

No. 621,554.

Patented Mar. 21, 1899.

I. W. DONAT.
CAR DOOR LOCK AND HANGER.

(Application filed Oct. 27, 1898.)

(No Model.)

2 Sheets—Sheet 1.

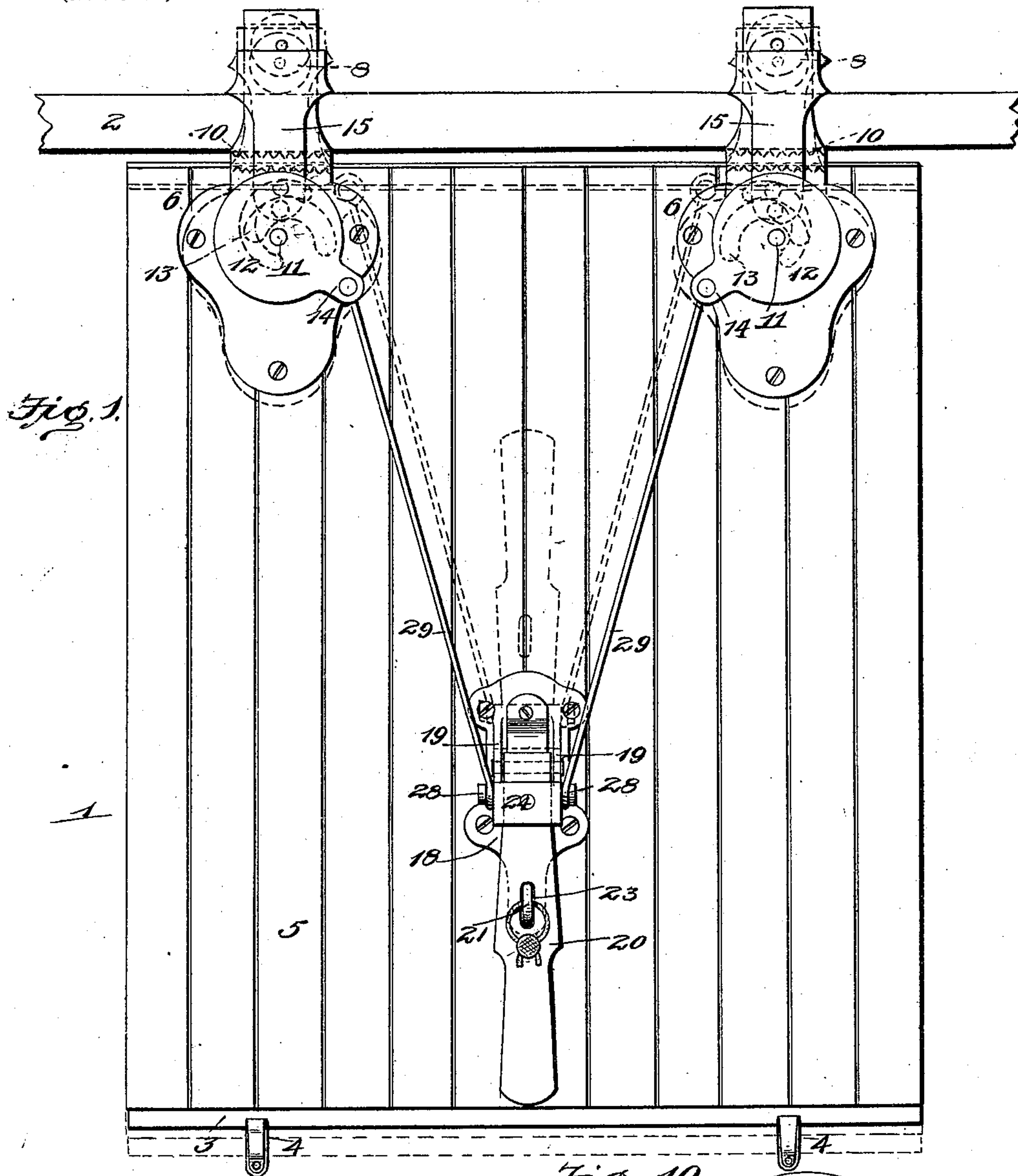
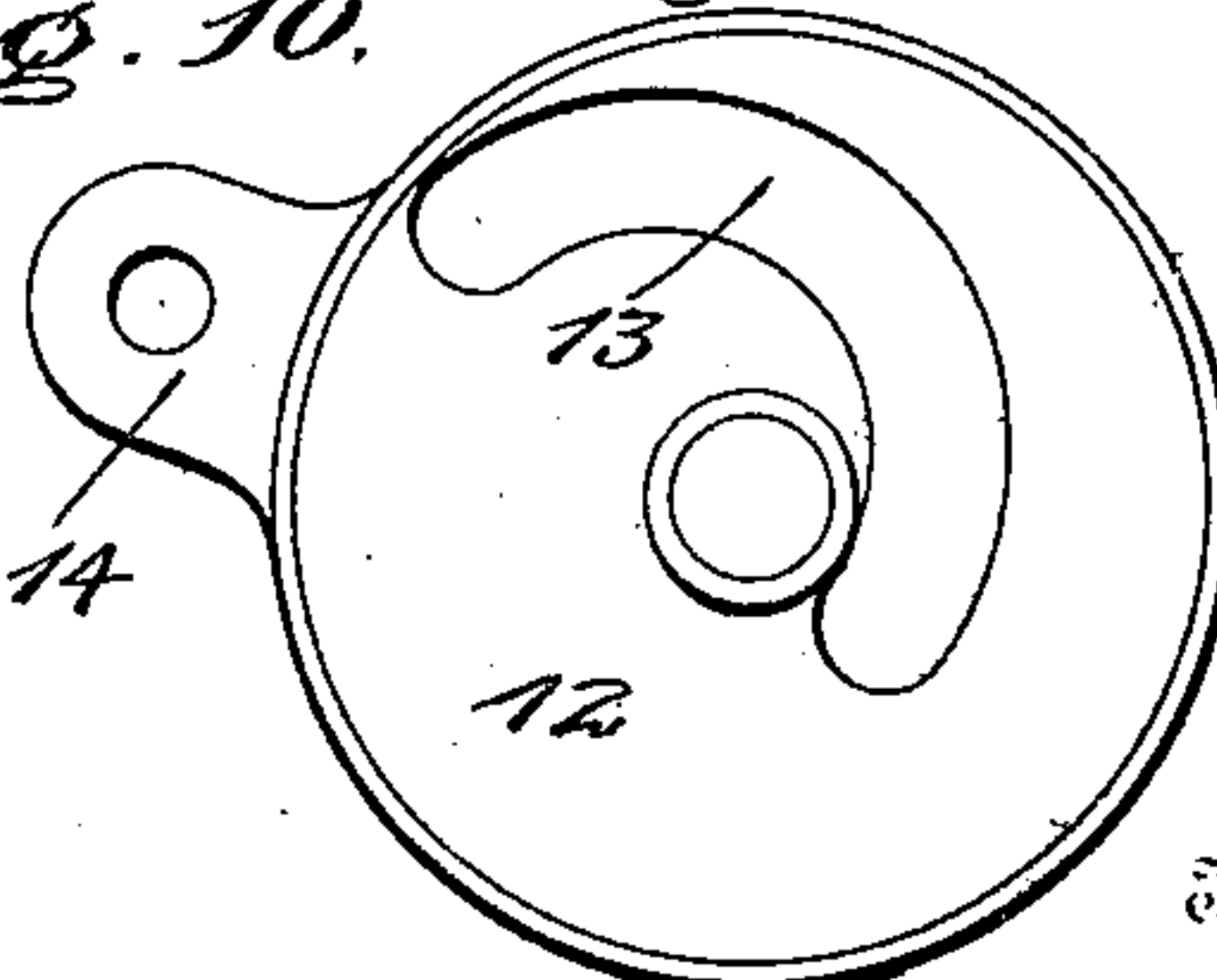
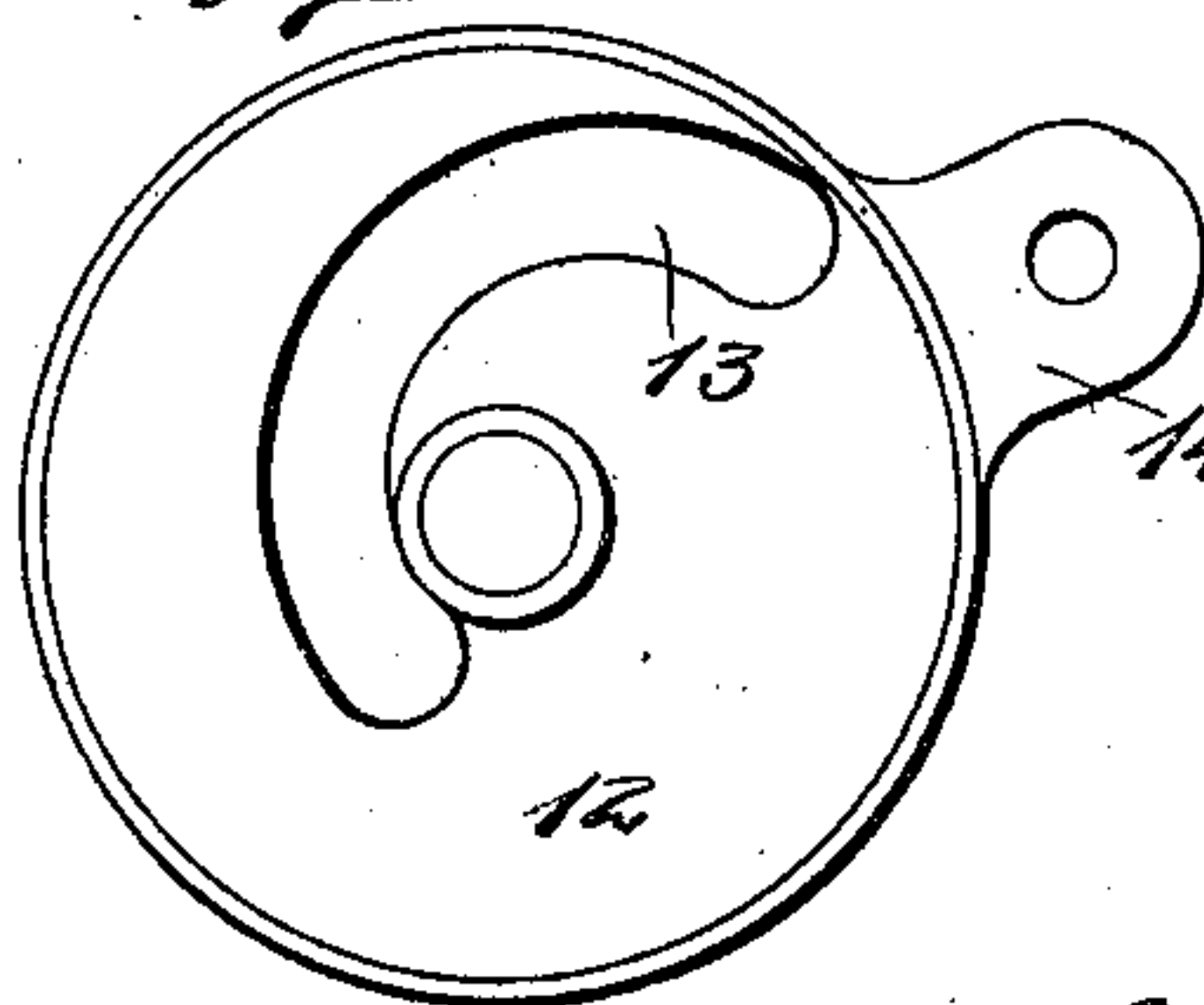
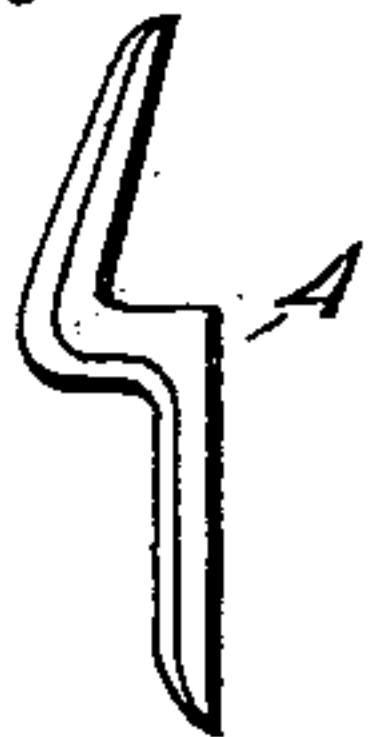


Fig. 9.

Fig. 10.

Fig. 18.



Inventor

I. W. Donat

Witnesses

C. C. Hunt
J. Wilson

by *A. B. Wilson*

Attorneys

UNITED STATES PATENT OFFICE.

ISAAC W. DONAT, OF ADRIAN, MICHIGAN.

CAR-DOOR LOCK AND HANGER.

SPECIFICATION forming part of Letters Patent No. 621,554, dated March 21, 1899.

Application filed October 27, 1898. Serial No. 694,694. (No model.)

To all whom it may concern:

Be it known that I, ISAAC W. DONAT, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Car-Door Locks and Hangers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention has relation to a car-door lock and hanger.

The object of the invention is to provide means whereby the car-door may be locked, closed, or slid away from the door-opening and locked, whereby it will be prevented from swinging off or being torn off by swinging outward while the car is in motion.

With this object in view the invention consists in certain features of construction and combination of parts, which will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a car-door, showing in full lines the position the mechanism assumes when the door is locked and in dotted lines the position it assumes when the door is unlocked and ready to be rolled away from its opening. Fig. 2 is a front elevation of one of the hangers, showing in dotted lines the clamping-bar on its inner face and the supporting wheel or roller arranged above the same. Fig. 3 is an edge view of the same parts. Fig. 4 is a front view of the sliding bar. Fig. 5 is an edge view of the same. Fig. 6 is a top plan view. Fig. 7 is a top view of the thimble hereinafter referred to. Fig. 8 is a side elevation of the same. Figs. 9 and 10 are views of the right and left handed cam-disks, respectively. Fig. 11 is a front view of the base for the operating-lever. Fig. 12 is an edge view of the same. Fig. 13 is a front view of the operating-lever. Fig. 14 is an edge view of the same. Fig. 15 is a front view of an adjustable dog adapted to be secured to the lever. Fig. 16 is an edge view of the same, and Fig. 17 is a sectional view showing the manner of attaching the dog to the lever. Fig. 18 is an edge view of one of the door-guides. In the drawings, 1 denotes the side of the car; 2, the track-bar; 3, the bottom rail, provided with guides 4, and 5 the sliding door.

Secured to the outer face of the door, at its upper end, are two hangers 6, the upper ends of which are hooked, as shown, at 7 and carry supporting wheels or rollers 8, which are adapted to travel upon the track-bar 2. Arranged below the wheel and projecting laterally from the inner side of the hanger is a ledge 9, to which is bolted a toothed bar 10, which is adapted to be moved into engagement with the under edge of the track-bar 2 for the purpose of locking the door against sliding movement.

11 denotes a bearing-stud projecting laterally from the front face of the hanger and upon which are pivoted the disks 12, having the cam-grooves 13 and the short arms 14. For convenience of reference I will term these disks "cam-disks."

15 denotes sliding bars, the upper ends of which are in box form and project over the upper hooked ends 7 of the hangers and rest upon the upper edge of the track-rail. The lower ends of these sliding bars are provided with studs 16, which project through the curved slots 13 of the cam-disk and carry anti-friction-thimbles 17.

It is evident that when the sliding bar is in the position shown in dotted lines in Fig. 1 the door is free to be moved away from its opening in the car and that when the bar is in the position shown in full lines in said figure the toothed bar is firmly engaged with the lower edge of the track-bar, thus locking the door either in closed or open position.

I will now proceed to describe the construction by means of which the cam-disks and the sliding bars are operated.

18 denotes the base for the operating-lever, which is secured to the door centrally of its width and near its lower end. This base is provided with perforated ears 19, between which is pivoted the upper end of the operating-lever 20. The lower end of the base is provided with a perforated lug 21, the purpose of which will hereinafter appear.

22 denotes a curved spring having its upper end secured to the base and its lower end projecting down between the perforated ears.

The operating-lever 20 is provided about midway its length with an aperture 23, which is adapted to be swung down over the perforated stud 21, so that a sealing-wire may be

passed through the perforation of said stud, and thereby lock the lever in a closed position to said plate.

24 denotes an adjustable dog having on its inner face a recess 25, that fits the upper end of the lever 20. This dog is secured to the lever by the bolt 26, that extends through the longitudinal aperture 23' of the lever. The base of the recess 25 of the dog is provided with teeth or serrations that engage similar teeth or serrations 27 on the inner side of the lever near its upper end.

28 denotes studs which project laterally from the side of the dog, and 29 denotes links for connecting the studs with the short arms 14 of the cam-disks.

In operation, assuming the door to be closed and the parts in the position shown in full lines in Fig. 1, should it be desired to unlock the door the seal is broken and the operating-lever 20 is thrown upwardly in the position shown in Fig. 1, thus raising the sliding bars from engagement with the upper edge of the track-bar and allowing the supporting wheels or rollers to lower into engagement with the upper edge of the track-bar, thus enabling the door to be slid open. To lock the door, the operating-lever is swung down, thus drawing the sliding bar into engagement with the upper edge of the track-bar and elevating the rollers or wheels free from the track-rail and drawing the toothed bar 10 into firm engagement with the under edge of the track-bar, thus securely locking said door against sliding movement.

The object of the adjustable dog is to compensate for wear or the expansion of metal. If there is too much play between the operating-lever, links, and cam-disk, the bolt 26 is loosened and the dog moved the distance of a tooth or two downward, thus taking up the wear and tightening the parts.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

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

1. The combination with the hanger-plates having supporting-wheels at their upper ends and clamping-bars secured to their inner faces below said wheels, sliding bars embracing said hangers, and means for moving said bars into engagement with the track to free the wheels therefrom and elevate the clamping-bars into engagement therewith, substantially set forth.

2. The combination with the hanger-plates having hooked upper ends, supporting-wheels journaled in said upper ends, clamping-bars

secured to the hanger-plates below said wheels, sliding bars having box-shaped ends embracing the upper ends of the hanger-plates, a cam-disk supported by said hanger-plates and adapted to move said bar vertically to free its wheels from the track-rail and elevate the clamping-bar into engagement therewith, and means for actuating said cam-disks, substantially as set forth.

3. The combination with the hanger-plates having hooked upper ends, supporting-wheels journaled thereto, a ledge projecting laterally from the inner face of the hanger-plates, a toothed bar supported on said ledge below the supporting-wheel, a cam-disk having a cam-groove therein, a sliding bar having a box-shaped upper end that embraces the hooked upper end of the hanger-plate, said bar having at its lower end a stud that projects into the curved groove of the cam-disk, and means for actuating the cam-disks, substantially as set forth.

4. The combination with a door, its supporting track-rail, of hanger-plates secured to the door and provided with hooked upper ends, wheels journaled in the hooked upper ends and engaging the upper edge of the track-rail, clamping-bars carried by the hanger-plates, sliding bars having their upper ends of box shape and embracing the upper ends of the hanger-plates, cam-disks pivoted to the hanger-plates and connected to the sliding bars, and means for rotating the cam-disks, substantially as set forth.

5. The combination with the track-rail, the door and the hanger-plates having supporting-wheels to engage the upper edge of the rail and a clamping-plate to engage the lower edge of the track-rail, sliding bars having box-shaped ends embracing the upper ends of the hanger-plates, cam-disks for reciprocating said bars, a lever, and links connecting the lever with the cam-disks, substantially as set forth.

6. In combination, a lever base-plate, a lever pivoted to said base-plate, said lever having its upper end toothed or serrated, a dog having one of its sides toothed or serrated, longitudinally adjustably secured to the toothed or serrated portion of the lever and provided with laterally-projecting studs, hanger-plates carrying supporting-wheels and a clamping-bar, a sliding bar embracing said hanger-plates, cam-disks for actuating said bar, and connections between the cam-disks and the laterally-projecting studs of the dog, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ISAAC W. DONAT.

Witnesses:

JOHN ERICKSON,
JOHN E. BIRD.