

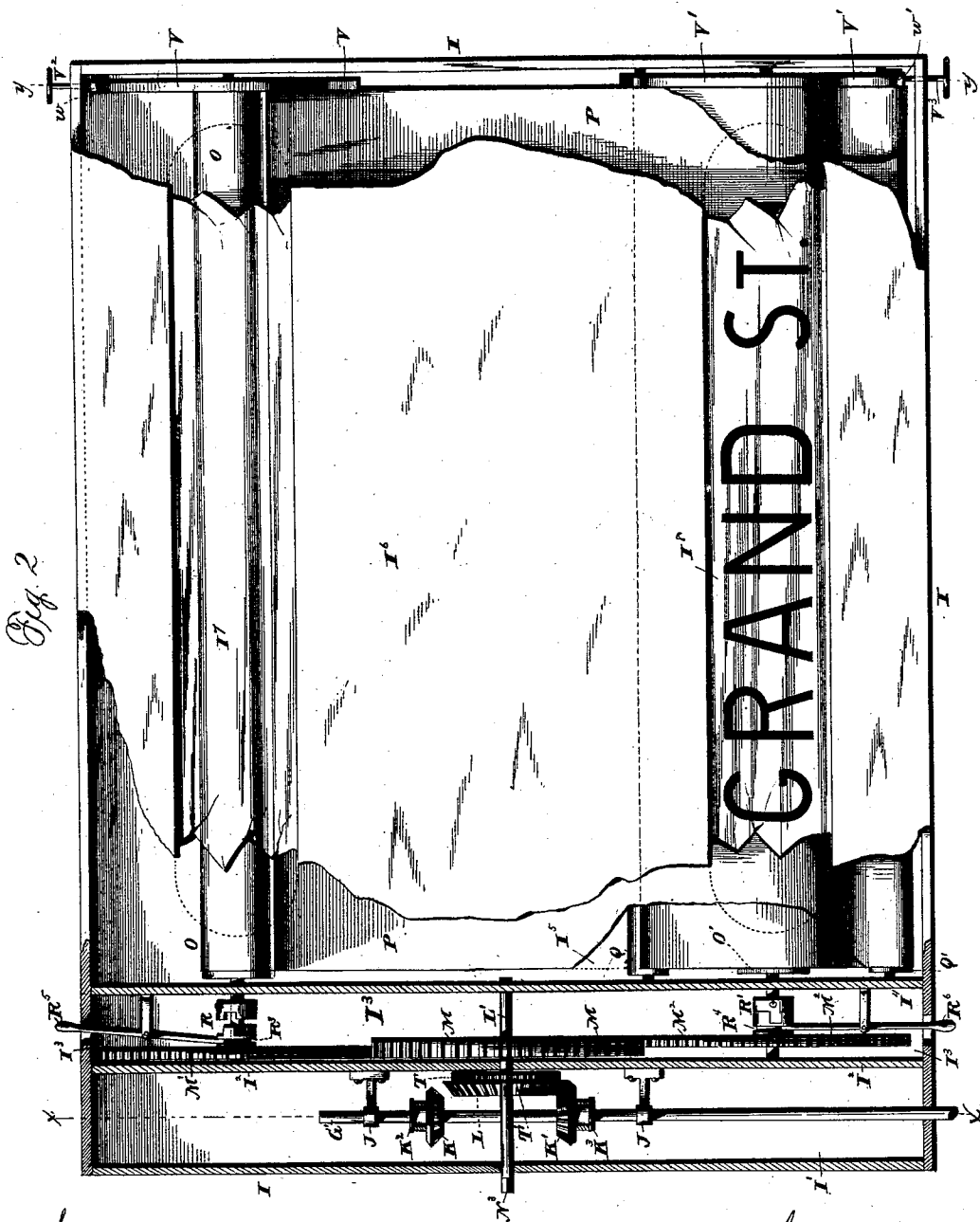
(No Model.)

3 Sheets—Sheet 2.

C. W. MAY.
AUTOMATIC STATION INDICATOR.

No. 425,685.

Patented Apr. 15, 1890.



Witnesses
Chas. Williamson
Ed. Bond.

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Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. MAY, OF OMAHA, NEBRASKA, ASSIGNOR OF TWO-THIRDS TO
ALBERT MASON AND FRANK A. LEWIS, OF SAME PLACE.

AUTOMATIC STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 425,685, dated April 15, 1890.

Application filed October 28, 1889. Serial No. 328,387. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. MAY, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Automatic Station-Indicators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in automatic station-indicators, and is designed more particularly as an improvement upon the device for which patent was granted to me December 6, 1887, No. 374,484; and it has for its object to improve upon the prior construction and to simplify and cheapen the same.

The invention in the present instance resides in the peculiarities of construction and the combinations, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a sectional elevation showing part of the indicator-actuating mechanism connected with the car-axle. Fig. 2 is a face view of the indicator proper, parts being broken away to disclose the internal arrangement. Fig. 3 is a vertical section taken on the line *x x* of Fig. 2. Fig. 4 is a vertical section taken on the line *y y* of Fig. 2. Fig. 5 is a rear end view showing the worm and other portions of the indicator-actuating mechanism. Fig. 6 is a perspective detail indicating one of the supporting-brackets. Fig. 7 is an edge or rear view of the supporting-yoke, with the shaft shown as supported thereby.

Like letters of reference indicate like parts throughout the several views.

I greatly simplify the construction of the device as patented, reducing the number of gears, provide for the giving of the parts in

going round curves to prevent breaking or twisting of the parts, and provide other novel features, as will hereinafter appear, and be particularly pointed out in the claims.

Referring now to the details of the drawings by letter, A designates the bottom of the car-body; B, the end wall of the same; C, one of the car-axes, and D a wheel thereon. The axle C is provided with a worm C', which is in gear with a worm-wheel E, fixed on the rear end of a shaft E', mounted lengthwise of the car in bearings F, F', and H'. On the forward end of the shaft E' is fixed by the key G³ a hub bevel-gear E², which engages with a bevel-gear G on the lower end of a vertical shaft G', journaled at its lower end in a bearing G⁴, held to the car-bottom A in connection with the hanger F'. The rear bearing F of the shaft E' is formed in a casting F², loosely embracing the worm C' on the car-axle C, and held thereon by the strap F³, bolted to the casting F². To the casting F² is bolted a hinge H⁵, connected to the hanger F⁴, bolted on the car-bottom A.

On the rod E' is a knuckle-joint H directly over the hinge-joint H⁵, held in a bearing H' of the hanger F⁴, and a collar and set-screw H⁴ on the shaft E' between the joint H and the bearing F, and thereby allowing the rod E' to oscillate freely in going round curves. The shaft E', leading to the front end of the car through the hub bevel-gear E², running in bearing of the hanger F', and the hub bevel-gear E², running in a bearing G⁵, held to hanger F' by a cap G⁶, bolted to said hanger F', and the hanger F' being bolted solid to the car-bottom A, making the rod E' drive the hub-gear G² by the key in the slot G³, allows the shaft E' to work or slide freely in the hub bevel-gear E² as the car vibrates up and down in its movements.

The shaft G' extends upward into the compartment I' of the casing I of the indicator proper, which is suitably supported in a conspicuous position near the top of the car. The upper part of the shaft G' is mounted to turn freely in bearings J and J', secured to the inner skeleton wall I² of the compartment I', and between the two bearings J and J' are bevel-gears K and K', both mounted on the

shaft G', so as to slide freely, but compelled to turn with the said shaft, as by means of the usual feather and groove.

The gears K and K' are provided with annularly-grooved bosses K² and K³, which are engaged by the forked levers K⁴ and K⁵, pivoted to the wall I², and having handles projecting through the casing I, by which either gear K or K' may be thrown into engagement with the large gear L, or both disengaged therefrom. Suitable stops may be provided for holding the handles of the levers in their adjusted positions. The large bevel-gear L is fixed on the shaft L', projecting through the wall I² into the adjacent compartment I³ of the casing and journaled in the wall I² and the inner skeleton wall I⁴ of the compartment I³.

On the shaft L', within the compartment I³, is fixed a gear-wheel M, which simultaneously drives in reverse direction of multiple gear M' and M², arranged, respectively, in the top and bottom of the compartment I³. The gear-wheels M' and M² are mounted loosely on the shafts N and N', which extend through the wall I⁴ and form the inner journals of the parallel carrier-rollers O and O', arranged in the main compartment I⁵ of the indicator-casing and having their outer journals mounted to the inner walls Z Z of the compartment I⁵.

On the rollers O and O' is wound a paper or fabric strip, on which are printed or produced in succession the names of the stations, streets, &c., in the order in which they are reached by the car. The strip is guided by the rollers Q and Q', placed on each side of the glazed opening I⁸ in the compartment I⁵ close to the front side I⁶ of the casing, so that the various names will appear in succession on the fabric, the names being near and far apart, according to the distance from one street or station to another at the narrow glazed openings I⁷ and I⁸ in the front wall.

On the inner rollers, journaled on the shafts N and N', are the clutches R and R', R³ and R⁴, which are regulated by means of the forked levers R⁵ and R⁶, operating in the usual manner to reverse the motion of the fabric, as will be readily understood. The fabric is arranged, as shown in Fig. 4, to show the streets, stations, &c., on the fabric, by which arrangement the names on the strip P, being placed in accordance with the distance traveled between the places which they respectively designate, will appear at the front opening I⁸ when the car arrives at such places, as the strip travels exactly in accordance with the car.

At the end of the trip, if the car is reversed, the motion of the carrier-rollers O and O' can be reversed by the handles of the levers R⁴ and R⁵, thus operating the clutches R and R', so that on the return-trip the names will appear on the other side of the strip or ribbon P in the required reverse order. In case the car is not reversed, but merely drawn backward as it was in going forward, no reversal of

the actuating mechanism will be necessary, as the relation of the driving-axle is reversed.

A spur-wheel T is fixed on the shaft L' just back of the large bevel-gear L, and is engaged with a small spur-wheel T', the shaft N³ of which has a squared end projecting through the wall I of the casing to receive a common clock-crank key. Thus when the strip P becomes misplaced, as by the slipping of the car-wheels, it may be readily adjusted by throwing both bevel-gears K and K' out of action and setting the ribbon P aright by means of said crank-key and spur-gears T and T'.

V and V' are flanges on the rollers O and O', and w and w' are springs resting on said flanges within the compartment I⁵ and near the casing Z Z, and thumb-screws V² and V³, screwed through the casing I and bearing on said springs, serve as a brake to hold the rollers O and O' taut while the ribbon is wound up by the motion of the traveling car, the said screws and springs serving to cause the ribbon to be wound tightly and evenly.

What I claim as new is—

1. The combination, with the car-wheel, its axle, a worm on the axle, the hanger on the worm, the shaft E', the joint between the same, and the worm which meshes with the worm on the axle, of the casting F², and the hinge H⁵, directly beneath the joint in the shaft E, substantially as described.

2. The combination, with the rod E', the hanger F⁴, and the bearing F, supported on the end of said rod by the said hanger, of the collar and clamping-screw and casting F², the joint H at the end of the shaft E', and the hinge H⁵, directly beneath the joint, substantially as and for the purpose specified.

3. The combination, with the car-bottom, of the hanger F', attached thereto, the hanger F⁴, bolted to the bottom of the car at a distance from the hanger F', the axle, the bearing F, formed in a casting loosely embracing the axle and secured thereto by the strap, as shown, a hinge connecting the casting F⁴ and bearing F, and the rod E', having a bearing in the casting F⁴, substantially as shown and described.

4. The combination, with the car-bottom, of the hanger F', attached thereto, the hanger F⁴, bolted to the bottom of the car, the axle, the bearing F, formed in a casting loosely embracing the axle and secured thereto by the strap, as shown, a hinge connecting the casting F⁴ and bearing F, the rod E', having a bearing in the casting F⁴, and the hinge H⁵ between the casting F⁴ and the bearing F², directly beneath the first-mentioned hinge, substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES W. MAY.

Witnesses:

FRANK. A. LEWIS,
L. E. HUGGINS.