R. S. & H. C. GRAHAM.

MEANS FOR NORMALLY HOLDING AND AUTOMATICALLY RELEASING CURTAINS.

APPLICATION FILED OCT. 27, 1910.

985,995. Patented Mar. 7, 1911.

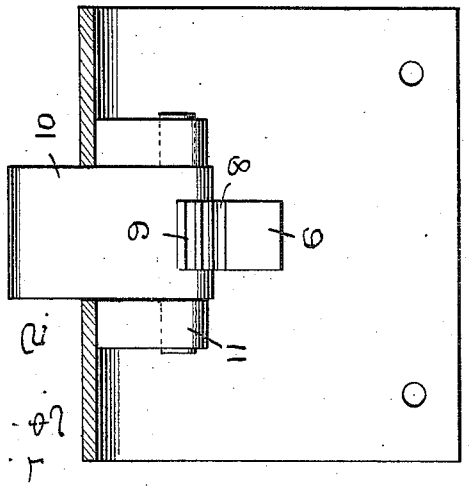

Fig. 2.

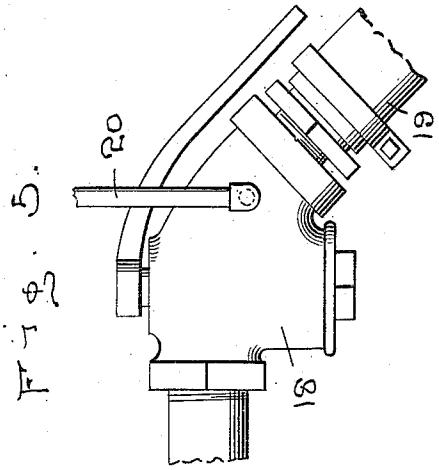

Fig. 5.

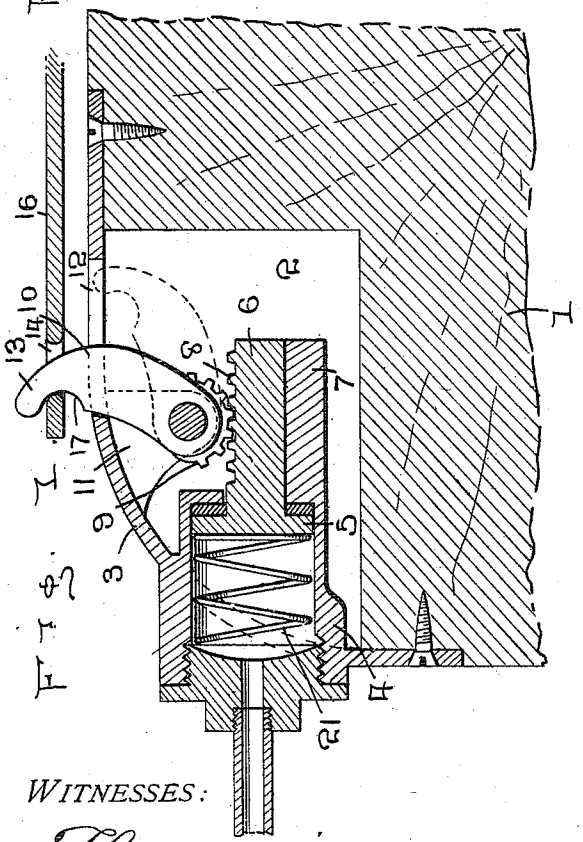

Fig. 1.

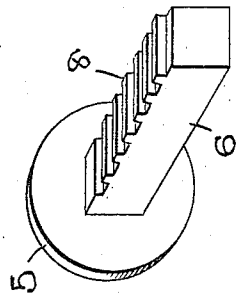

Fig. 4.

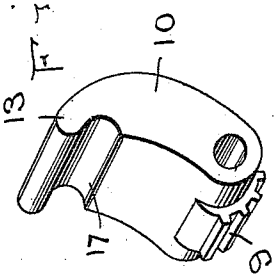

Fig. 3.

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MEANS FOR NORMALLY HOLDING AND AUTOMATICALLY RELEASING CURTAINS.

985,995. Specification of Letters Patent. Patented Mar. 7, 1911.

Application filed October 27, 1910. Serial No. 589,336.

To all whom it may concern:

Be it known that we, ROBERT S. GRAHAM and HOWARD C. GRAHAM, citizens of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Means for Normally Holding and Automatically Releasing Curtains; and we do hereby 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.

Our invention relates to means for normally holding and automatically releasing curtains and is adapted more particularly for use in connection with vestibule trains, and our object is to provide a lever or levers for engaging and holding the usual form of roller mounted curtains in an unwound or stretched position.

A further object is to provide means for holding the levers in engagement with the curtains or for allowing the levers to swing out of engagement with the curtains, and, a further object is to provide means for utilizing air from the usual form of air pipes for operating the levers.

Other objects and advantages will be hereinafter set forth and pointed out in the specification.

In the accompanying drawings, which are made a part of this application, Figure 1 is a sectional view through a portion of the jamb of a coach, showing the lever in position to retain the curtain in its unwound condition by full lines, and the position of the lever when released from the curtain, by dotted lines. Fig. 2 is an elevation partly in section of the lever and its operating parts. Fig. 3 is a perspective view of the lever disengaged from its operating means. Fig. 4 is a perspective view of the plunger employed for operating the lever, and, Fig. 5 is an elevation of the usual form of angle cock from which the supply of air is obtained for operating the lever and its parts.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the door jamb of the coach or car, in one corner of which is formed a recess 2, and fitting over said recess and conforming to the contour of the jamb is a plate 3. Formed integral with the plate 3 or otherwise attached thereto is a cylinder 4, in which is slidably mounted a piston 5 and extending outwardly from one face of the piston is a plunger 6, a guide 7 being extended from one end of the cylinder upon which the plunger slides. One face of the plunger 6 is provided with teeth 8, which teeth engage a segmental pinion 9 carried by a lever 10. That end of the lever containing the segmental pinion 9 is pivotally mounted between ears 11 formed in the plate 3, while the opposite end thereof projects through an opening 12 in the plate 3, said opening being of such dimension as to permit the lever to swing into or out of the recess as desired.

The outer end of the lever 10 is provided with a curved lip 13, which is adapted to extend through an eye 14 of a curtain 16, the eyes being placed adjacent one edge of the curtain, while the opposite end of the curtain is attached to the usual form of spring operated roller (not shown). The curtain will remain in engagement with the lever when introduced through the eye, as one edge of the eye enters a cavity 17 in one face of the lever, but will readily move out of engagement with the lever when the lever is turned into the recess 2 or to the position shown by dotted lines in Fig. 1. As soon as the curtain is released from the lever it will be immediately rewound upon its roller.

The cylinder 4 is connected to the usual form of angle cock 18 such as is usually employed in connection with the air supply pipes 19 of the train, the connection between the angle cock and the cylinder being formed through a pipe 20 extending from the angle cock to the cylinder.

The object of the present invention is to immediately release the curtains and permit them to rewind on their respective rollers, should for any reason the coaches become uncoupled, the train break in two or the air pipes be disconnected for any reason whatsoever. To this end the air pressure in the train pipes is admitted into the cylinder 4, which will result in moving the plunger to the inner end of the cylinder, thereby swinging the free end of the lever in the arc of a circle and extending the same through the opening 12 and the lever will remain in this position until such time as the air pressure is released from the cylinder. As soon as the air pressure is released, the tension of the curtain will swing the lever to a position within the recess, as shown in dotted

line in Fig. 1, thereby disengaging the lever from the curtain, automatically.

If desired a coiled spring 21 may be placed between the end of the cylinder and the piston the pressure of said spring assisting the air in holding the lever in its extended position, so that even though the pressure of the air should be somewhat reduced in the cylinder the lever will still be held extended by the pressure of the spring.

The value of this device will be readily understood when it is taken into consideration that if one end of the curtain is carried by one coach and the other end thereof is secured to the next succeeding coach by unyielding means, an accidental separation of the coaches will cause the curtains to be torn from their rollers or entirely destroyed. In this device, however, it will be readily seen that as soon as the air is released, which will be the case when the air pipes are uncoupled or when the coaches are pulled apart, the lever will be automatically swung out of engagement with the curtain and thus permit the curtains to rewind upon their respective rollers. It will further be seen that this device can be very readily and cheaply attached to the cars, and it will also be seen that it will be positive in its operation in accomplishing the result desired.

What we claim is:

1. The combination with a curtain of a plunger having teeth thereon and means for directing air pressure against the plunger of a pivotally mounted lever having a segmental pinion adapted to engage the teeth of the plunger, whereby the lever will be extended or retracted when the plunger is moved lengthwise.

2. The combination with a tension operated curtain of a pivotally mounted lever adapted to be engaged with the curtain, said lever having a segmental pinion, of air controlled means engaging the segmental pinion to move and hold the lever in position to be engaged by the curtain.

3. The combination with a tension operated curtain of a pivotally mounted lever having a segmental pinion on its pivoted end of a slidably mounted plunger having teeth to engage the pinion, means to direct air pressure against the plunger to move the same longitudinally and swing the lever on its pivot and a spring also directing pressure against the plunger, the pressure of the spring on the plunger being directed similar to the pressure of the air thereon.

4. The combination with a tension operated curtain of a plate having an opening therethrough, a lever pivotally mounted upon the plate and having one of its ends positioned to swing through said opening, the pivoted end of the lever having a segmental pinion, a plunger having teeth to coöperate with said pinion, means to direct air pressure against the plunger to move the same endwise and extend the lever through the opening and a spring also directing pressure against the plunger to assist in holding the lever extended through the opening.

5. The combination with a tension operated curtain of a plate having an opening therethrough, a cylinder attached to the plate, a piston slidable in the cylinder, a plunger carried by the piston said plunger having teeth thereon, a lever pivotally mounted on the plate and having one of its ends in position to extend through said opening, the pivoted end of the lever having a segmental pinion to engage the teeth of the plunger and means to direct pressure against the plunger to move the same endwise and extend the end of the lever through the opening in the plate.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT S. GRAHAM.
HOWARD C. GRAHAM.

Witnesses:
HARRY S. KRATZINGER,
WILLIAM H. WYATT.

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