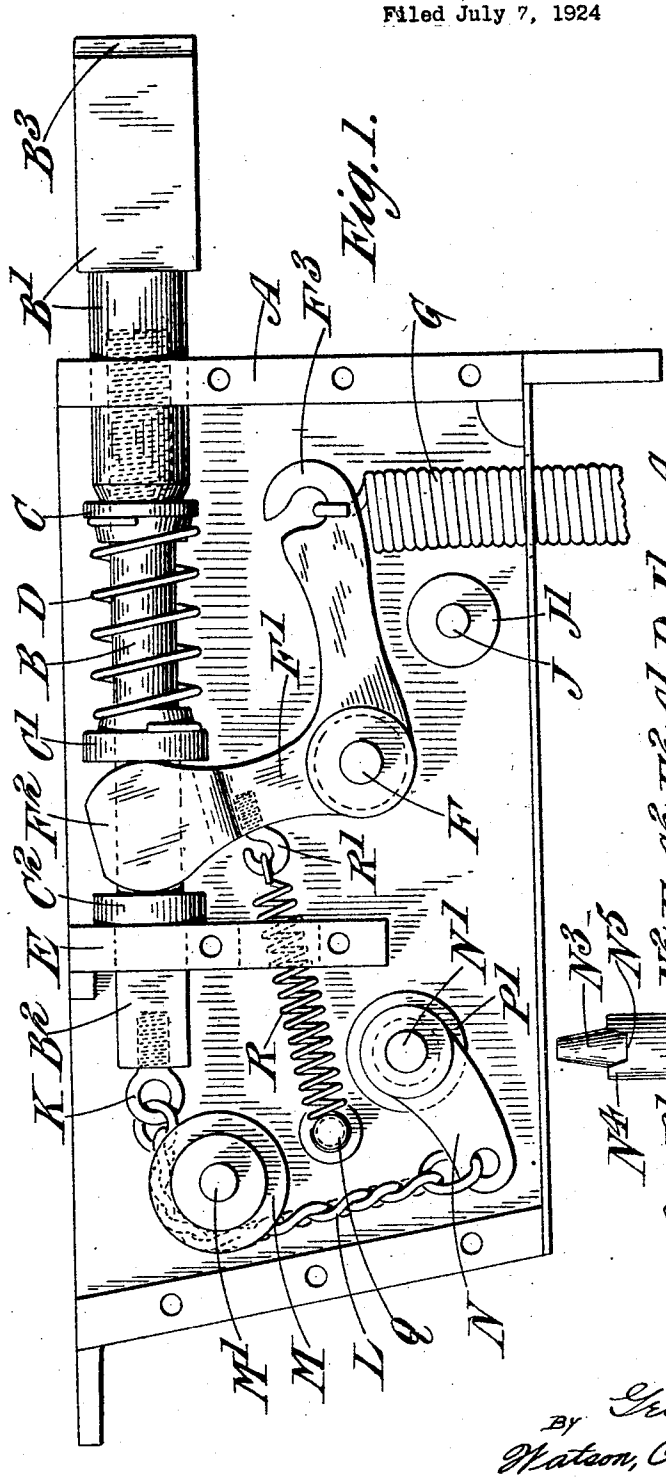
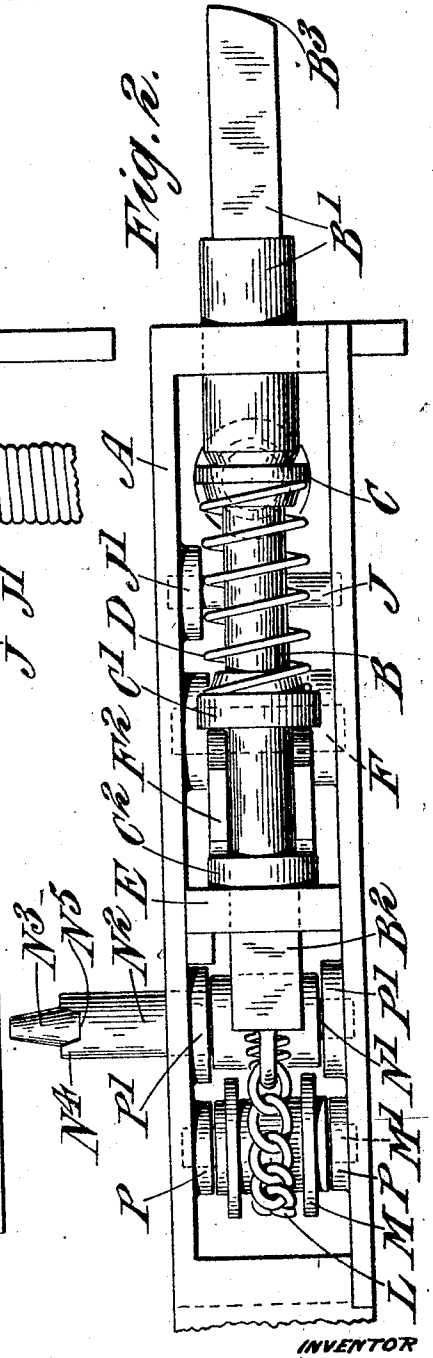
March 10, 1925. 1,529,353

G. W. HALL

LOCK FOR RAILWAY VEHICLE AND LIKE DOORS

Filed July 7, 1924 2 Sheets-Sheet 1





INVENTOR

George W. Hall,

BY Watson, Cole, Grove & Grindle.

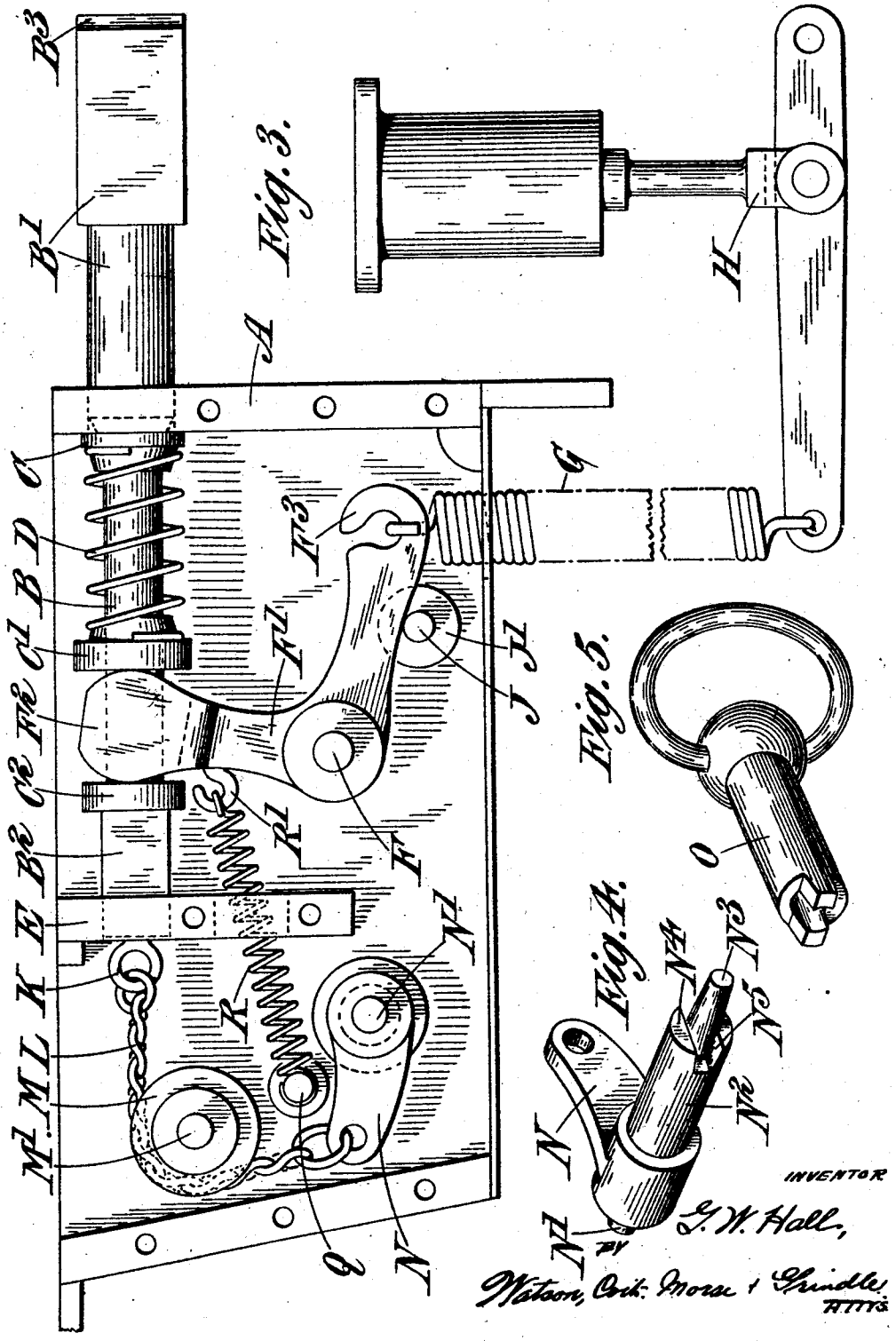
ATTYS.

March 10, 1925. 1,529,353

G. W. HALL

LOCK FOR RAILWAY VEHICLE AND LIKE DOORS

Filed July 7, 1924 2 Sheets-Sheet 2



Patented Mar. 10, 1925. 1,529,353

UNITED STATES PATENT OFFICE.

GEORGE WILLIAM HALL, OF BLACKPOOL, ENGLAND.

LOCK FOR RAILWAY VEHICLE AND LIKE DOORS.

Application filed July 7, 1924. Serial No. 724,716.

To all whom it may concern:

Be it known that I, GEORGE WILLIAM HALL, a subject of the King of England, and residing at Blackpool, in the county of Lancashire, England, have invented certain new and useful Improvements in Locks for Railway Vehicle and Like Doors, of which the following is a specification.

The invention relates to locks, more particularly those for railway vehicle and like doors, of the kind in which the latch is actuated from a distance for example pneumatically or electrically. The object of the invention is to provide a device in which the bolt can be manually withdrawn independently of the main locking or unlocking mechanism.

One construction of lock in accordance with this invention is illustrated by way of example in the accompanying drawings, in which—

Figure 1 is a front elevation with the cover removed showing the parts of the lock in the position they occupy when the bolt has been withdrawn by the main actuating device.

Figure 2 is a plan of the lock with the top plate removed showing the parts of the lock in the same position as in Figure 1.

Figure 3 is a similar view to Figure 1 showing the electrically or pneumatically controlled actuating device the parts of the lock being in their locked position.

Figures 4 and 5 are perspective views respectively of the unlocking lever and the key for operating it.

In the construction illustrated, the lock comprises a casing having an end plate A through which the bolt head B′ of a bolt B projects, the bolt and bolt head being formed separately and screwed together for the purpose hereinafter described. The bolt carries a fixed washer C adjacent to its head and a movable washer C′ slidable along the bolt, a light compression spring D being disposed between the two washers C and C′. The inner end of the bolt B is squared as at B^2 and passes through a square hole in a guide E within the casing a fixed washer C^2 being provided on the bolt to limit its movement in one direction while the washer C limits its movement in the other direction. The bolt B is thus free to slide longitudinally within the casing but is held against rotation by its squared portion B^2.

Mounted on a spindle F within the casing is a lever F′ one arm of which is slotted as at F^2 to engage the bolt B at a point between the two washers C and C′, while the other arm F^3 of the lever is formed as a hook and attached to one end of a tension spring G. The other end of the spring G is connected to the pneumatically or electrically controlled actuating device H, and the movement of the lever F′ under the action of this spring is limited by a stop pin J mounted in bosses J′ secured to the sides of the lock casing. Thus, when the arm F^3 of the lever F′ is pulled down by the spring G, the arm F^2 of the lever acts on the movable washer C′ and through the spring D to operate the bolt B. The spring G is of such strength that it will not be extended to any appreciable extent before the bolt B is moved, this spring serving to prevent excessive stress being placed on the arm F^3 of the lever F′ due to further movement of the pneumatically or electrically controlled actuating device H after the arm F^3 has engaged the stop pin J.

Secured to the inner end B^2 of the bolt B is a ring bolt K to which is attached one end of a chain L which, after passing over a guide pulley M mounted to rotate on a spindle M′ engages at its other end with the free end of a lever N. The lever N is secured to a spindle N′ mounted to rotate in the casing, one end N^2 of the spindle extending through the casing and being provided with a projection N^3, lugs N^4 and grooves N^5 which are adapted to be engaged by a suitably shaped key O as shown in Figures 4 and 5. The spindles M′ and N′ are supported by reinforcing bosses P′ and P′ on the sides of the casing, which carries also a pin Q to which one end of a spring R is connected, the other end of this spring being connected to a hook R′ on the lever F′.

The end plates of the casing may be bevelled so that when the lock is fitted to the door post of a railway carriage the lock will be slightly inclined. This causes the lock to lie in a direct line with the pneumatically or electrically controlled actuating device in spite of the curve of the carriage door post, so that the spring G does not exert a sideways pull on the lever F′. The end N^2 of the spindle N′ extends through the casing and beyond the outer edge of the door post where the projection N^3 is conveniently protected by a guard.

The striker plate for the lock would conveniently be provided with an inclined slide in the known manner and the end of the bolt head B′ is conveniently bevelled at B^3 as is usual when such an inclined slide is employed.

The operation of the lock is as follows:—

When the pneumatically or electrically controlled actuating device is inoperative, the spring R maintains the lever F′ in the position shown in Figure 1 so that the bolt B is withdrawn. When the main actuating device H is operated to lock the door however the pull on the spring G rocks the lever F′ about its pivot F against the action of the spring R and, through the washer C′ and spring D, moves the bolt B into its locked position as shown in Figure 3. When in its locked position the bolt B can be withdrawn independently of the pneumatically or electrically controlled actuating device H by rotating the spindle N′ by means of the key O, such rotation moving the lever N so as to exert a pull on the chain L and thus withdraw the bolt B. The force necessary to withdraw the bolt B in this manner has only to be sufficient to compress the light spring D. Similarly if any door is slammed after the pneumatically or electrically controlled actuating device has been operated to lock such door, the bolt B will be forced in by the inclined slide on the striker plate against the action of the spring D and will be subsequently forced out into the hole in the door on the door being fully closed.

The lock is placed in the cavity between the outside wall and the wainscot of the carriage allowing the bolt of the lock to be worked through a hole in the door post and at the same time allowing the lock to be clear of any of the different types of locks usually employed.

The lock illustrated when fully assembled may be too long to be placed in the space allowed so that the bolt is made in two portions as above described. This permits the lock to be placed in position without the bolt head and the bolt head to be subsequently secured.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a lock for vehicle doors the combination of a casing, a locking bolt mounted to slide therein, an actuating lever for the bolt, a main actuating member disposed outside the casing, means for controlling said main actuating member from a distance, a weak spring between one arm of the lever and the bolt, a relatively strong spring between the other arm of the lever and the main actuating member, means for limiting the movement of the lever under the action of the stronger spring, a second bolt-actuating lever mounted within the casing, and means for manually operating said second bolt from outside the casing independently of the main actuating lever.

2. In a lock for vehicle doors the combination of a casing, a locking bolt mounted to slide therein, an actuating lever for the bolt, a main actuating member disposed outside the casing, means for controlling said main actuating member from a distance, a weak spring between one arm of the actuating lever and the bolt, a relatively stronger spring connecting the other arm of the lever to the main actuating member, means for limiting the movement of the lever under the action of the stronger spring, a second bolt-actuating lever mounted within the casing, a flexible and inextensible connection between the bolt and said second actuating lever and a removable key co-operating with said second actuating lever to withdraw the bolt from outside the casing independently of the main actuating lever.

In testimony whereof I have signed my name to this specification.

GEORGE WILLIAM HALL.