(No Model.) 2 Sheets—Sheet 1.

R. B. AYRES.

INDICATOR DEVICE.

No. 358,183. Patented Feb. 22, 1887.

Fig. 1.

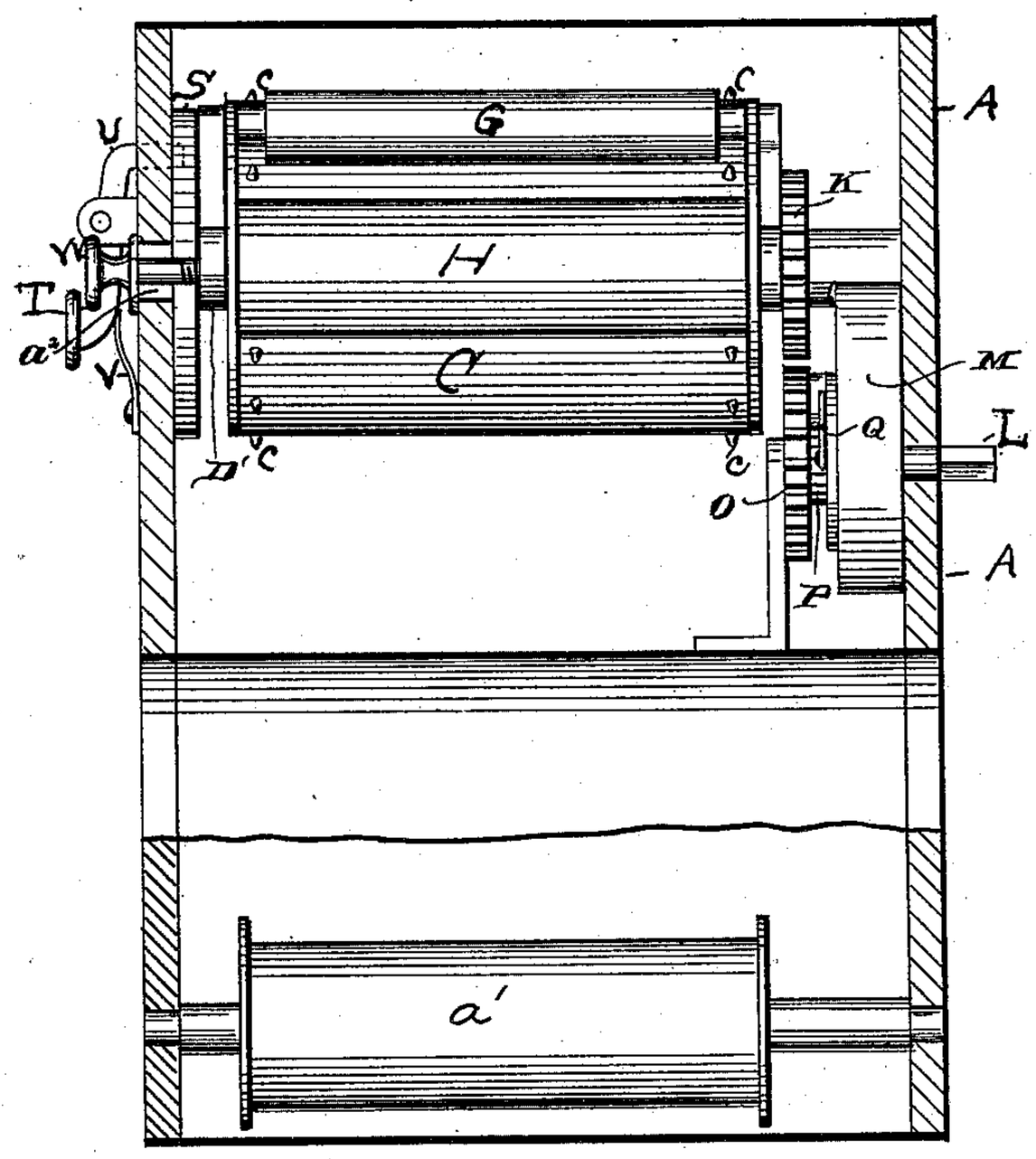
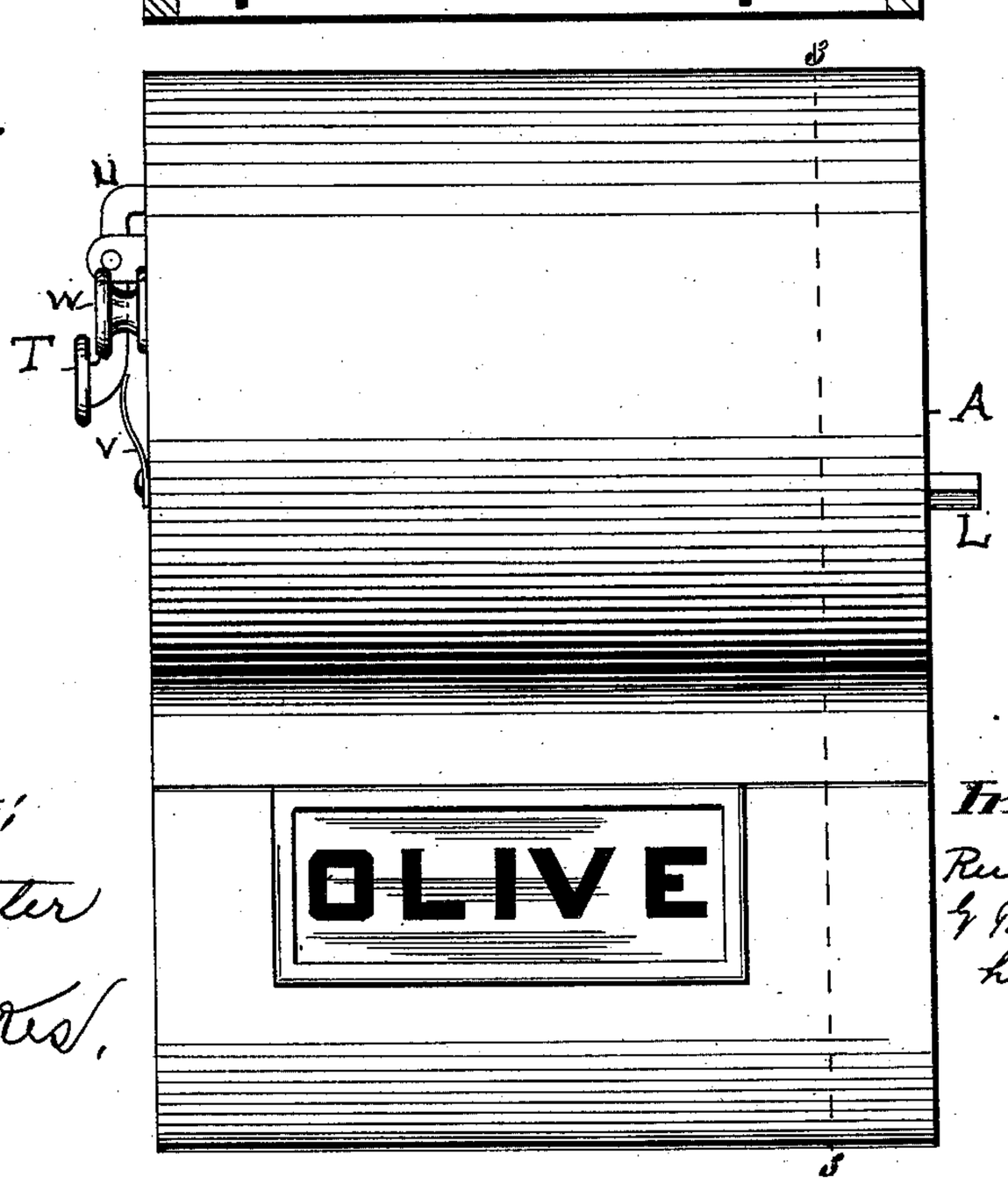


Fig. 2.



Attest;
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J. L. Crooker.

Inventor
Ruben B. Ayres.
by Paul Bakewell
his attorney

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

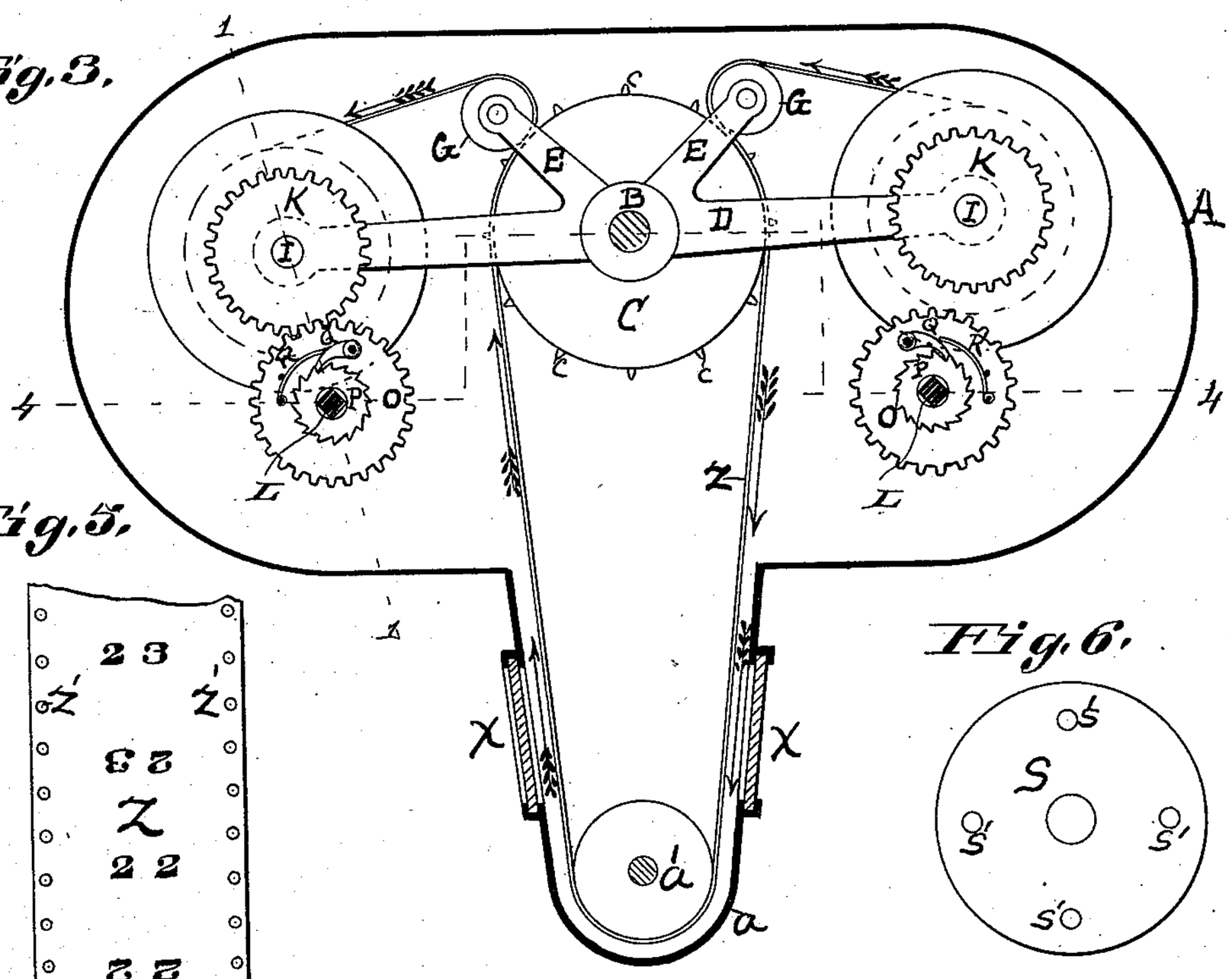
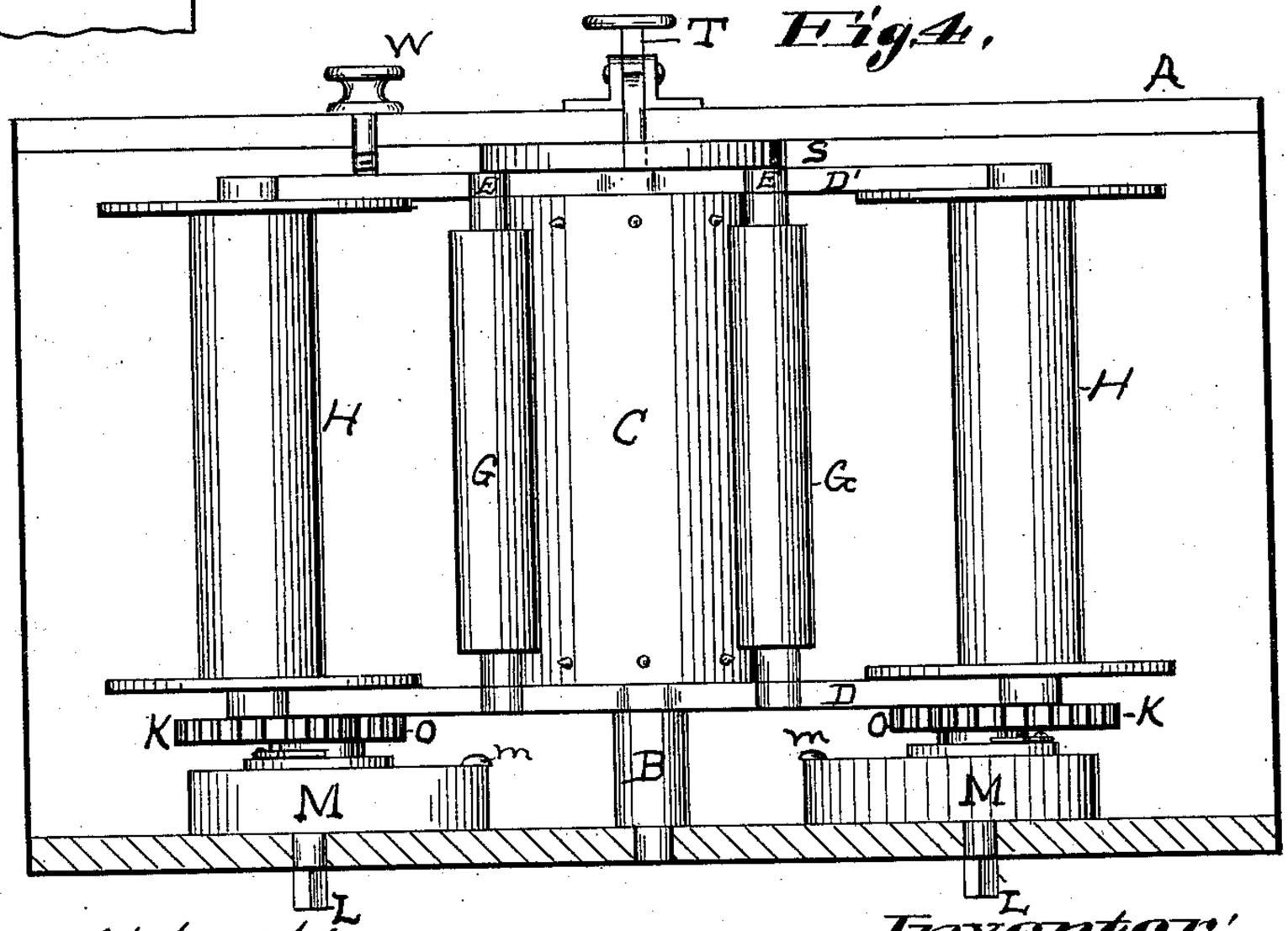


Fig. 5.

Fig. 6.

Fig. 4.



Attest:
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Jos. F. Crooker

Inventor;
Ruben B. Ayres by
Paul Bakewell,
his attorney

UNITED STATES PATENT OFFICE.

RUBEN B. AYRES, OF ST. LOUIS, MISSOURI.

INDICATOR DEVICE.

SPECIFICATION forming part of Letters Patent No. 358,183, dated February 22, 1887.

Application filed June 22, 1885. Serial No. 169,440. (No model.)

To all whom it may concern:

Be it known that I, RUBEN B. AYRES, of the city of St. Louis, State of Missouri, have made a certain new and useful Improvement in Indicator Devices, for indicating streets, railroad-stations, or for other like purposes; and the following is a full, clear, and exact description of the same, reference being had to the inclosed drawings, in which—

Figure 1 is a vertical section of my indicator on line 1 1 of Fig. 3; Fig. 2, a front elevation of the same; Fig. 3, a vertical section of the same on line 3 3 of Fig. 2; Fig. 4, a horizontal section on line 4 4 of Fig. 3, showing operating parts in elevation; Fig. 5, a detailed view of belt; Fig. 6, a detailed elevation of regulating or stop disk.

The construction of my invention is as follows:

Hung in a suitable frame-work, A, is a main driving-shaft, B. This driving-shaft B is provided with a drum, C, which rotates with said driving-shaft. This drum C is provided at either end with a number of stops or projections, *c*, and these stops *c* encircle drum C at either end, as before stated, and are at even distances apart, as shown clearly in Fig. 3 of the drawings. At either end of drum C, and loosely hung upon shaft B, so as to move independent of shaft B, are pivoted cross-bars D D′. These cross-bars D D′ are provided with arms E E, which arms, at their extreme ends, form bearing-points for small rollers G G, and these rollers G G are loosely hung on their axes in their bearings on said arms E E, and these rollers G G are in close proximity with the face of the revolving-drum C, as shown in Figs. 1, 3, and 4 of the drawings. At both ends cross-bars D D′ are shaped so as to form bearings for revolving drums H H. These revolving drums H H, being hung between the ends of cross-bars D D′ upon their central axes, I, revolve with said shafts or axes I, and these shafts or central axes, I, are provided with cog-wheels K.

Firmly hung in frame-work A are revolving winding-spindles L. These spindles are provided with springs M. One end of these springs M is firmly attached to spindles L and the other is firmly attached (by a pin, or in any suitable manner) to frame A, as shown at *m* in Fig. 4. At inner ends of spindles L, and in such position relatively to cog-wheels K as to be capable of being placed in engagement with cog-wheels K, are cog-wheels O, these last-mentioned cog-wheels being firmly attached to spindles L, so as to rotate with them.

Hung upon spindles L, preferably between cog-wheels O and spring M, is a small ratchet-wheel, P, and a pawl, Q, kept in engagement with ratchet-wheel P by a spring, R, is hung upon cog-wheels O. These parts—that is to say, ratchet-wheel P, pawl Q, and spring R—are merely for the purpose of preventing cog-wheels O from revolving in any but one direction and to connect the wheels O with the spindles L. For the reason that the spindles L L rotate alternately in opposite directions, the teeth on the ratchets P P are differently inclined.

Spindles L are suitably shaped at their outer ends so as to fit a key, by which means the springs M upon them are wound up. These spindles L, springs M, and cog-wheels O constitute the driving power by which my whole arrangement of devices is set in motion. Upon main shaft B, preferably at the side of machine opposite spindles L, is a regulating stop-disk, S, and this regulating-disk S is firmly attached to shaft B, so as to rotate with it. This stop or disk S is provided with openings S′, preferably four, as shown in Fig. 6. These openings S′ in stop or disk S regulate the play of the machine each time it is operated.

A pivoted arm, T, provided at one end with a finger, U, (see Fig. 1,) is hung upon side of frame-work A, in such relation with stop or disk S that, by reason of the spring V, also attached to frame-work A, bearing up against it, arm T will cause finger U to get in engagement with one of the openings S′ of disk S. On the same side of the frame A, passing and fitting in a slot, a^2, is a thumb-screw, W, the end of which is screw-threaded, so as to engage in a threaded recess in the cross-bar D′ in such a manner that by a lateral movement of the thumb-screw in the slot a^2 the cross-bar D′ may be moved so as to tilt the mechanism centrally pivoted on shaft B, and which consists of cross-bars D D′, shafts and rollers E G, and rollers H, with their shafts I and cog-wheels K, so

that cog-wheels K can be tilted alternately, so as to be in engagement on either side, as desired, with cog-wheels O.

Projecting from frame A is a part, *a*. In this part *a* of frame A is hung a revolving drum, *a'*, and this part *a* of frame A is provided on either side with openings *x x*, through which a figure or word which it may be desired to show may be seen; but the particular form or shape of part *a* of frame A is not material, and it may be desirable to have only one opening through which to exhibit the figure or word which it may be desirable to show.

Attached at both its ends firmly to drums H is a piece of cloth or other suitable material, Z. This piece of cloth is long enough to pass from drums H over and about small drums G, then to bear upon the sides of large revolving drums C, and then about drum *a'*, as shown by the direction of the arrows in Fig. 3. This fabric or cloth Z is about as broad as drums H, C, G, and *a'*, and at its edges it is provided with a series of holes, Z'. (See Fig. 5.) The distance between these holes Z' is the same as that between the stops *c* on revolving drums C, and the object of these holes Z' is to prevent the fabric, by means of them, from passing too rapidly along its course, by allowing the stops *c* on drum C to come into engagement with holes Z' as the fabric passes along its course. This fabric is provided with a series of numbers or designs which it may be desirable successively to display, and when it is desirable that the same number should be doubly shown, and on the other side of part *a* of frame A the same number or design is placed twice upon the fabric Z and placed upside down alternately, as shown in Fig. 5, the effect of which will be that, part *a* projecting downwardly from frame A, same figures being placed at a certain and equal distance apart in the display, they will appear correctly in duplicate at the point X on either side of part *a*.

The operation of my invention is as follows: Springs M on spindles L being wound up, power is thereby imparted to cog-wheel O, and the arm T is depressed, so as to bring finger U out of engagement with opening S' in stop-disk S, so as to allow of the rotation of drum C, by loosening the thumb-screw W and by the motion of thumb-screw W up or down, thereby allowing either one of cog-wheels K to come into engagement with one of cog-wheels O. Then, when this engagement is effected, screwing up the thumb-screw W, so as to hold shaft D in position and the said cog-wheels in connection, the device will operate, and the fabric will be wound upon one of the drums H while it is unwound from the other. Cog-wheel K is in connection with cog-wheel O, as shown in this instance on the left side of Fig. 3 and indicated there by the direction of the arrows. This winding process will last just as long as the arm T is depressed, so as to prevent finger U from coming into connection with openings in stop-disk S, and the number of changes to take place in the figures of the fabric will be regulated by the operator by the length of time he may desire to press down upon arm T. When fabric is wound upon one of these drums H, for purpose of illustration, when all the fabric is wound upon the drum H on the left-hand of Fig. 3, or when for any other reason it may be desirable to have the fabric wound in the opposite direction, the thumb-screw W, regulating the said pivoted shaft D', is loosened, moved laterally in the slot a^2, and then tightened, so as to bring the opposite cog-wheel K into engagement with the opposite cog-wheel O.

My improvement may be employed on street-cars for indicating the streets or stations, as is shown in Fig. 2, where the name "Olive," denoting the name of a street, is shown, and as the car reaches each succeeding street the conductor or driver is enabled, in the manner already described, to cause the appropriate sign to be displayed.

What I claim, and desire to secure by Letters Patent, is—

1. In an indicator device, the combination of the winding-spindles L, provided with springs M and cog-wheels O, a drum, C, provided with a stop-disk, S, a stop, U, arranged to be thrown in and out of connection with the stop-disk, rocking cross-bars D D', rollers H, journaled at the ends of the cross-bars D D' and provided with cog-wheels K, a belt having indicating devices and passing from one roller to the other over the drum C, and a device, substantially as described, for tilting the cross-bars, so as to throw the wheels K each alternately in and out of gear with the wheels O, substantially as and for the purposes specified.

2. As an improvement in indicators, the combination of a frame, A, in which are mounted winding-spindles L, provided with springs M and cog-wheels O, revolving shaft B, mounted in frame A and having a drum, C, provided with stops *c*, and also provided with a stop-disk, S, having openings S', bars D D', pivoted on the central shaft, B, rollers H, mounted on shaft I at the ends of the bars B, cog-wheels K, projecting arms E E, the ends of which form bearings for the rollers G G, rollers G G, and the roller *a'*, carrying the display-band Z, pivoted arm T, provided with the finger U, arranged to come into engagement with holes in the stop-disk S, the spring V, thumb-screw W, connected with the bar D, and the display-band Z, having holes Z', the whole being connected and arranged so as to present figures or words to view in succession, substantially as and for the purposes specified.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 6th day of May, 1885.

RUBEN B. AYRES.

Witnesses:
PAUL BAKEWELL,
F. SAUTER.