R. M. McCOY.

FIRE DOOR LOCK.

APPLICATION FILED JAN. 15, 1909.

928,142.

Patented July 13, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

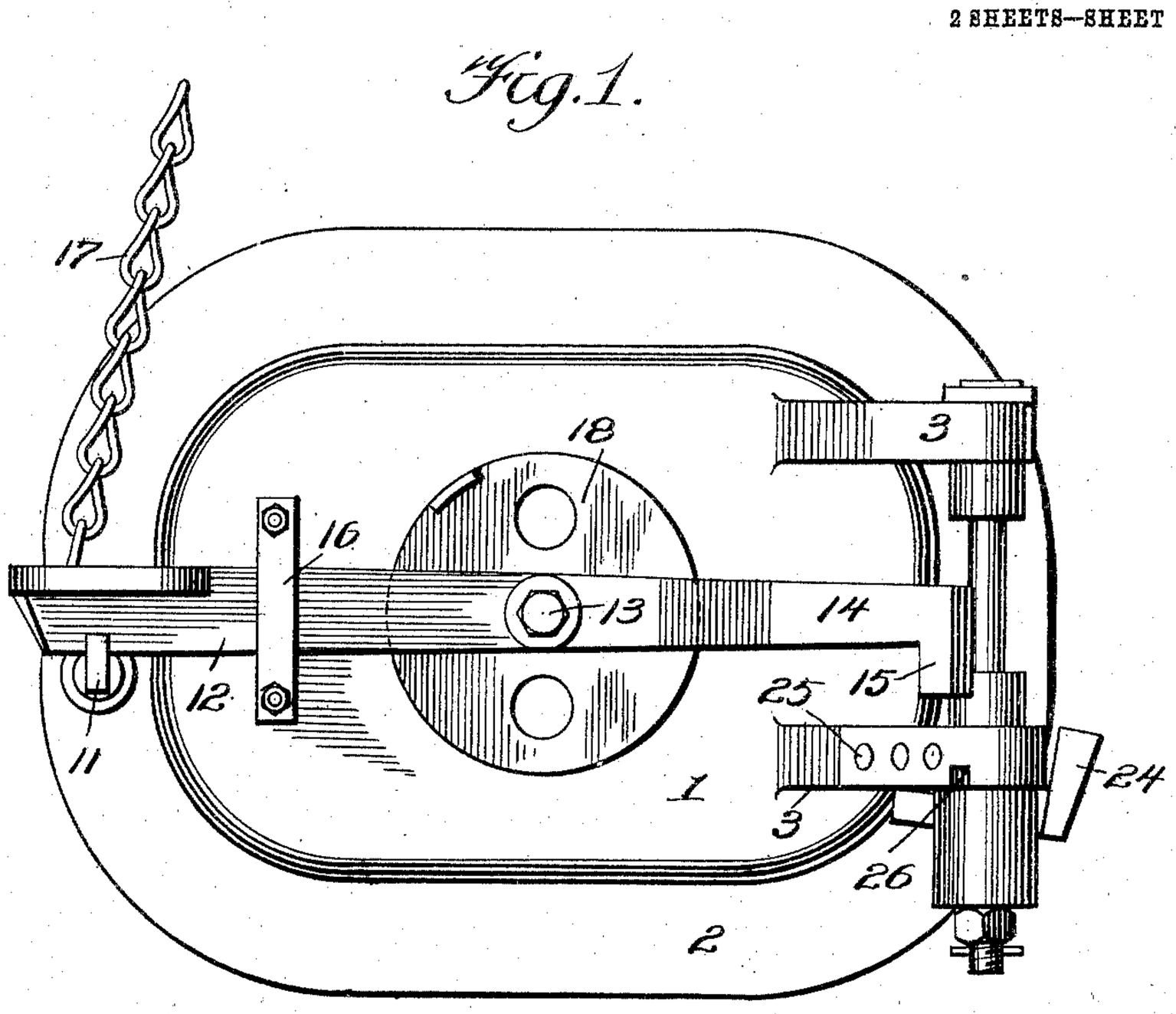
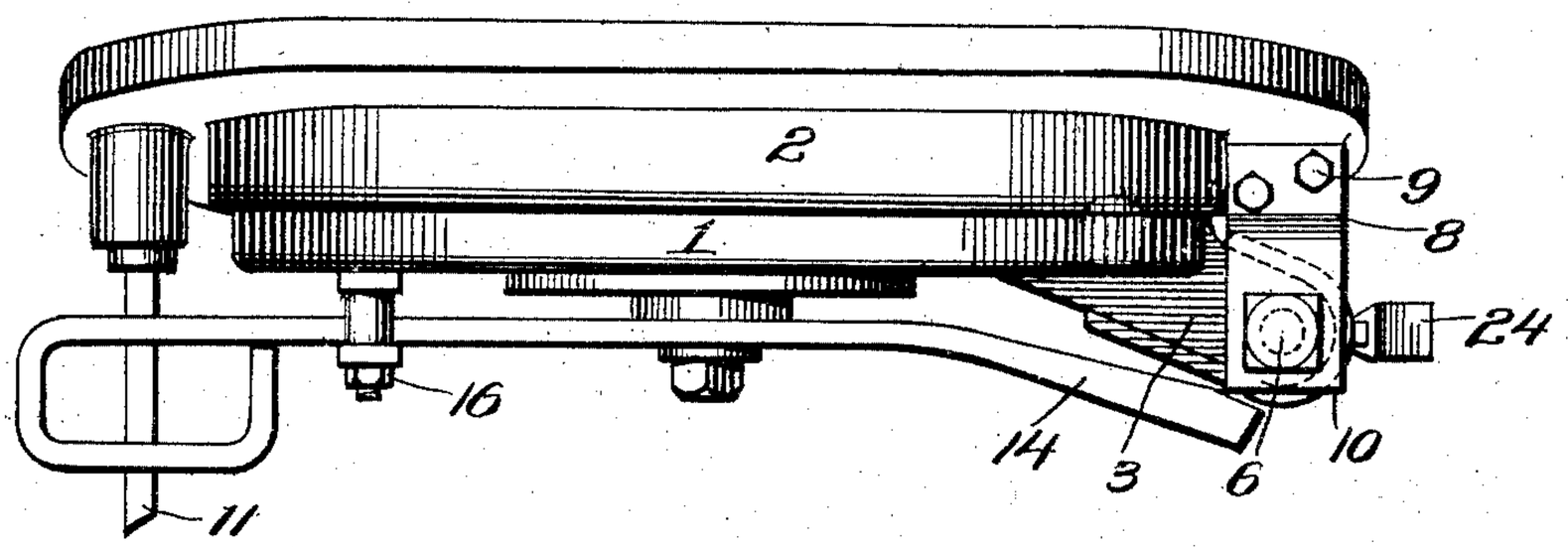


Fig. 2.



Witnesses

F. G. Ackmann Jr.

J. C. Garner

Inventor

Richard M. McCoy,

By Victor J. Evans

Attorney

R. M. McCOY.

FIRE DOOR LOCK.

APPLICATION FILED JAN. 15, 1909.

928,142.

Patented July 13, 1909.

2 SHEETS—SHEET 2.

Fig. 3.

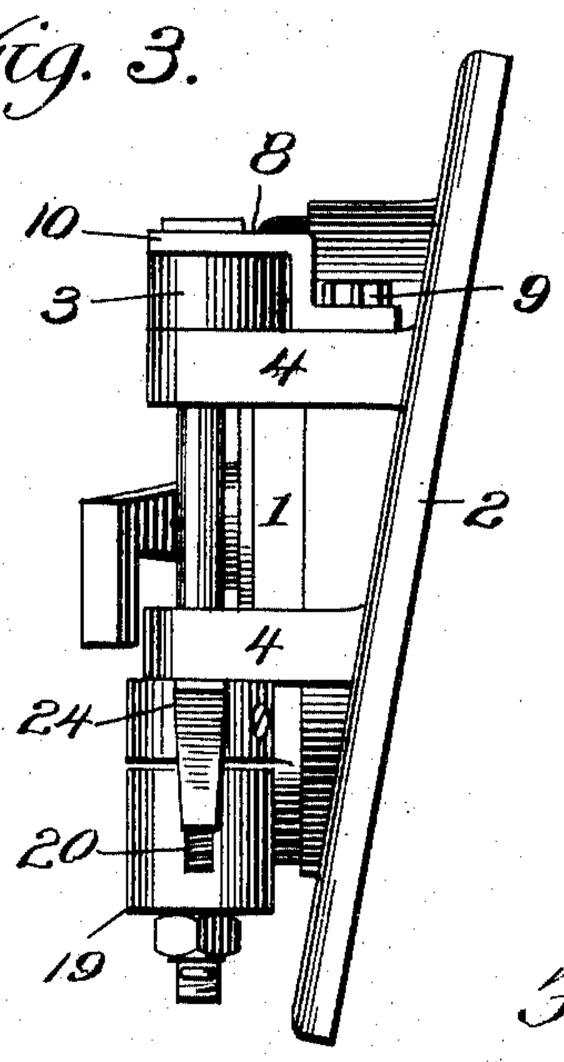


Fig. 4.

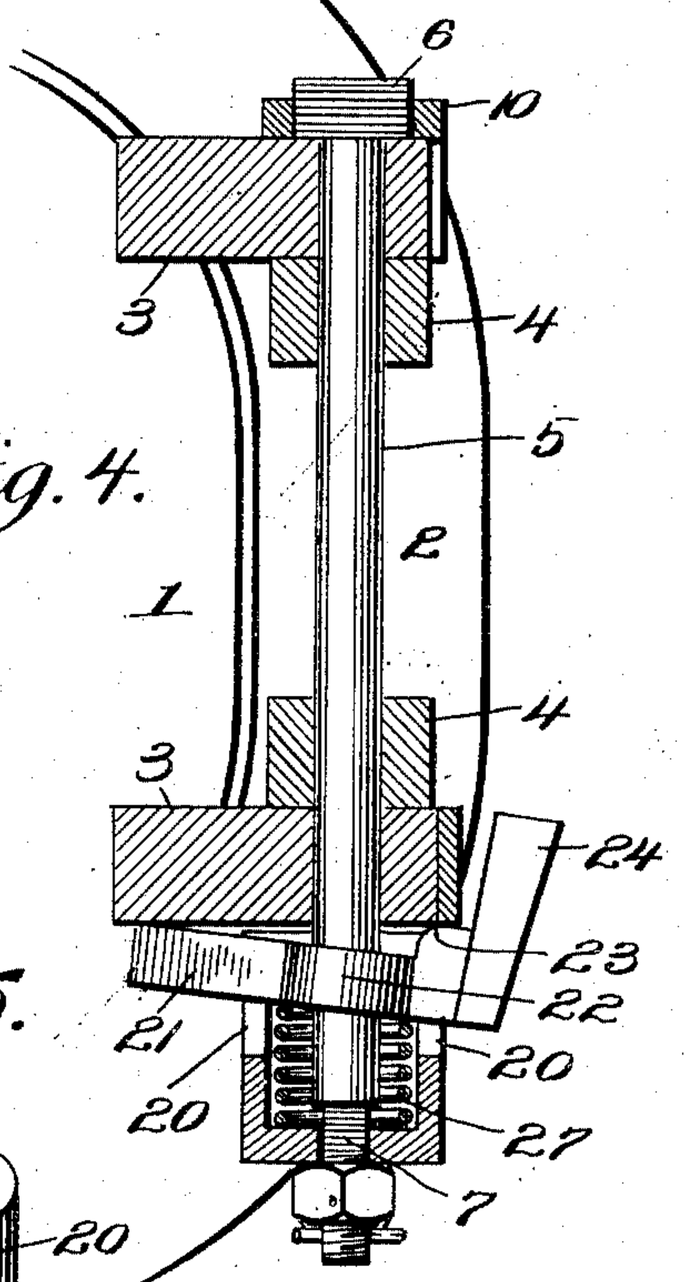


Fig. 5.

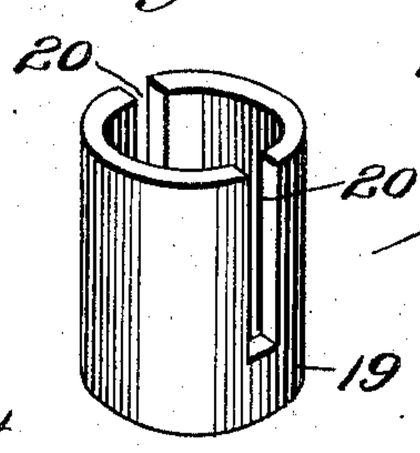


Fig. 6.

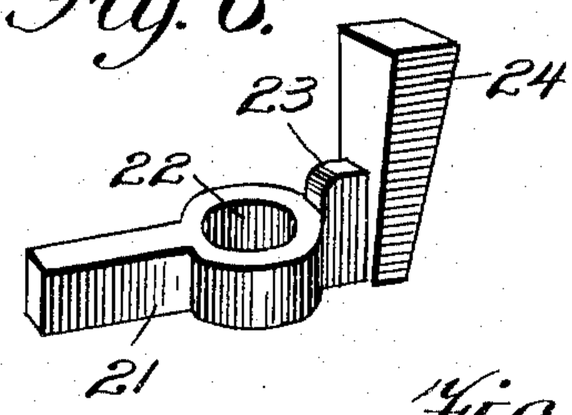


Fig. 7.

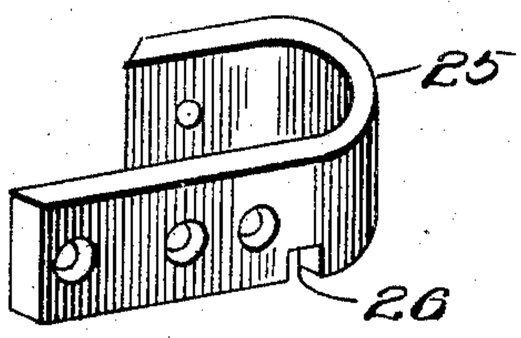
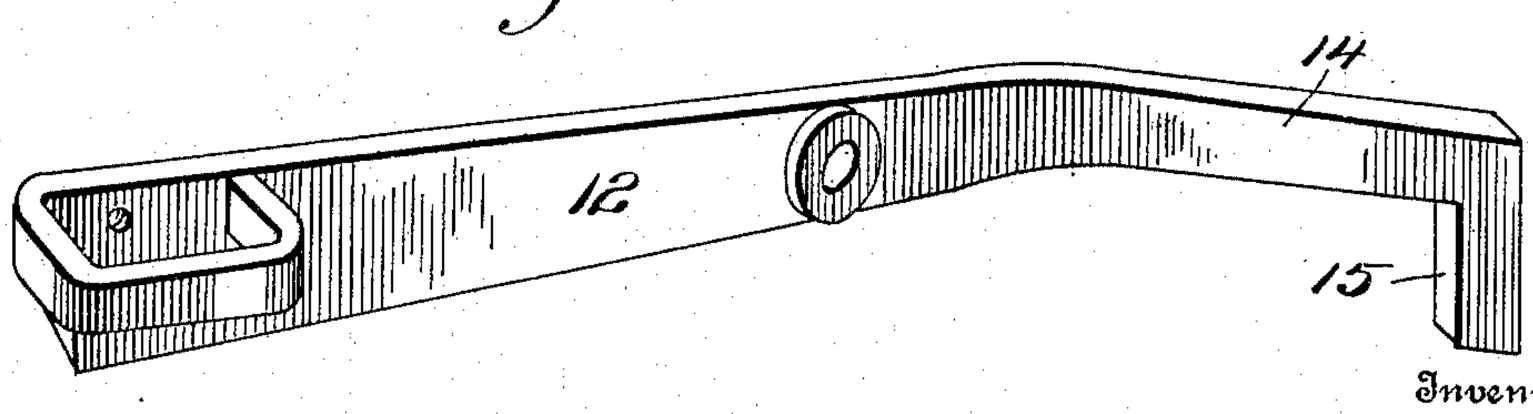


Fig. 8.



Witnesses

Jos. Ackman Jr.

J. W. Garner

Inventor

Richard M. McCoy,

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

RICHARD M. McCOY, OF TERRE HAUTE, INDIANA.

FIRE-DOOR LOCK.

No. 928,142. Specification of Letters Patent. Patented July 13, 1909.

Application filed January 15, 1909. Serial No. 472,509.

To all whom it may concern:

Be it known that I, RICHARD M. McCOY, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Fire-Door Locks, of which the following is a specification.

This invention relates to improvements in the fire doors of locomotives and other steam engines and particularly with reference to means for locking the fire doors when they are open and also when they are shut, so that there is no danger of a fire door swinging owing to the movement of the locomotive and hence obviates injury to the fireman or engineer from this cause.

The object of my invention is to provide novel and efficient locking devices for locomotives and other engine fire doors which may be readily applied at slight cost to existing fire doors and which are entirely automatic in action so that the fire door will be locked both when it is closed and opened and prevented from swinging by the motion of the engine.

In the accompanying drawings:—Figure 1 is an elevation of a locomotive fire door provided with locking devices constructed in accordance with my invention. Fig. 2 is a plan of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a detail sectional view of the same on a plane intersecting the hinge lugs of the door and door frame and disclosing the pintle bolt. Fig. 5 is a detail perspective view of the spring cage. Fig. 6 is a similar view of the locking key. Fig. 7 is a similar view of the notch strap for application to the lower hinge lug of the fire door and which coacts with the locking key to lock the fire door in an open position. Fig. 8 is a similar view of the latch that serves to lock the fire door in closed position and also serves to trip the locking key.

The fixed door 1 and its frame 2 may be of the usual construction here shown or of any other suitable construction. The door is provided at one end with upper and lower hinge lugs 3 and the frame is provided at the corresponding end with upper and lower hinge lugs 4. Said hinge lugs are provided with vertically alined openings which receive a vertically disposed pintle bolt 5. Said pintle bolt has an angular head 6 and near its lower threaded end has a reduced cross sectional angular portion 7. A keeper 8 is in accordance with my invention provided which is secured as by means of bolts 9 on the upper lug 4 of the door frame near the inner end of said lug and has an arm 10 which bears on the upper door lug 3 and is provided with an angular opening for the reception of the head 6 of the pintle bolt and coacts with said head to prevent the pintle bolt from turning. Any other suitable means may, however, be employed to lock the pintle bolt and I do not desire to limit myself in this particular. The end of the door frame against which the free end of the fire door closes is provided with a lug 11 which projects outwardly therefrom and has a notch in its upper side for the reception of the free end of the door latch 12. Said latch is pivotally mounted on the door as at 13 and its inner end is formed with an arm 14 disposed at an angle thereto and provided at its outer extremity with a downwardly extending shoulder 15. The door latch operates in a guide 16 and a chain for operating the door latch is indicated at 17. The usual draft disk of the fire door is indicated at 18.

On the lower portion of the pintle bolt is placed a spring cage 19 which in the embodiment of the invention here shown is cylindrical in form, open at its upper end and is provided in its bottom with an angular opening for the reception of the angular lower portion 7 of the pintle bolt whereby said spring cage is prevented from turning. In opposite sides of the spring cage are guide slots 20 which are open at their upper ends. A locking key 21 operating vertically in the slots 20, extends across the spring cage and has an eye 22 near its center through which the pintle bolt extends, the said eye being of elongated form to admit of free angular movement of the key on said bolt. Near the outer end of the key on its upper side is a locking shoulder 23 and at the extreme outer end of the key is an outwardly extending head 24. On the lower lug 3 of the fire door I place a notch strap 25 which conforms in shape to and extends around the said lug nearly from end to end thereof and is secured as by means of rivets 25 or other suitable devices thereto. The said notch strap is provided at a suitable point on its under side with a locking notch 26. The said notch strap as will be evident in effect provides the lower lug of the fire door with a locking notch and said strap is used when my improved locking devices are applied to an

ordinary locomotive fire door. However, it is obvious that the lower lug of the fire door may be otherwise provided with a locking notch and I do not desire to limit myself in this particular. A spring 27 which is here shown as a coiled extensile spring is placed in the spring cage, around the lower portion of the pintle bolt and bears between the bottom of the cage and the lower side of the key and serves to force the key upwardly to keep the same normally in engagement with the lower side of the lower hinge lug 3 of the fire door.

When the fire door is closed as shown and the latch 12 is in engagement with the locking lug 11, the locking notch 26 is out of line with the key 21. When the fire door is open said locking notch 26 moves to a position immediately above the shoulder 23 of the key and the latter is moved upwardly by the spring 27 into engagement with said locking notch, thus locking the door in open position and effectually preventing the door from swinging by the motion of the locomotive and hence obviating all injury to the fireman or engineer by the swinging of said door. While the door is thus in open position the shoulder 15 of the door latch 12 is directly above the head 24 of the key. Hence when the chain 17 is grasped to swing the door to a closed position the tension of the chain moves the outer end of the door latch upwardly and hence its inner end is caused to move downwardly with the result that the shoulder 15 thereof engages the head 24 of the key and depresses the outer end of the key against the tension of the spring 27 so as to release the shoulder 23 of the key from the locking notch 26, thereby unlocking the door and permitting it to be readily swung to a closed position. It is obvious that the latch 12 locks the door in a closed position by coaction with the usual lug 11.

The embodiment of my invention here shown enables my improved locking devices to be applied to a locomotive fire door without any alteration of the latter further than the application of the keeper 8 to the upper hinge lug of the door frame and the application of the notch strap 25 to the lower hinge lug of the door. As hereinbefore stated, modifications may be made within the scope of the appended claims and hence I do not desire to be limited to the precise construction, arrangement and combination of devices hereinbefore described.

What is claimed is:—

1. In combination with a fire door and a frame therefor, said door and frame having hinge lugs pivotally connected together to permit the swinging of the door, a locking element on one of the door lugs movable angularly therewith when the door is swung, a latch mounted on the door and also having a releasing element and a key mounted against movement with the door and movable into and out of engagement with the said locking element of one of the door lugs, means to cause said key to engage said locking element of said door lug when the door is in open position, and means on the said key and co-incident with the releasing element of the door latch, when the door is open, to enable said door latch to be employed to cause said key to release the door.

2. In combination with a fire door and fire door frame having hinge lugs and a pintle extending through said lugs, one of the lugs of the door having a locking element, a cage on said pintle, a locking key on said pintle and guided by said cage, said key having means to engage the locking element of the said door lug and a spring in said cage to move the key to locking position.

3. In combination with a fire door and fire door frame having hinge lugs and a pintle extending through said lugs, one of the lugs of the door having a locking element, a cage on said pintle, a locking key on said pintle and guided by said cage, said key having means to engage the locking element of the said door lug, a spring in said cage to move the key to locking position and a latch on the door to lock the latter in closed position, said door latch having means adapted when the door is in open position to release the key.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD M. McCOY.

Witnesses:
VESTAL O. WELLS,
FRED P. HANCK.