(No Model.) 2 Sheets—Sheet 1.

# C. W. MUSGROVE.

## INDICATOR.

No. 292,132. Patented Jan. 15, 1884.

Fig. 1.

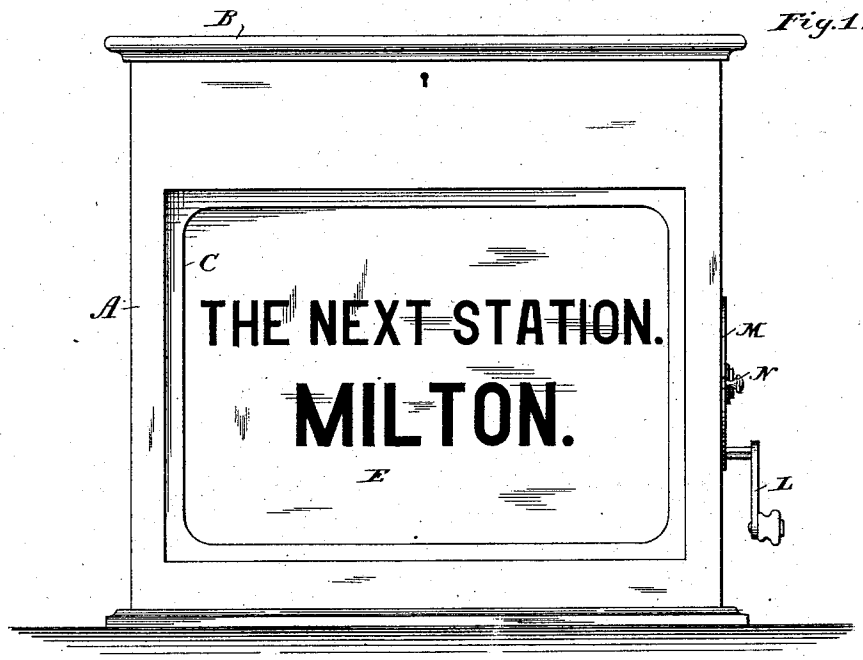
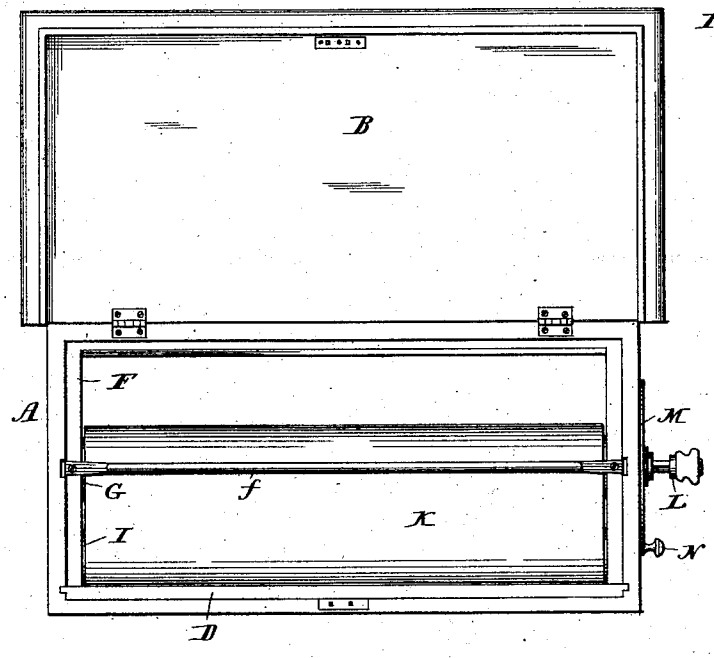



Fig. 2.




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(No Model.) 2 Sheets—Sheet 2.

# C. W. MUSGROVE.

## INDICATOR.

No. 292,132. Patented Jan. 15, 1884.

Fig. 3.

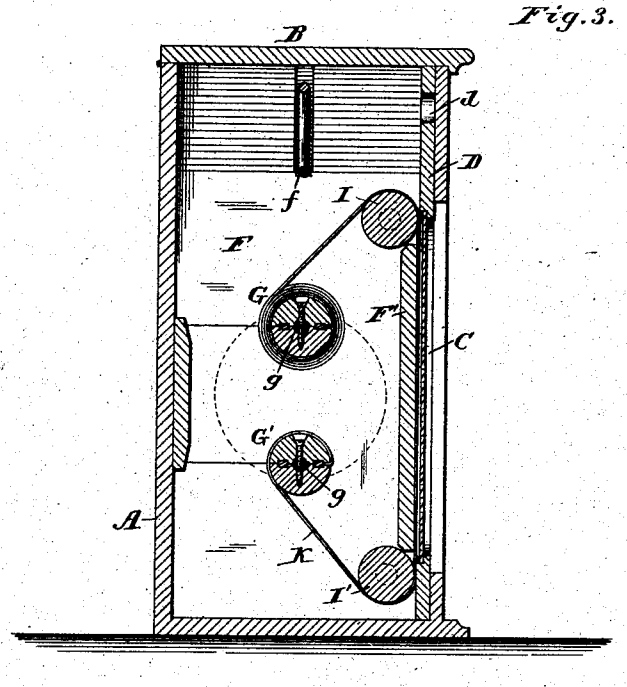



Fig. 4.

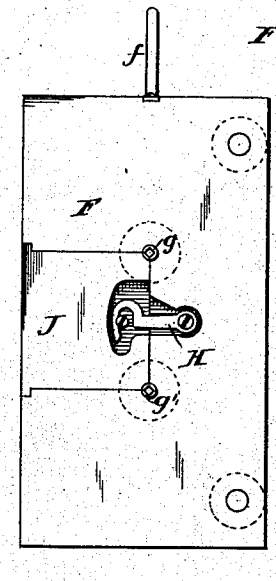
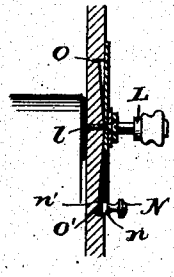



Fig. 5.




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# UNITED STATES PATENT OFFICE.

CHARLES W. MUSGROVE, OF LOCK HAVEN, PENNSYLVANIA.

## INDICATOR.

SPECIFICATION forming part of Letters Patent No. 292,132, dated January 15, 1884.

Application filed November 17, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. MUSGROVE, of Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Indicators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to indicating devices; and it consists of an indicator by which the names of terminal and intermediate stations on any route are correctly exhibited in proper sequence; and the objects of my improvements are, first, to obtain within small compendium and easy operation an effective indicator; second, to utilize the same indicator for distinct routes, with no other change than reversion; third, to permit readily of changing the direction of the indicating cloth or strip; and, fourth, to accomplish these ends with the maximum simplicity of construction. I attain these objects by the mechanism shown in the accompanying drawings, in which—

Figure 1 represents a front elevation of my invention. Fig. 2 is a plan view thereof. Fig. 3 is a vertical transverse section. Fig. 4 is an elevation of the means for securing the rollers in position, and Fig. 5 is a vertical section through the operating mechanism.

Similar letters indicate corresponding parts.

A represents the outer casing of the device.

B is a hinged cover to the casing, which may be locked, if desired.

C represents a space cut out from the front face to exhibit the indication.

D is a removable slide in the casing, having a glass, E, fitted therein.

F is a frame containing the rollers, removable from the casing A.

G G′ are alternately receiving and delivery rollers, to which the ends of the cloth or strip K are affixed. These rollers are longitudinally divided, both to admit of inserting round tubes *g g′*, respectively concentric with said rollers, having square ends, and to permit of placing the respective ends of the cloth true within the divisions so made, which are afterward brought and held together by screws or other means.

I I′ are guide-rollers, and the front F′ of the frame F performs the same function of guiding the cloth, the former operating to change the direction from an approximately horizontal to one at an angle, and the latter to conduct the cloth vertically. K represents the cloth, which may bear indications on both sides thereof, because the rollers G G′, by reason of the tubes *g g′*, are reversible longitudinally.

L represents the crank by which motion is imparted alternately to the rollers G G′, according as the square end of the tube *g* or *g′* is exposed through the plate M, which is for this purpose rotary.

M is a rotary plate, having a hole therein to insert the crank L and a catch, N, attached thereto, the spring *n′* acting normally to hold the plate stationary, and the catch or lug N to serve as a means of imparting rotation to the plate or disk M. The plate is held onto the frame by a screw, *l*.

O O′ are longitudinal depressions in the box, serving to detain the spring *n′* on the end *n* of the catch N when the rotation of the plate M brings the hole therein alternately in alignment with the tubes *g g′* in the rollers G G′. *d* is a finger-hole to remove the slide D, and *f* is a bar performing a similar function for the frame F.

J is a removable slide to permit of reversing the rollers. H is a hook retaining the slide J in position.

The operation is as follows: The guide-rollers G G′ are removed from their bearings in the box, are partially unscrewed to permit of grasping the ends of the cloth, which must of necessity lie true, as it abuts against a straight surface, and are then tightened. The rollers may then be placed in their bearings, observing to present that end to the crank which will expose the desired indications when operated. Upon turning the crank L the cloth will exhibit behind the glass E the correct indications in proper sequence. When returning over the same route, it becomes simply necessary to alter the direction of the cloth by making the previous delivery-roller a receiver. It is obvious that any indications may be upon the sheet on both its sides, and that hence it may subserve any purpose in which an indicator is useful—as on street and steam

railroads, elevators, steam and other boats, and various analogous objects.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In indicators, the rollers G G′, reversibly mounted in the casing F, to expose both sides of the sheet successively, longitudinally divided both to insert round tubes *g g′* concentrically therewith, and to permit of grasping the cloth so that it will lie true thereon.

2. In indicators, the combination, with the rollers G G′, containing round tubes *g g′*, having square ends, which pass on one side through the casing A of plate M, attached at that side to the casing, and suitably perforated to permit by its rotation access successively to the ends of the tubes *g g′*, a catch whereby such rotation is effected, and operating-crank L.

3. In indicators, the combination, with the receiver and delivery rollers G G′, of guide-rollers I I′, also mounted in the frame F, serving to change the direction of the cloth K, guide-frame F, located between said guide-rollers, to guide the indicator belt or cloth, being immediately behind it, glass E, mounted in the slide D, which exposes the information, frame F, in which the mechanism is removably mounted, and cloth K, attached to both rollers G G′, and bearing the information.

4. In indicators, the rollers G G′, longitudinally divisible, containing tubes *g g′*, concentric therewith, plate M, suitably perforated to permit access to the square end of the tube contained in the receiving-roller, catch N, having end *n* and spring *n′*, and crank L, in combination with guide-rollers I I′, guide-frame F′, glass E, frame F, and cloth K.

5. In indicators, the casing A, having lid B, the removable frame F, the glass E, mounted in slide D in the front of the casing, whereby the glass is removable for cleaning and other purposes, the rollers G G′ I I′, guide-frame F′, plate M, perforated to expose the square end of the tube contained in the receiver and rotary for this purpose, as the same roller is alternately a receiver and deliverer, catch N, having end *n*, attached to spring *n′*, serving normally to hold the plate stationary and permitting rotation of the plate M by pulling the spring from its bed, crank L, cloth K, removable slide J, to permit of reversing the roller, and retaining-hooks H H.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHAS. W. MUSGROVE.

Witnesses:
GEO. W. MASON,
F. A. ROEPPER.