(No Model.) 2 Sheets—Sheet 1.

A. WHITE.

SIGN SHIFTER.

No. 566,705. Patented Aug. 25, 1896.

Fig. 1.

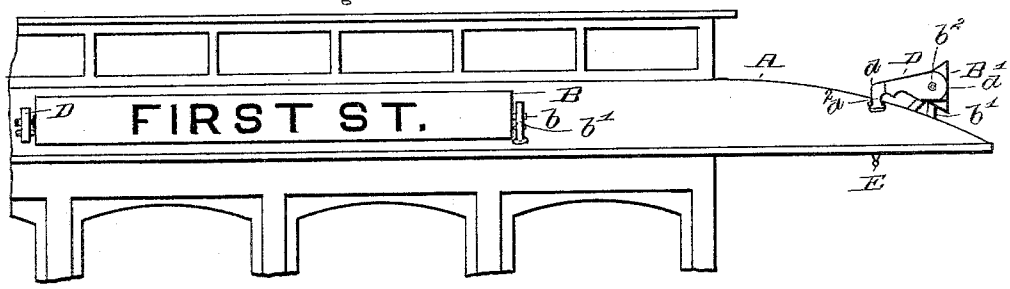


Fig. 2.

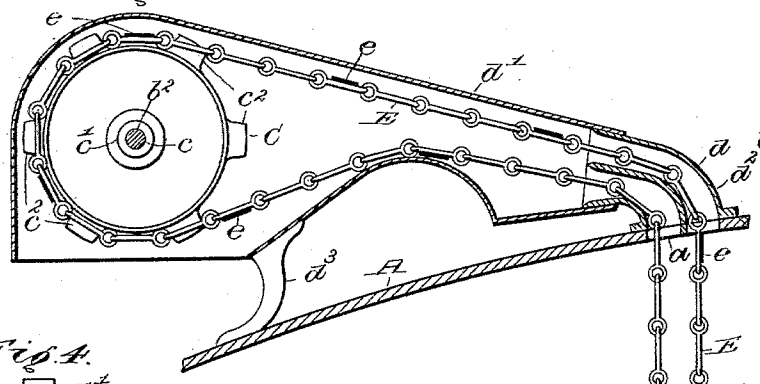


Fig. 3.

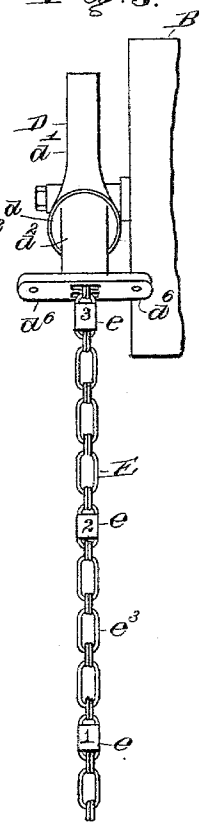


Fig. 4.

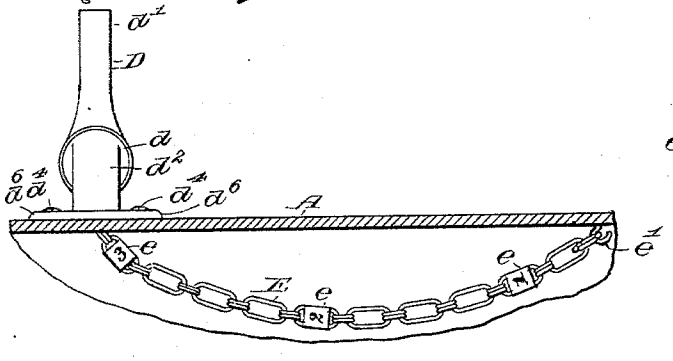
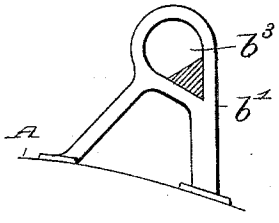


Fig. 5.



Witnesses—
Kirkley Hyde.
Grace E. Hibbert

Inventor—
Albert White
By Albert M. Moore
His Attorney.

(No Model.) 2 Sheets—Sheet 2.

A. WHITE.

SIGN SHIFTER.

No. 566,705. Patented Aug. 25, 1896.

Fig. 6.

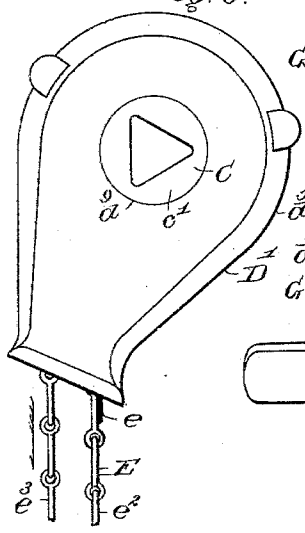


Fig. 7.

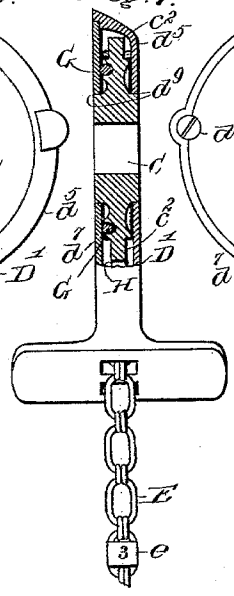


Fig. 8.

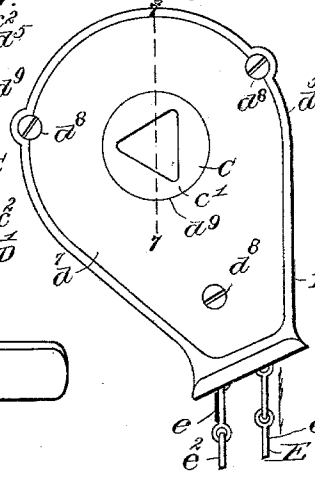


Fig. 9.

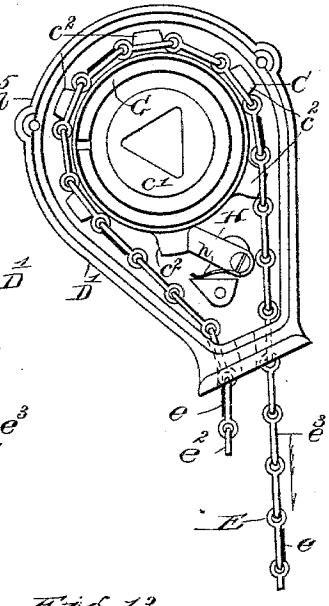


Fig. 13.

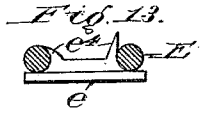


Fig. 12.

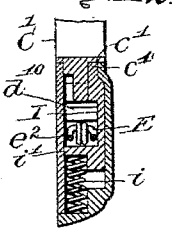


Fig. 10.

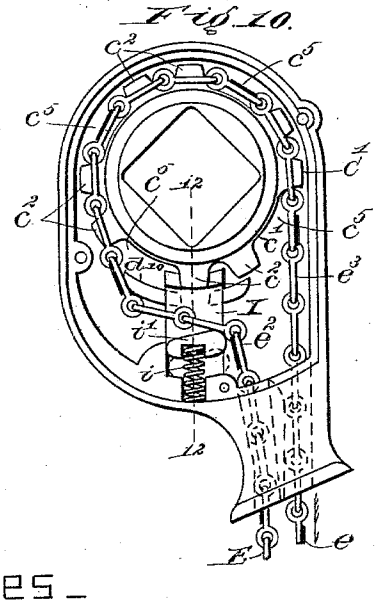
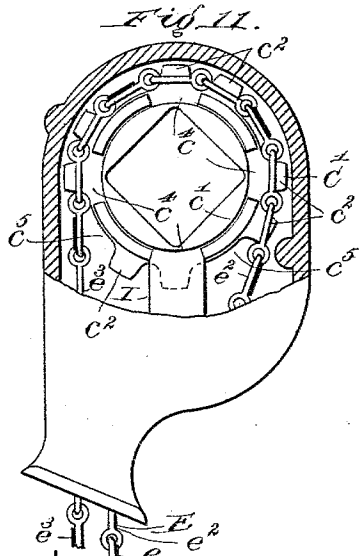


Fig. 11.



Witnesses—
Kirkley Hyde.
Grace E. Hibbert.

Inventor—
Albert White,
By Albert M. Moore,
His Attorney.

UNITED STATES PATENT OFFICE.

ALBERT WHITE, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF THREE-FOURTHS TO FRANK E. JEWETT, OF SAME PLACE, AND JONATHAN BOWERS AND GEORGE BOWERS, OF TYNGSBOROUGH, MASSACHUSETTS.

SIGN-SHIFTER.

SPECIFICATION forming part of Letters Patent No. 566,705, dated August 25, 1896.

Application filed February 15, 1896. Serial No. 579,333. (No model.)

To all whom it may concern:

Be it known that I, ALBERT WHITE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Sign-Shifters, of which the following is a specification.

My invention relates to sign-shifters; and it consists in the devices and combinations hereinafter described and claimed.

Said invention enables the signs on street-cars to be turned by the conductor without alighting from the car and without the use of the customary shifting pole, and also indicates to the conductor the position of the sign and locks said sign when properly placed in such position, so that it cannot be displaced by the jarring of the car.

In the accompanying drawings, Figure 1 is a side elevation of part of the roof of a car provided with signs and with my improvement; Fig. 2, a central vertical longitudinal section of the sprocket-wheel case and part of the roof, showing said wheel and chain in side elevation; Fig. 3, an outer side elevation of a part of one of the signs, the sprocket-wheel case, and chain; Fig. 4, a similar elevation of said case and chain, the roof being in vertical section and the chain being secured to a hook or catch; Fig. 5, a side elevation of a sign-supporting bracket of ordinary form; Fig. 6, a side elevation of a modified form of the sprocket-wheel case; Fig. 7, a vertical cross-section of the sprocket-wheel case shown in Figs. 6 to 9 on the line 7 7 in Fig. 8, through the center of said wheel; Fig. 8, an elevation of the opposite side from that shown in Fig. 6 of the sprocket-wheel case therein shown; Fig. 9, similar to Fig. 8, except that the side or cover of the case is removed, showing the sprocket-wheel, chain, pawl, and springs; Figs. 10 and 11, opposite side elevations of another modified form of the case, the cover being removed in Fig. 10 and a part of the side being broken away in Fig. 11, in each case to show the sprocket-wheel, chain, spring, and pawl; Fig. 12, a section on the line 12 12 in Fig. 10 of the pawl, part of the sprocket-wheel, and part of the case; Fig. 13, a horizontal cross-section of a link of the chain with an indicating-tag with one ear bent on to the link.

The car-roof A is of the usual construction.

The signs B are of the usual prismatic shape and are provided at one end with a journal b, which turns in a bracket b' in any usual manner.

At the other end of the sign a central hole c in the sprocket-wheel C receives the projection b^2, which usually serves as the other journal of said sign, and the hub c' of said wheel C acts as a journal, being supported in the sprocket-wheel case D, Figs. 1 to 4. The wheel C is turned by means of an endless chain E, which engages its sprockets or teeth c^2, as shown in Fig. 2, and which passes through a hole a in the roof to the inside of the car.

At equal intervals certain links of the chain E are supplied with tags e, bearing numbers or other indicating-marks to correspond with the inscriptions on the faces of the sign B, so that by taking a marked link between the thumb and finger and drawing it down as far as it will go or to any predetermined distance, as to within one link of the lower end of the doubled chain, as shown in Fig. 2, the corresponding face of the sign will be displayed, that is, by drawing the link marked "1" down to the proper distance "First St." will be displayed or such other face of the sign as corresponds to said link 1.

It will be necessary to avoid making the sprocket-wheel of impracticable size to have several series of marked links on each chain, each series bearing the same marks in the same order.

When the chain is drawn to the proper position, it may be retained in place by fastening the chain on any suitable catch, as on a hook c', as shown in Fig. 4, to prevent the sign from being displaced by the jarring of the car.

The case D (shown in Figs. 1 to 4) is more

conveniently and cheaply made in two parts, one of which is preferably a bent tubular casting d, having a hollow shank d^2, which covers the hole a in the roof A and is secured thereon by screws d^4, which pass through laterally-projecting ears d^6 into the roof. The other part, d', of said casing may be of sheet metal supported by a bracket d^3, secured to the top of the roof A, the adjacent ends of said parts d d' receiving one the other.

The form of the case D above described is especially adapted for street-cars of the present construction to bring the chain inside and away from the display-board, which is now commonly arranged inside the car above the windows to receive advertising-cards.

The adjusted sign may be held in place by its own gravity and by the shape of the hole b^3 in the bracket b', (shown in Fig. 5,) which is of usual construction and will be readily understood.

In applying this device to new cars, where proper provision can be made to allow the chains which operate the signs at the side of the car to descend between the display-board and the wall of the car and in any case for the purpose of changing the end signs of the car, the case D′ (shown in Figs. 6 to 9) may be used, the case D′ being preferably cast in two parts, one, d^5, of which is the case proper and the other, d^7, of which is a cover, secured in place by screw d^8, and therefore removable when desired, and the sprocket-wheel C, having a hub c', which turns in circular openings d^9 in said case and cover, substantially as above described.

In Figs. 7 and 9 is a spring G, which is substantially one coil of a helical spring placed around the hub c' and compressed between the side of the wheel and the inside of the cover d^7 to create a friction on said wheel to check the movement of the same, and in these last-named figures is also shown a pawl H, which engages the teeth c^2 of the sprocket-wheel and prevents a material backward rotation of the same, but is intended more particularly to enable the sign to be brought to exactly the proper place by reversing the movement of the chain until the tooth which last passed the pawl is pressed firmly against said pawl. The pawl H is held in engagement with the wheel by a spring h in an obvious manner.

In the construction shown in Figs. 10, 11, and 12 a radially-sliding dog I is forced by a spring i against a hub c' of the sprocket-wheel C′, which hub at regular intervals has recesses c^4 to be engaged by said dog when a side of the sign is properly placed, said dog having a lateral projection i', over which the ascending member e^2 of the chain E rides, said ascending member being deflected downward upon said projection i' by a projecting rib d^{10}, cast on the inner side of the sprocket-wheel case, so that by drawing downward on both members of the chain the dog is drawn out of engagement, and by then moving downward the descending members e^3 of said chain the sprocket-wheel and sign will be rotated until said dog engages the next recess c^4.

Obviously the tags e should be securely fastened to the links of the chain and should not project beyond the sides thereof to any considerable extent.

I prefer to form the tags of soft metal by casting them in the form shown in Fig. 13, the same having ears e^4 adapted to be pushed through the link and bent outward over the sides of said link. This method of attaching the tags to the links has the effect of filling the openings of said links in such a manner that the links carrying tags cannot engage the teeth of the sprocket-wheel and the corresponding interdental spaces of said wheel must be long enough to admit such tags. It is also desirable that the teeth should be near enough together to prevent the chain from slipping laterally off from the wheel. The series of teeth and the number of interdental spaces which receive the marked links must be equal to or a multiple of the number of faces on the sign; that is, if the sign has three faces the number of teeth in the wheel must be three, six, or some other multiple of three, and if the sign has four faces the wheel must have four teeth, eight teeth, or some other multiple of four teeth, and the same is true of the spaces which receive the marked links, but the number of these mark-receiving spaces may be only half as great as the number of teeth, as shown in Figs. 10 and 11, where a pair of link-engaging teeth c^2 are followed by a mark-receiving space c^5, the two teeth serving to hold the chain more securely on the wheel, both laterally and longitudinally.

I claim as my invention in a sign-shifter—

1. The combination of a pivoted sign, having a plurality of lateral faces and adapted to be supported upon the roof of a car, a sprocket-wheel, concentric with said sign and rotary therewith, and a chain, engaging said sprocket-wheel and adapted to pass down through said roof, to enable said sign to be shifted from the inside of said car, said chain being provided with marks indicating the respective faces of said sign, as and for the purpose specified.

2. The combination of a pivoted sign, having a plurality of lateral faces and adapted to be supported upon the roof of a car, a sprocket-wheel, concentric with said sign and rotary therewith, and a chain, engaging said sprocket-wheel and adapted to pass down through said roof, to enable said sign to be shifted from the inside of said car, a case, inclosing said wheel, and a friction-spring surrounding a hub, with which said wheel is provided, and pressing against said wheel and the inner wall of said case, to check the movement of said wheel, as and for the purpose specified.

3. The combination of a sprocket-wheel and a sprocket-chain, having at intervals marks inserted in links thereof, the interdental

spaces of said wheel being enlarged at corresponding intervals to admit said marked links, as and for the purpose specified.

4. The combination with a rotary sign, having a plurality of lateral faces, of a sprocket-wheel, concentric with said sign and rotary therewith, a suitable case, in which said sprocket-wheel is arranged, a chain, engaging said sprocket-wheel, a pawl, and a spring, to hold said pawl normally in engagement with said wheel, said pawl having a projection which deflects the ascending member of said chain toward said wheel, to enable said pawl to be drawn out of engagement with said wheel by means of said ascending member, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 13th day of February, A. D. 1896.

ALBERT WHITE.

Witnesses:
ALBERT M. MOORE,
GRACE E. HIBBERT.