

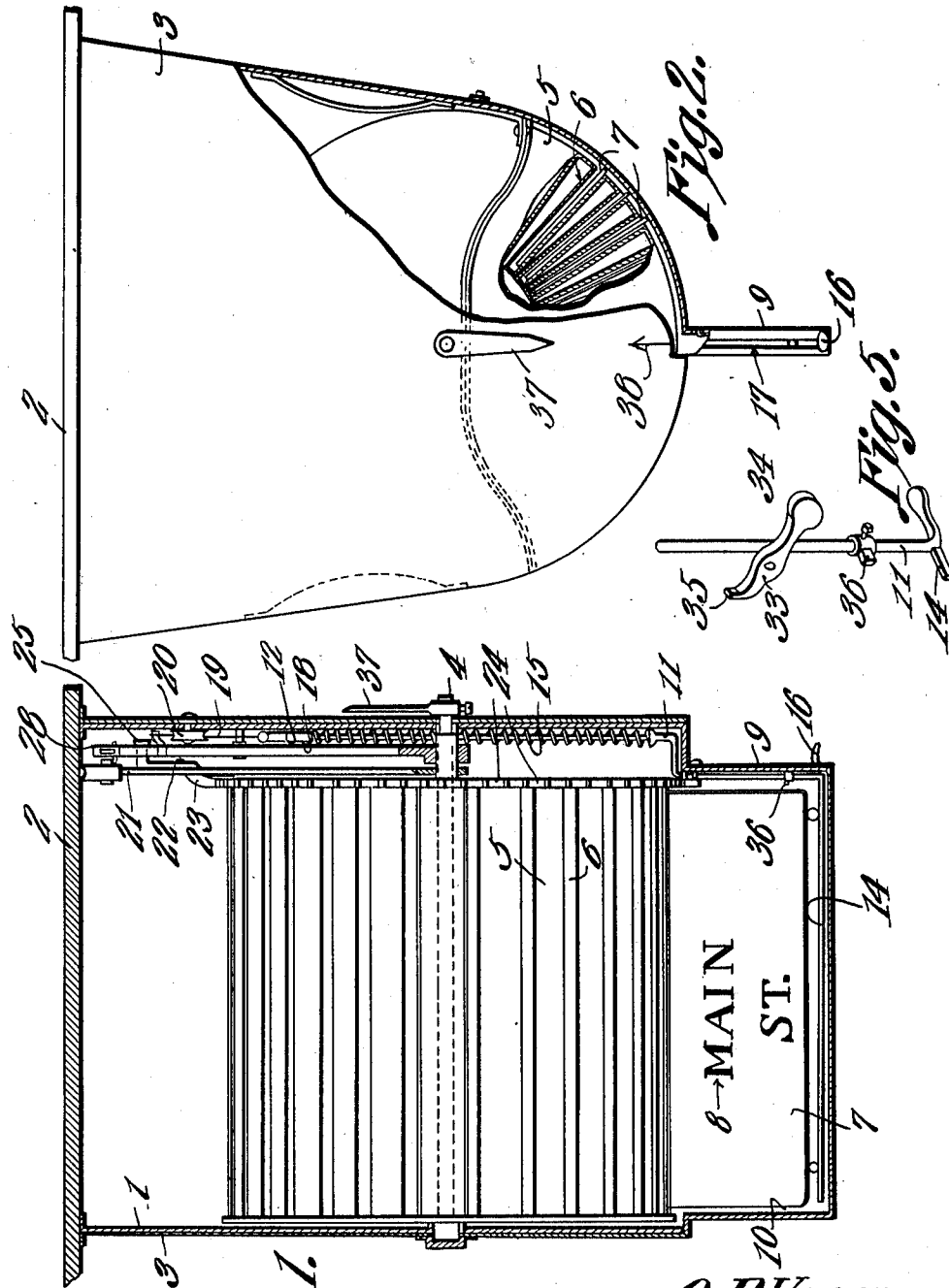
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REGISTER.

APPLICATION FILED MAY 1, 1911.

1,021,118.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses

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Fig. 1.

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2 SHEETS—SHEET 2.

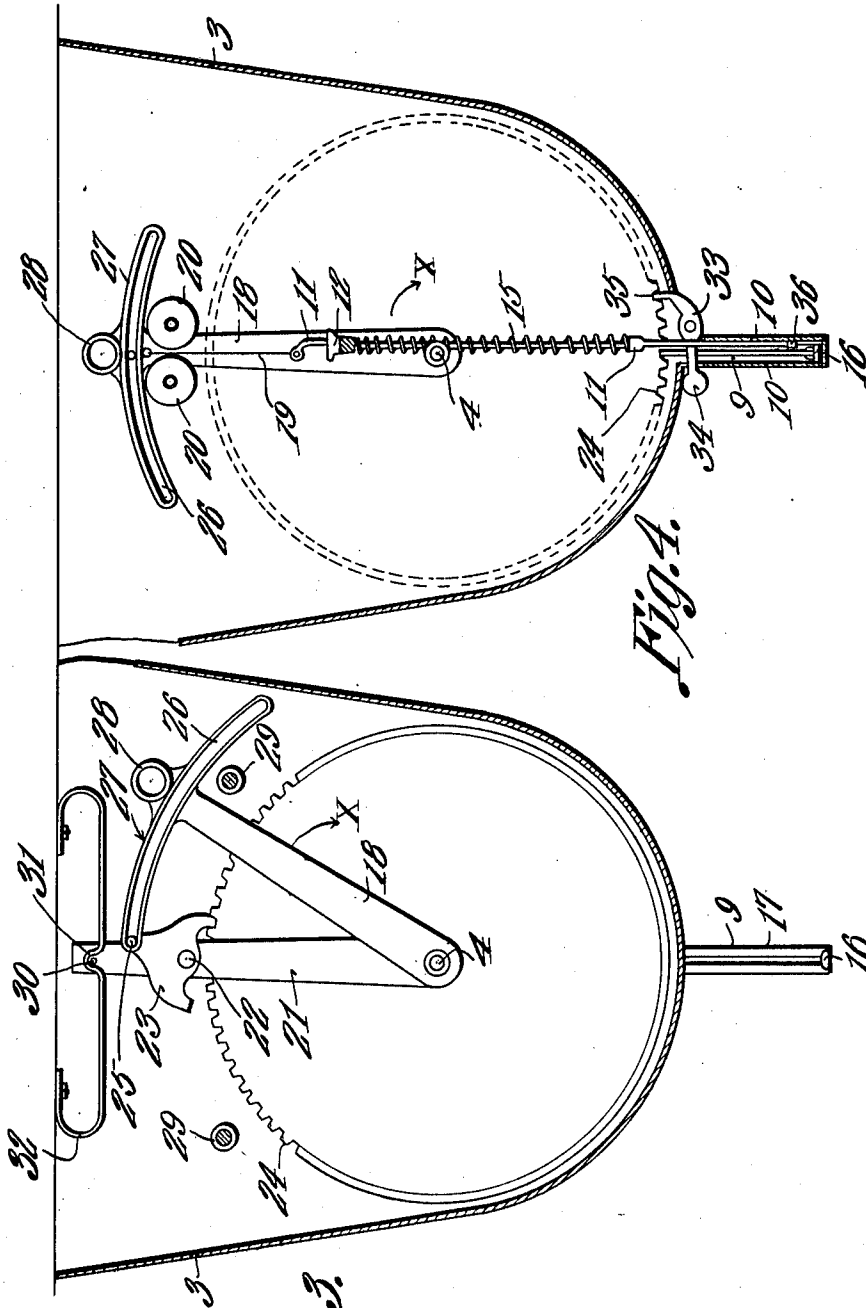


Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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REGISTER.

1,021,118.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OLER P. VROOM, a citizen of the United States, residing at Linneus, in the county of Linn and State of Missouri, have invented a new and useful Register, of which the following is a specification.

The device forming the subject matter of this application, is adapted to be used on street cars and trains, to indicate the names of successive streets passed by the car or train.

One object of the present invention is to provide novel means for exposing and housing successive display elements.

A further object of the invention is to provide novel means for actuating that portion of the structure whereby the display elements are advanced into view, and housed from view; and a further object of the invention is to provide novel means for holding the movable elements of the structure against changing their relative positions, save at proper, predetermined steps.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows the invention in transverse section; Fig. 2 is an end elevation, parts being broken away; Figs. 3 and 4 are transverse sections, upon a plane at right angles to the cutting plane of Fig. 1, parts being omitted in Fig. 4 from the showing of Fig. 3; and Fig. 5 is a detail perspective of the locking dog and of sundry portions of the mechanism whereby the dog is actuated.

The supporting structure may be of any form. Preferably, however, this supporting structure embraces one or more hangers 1, adapted to be secured to the roof 2 of a car, or to any other accessible portion of the car, the supporting structure further including a case 3, supported by the hangers 1 and inclosing the operating mechanism of the device.

Journalled for rotation in the hanger 1, is an operating shaft 4, carrying, within the case 3, a drum 5, provided with a plurality of radial cells 6. Each of these cells 6 is adapted to contain a display element, ordinarily a metallic plate 7, each plate being marked, as shown in Fig. 1, and there denoted by the numeral 8, with the name of a street. When the drum 5 is rotated by means of the operating shaft 4, the outer edges of the plates 7 slide along the inner face of the case 3, as clearly shown in Fig. 2.

The case 3 is provided, adjacent its bottom, with a downwardly protruding extension 9, and when any one of the cells 6 is alined vertically with the extension 9, the plate 7 which is in that particular cell, will drop into the extension 9. Noting Fig. 4, it will be seen that both faces of the extension 9 are equipped with transparent plates 10, so that when one plate 7 has dropped into the extension 9, the inscription 8 upon that particular plate, may be read. A means is provided for lifting each plate out of the extension 9, after it has dropped thereinto. This means embraces a carrier 11, mounted for vertical sliding movement in a case-supported bracket 12. The lower end of the carrier 11 is fashioned into a rectangularly disposed arm 14 which protrudes into the extension 9. It will be seen that when the carrier 11 is raised, the arm 14, engaging the plate 7 which is in the extension 9, will lift the said plate into the cell 6 of the drum 5, which is alined vertically with the extension 9. The arm 14 is maintained normally in depressed position by means of a compression spring 15, surrounding the carrier 11. The upper end of the spring 15 abuts against the case-carried bracket 12, the lower end of the spring 15 abutting against a suitable projection upon the carrier 11.

Two means are provided for elevating the carrier 11; the first of these means is merely an incidental structure, but since it is the simpler one, it will be described first. Adjacent its lower end, the carrier 11 is equipped with an outstanding finger piece 16, adapted to move vertically in a slot 17 (see Fig. 2) in the end of the extension 9 of the case 3. The specific conditions under which the carrier 11 is elevated by means of the finger piece 16, will be dealt with herein-

after. The other, and most important means for elevating the carrier 11 will now be described. Mounted for rotation upon the operating shaft 4, is a primary arm 18, (note particularly Figs. 3 and 4). To the primary arm 18, adjacent its upper end, is connected one end of a flexible member 19, the lower end of which is connected with the upper end of the carrier 11 above the bracket 12. When the primary arm 18 is tilted upon the operating shaft 4, the flexible member 19 is adapted to be engaged by one or the other of a pair of sheaves 20, supported for rotation upon the case 3, or upon any other suitable and convenient portion of the structure.

Noting Figs. 3 and 4, it will be seen that when the primary arm 18 is swung in the direction of the arrow X, the flexible member 19 will be engaged over one of the sheaves 20, elevating the carrier 11, and putting the spring 15 under tension, the arm 14 of the carrier elevating the plate 7 out of the extension 9, into one of the cells 6 of the drum 5. If the primary arm 18 be released, the spring 15, abutting against the case-carried bracket 12, will cause a depression of the carrier 11, the flexible member 19 moving over one of the sheaves 20, and restoring the primary arm 18 to the position shown in Fig. 4. A means is also provided for rotating the drum 5, so that one after another of the cells 6 may be alined vertically with the extension 9, thereby permitting successive plates 7 to drop into the extension 9. I will now describe this means whereby the drum 5 is rotated.

Loosely mounted for rotation upon the operating shaft 4, is a secondary arm 21. Pivoted to the secondary arm 21, as shown at 22, is a double ended pawl 23, adapted to engage teeth 24, formed in the periphery of the drum 5, adjacent one end thereof. The pawl 23 is equipped with an outstanding stud 25, adapted to move in a slot 26 in a transverse guide head 27, formed upon the upper end of the primary arm 18. The head 27 is equipped with an eye 28, adapted to receive a rope or the like, whereby the arm 18 may be tilted, as aforementioned, to effect a raising of the arm 14 of the carrier 11. In its initial movement in the direction of the arrow X, the primary arm 18 will first elevate the arm 14 of the carrier 11, and restore the plate 7 which is in the extension 9, to the appropriate cell 6 of the drum 5. A continued swinging movement of the primary arm 18 will ultimately position the stud 25 of the pawl 23 at one end of the slot 26 in the head 27 of the primary arm 18, as shown in Fig. 3. The pawl 23 will then be tilted, until one of its ends comes into contact with the teeth 24 of the drum 5. The arms 18 and 21 will then move together, until the case-carried stop 29 is encountered

by the primary arm 18. During this operation, the drum 5 will be rotated until another cell 6 is alined vertically with the extension 9.

When the primary arm 18 is released, the arm 18 will move in a direction contrary to that indicated by the arrow X, until the arms 18 and 21 are in substantial alinement, the pawl 23 being positioned to assume a new grip upon one of the teeth 24, and the arm 14 of the carrier 11 being depressed, so as to be positioned to raise the plate 7 out of the extension 9, as above described.

A device is provided for maintaining the secondary arm 21 in the position shown in Fig. 3. This device includes a pin 30, outstanding from the secondary arm 21, adjacent its upper end, the pin 30 being adapted to register in a seat 31, formed in a spring member 32, carried in any suitable manner by the supporting structure. It will be seen that when the arms 18 and 21 move in the direction of the arrow X, the spring 32 will be put under tension, and when these arms are released, the spring 32, acting against the pin 30, will restore the arm 21 into the upright position shown in Fig. 3.

Mechanism is provided whereby the rotation of the drum 5 under the action of the pawl 23 may be limited. This mechanism embraces a dog 33, pivotally supported upon the case 3, or upon any other suitable portion of the structure. One end of the dog 33 is counterweighted, as shown at 34, so as to maintain the other end 35 of the dog in engagement with the teeth 24 of the drum 5, as shown in Fig. 4. In order to release the dog 33 from the drum 5, a releasing member 36 is adjustably mounted upon the carrier 11, as Fig. 5, when compared with Fig. 4 will show. This releasing member may be a collar 36, held in place by a set screw upon the carrier 11. The movement of the primary arm 18 in the direction of the arrow X serves to elevate the arm 14 of the carrier, to replace the plate 7 which is in the extension 9, into one of the cells 6 of the drum 5. The next function which the carrier 11 consummates, is to bring the releasing member 36 into engagement with the dog 33, thereby setting the drum 5 free for rotation. Immediately after the dog 33 is released from the teeth 24 of the drum 5, the head 27 of the primary arm 18 tilts the pawl 23 to engage the teeth 24 of the drum, thereby rotating the drum.

Rigidly, but adjustably mounted upon one end of the operating shaft 4, and located upon the outside of the case 3, is an indicator 37, adapted to be turned down, into alinement with a mark 38 upon the outside of the case 3. This indicator 37, among other functions, is adapted to be employed in connection with the finger piece 16. The indicator 37 and the finger piece 16 work

together in the following manner. Suppose that the car upon which the device is mounted, is running upon a track including a loop at one end, the car traversing the single line of track, then rounding the loop, and returning over the single line of track. Under such circumstances, the indicator 37 may be disposed in the same plane with that plate 7 which is inscribed with the name of the last street encountered upon the single stretch of track, before the loop is reached. Under such circumstances, after the car has rounded the loop, and is entering a single line of track, on the return trip, the indicator 37 may be brought opposite to the mark 38, whereupon, the operator of the car may be assured that the proper plate 8 is in place, for the return run. In carrying out the foregoing operation, the finger piece 16 is engaged, lifting the carrier 11. This lifting of the carrier 11 will raise the plate 7 which is within the extension 9, out of the extension 9, and into the appropriate cell 6 of the drum 5. The dog 33, by this operation of the carrier 11, will be swung out of engagement with the teeth 24 of the drum 5, so that the drum 5 may be rotated. This rotation of the drum 5 is effected, as hereinbefore pointed out, by manipulating the indicator 37, so that the predetermined plate 7 may drop into the extension 9, whereupon the plates will follow each other in reverse order, in making the back-run, along the single stretch of track, between the loop, and the point of starting.

The operation of the device has been dealt with step by step, hereinbefore, in connection with the description of the component mechanism. However, a brief résumé of the operation of the device may be given with profit at this point. When the primary arm 18 is swung in the direction of the arrow X, the carrier 11 will be elevated, putting the spring 15 under tension, and causing the arm 14 of the carrier 11 to elevate one plate 7 out of the extension 9 into the appropriate cell 6 of the drum 5. This elevation of the carrier 11 will cause the releasing member 36 to engage the dog 33, tilting the same out of engagement with the drum 5, so that the drum 5 may be turned about. A continued swinging movement of the primary arm 18 in the direction of the arrow X, will cause one end of the transverse head 27 of the arm 18 to engage ultimately with the pawl 23. The pawl 23 will be tilted until it engages the drum 5, as shown in Fig. 4. Further movement of the arm 18 in the direction of the arrow X will cause the pawl 23 to rotate the drum 5, the arm 21 being tilted. The primary arm 18 will ultimately be held against movement by one of the stops 29. Another cell 6 of the drum 5 will thus be alined vertically with the extension 9. When the arm 18 is released, the spring 15

will restore the arm 18 to its original position, the spring 32 restoring the arm 21 to the position shown in Fig. 3. The spring 15 will also act to depress the arm 14 of the carrier 11, permitting another plate 7 to drop into the extension 9.

As Fig. 3 will serve to show, the arm 18 may rotate the drum 5 either in the direction of the arrow X, or in an opposite direction, duplicate stops 29 being provided, and the construction of the pawl 23 being such that the drum 5 may be moved in either direction thereby. The device may therefore be employed for indicating the streets both upon an out-trip and upon an in-trip.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a rotatably mounted drum; display elements slidably housed in the drum and successively movable beyond the contour of the drum; a carrier for restoring said elements to the drum; primary and secondary pivotally mounted arms, the primary arm being operatively connected with the carrier; a pawl upon the secondary arm, adapted to engage the drum; the primary arm having an arcuate guide, and the pawl having a projection adapted to move in the guide, and to engage with one end of the guide.

2. In a device of the class described, a rotatably mounted drum; display elements slidably housed in the drum and successively movable beyond the contour of the drum; a carrier for restoring said elements to the drum; primary and secondary pivotally mounted arms, the primary arm being operatively connected with the carrier; a pawl upon the secondary arm, adapted to engage the drum; the primary arm having an arcuate guide, and the pawl having a projection adapted to ride in the guide, and to engage one end of the guide; a spring supported at its ends, along which the secondary arm is adapted to move in either direction, the spring having a seat for engagement with the secondary arm, and the spring constituting a means for restoring the secondary arm to initial position, after the secondary arm has been tilted through the engagement between the guide and the pawl.

3. A device of the class described comprising a supporting structure; a drum mounted for rotation therein; display elements slidably housed in the drum and successively movable beyond the contour of the drum; a carrier slidably mounted in the supporting structure, and adapted to restore said display elements to the drum; a pivotally mounted primary arm; a flexible element connecting the primary arm with the carrier; an anti-friction device upon the supporting structure, over which device the

flexible element is adapted to move; a piv-
otally supported secondary arm; a pawl piv-
oted upon the secondary arm, and adapted
to engage the drum to rotate the same; and
5 means for permanently connecting the
primary arm with the pawl, for loose move-
ment with respect thereto.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

OLER P. VROOM.

Witnesses:

ROSS WHALEY,
M. B. FETTY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
