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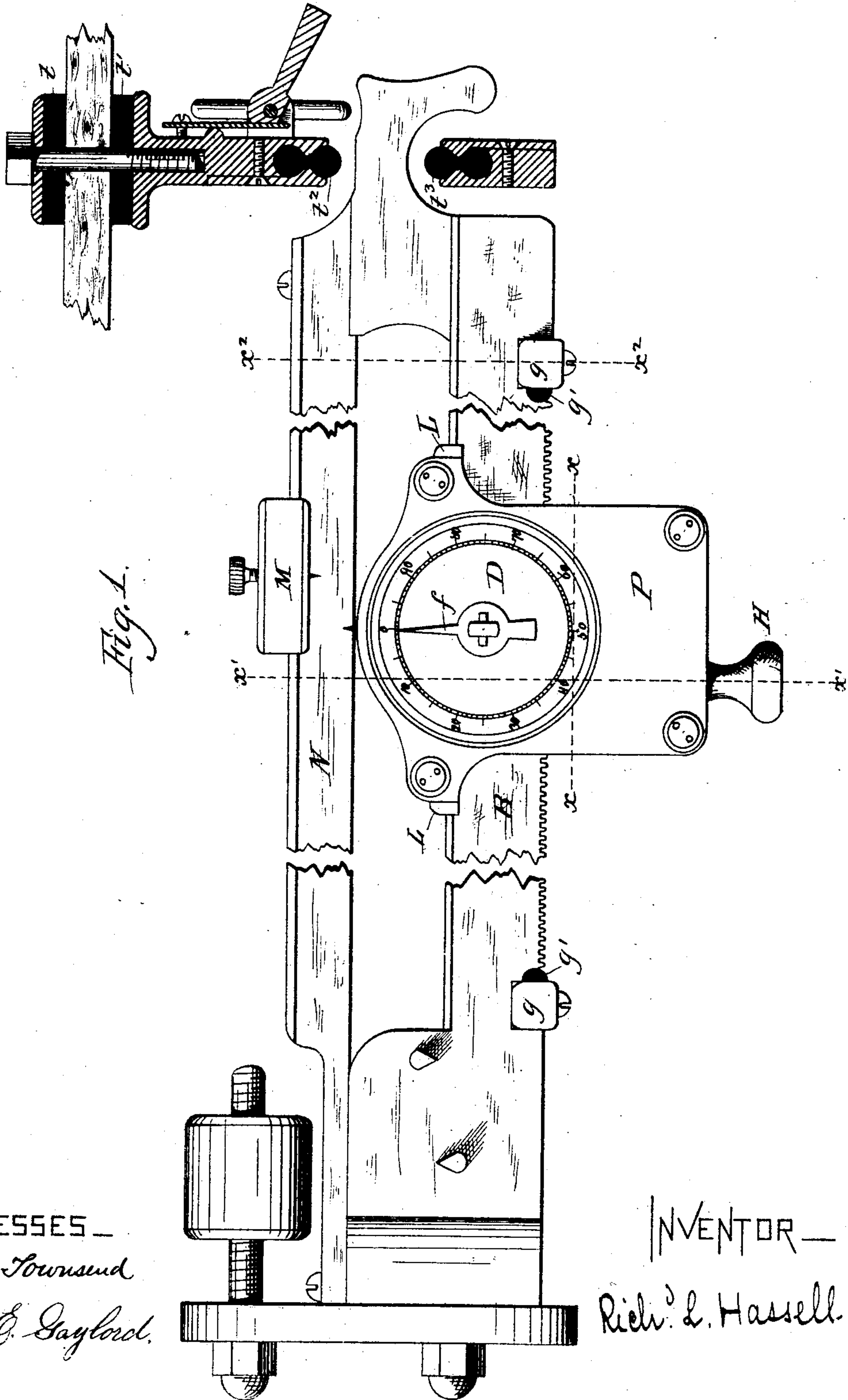
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R. L. HASSELL.

INDICATING POISE FOR SCALE BEAMS.

No. 274,493.

Patented Mar. 27, 1883.



WITNESSES—
F. B. Townsend
Chas. C. Gaylord.

INVENTOR—
Rich^d. L. Hassell.

(No Model.)

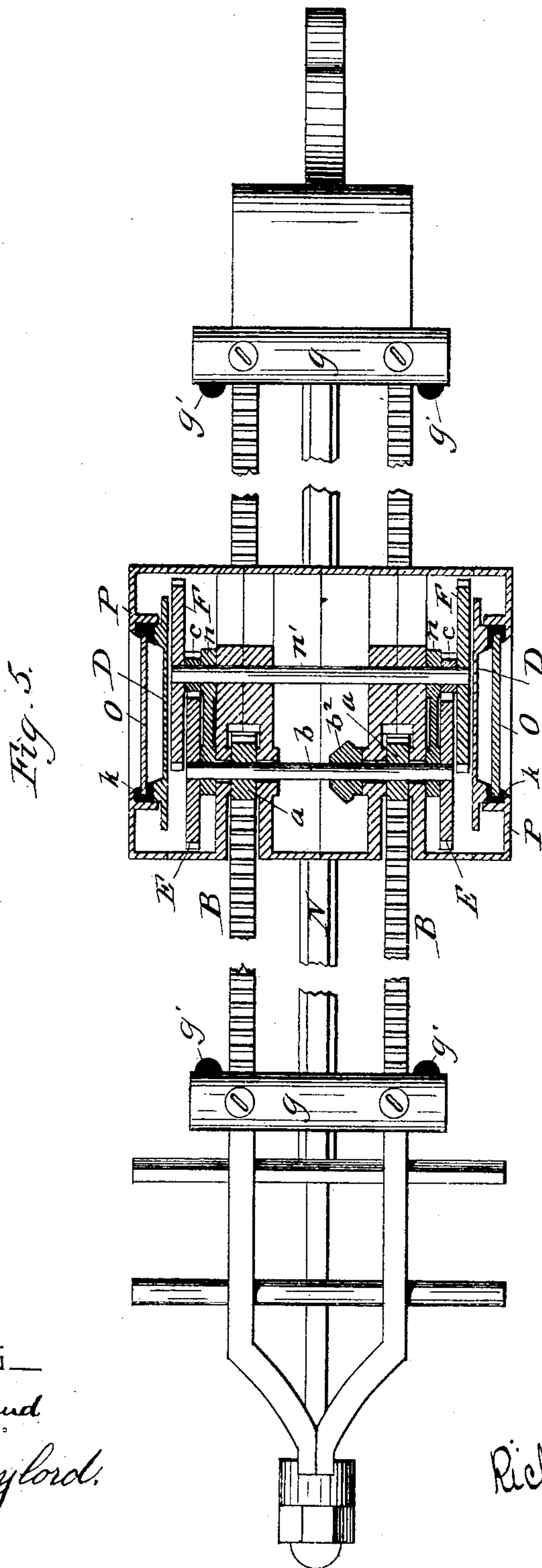
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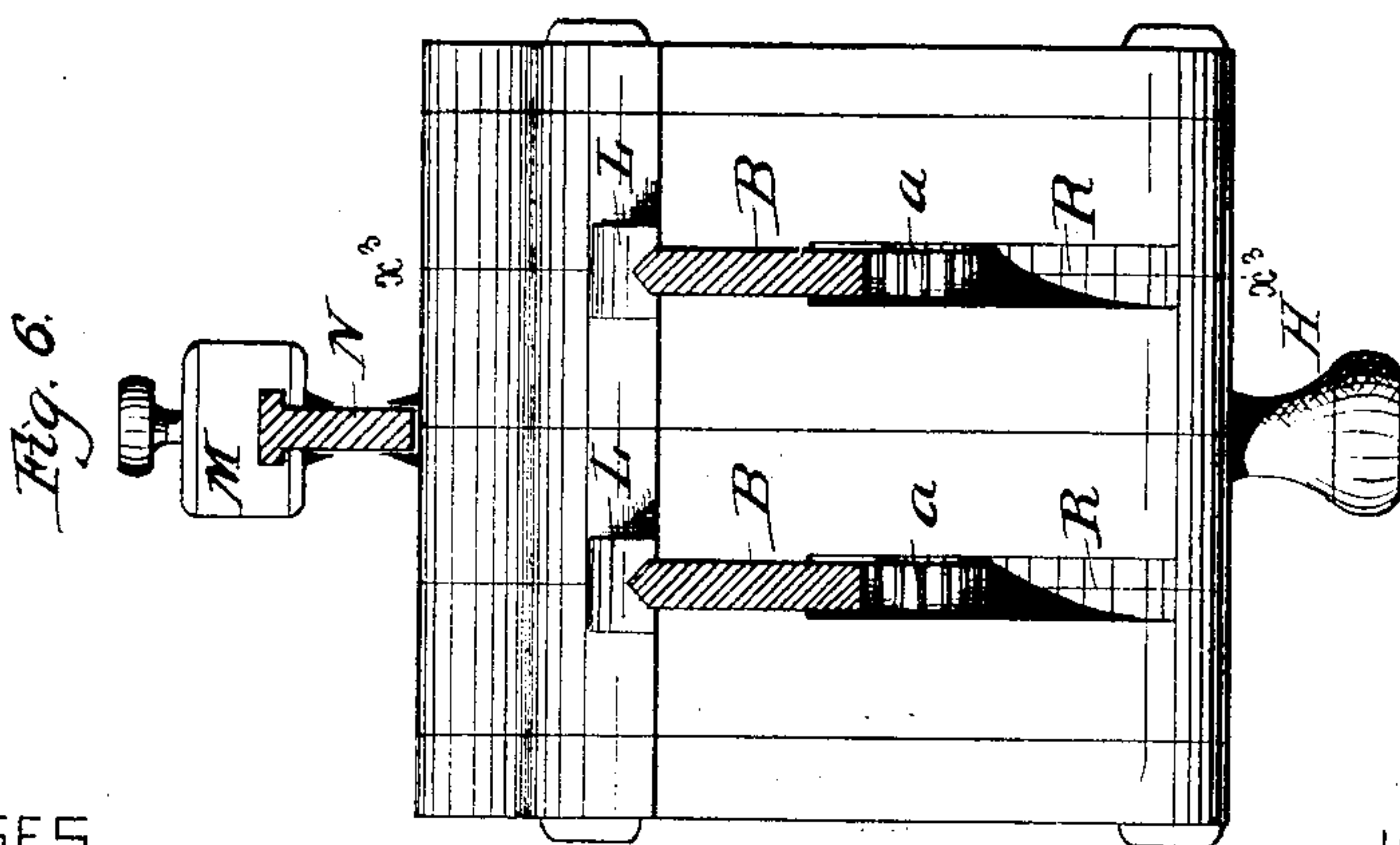
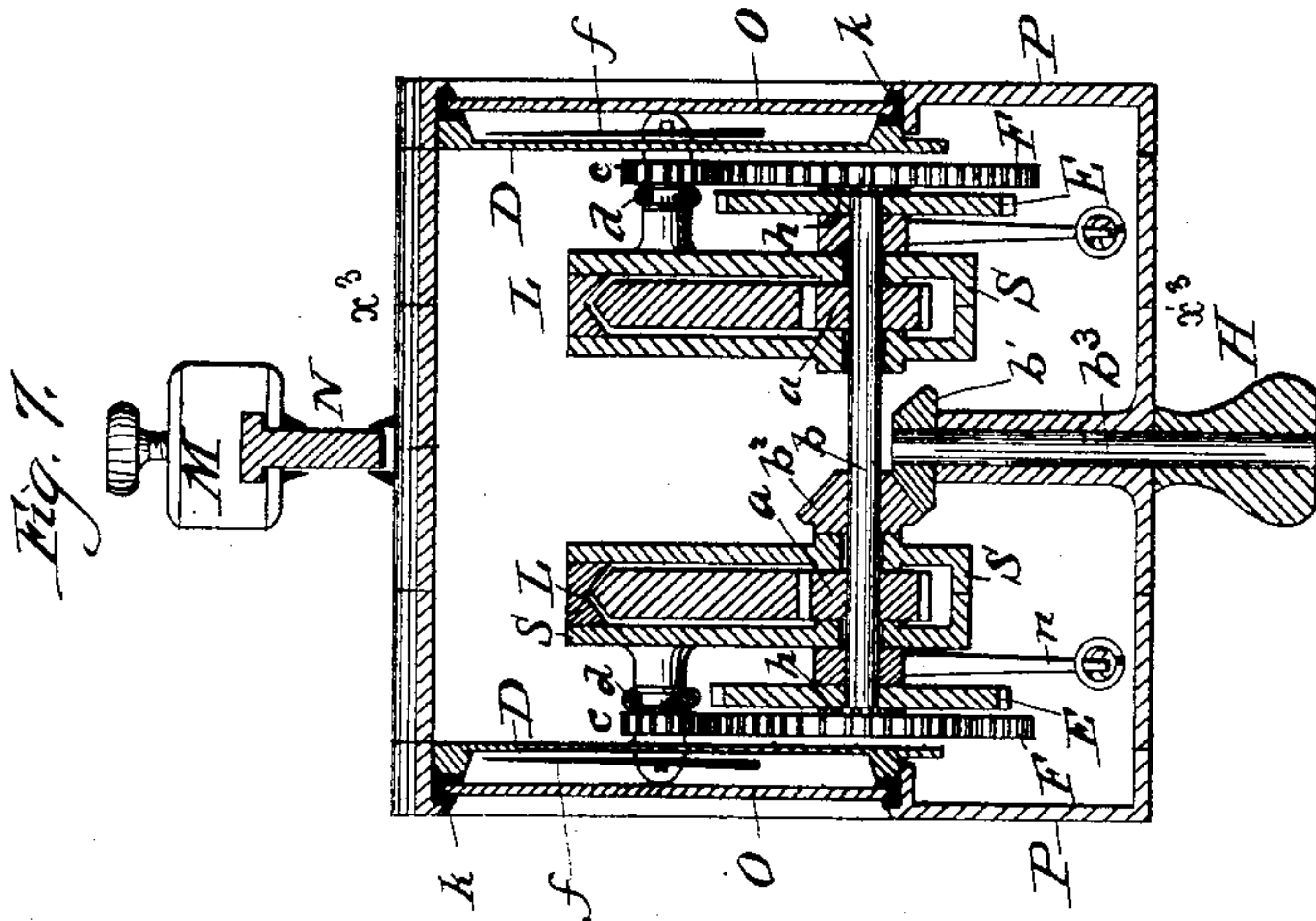
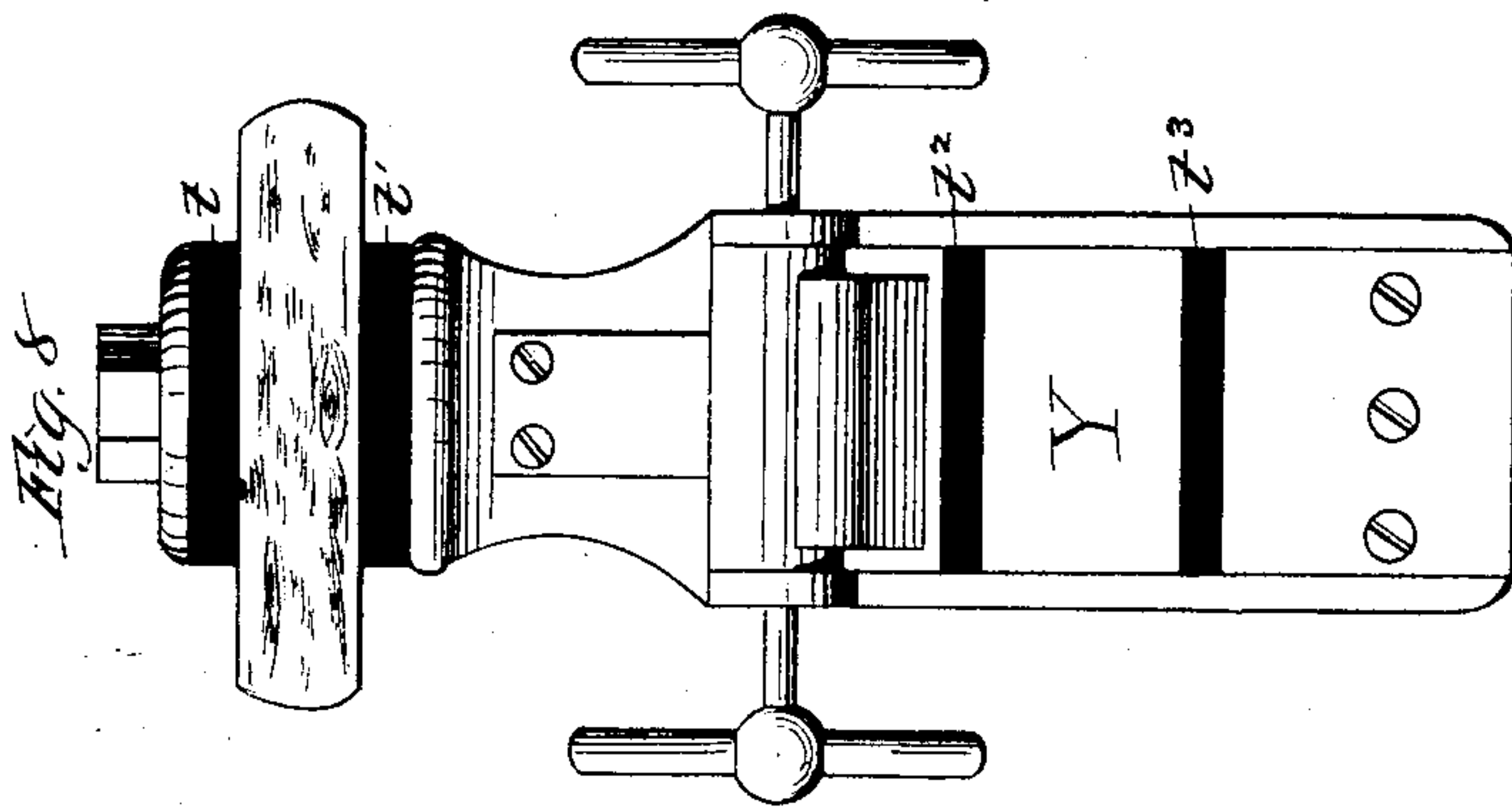
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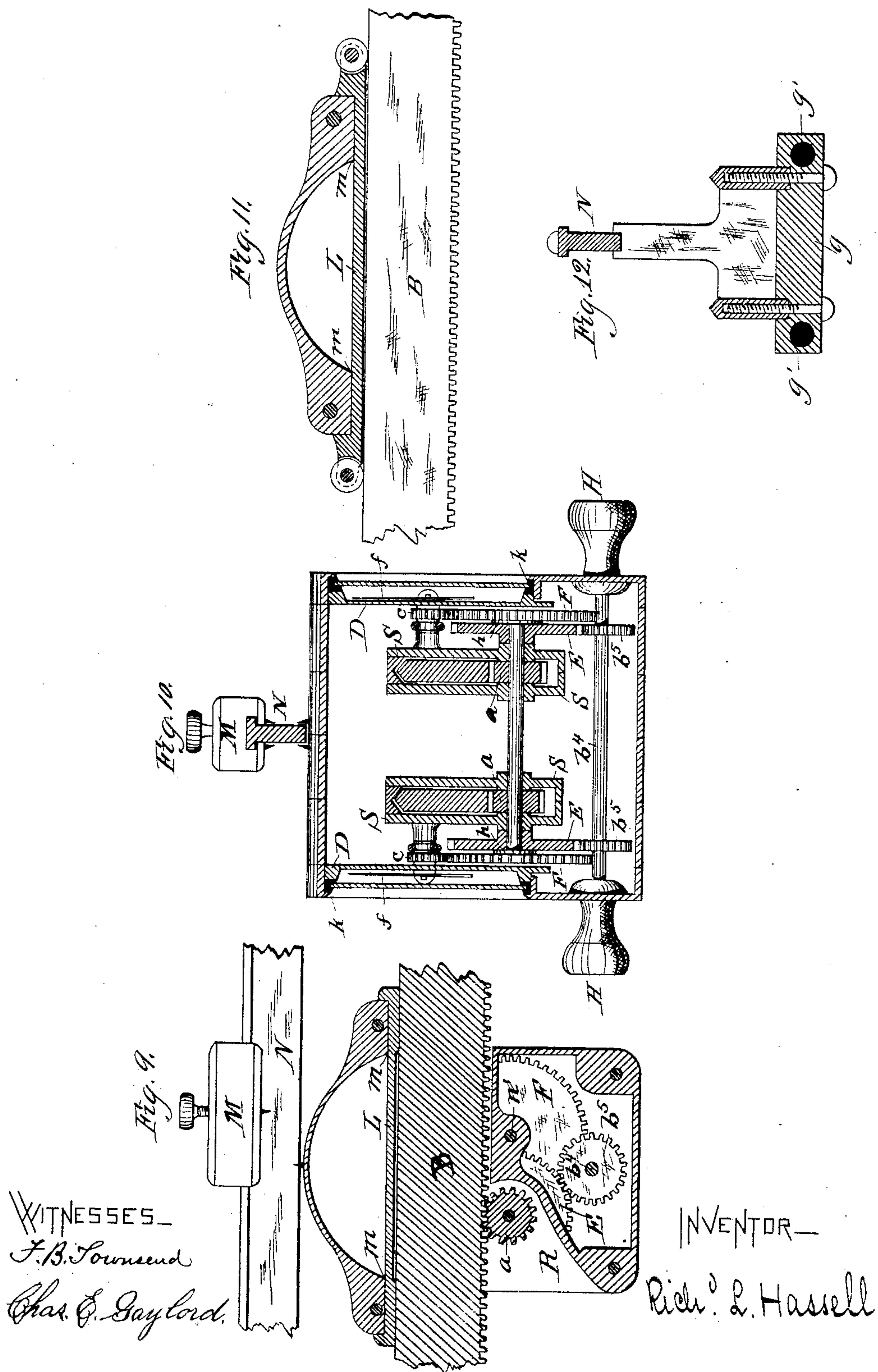
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UNITED STATES PATENT OFFICE.

RICHARD L. HASSELL, OF CHICAGO, ILLINOIS.

INDICATING-POISE FOR SCALE-BEAMS.

SPECIFICATION forming part of Letters Patent No. 274,493, dated March 27, 1883.

Application filed May 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, RICHARD LITTELL HASSELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Scale-Beams, of which the following is a specification.

My present invention relates to improvements on that for which a patent was granted to me October 28, 1879, No. 220,975.

The objects of my improvements are, first, to provide a more convenient arrangement for moving the poise along the beam; second, to secure the simultaneous movement of the poise and revolving hand; third, to more effectually prevent dust or dirt getting into the internal mechanism of the poise. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of my improved scale-beam and poise, showing the "beam-rack" or "trig-loop" at the end of the beam in section. Fig. 2 is a face view of the poise shown in Fig. 1 as it appears after the removal of the face-plate P, the glass O, and the rubber ring k, Fig. 7. Fig. 3 is the same as Fig. 2, having the dial-plate D and the revolving hand f removed. Fig. 4 is a vertical longitudinal section at line $x^3 x^3$, Figs. 6 and 7. Fig. 5 is an under side view with the poise in section at line $x x$, Figs. 1 to 4. Fig. 6 is an external end view of the poise shown in Fig. 1. Fig. 7 is a vertical transverse section at line $x' x'$, Fig. 1. Fig. 8 is a view of the beam-rack or trig-loop shown in section in Fig. 1. Fig. 9 is a vertical longitudinal section of a modification; Fig. 10, a vertical transverse section of the same modification. Fig. 11 is a view of the upper part of the poise and part of the beam-bar, showing the arrangement adopted when it is desired that the poise should be mounted on rollers. Fig. 12 is a vertical transverse section at line $x^2 x^2$, Fig. 1.

Like characters indicate like parts in the different views.

I shall generally prefer to have my poise mounted on a double-barred beam, as shown.

The first object of my present invention is to provide a more convenient arrangement for moving the poise along the beam.

In my former patent, No. 220,975, I have pro-

vided my poise with a device for accurately moving the poise short distances on the beam, which device, when at rest, automatically locks the poise upon the beam. In many cases it is desirable that the poise should not be automatically locked upon the beam. By substituting spur or bevel gearing for the worm-gear of my former patent the poise is not locked upon the beam, and can be rapidly and more conveniently moved the entire length of the beam or an infinitesimal distance on the same, as required.

In Fig. 7 it will be seen that the bevel-gear b' is fastened to the shaft b^3 , which has fastened to its lower end the handle H. The gear b' meshes with the gear b^2 , which is fastened to the shaft b . This shaft b has also fastened to it the gears $a a$, which mesh with teeth cut in the lower edge of each bar. By turning the handle H, therefore, the poise can be moved along the beam. The shaft b has also fastened to it the gears E E, and these mesh with the pinions h , (partly seen in Fig. 7,) fastened to the back of the gears F, and the gears F mesh with the gears c , to which are fastened the hands f , which revolve before the dials. Turning the handle H therefore moves the poise along the beam and also causes the hands f to revolve before the dials.

In the modification shown in Figs. 9 and 10 the handle H is fastened to a shaft, b^4 , to which are also fastened the gears b^5 , and these gears mesh, as shown, with the gears E E. This arrangement may be used singly, as shown in Fig. 10, or it may be used in combination with the bevel-gears above described. In this last case it will be best to have a crank-shaped handle attached to the vertical shaft b^3 , Fig. 7, and the gears may be so proportioned that by turning the crank-shaped handle the poise is rapidly moved long distances on the beam, and by turning the knob H, attached to the shaft b^4 , Fig. 10, the poise may be slowly and accurately moved short distances on the beam. In cases in which the upper beam, N, is not used it will often be desirable to have another and a smaller bevel-gear meshing with the bevel-gear b^2 , and attached to a vertical shaft which passes up through the top of the poise, said shaft having fastened to its upper end a knob similar to H, so that by turning the

lower shaft, b^3 , the poise may be rapidly moved, and by turning the above-mentioned upper shaft the poise may be slowly moved.

In another patent of even date herewith I have described a moving device consisting of a rack formed on the side of one of the bars and a vertical shaft carrying at its upper end a pinion gearing with said rack and at its lower end a handle, by turning which the poise is moved. This moving device may, when desired, be used in combination with the moving device shown in Fig. 10.

The handle H may either be a knob, as shown in this patent, or may be crank-shaped, as shown in my other patent of even date herewith.

My second object is to secure the simultaneous movement of the poise and revolving hand. The piece L, Fig. 4, rests directly on the beam and sustains the weight of the poise. By placing thin sheets of metal between the poise and the piece L at m the poise may be raised and the gear a made to mesh as closely as desired with the teeth in the beam. In addition to this arrangement, it will sometimes be desirable to have the shaft b , which carries the gears a , mounted in the end of a lever, n . (Shown mostly by dotted lines in Fig. 3.) This lever has its bearing or fulcrum on the fixed shaft n' , and at its lower end has a spring, n^2 , as shown. It is evident that the pull of this spring on the end of the lever has a tendency to keep the gears a , which are fastened to the shaft b , in snug contact with the teeth in the beam. There is one of these levers and springs at each end of the shaft. When these levers are used the holes in the casing S, through which the shaft b passes, will be made sufficiently large to allow a little freedom of movement to the shaft. There is a slight groove turned in the hub of the gear c , into which fits the spring d . This spring acts as a sort of a brake, or imparts a certain stiffness to the movement of the gear c .

My third object is to more effectually prevent dust or dirt getting into the internal mechanism of the poise. I attain this by casing in the beam B, so as to form a separate chamber for the beam to pass through, thus separating it from the other contents of the poise, except such mechanism as may be in actual contact with the beam. This interior casing is marked S in the different figures. I prefer to have it cast solid with the poise.

By referring to my former patent, No. 220,975, it will be seen that I have there cased in the mechanism, so that dust can only enter the interior of the poise by means of the beam. This, however, I find admits considerable, as the dirt which collects in the teeth of the beam is removed by the action of the pinion a and falls into the interior of the poise. By the use of the casing S no dirt can enter the interior of the poise, and that which is removed from the teeth of the beam by the pinion a falls into the opening R, Fig. 4, and out from the poise.

In some cases it may be desirable to have this opening straight down under the pinion a and extend down through the bottom of the poise.

Fig. 8 is a representation of the loop in which the free end of the beam plays, technically called a "beam-rack" or "trig-loop." A sectional view of this loop is seen at the end of the beam in Fig. 1. This beam-rack can be placed at either end of the beam and in small counter-scales, in which the beam often becomes a vibrating frame supporting the scoop or platform. The beam-rack is often placed at the opposite end to that shown in Fig. 1. Suddenly throwing a weight on or taking it off the platform of the scale causes the end of the beam to violently jerk up or down in the opening Y in which the free end of the beam plays. This sudden jarring is injurious to the beam, and is liable to break the glass O, which covers the dials from dust, &c. To lessen this jarring I place rubber or its equivalent at t , t' , t^2 , and t^3 . The rubber may be placed at any one or more or at all of these points. When it is placed at t^2 t^3 it is desirable that the parts of the beam which come in contact with it be made a little broader than usual. I also put a rubber ring entirely around the glass O. A cross-section of this rubber ring is seen at k , Fig. 7. To prevent the sudden jarring of the poise when it is violently moved to either end of the beam, I provide stops g , having rubber projections g' . (Seen in Figs. 1 and 5.) A cross-section of this stop g and rubber g' is seen in Fig. 12.

In my Patent No. 220,975 I have shown two revolving hands on the dial, which hands, as there described, revolve at different rates of speed, one indicating the larger units and one the smaller. In my present patent I have preferred to show but one indicating-hand on the dial, which hand will indicate the smaller units, such as ounces, pounds, &c., according to the size and purpose of the scale, and the larger units may be marked on the upper beam, N, and indicated by a pointer projecting from the top of the poise; or, in cases in which the upper beam is not used, the larger units may be marked on the main beam B and indicated by a hand projecting from the side of the poise.

In addition to having the larger units marked on it, the upper beam may be used for balancing or for a tare-beam, and for this purpose the line along which the pointer in the upper poise, M, travels may be graduated in any desired manner.

The arrangement of the gearing as shown is convenient, but not essential. The gearing used, its arrangement, and the graduations, figures, and arrangement of the dials will be determined by the different requirements of the many sizes and varieties of scales to which my improved poise will be applied.

It will often be desirable to use what is commonly known as "stepped gearing" or "Hooke's gearing," as this gives a much smoother mo-

tion. When stepped gearing is used it will be best to have the lower part of the beam containing the teeth made in longitudinal strips. These strips can be riveted together and then fastened to the beam in any desired manner. It will always be best to have the teeth on each bar so cut as not to be opposite each other.

It will be understood that lead can be put in the suitable unoccupied spaces in the interior of the poise to give the poise the desired weight.

By substituting bevel-gears for the gears *F* and *c* the dials may be made to face upward at any angle desired.

When it is desired to have the poise on rollers, the piece *L* may be extended sufficiently at the ends, as shown in Fig. 11, and rollers inserted.

I claim—

1. In weighing-scales, a beam bar or bars carrying the combination of revolving indicating mechanism, and a moving device consisting of mechanism substantially as hereinbefore described, and so arranged that the act of turning the handle *H* moves the poise along the beam, said moving device not automatically locking the poise on the beam.

2. In combination with a scale-beam, a movable poise carrying the combination of revolving indicating mechanism and a device for accurately moving the poise any desired distance on the beam, said device not automatically locking the poise on the beam.

3. In weighing-scales, a beam bar or bars carrying the combination of revolving indi-

cating mechanism, spur or bevel gearing, projecting shaft or shafts, and handle *H*, substantially as and for the purpose hereinbefore set forth.

4. In combination with a scale-beam, the adjustable piece *L*, for the purpose specified.

5. In weighing-scales, a scale-beam, in combination with gearing mounted on a lever or levers, said lever or levers being kept in position by a spring or springs, substantially as described, and for the purpose of securing the simultaneous movement of the poise and revolving hand.

6. In weighing scales, the combination of a scale-beam, the spring *d* and gear *c*, substantially as described, and for the purpose of securing the simultaneous movement of the poise and revolving hand.

7. In combination with a scale-beam and movable poise, the interior casing, *S*, for the purpose specified.

8. The combination, substantially as hereinbefore described, of the lever *n*, the spring *n*², the shaft *b*, the gears *a*, and the beam-bars *B*.

9. In weighing-scales, a beam bar or bars carrying the combination of revolving indicating mechanism and a moving device, said moving device consisting of a rack or racks, spur or bevel gearing, projecting shaft, and a handle, by turning which the poise is moved along the beam.

RICHARD LITTELL HASSELL.

Witnesses:

CHAS. E. WILD,
D. H. HENSHAW.