

F. S. BALDWIN.
Lumber Measures.

No. 138,310.

Patented April 29, 1873.

Fig. 1.

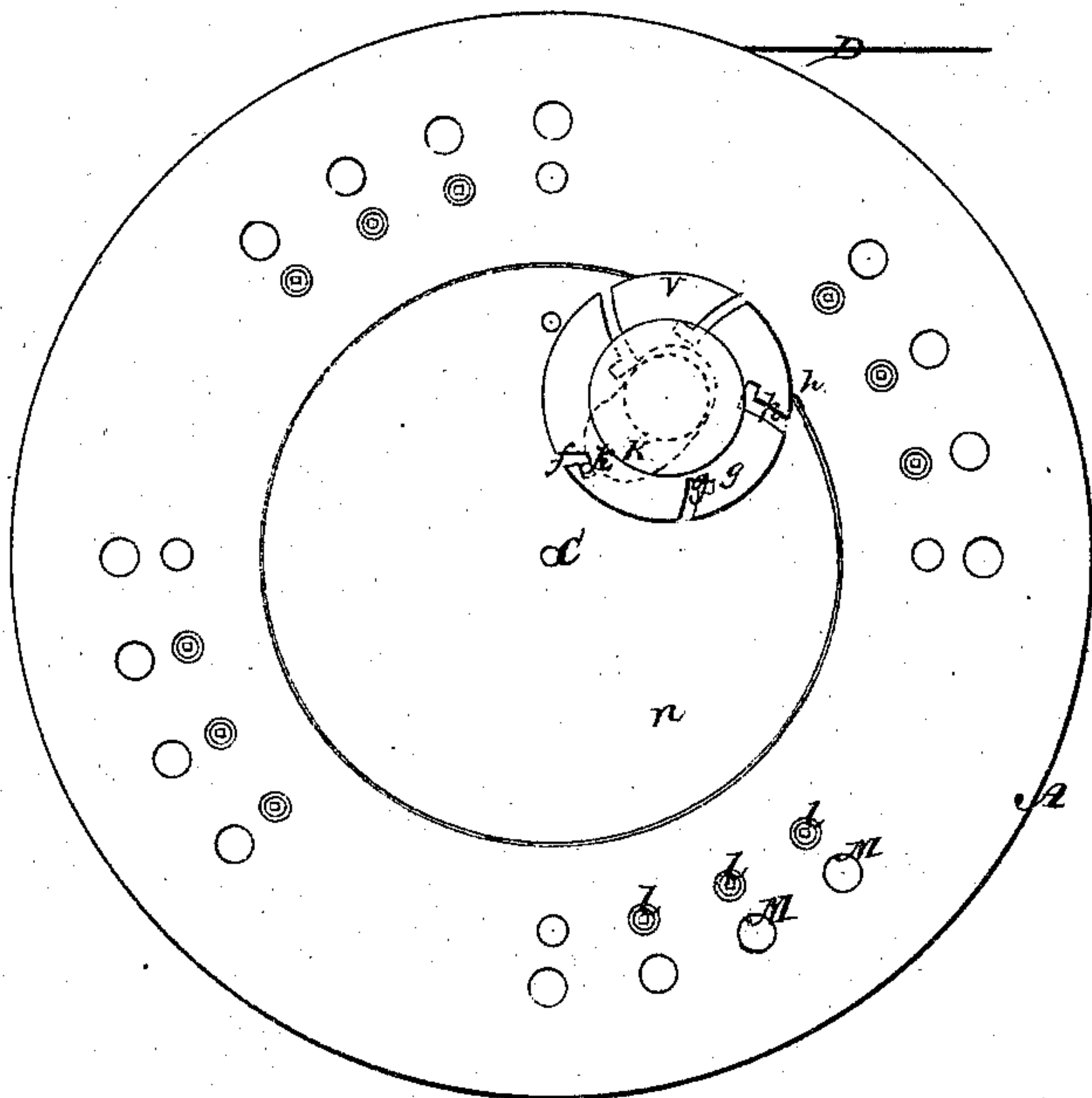


Fig. 2.

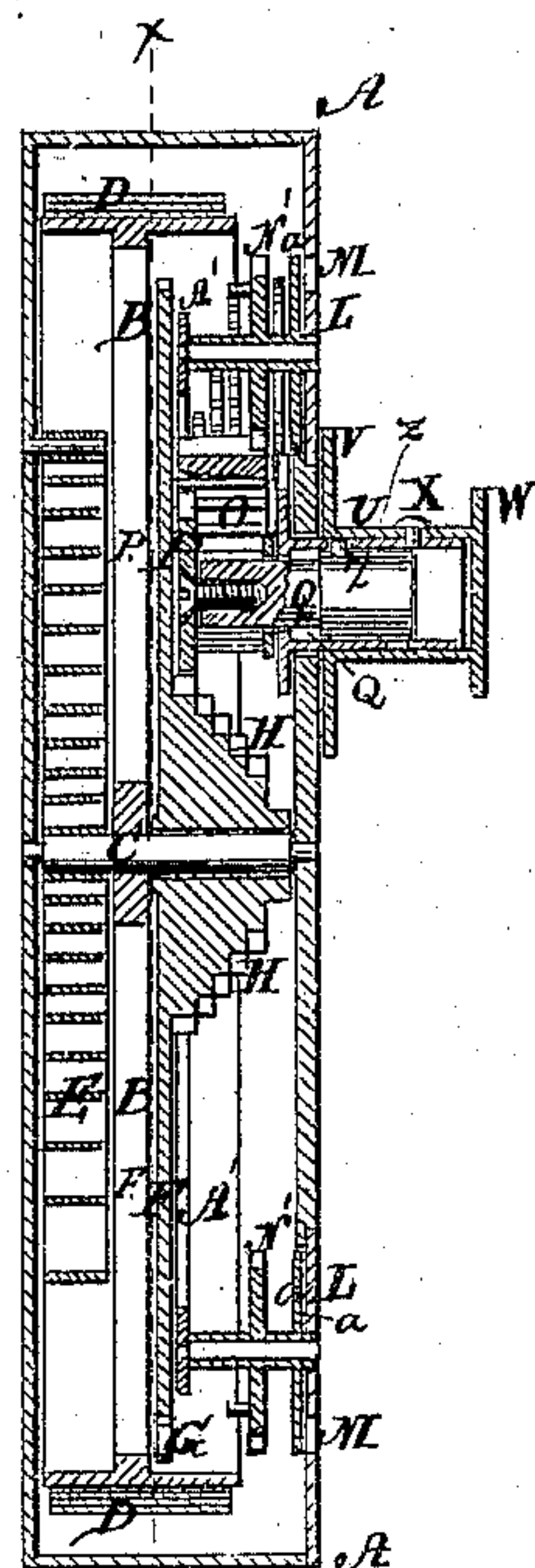


Fig. 3.

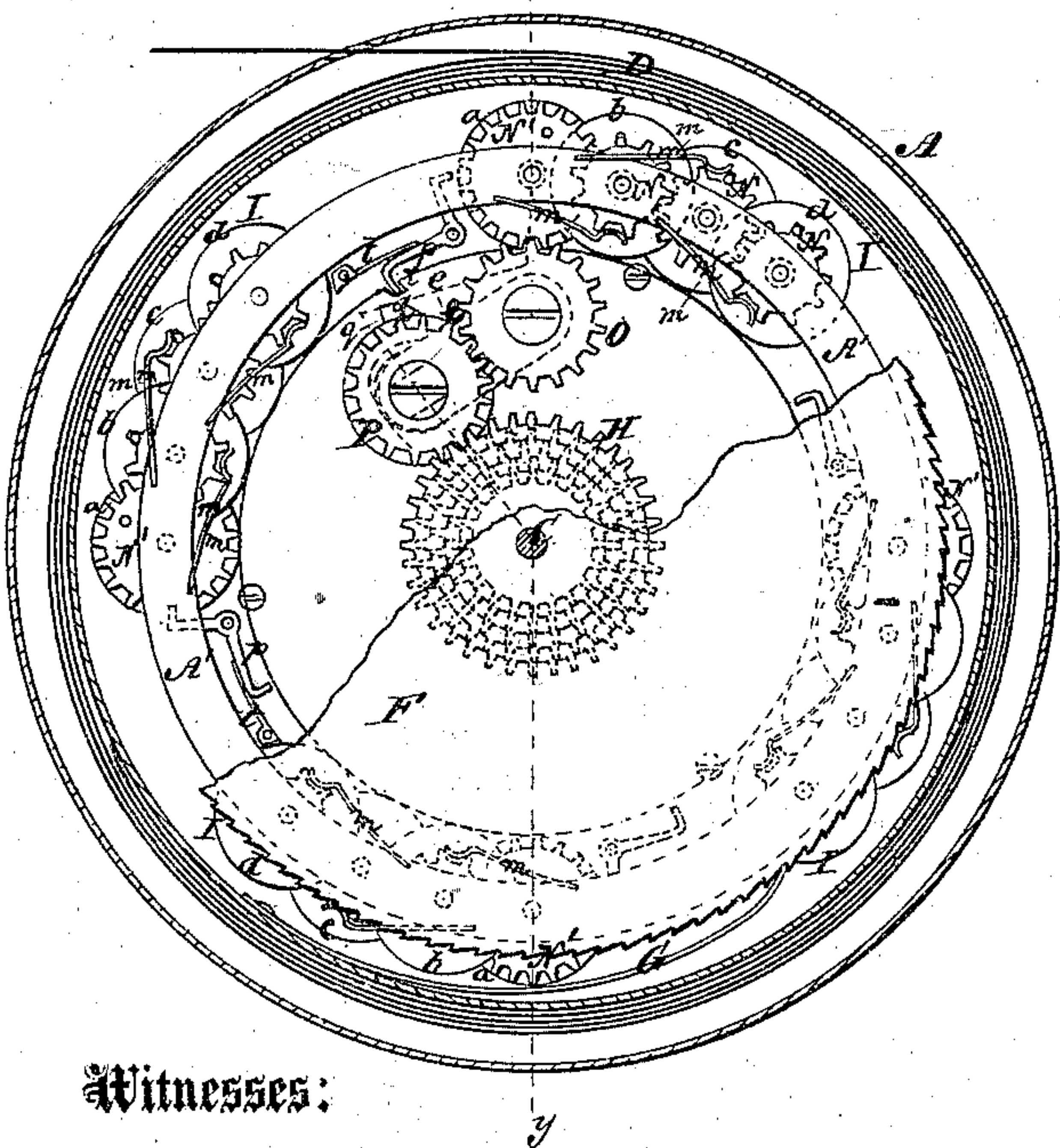
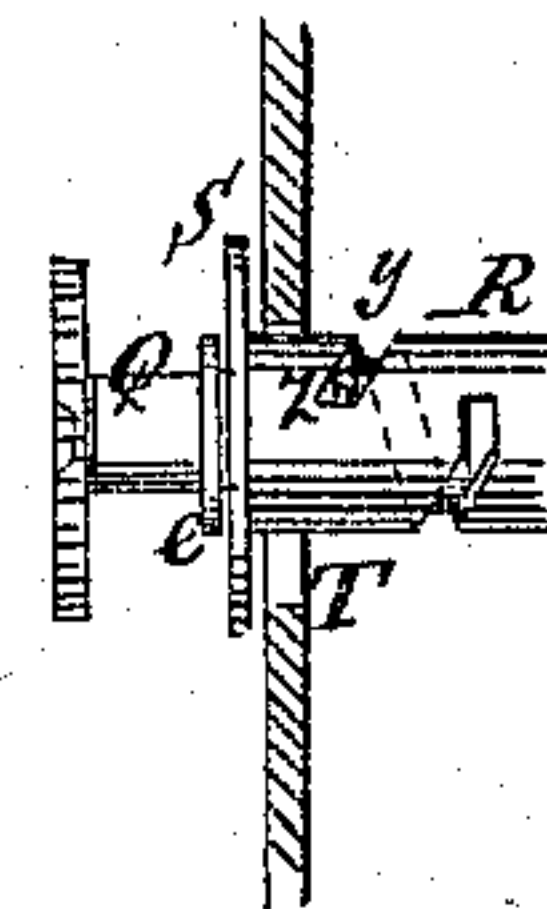


Fig. 4.



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IMPROVEMENT IN LUMBER-MEASURES.

Specification forming part of Letters Patent No. **138,310**, dated April 29, 1873; application filed November 16, 1872.

To all whom it may concern:

Be it known that I, FRANK S. BALDWIN, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and Improved Lumber-Measure, of which the following is a specification:

The invention consists in the improvement of lumber-measures, as hereinafter fully described and pointed out in the claims.

Figure 1 is a side elevation of my improved lumber-measure. Fig. 2 is a transverse sectional elevation taken on the line *y y* of Fig. 3. Fig. 3 is a horizontal section taken on the line *x x* of Fig. 2. Fig. 4 is a detail.

Similar letters of reference indicate corresponding parts.

A represents a small circular sheet-metal case, with a reel, B, inside of it on the axis C, with a tape-measure, D, coiled on its face, a coiled spring, E, upon one side for winding up the tape-measure, and a disk, F, on the other side for transmitting its motion to recording-dials, when the tape is pulled out and stretched along the piece to be measured. This disk has ratchet-teeth in the periphery, and is engaged by a spring-pawl, G, on the whirl B, which runs back on the disk when the spring winds up the tape, and engages and turns it when the tape is pulled out. H represents a cone of differential gears attached to this disk for transmitting the motion to the recording-dials, of which there are in this example four sets, I, in which *a* is for the units, *b* the tens, and so on. These dials are arranged immediately under the plate of the case, as shown at L in Fig. 1, through which there is a hole, M, for the inspection of each, and they are geared together by a train of wheels, N and N', with pins and teeth arranged in the ordinary way for actuating recording-trains. The wheel N' is connected with any one of the wheels of the cone H by the long pinion O and the short one P, the latter being mounted loosely on the inner end of a strong shaft, Q, projecting into the case from a short tube, R, which has a disk, S, on its inner end, just inside of the plate of the case, and extends outside through the curved slot T into another tube, U, having a disk, V, on its inner end against the plate of the disk, and a thumb-piece, W, at the outer end by which to turn

it; and it is connected by a pin, *x*, with the tube R, so as to turn it, and this tube R has a slot, Y, in which a pin, Z, of the shaft Q projects, so that said shaft is caused to slide out and in endwise by the turning of the tube U to bring the pinion P into the plane of any one of the wheels of the cone H, and the shaft Q passes through a radius-bar, *e*, which is pivoted on the axis of wheel O, so that in swinging the pinion P toward and from the axis of the cone H, as required, for gearing with the wheels of different sizes, which is done by shifting the tubes R U and the shaft Q along the slot T, the said pinion will be kept in gear with the long pinion O, which transmits the motion of the recording-train. These differential wheels are graduated to actuate the recording-train correctly for several different lengths of lumber—say the smallest one will be of the right size for turning the recording-dials so as to indicate correctly the measure of lumber of ten feet in length, the next one similarly for twelve-feet lumber, and so on. At the same time that the pinion P and its shaft are shifted from one of the cone-wheels to another it must be secured also in connection with the said wheels, so as not to slip out of gear, for which the disk V is provided with as many angle-slots *f g h*, &c., as there are wheels in the cone H, to engage with a stud-pin, *k*, rising up from the case, which slots are graduated, in respect of their radial depth, to the different wheels, and they are also arranged circumferentially relatively to the spiral slot in the tube R, so that when any notch is engaged with the pin *k*, as shown at *f*, the pinion will not only be adjusted to the plane of the wheel of the cone for which the notch is adjusted, but it will also be brought into gear with the said wheel. It is, therefore, only necessary to turn the thumb-piece W, and shift it in the slot T properly for engaging any particular slot with the pin for changing the connection of the train of recording-disks for setting the machine for the length of the lumber to be measured. The wheel N' will be adjusted to the required position for beginning the work by the disk F when the tape is wound up, but the other wheels of the recording-trains will be adjusted by a key applied through holes in the side plate of the

case to the axles of the wheels, as represented at *l*, Fig. 1. The wheels of the recording-train are prevented from turning, except when required, by springs *m*.

To change the transmitting-gears O P from one recording-train to another, they are arranged on a disk, *n*, which turns within the other portion of the top plate of the case on the axis C to swing them around from one set to another; and in order to prevent the trains from being disturbed or changed when this shifting takes place, by the unit wheels N' being turned by the pinion O, either when passing out of or into gear with them, a lever-catch, *p*, is provided for each train for being thrown into gear with the wheel N' by a tappet, *q*, on the disk S, and held in gear with it by the disk *n*, as long as the notch *r* in the edge does not coincide with the end of the lever, which is always the case when the transmitting-gears are not in connection with the recording-train to which the lever belongs; but when they are so a spring, *t*, throws the lever into the notch *r*, disengaging the wheel N', and locking the disk *n*. The train being thus held by the lever *p*, the wheels O P will turn sufficiently for engaging or disengaging with the wheel N'.

The shafts of the recording-train are journaled at one end in a ring, A', arranged in

front of the disk F for their support, and at the other end they are journaled in the plate of the case. The ring will be supported on rods or posts of any kind projecting from the same plate in which the axles of the trains are supported.

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

1. Two or more trains of a registering-instrument in one machine, with gears for connecting them with the tape-measure reel, arranged to shift the connection from one recording-train to the other, substantially in the manner described.

2. The combination of the differential cone H, pinion P, shaft Q, tubes R and U, radial plate *e*, and pinion O, substantially as specified.

3. The combination, with the disk *n* and recording-trains I, of the stop-lever *p* and the tappet *q* on the disk S, substantially as specified.

4. The combination of the disk V with graduated slots, as described, with the shifting devices for the pinion P, and a stop-pin, K, substantially as specified.

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