator, and mechanism operated by said pin to rotate said indicator; two cross-bars connected together by elastic connections, a pair of pulleys mounted upon said hooks, a single pulley mounted upon one of said elastic-connection cross-bars, and a cord fitted with handles, said cord running over said pair of pulleys to said single pulley.

3. In an elastic exercising-machine, a dynamometer comprising a casing, two hooks rigidly attached to said casing, a reciprocatory pin provided with an eye and located in a plane between said hooks upon the diametrically opposite side of said casing therefrom, a rotary indicator, mechanism operated by said pin to rotate said indicator, and a second indicator adapted to be rotated by said first indicator in one direction, a pair of pulleys mounted upon said hooks, a single pulley located at a distance from said pair of pulleys, and an elastic cord fitted with handles and running over said pair of pulleys to said single pulley.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MICHAEL B. RYAN.

Witnesses:

CARL SCHMITT,
JOH. SCHOLZ.