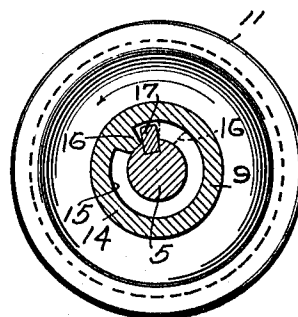
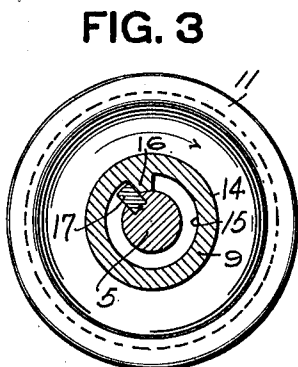
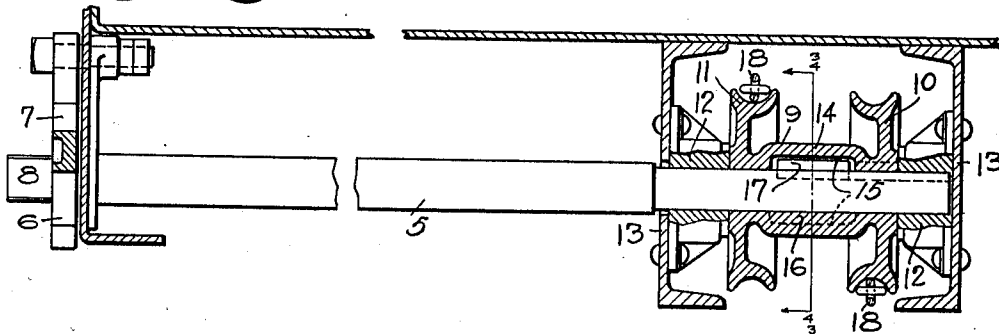
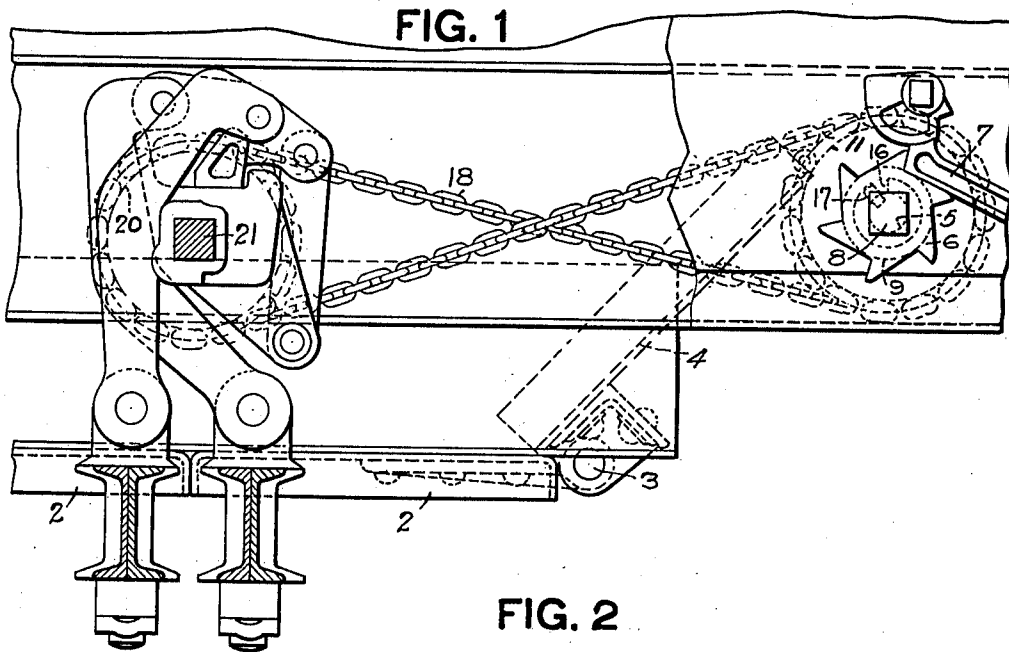


A. CHRISTIANSON.
CAR DOOR OPERATING MECHANISM.
APPLICATION FILED NOV. 11, 1911.

1,021,351.

Patented Mar. 26, 1912.



WITNESSES.
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UNITED STATES PATENT OFFICE.

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CAR-DOOR-OPERATING MECHANISM.

1,021,351.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed November 11, 1911. Serial No. 659,817.

To all whom it may concern:

Be it known that I, ANDREW CHRISTIANSON, a citizen of the United States, and resident of Butler, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Car-Door-Operating Mechanism; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to car-door operating mechanism.

In that class of cars where the contents are discharged from the bottom by downwardly swinging doors such as in hopper bottom cars, it is customary to provide for the opening and closing of said doors by having a shaft extending out through the side of the car to which a wrench or arm is applied to turn the shaft thereby releasing the doors or drawing them up into closed position. This operation of turning the shaft is attended with some danger where the shaft has to rotate until the doors are in their open position, for the reason that when the locking mechanism is released the weight of material in the car will force the doors open and as soon as the doors start to open they will cause a sudden start of the shaft, and if the operator is holding the wrench or handle at the end of the shaft, he is liable to be severely injured by the sudden rapid turning of the wrench. Accordingly devices have been provided for starting the releasing mechanism by the shaft so that when the mechanism is released there will be a certain amount of lost motion between said mechanism and the shaft, whereby the doors can open without any further movement on the part of the shaft, thereby doing away with the danger of the operator being struck by the rapidly moving wrench or handle on the shaft.

The object of my invention is to provide an efficient and simple device of this character which will release the doors by a slight movement of the shaft and permit the doors to swing wide open without further movement of the shaft, and to these ends my invention comprises the novel features herein-after set forth and claimed.

In the drawings Figure 1 is a side elevation of a car broken away to show the door operating mechanism; Fig. 2 is a longitudinal sectional view; Fig. 3 is a section on the line 3—3 Fig. 2 showing the mechanism

with the doors in locked position; and Fig. 4 is a like view showing the position of the parts with the doors open.

I have illustrated my invention in connection with a common form of door locking mechanism known as the Simonton device, and as this is a form in common use I have not deemed it necessary to describe or refer to the same in detail.

In the drawing the numeral 2 designates the downwardly swinging doors pivoted at 3 to the hoppers 4. The shaft 5 extends transversely and at its outer end it is provided with the ratchet 6 which is adapted to be engaged by the pawl 7. The shaft is provided with the square end 8 to receive a wrench or crank for turning the shaft.

Mounted on the shaft 5 to turn loosely thereon is the sleeve 9 which carries the sheaves 10 and 11. These sheaves may be formed integral with the sleeve 9 as illustrated or may be secured thereto if desired. The shaft 5 is journaled in the bearings 12 secured to the center-sills 13. The sleeve 9 has the enlarged portion 14 forming an annular space 15 which is broken by the inwardly extending rib 16. The shaft 5 has the key or projection 17 fitted therein and formed integral therewith and said key is adapted to engage the rib 16 of the sleeve 9. A chain 18 passes around the sheaves 10 and 11 and said chain is crossed and passes around the sheaves 20 on the shaft 21.

When the doors are closed the parts will be in the position indicated in Fig. 1 and the shaft 5 will have its key 17 in engagement with the rib 16 of the sleeve 9 as clearly indicated in Fig. 3. Accordingly the operator applying a wrench or crank to the shaft 5, turns said shaft in the direction indicated by the arrow Fig. 3 after first releasing said shaft from the pawl 7. The movement of the shaft 5 with the key 17 in engagement with the rib 16 of the sleeve 9 will move said sleeve in the direction of the arrow Fig. 3 and whereby the locking mechanism will be released and the weight of the contents of the car bearing on the doors will force the same open and they will swing down into their full open position. This downward movement of the doors will act through the chain 18 to turn the sheaves 10 and 11 and with them the sleeve 9, said sleeve moving entirely independent of the shaft 5 which does not rotate to any further extent than

the movement necessary to throw the upper ends of the arms 20 beyond the center line of shaft 21. The rib 16 accordingly travels around in the space 15 until the rib comes
5 around into the position indicated in Fig. 4 when the doors will be wide open and no further movement of the sleeve 9 is required. In this way the locking mechanism is released and the doors swung open without
10 any further movement of the shaft 5 and consequently the operator is not in danger of injury.

The device is simple in construction, consisting of few parts, and not liable to get
15 out of order. Furthermore, the shaft 5 being in one piece gives a very strong construction and the number of separate parts is greatly reduced.

What I claim is:

20 1. In car door operating mechanism, the combination of a shaft, a projection on said

shaft, a sleeve loosely mounted on said shaft carrying a sheave, said sleeve having an enlarged portion having an inwardly extending projection engaged by said projection 25 on said shaft, and connections between said sheave and the car door.

2. In car door operating mechanism, the combination of a shaft, a projection on said shaft, a sleeve loosely mounted on said shaft 30 carrying sheaves at each end thereof, an intermediate enlarged portion on said sleeve having an inwardly extending projection engaged by said projection on said shaft, and connections between said sheave and the 35 car door.

In testimony whereof, I the said ANDREW CHRISTIANSON have hereunto set my hand.

ANDREW CHRISTIANSON.

Witnesses:

ROBERT C. TOTEN,
JOHN F. WILL.

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