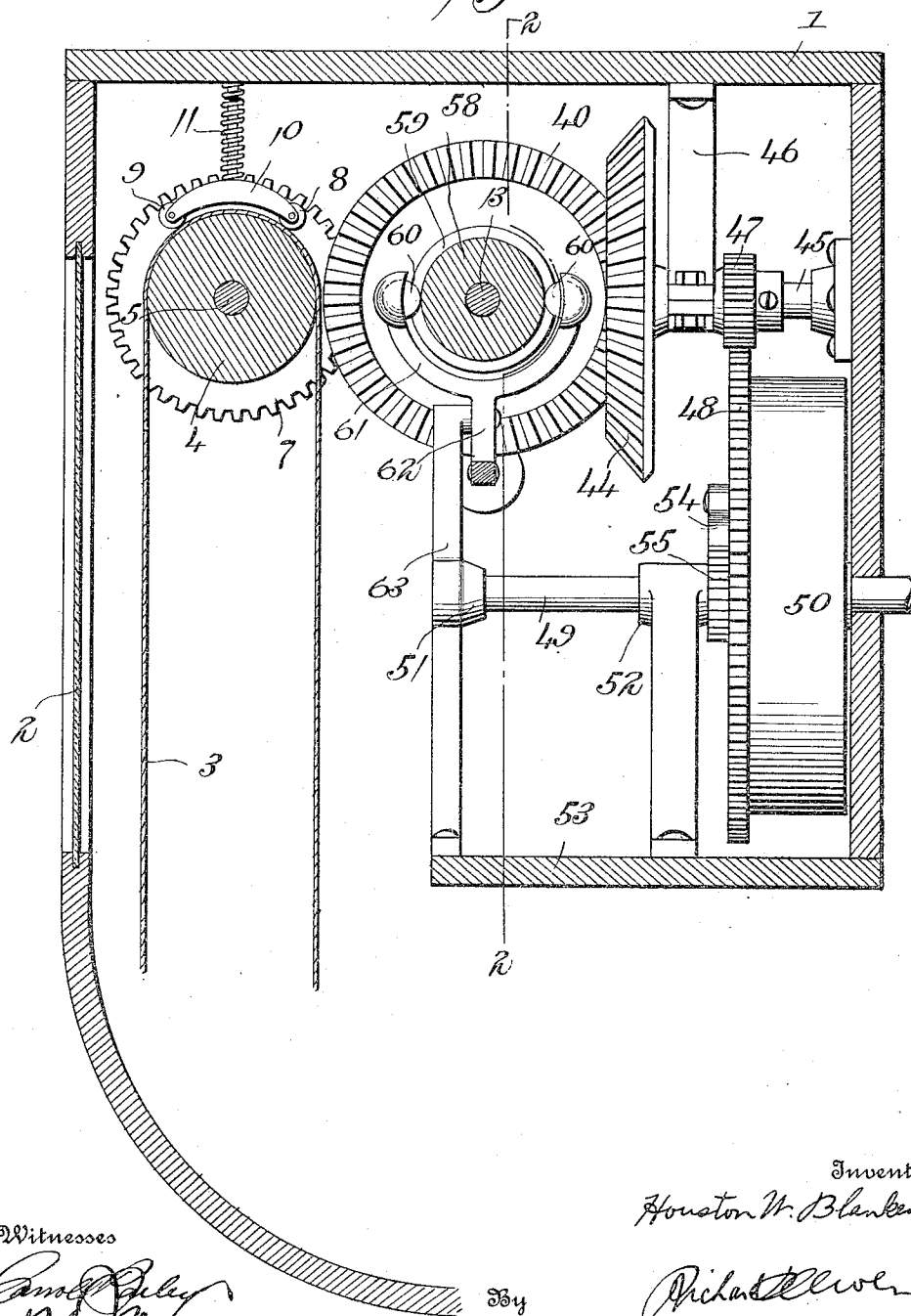


1,205,968.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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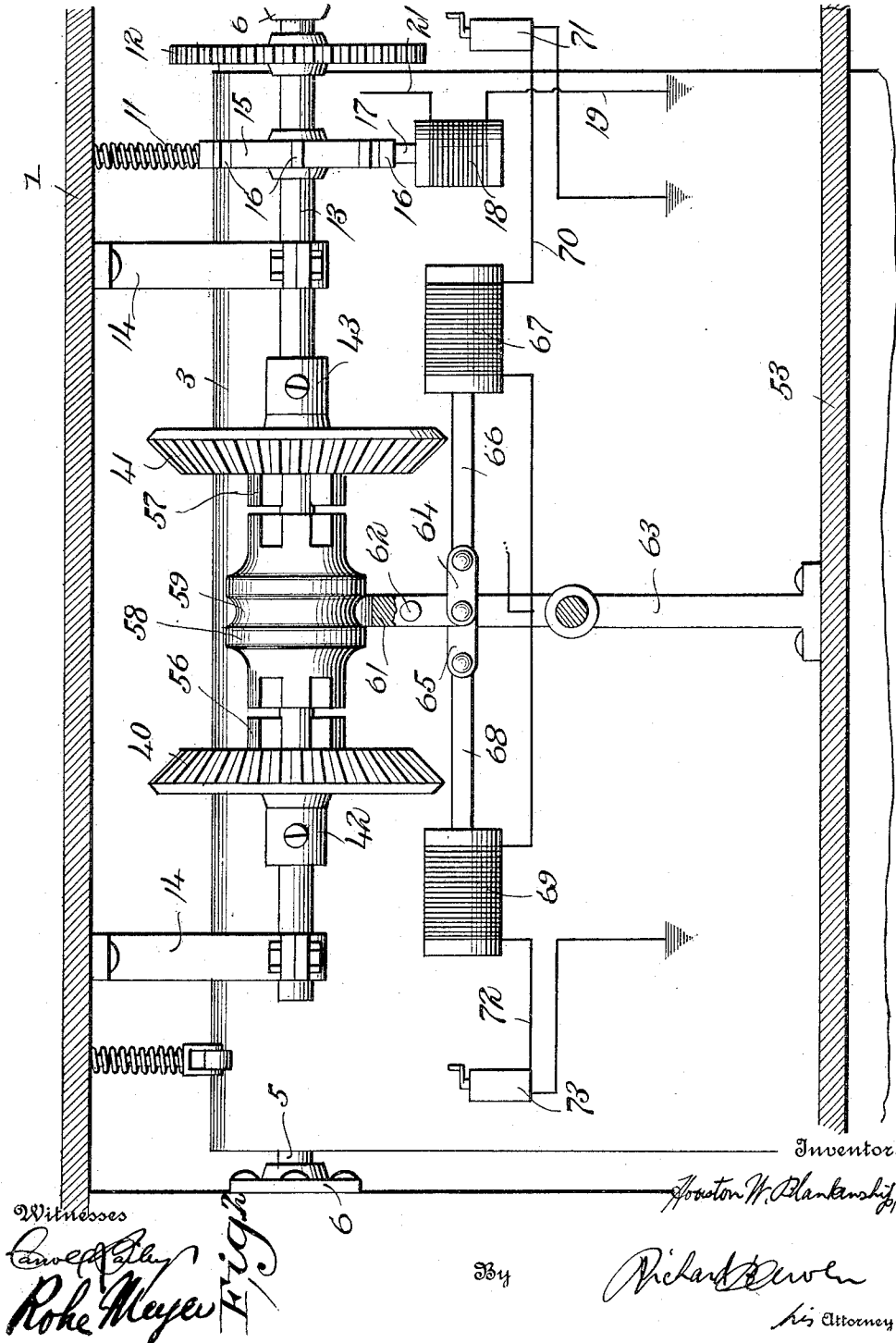
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H. W. BLANKENSHIP.
REVERSING GEAR MECHANISM.
APPLICATION FILED JULY 1, 1913.

1,205,968.

Patented Nov. 28, 1916.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

HOUSTON W. BLANKENSHIP, OF WARDNER, IDAHO.

REVERSING-GEAR MECHANISM.

1,205,968.

Specification of Letters Patent.

Patented Nov. 28, 1916.

Application filed July 1, 1913. Serial No. 776,842.

To all whom it may concern:

Be it known that I, HOUSTON W. BLANKENSHIP, a citizen of the United States, residing at Wardner, in the county of Shoshone and State of Idaho, have invented certain new and useful Improvements in Reversing-Gear Mechanism, of which the following is a specification.

This invention relates to a reversing gear mechanism for use in connection with a station indicator and the principal object of the invention is the provision of a reversing mechanism which may be readily and easily reversed so that when the direction in which a car is traveling is reversed, the street or station marked upon a ribbon of the car indicator will appear in their proper order.

With the foregoing and other objects in view, this invention consists in such novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters of reference designate like or corresponding parts throughout the several views, and in which, Figure 1 is a cross sectional view through a street or station indicator provided with the improved reversing mechanism. Fig. 2 is a sectional view on the line 2-2 of Fig. 1.

Referring to the drawings by numeral, 1 designates a casing which is mounted preferably in the front end of the car so as to be clearly visible to passengers riding upon the car and which has a transparent window 2 mounted therein through which the tape 3, which has the names of the streets or stations along the route of the car printed thereupon, is visible. The window 2 has two lines (not shown) centrally located and passing laterally thereacross and the street or station which is next to be reached by the car is visible between these two lines. In this manner passengers upon the car will readily know the succeeding stations along the route of the car and as the window 2 is much larger than the space between the two lines thereupon, the succeeding stations, as well as the stations last passed, will be visible therethrough in which manner the passengers may readily know the whereabouts of the car. The tape 3 passes about a roller 4 which is carried

by a shaft 5. The shaft 5 is journaled in bearings 6 which are carried by the casing 1 and has a gear wheel 7 mounted thereupon and adjacent one end of the roller 4.

A pair of rollers 8 and 9 which are carried by the bracket 10, engage the outer surface of the tape 3 as the same passes over the roller 4 and aid in holding the same smooth and properly placed upon the roller as well as holding it in engagement therewith so that it will travel properly about the roller 4. The bracket 10 is suspended from the upper side of the casing 1 by a coil spring 11 which causes the rollers 8 and 9, at all times, to engage the tape 3 as is clearly shown in Fig. 1 of the drawings.

The gear 7 meshes with a second gear 12 which is carried by a shaft 13. The shaft 13 is supported by brackets 14, which are secured to the upper side of the casing 1 and depend downwardly therefrom, and has a disk 15 mounted thereupon a short distance inwardly from the gear 12. The disk 15 has a plurality of teeth 16 formed upon its periphery, which teeth engage the catch 17 of the electrical latch member 18. The electrical latch member 18 may be of any one of the many types of devices of this nature now upon the market, having one pole thereof grounded by means of an electrical conducting wire 19 while the other pole is connected with an electrical conducting wire 21 leading to a suitable contact closer (not shown) carried by the usual trolley pole.

When the contact closer is actuated in any well known manner it closes an electric circuit which passes through the wire 21 into the latch member 18. The current passing into the latch member 18 operates the catch 17, causing the same to move out of engagement with one of the teeth 16 which are formed upon the disk 15. This allows the shaft to be rotated, by the mechanism provided therefor, which will be hereinafter more fully described, and through the medium of the gears 7 and 12 the shaft 13 rotates the shaft 5 and the roller 4, moving the tape 3 forward one space, owing to the fact that immediately after the catch 17 has been released from engagement with one of the teeth 16 it moves back to its normal position and engages the next tooth 16 upon the disk 15 and stops further rotation of the shafts and the roller.

The shaft 13 has two bevel gears 40 and

41 loosely mounted thereupon and held in place by collars 42 and 43. These gears 40 and 41 have a bevel gear 44 meshing therewith. The bevel gear 44 is carried by a shaft 45 which is supported by a bracket 46 suspended from the upper side of the casing 1. The shaft 45 has a pinion 47 mounted thereupon which meshes with a gear 48. The gear 48 is mounted upon a shaft 49 and is rotated by a spiral spring 50. The shaft 49 is journaled in bearings 51 and 52 which are supported by a brace 53. The brace 53 extends inwardly from one of the sides of the casing 1 as is shown in Fig. 2 of the drawings. The gear 48 has a pawl member 54 mounted thereupon which engages a ratchet 55 which permits the spring 50 to be wound and regulates the unwinding of the same. The spring 50 through the medium of the gear 48, the pinion 47 and the bevel gears 40, 41 and 44, provides a means for rotating the shaft 13 when the teeth 16 of the disk 15 are released from engagement with the catch 17.

The bevel gears 40 and 41 have clutch members 56 and 57 formed upon their inner surfaces and the shaft 13 has a clutch collar 58 mounted thereupon and between the two bevel gears 40 and 41 so as to engage the clutch portions 56 and 57 to regulate the direction of the rotation of the shaft 13 and consequently the direction of the movement of the tape 3. The clutch collar 58 has a groove 59 formed therein in which are seated two balls 60. The balls 60 are carried by the free ends of a forked member 61 which is pivotally mounted at 62 upon a bracket or supporting arm 63. The lower end of the forked member 61 has pivotally connected thereto links 64 and 65. The link 64 is connected to the armature 66 of solenoid 67 while the link 65 is connected to the armature 68 of solenoid 69.

The solenoid 67 is connected through the medium of a conductor 70 to the controller 71 which is mounted upon one end of the car while the solenoid 69 is connected through the medium of conducting wire 72 to the controller 73 which is mounted upon the opposite end of the car. When the car is traveling in such a manner that the controller 71 controls the operation of the car, an electrical circuit passes from the controller 71 through the conductor 70 into the solenoid 67; this operates the armature 66, the link 64 and the forked member 61, causing the clutch member 58 to move into engagement with the clutch portion 56 formed upon the face of the gear 40; while when the

car is moving in the opposite direction and is controlled by the controller 73, the circuit passing through the conductor 72 and the solenoid 69 will operate the armature 68, the link 65, the forked member 61 and the clutch member 58, causing the latter to engage the clutch portion 57 upon the gear 41, thus causing the shaft 13 to rotate in the opposite direction and also the roller 4. This will reverse the direction of travel of the tape 3 and cause the stations indicated thereupon to be registered before the transparent window 2 in their proper order.

The reversing of the current from one of the controllers 71 or 73 to the other one is carried on in the usual manner, such as by the turning of the trolley pole, or in any of the other usual manners of performing this operation.

In practical fields certain minor features of construction, combination and arrangement of parts may necessitate alterations to which the patentee is entitled, provided such alterations are comprehended within the scope of what is claimed.

What is claimed is:—

A device of the character described including an operating mechanism having a driving shaft, a rotatably mounted driven shaft, a gear rigidly mounted upon said driving shaft, gears rotatably mounted upon said driven shaft in spaced relation and meshing with opposite sides of the gear of said driving shaft, the gears of said driven shaft being provided with clutch teeth, a clutch slidably mounted upon said driven shaft between the gears thereof and provided with teeth for engaging the clutch teeth of said gears, a standard positioned beneath said driven shaft and provided with an arm at its upper end forming a pivot pin, a shifting fork having its arms engaging said clutch and having its shank pivotally connected with the pivot pin at a point intermediate the length of the shank, links pivotally connected with the lower end of said shank, solenoids having their cores connected with said links, and means for selectively energizing said solenoids to move the clutch into engagement with the teeth of a selected one of the gears mounted upon said driven shaft.

In testimony whereof I affix my signature in presence of two witnesses.

HOUSTON W. BLANKENSHIP.

Witnesses:

THOMAS R. JONES,
FREDA I. HARLAN.