C. H. BELLAMY.

LOCOMOTIVE SAFETY THROTTLE LOCK.

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1,370,625. Patented Mar. 8, 1921.

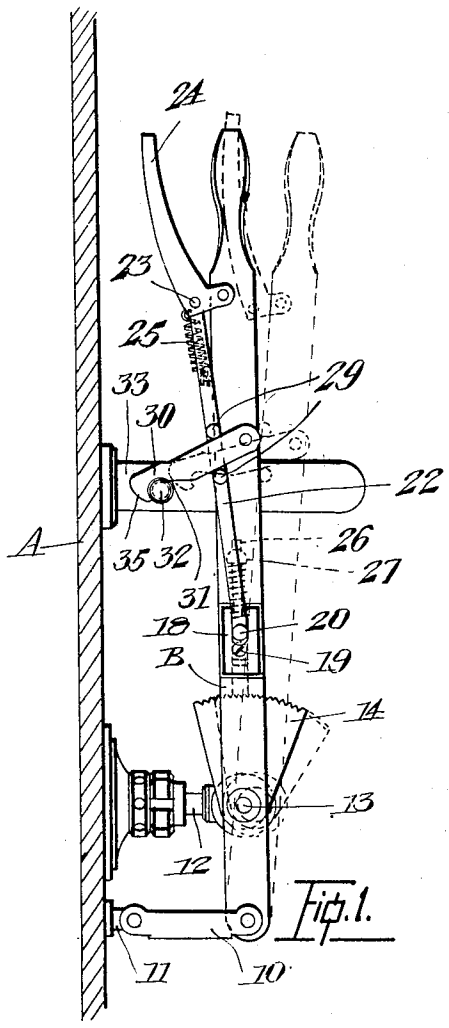


Fig. 1.

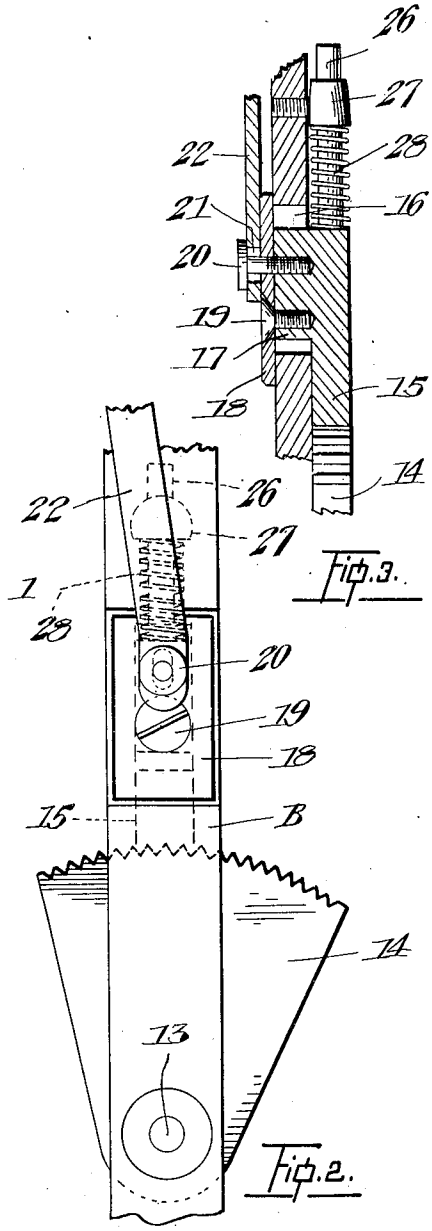


Fig. 3.

Fig. 2.

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LOCOMOTIVE SAFETY THROTTLE-LOCK.

1,370,625. Specification of Letters Patent. Patented Mar. 8, 1921.

Application filed May 23, 1919. Serial No. 299,184.

To all whom it may concern:

Be it known that I, CHARLES HIRAM BELLAMY, a subject of the King of Great Britain, and a resident of the city of Ottawa, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Locomotive Safety Throttle-Locks, of which the following is a specification.

This invention relates to improvements in locomotive safety throttle locks.

It is well known in railroad practice that locomotives often become runaway due to the fact that the throttle valve becomes inadvertently opened due to creeping or jarring, and steam is thus admitted through the throttle to the cylinders, so that the locomotive then starts while not under control of an engineer or other authorized person, and one of the objects of the present invention is to so secure the throttle when shut that it cannot become opened in any way unless it is manually opened by the engineer in charge or other authorized person.

Further objects are to permit of the improved safety lock being mounted on throttle levers at present in use, to eliminate backlash and wear on the several parts of the lock, to render the control of the lock simultaneous with the actuation of the throttle lever and generally to adapt the several parts to better perform the functions required of them.

With the above and other objects in view the invention consists essentially of the improved construction hereinafter described in detail in the following specification and accompanying drawings forming part of the same.

In the drawings:

Figure 1 is a side elevation of a throttle lever embodying my invention.

Fig. 2 is a fragmentary enlarged side elevation of a throttle lever showing my improved pawl and quadrant connection.

Fig. 3 is a longitudinal section of the part of the device shown in Fig. 2.

Like characters of reference refer to like parts in the several figures.

Referring to the drawings, A represents a boiler head of a locomotive boiler and B the throttle lever. This throttle lever is pivotally connected at the lower end to the outer end of a link 10, the inner end of which is pivotally attached to a bracket 11 secured to the boiler head adjacent to the lower end of the lever B.

The throttle valve spindle 12 is pivotally attached to the pin 13, and carries a quadrant 14 which coacts with a pawl 15 mounted on the lever B.

This lever is formed adjacent to the arcuate serrated upper edge of the quadrant 14 with a rectangular or like slot 16 in which the lateral projection 17 of the pawl 15 is slidably mounted, and this pawl is held in position by means of a plate 18 slidably engaging the outer face of the lever B secured to the projection 17 by means of the set screw 19.

A pin 20 extends through the plate 18 and is threaded into the pawl 15, and the stem of this pin slidably engages with a slot 21 provided in the lower end of the link 22, the upper end of which is pivotally connected at 23 to the hand grip 24 which in turn is pivotally connected to the upper end of the throttle lever B.

The hand grip 24 controls the movement of the link 22 and the said hand grip is normally held angularly disposed to the longitudinal axis of the lever B by means of a side spring 25 of any convenient length, one end of which is attached to the lower end of the hand grip 24 and the other end is anchored to the lever B.

This side spring may be of any convenient length and in the embodiment illustrated it has been shortened for the sake of clarity in the drawings.

The pawl 15 is provided with a spindle 26 the upper end of which slidably engages with an eye-pin 27 threaded or otherwise secured to the lever B, and between the upper face of the pawl 15 and the under face of the eye-pin 27 a spiral spring 28 is located, which encircles the said spindle.

The link 22 is provided intermediate of its length with a pair of spaced pins 29 adapted to engage with the upper and lower edges of the locking member 30, one end of which is pivotally secured to the lever B and the other end is provided with a recess 31 adapted to engage with a pin 32 secured to a guide member 33 which projects outwardly from the boiler head.

It should be particularly noted that the outer edge at the forward end of the locking member 30 is curvilinear as shown at 35, so that it will readily ride over the pin 32 when

closing the throttle and so secure the lever B in position.

When a locomotive equipped with a throttle lever and safety throttle lock of this description is in use the engineer when opening the throttle rotates the hand grip 24 so moving the link 22 longitudinally, and during this movement of the link the locking member 30 is rotated about its pivotal point and the recess 31 is disengaged from the pin 32 so allowing the lever B being actuated.

During this longitudinal movement of the link 22 the pawl 15 will have been moved upwardly under the action of the pin 20 which is engaged by the slotted lower end of the link 22, and when the pawl 15 has become disengaged from the serrated upper edge of the quadrant 14, the lever B may be rotated about its lower pivot point, and longitudinal motion will thus be transmitted to the throttle spindle 12.

When the spindle has been moved to the desired extent and the engineer desires to maintain the lever B in a fixed position he releases the hand grip 24, so that the link 22 will be moved longitudinally under action of the spring 25 and the pawl 15 will be positively pressed into engagement with the serrated upper edge of the quadrant by means of the spring 28.

It will be understood that should the side spring 25 fail then the pawl 15 will still be controlled by the spring 28.

The upper and lower edges of the locking member 30 and the pins 29 and 32 will be case hardened so that backlash or wear of the several coacting members of the lock will not take place.

When the throttle has to be closed the engineer will grip the hand grip 24 rotating the same toward the lever B and thereby transmitting a longitudinal movement to the link 22, and in this way the pawl 15 is disengaged from the quadrant 14, and the lever B is then free to be rotated toward the boiler head, and so move the throttle spindle 12 longitudinally and thus close the throttle valve.

During this movement the locking member 30 will be actuated by the movement of the link 22, and when the lever has been moved to its innermost position, the hand grip 24 is released and the locking member 30 then engaged with the pin 32.

If the throttle valve has only been opened to a very slight extent, it would not be necessary for the engineer to actuate the hand grip 24, for if the lever B were pressed inwardly then the edge 35 of the locking member 30 would ride over the pin 32, and at the same time transmit motion to the link 22, which would disengage the pawl 15 from the quadrant 14 and on the recess 31 of the locking member 30 engaging the pin 32, the link 22 would be moved longitudinally by the spring 25, and the pawl 15 reëngaged with the quadrant 14.

From this description it will be seen that I have invented a safety throttle lock which can be advantageously utilized on locomotives, whereby the throttle lever will be securely locked in position when closed, the control of the lock being automatic in that it is simultaneously actuated with the operating of the throttle lever B.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention within the scope of the claims constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawing shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:

1. The combination with a throttle lever, of a locking member pivotally mounted to the lever, a pin with which the locking member engages, a link, a pawl actuated by the link, a quadrant coacting with the pawl, a pair of pins on the link engaging opposite edges of the locking member and means for actuating the link.

2. The combination with a throttle lever of a stationary member carrying a pin, a locking member carried by the lever adapted to engage with the pin for automatically locking the lever in closed position, a link slidably mounted on the lever, a pawl actuated by the link, a quadrant coacting with the pawl, a pair of pins on the link engaging opposite edges of the locking member, and means for actuating the link.

3. The combination with a throttle lever, of a guide having a pin thereon, a locking member pivotally mounted on the lever to coact with the said pin, a link, a pawl actuated by the link, a quadrant coacting with the pawl, a pair of pins on the link engaging opposite edges of the locking member, and means for actuating the link and designed to rock the locking member, as and for the purpose specified.

In witness whereof I have hereunto set my hand in the presence of a witness.

CHARLES HIRAM BELLAMY.

Witness:
RUSSEL S. SMART.