Jan. 25, 1949. J. A. CLARK 2,459,920

DOOR LOCKING MEANS

Filed March 4, 1946 2 Sheets-Sheet 1

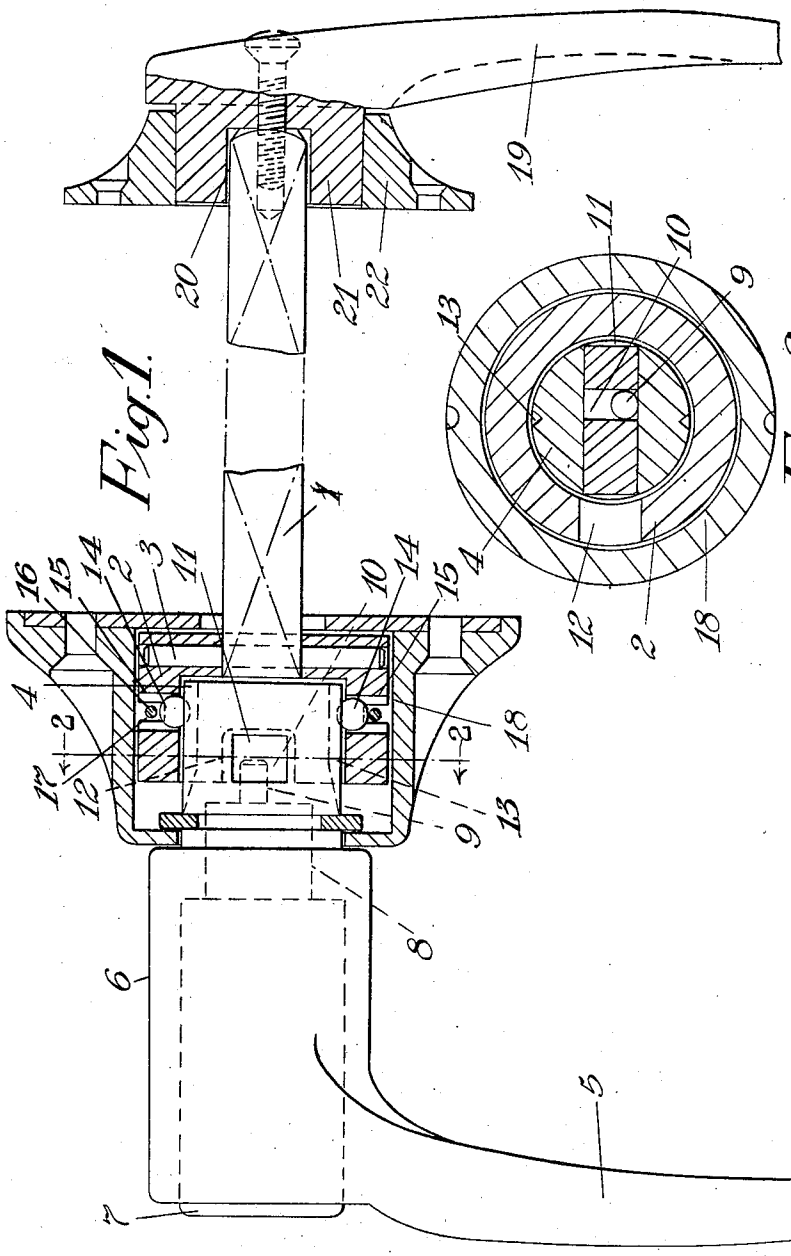


Fig. 1.

Fig. 2.

Inventor
J. A. Clark
By Glascock Downing & Sebold
Attys

Jan. 25, 1949. J. A. CLARK 2,459,920

DOOR LOCKING MEANS

Filed March 4, 1946 2 Sheets-Sheet 2

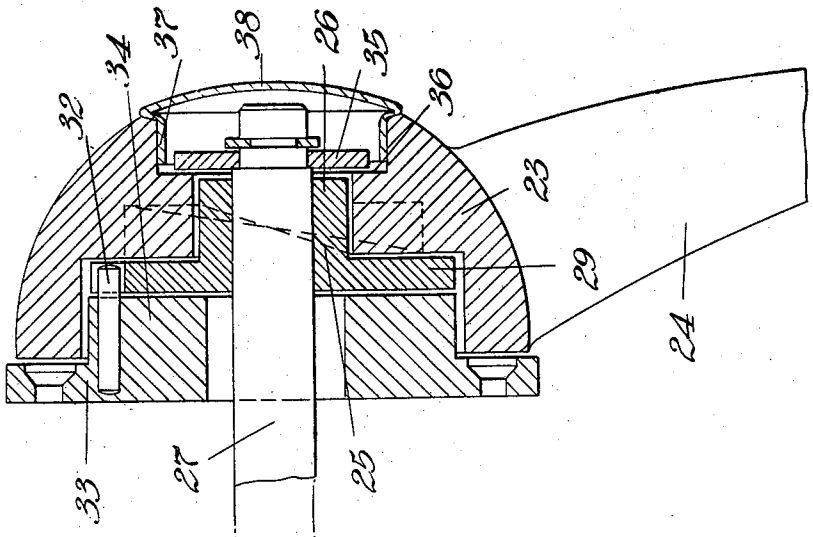


Fig. 3.

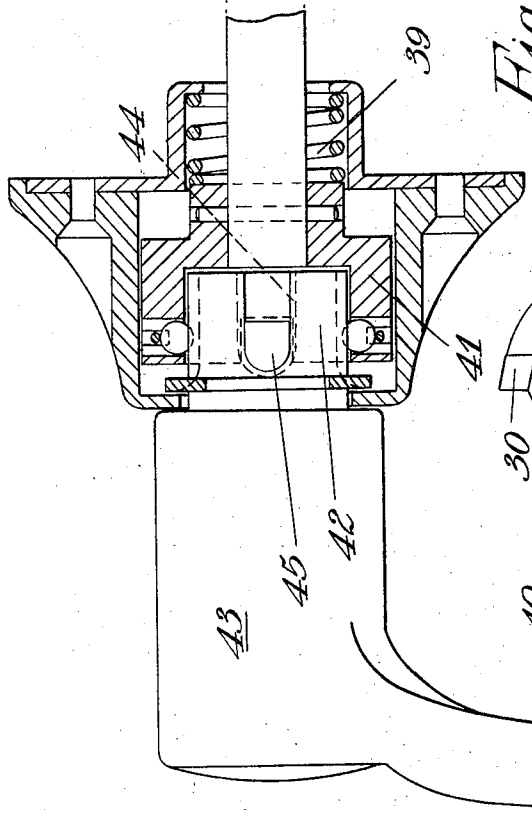
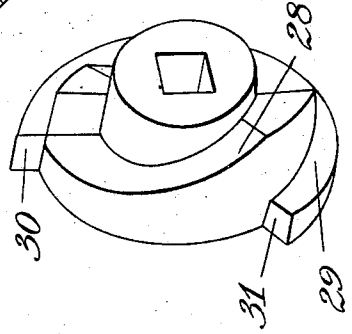


Fig. 4.



Inventor
J. A. Clark
By Glascock Downing & Seckla Attys.

Patented Jan. 25, 1949 2,459,920

UNITED STATES PATENT OFFICE

2,459,920

DOOR LOCKING MEANS

John Ashley Clark, Harrow, England

Application March 4, 1946, Serial No. 651,686
In Great Britain March 13, 1945

2 Claims. (Cl. 70—223)

1

This invention relates to means for locking doors and the like and is particularly serviceable for locking the doors of motor vehicles to prevent lock forcing operations by the application of undue force to the handle. Unauthorised entry to cars may be effected by applying a strong leverage to the door handle such that the locking restraint upon the latch is broken or distorted in such a manner as to allow the handle to be turned, the latch withdrawn and the door opened.

The aim of the invention is to provide a locking device which is not susceptible of forcing in a manner such as above described.

The invention consists in means for locking doors such as road vehicle doors having an outer handle operatively connected to the latch, wherein means are provided for uncoupling the handle from the latch whereby the handle may be freely rotated or moved without actuating the latch.

The invention also consists in a key-operable locking device adapted to connect and disconnect the outside handle to and from the operating or handle spindle of the locking latch for a door (hereinafter called the latch spindle) as required, and in such a manner that the latch is maintained in the locked position (as from the outside of the door) by disconnecting the handle from the latch spindle so that the latter cannot be turned by said handle.

The invention also comprises locking means having a door outside handle provided with a revolving barrel type lock, the manipulation of the key of which to lock the door is adapted to retract a bolt or other member from engagement with a sleeve or extension upon the latch spindle, to disconnect it from the manipulating portion of the handle.

The invention further consists in inside locking means for doors such as, for example, doors other than the driver's door of a car, whereby the manipulation of a member upon the inside of the door disconnects the latch spindle from the outside door handle in such a manner that the latter cannot be used to turn said spindle.

For doors other than the driver's door of the car, or for doors intended to be locked from manipulation upon the inside, the latch spindle is made axially retractable with respect to the latch bolt and the spindle is provided with a sleeve or other member cooperating with a cylindrical or like portion of the outside door handle part, and complementary means on the cylinder and sleeve are adapted to connect the handle part with the latch spindle, the arrangement being such that upon the retraction of the spindle by cam or lever means the complementary means are disengaged from the spindle.

2

In the accompanying drawings:

Figure 1 is a sectional elevation of a vehicle lock lockable from the exterior and showing the spindle of the latch,

Figure 2 is a cross section on line 2—2 of Figure 1, showing the handle in the "free" position,

Figure 3 is a sectional elevation of a vehicle lock lockable from the interior, and

Figure 4 is a perspective of a detail.

In carrying the invention into effect according to one mode as described, by way of example, with respect to a door of a motor vehicle lockable from the exterior such as a driver's door, the usual square-sectioned spindle 1 which operates the bolt of a locking latch through the usual followers, has upon its outer end a sleeve or collar 2 pinned thereto by a pin 3 which is recessed to receive the cylindrical barrel or extension 4 of the manipulating handle 5. The handle barrel 6 is provided with the usual revolving barrel type lock 7 for the reception of a flat key the insertion and turning of which revolves the barrel. Normally, operation of the barrel by the key either shoots or retracts a bolt to prevent rotation of the handle or to free it, according to whether a locking or an unlocking operation is effected. In the present instance, however, the revolution of the barrel 7 by the key either engages the handle 5 with the latch spindle 1 or disconnects it. For example, the part 8 actuated by the turning of the barrel 7 by the key may have upon it an eccentric pin 9 or a crank parallel with the handle barrel axis which is engaged in a slot 10 in a transverse bolt 11, the outer end of which is adapted to enter a slot 12 or cavity in the adjacent sleeve or collar 2 of the latch spindle.

This operation connects the handle 5 and latch spindle 1 together as one so that the latch can be operated by the handle in the ordinary way. When, however, the key is introduced and reversely operated the bolt 11 is retracted from the slot 12 and retained in this position, entirely disconnecting the handle barrel 6 from the latch spindle 1, so that the latter can no longer be operated by manipulation of the handle 5.

The extension 4 is provided with oppositely disposed slots 13 with which balls 14 located in radial slots 15 in the collar 2 are adapted to engage to locate the handle extension 4 relatively to the collar in the correct position for engagement of the bolt 11 with slot 12. The balls are inwardly pressed by a surrounding spring 16 seated in a groove 17 in the collar.

The coupling mechanism is enclosed in a casing 18 by which the handle is secured to the door.

The inner handle 19 is conected with the spindle 1 which enters a recess 20 in an extension 21 seated in a plate 22.

It will be appreciated that various other modes may be adopted to employ key operation, which in effect will connect the handle and operating spindle together for normal use, while when it is required to lock the door the handle is unlocked or disconnected from the latch spindle.

In applying the invention to doors such as a passenger's door, where it is desired to lock a door by an inside manipulation, the coupling and uncoupling of the outer handle from the spindle is effected by an axial movement of the spindle.

In the case where the door is provided with a rotatable handle the axial movement of the spindle is effected by the means shown in Figures 3 and 4. The boss 23 of the inside handle 24 is recessed and bored to accommodate a rotary cam member 25 having a sleeve portion 26 rotatable with the spindle 27 but slidable thereon. The cam face 28 engages a corresponding cam face in the boss 23. The cam member 25 is provided with a flange 29 which is cut away to provide a pair of shoulders 30, 31 adapted for engagement with a stop pin 32 secured to a plate 33 having an enlargement 34 upon which the handle boss is rotatably mounted.

The end of the spindle 27 is provided with a plate or washer 35 which seats upon the wall 36 of a recess 37 in the handle boss, the recess being closed by a cap 38.

During normal operation of the handle 24 the cam face 28 is retained in full engagement with the cam face of the boss and the spindle 27 is rotated to operate the latch. Such engagement of the cam faces is maintained by a spring 39 located in the casing of the outer handle 40 and which is located between such casing and a collar 41 pinned to the spindle 27.

When it is desired to uncouple the outer handle 40 from the spindle, the inner handle 34 is given a further turn anti-clockwise which owing to the shoulder 30 engaging the pin 32 causes relative rotary movement between the cam faces. This causes the cam face of the boss 23 to rise up the cam face 28 with a consequent axial movement of the boss 23 which is imparted to the spindle 27. The collar 41 surrounds an extension 42 of the boss 43 of the outer handle. The collar is provided with a slot 44 extending parallel to its axis. This slot is adapted to engage a projection or dog 45 on the extension 42 when the parts are in their normal position so that operation of the latch

by the outer handle 40 is possible. When, however, the spindle 27 is retracted by the inner handle as above described, the slot in the collar 41 is withdrawn from engagement with the dog 45 and the handle 40 may be freely rotated without affecting the latch. Positioning ball 46 and grooves 47 are provided as in the first described form.

When the inner handle 24 is returned to its normal position bringing shoulder 31 into engagement with the pin 32 a reverse action of the cam faces obtains and the parts are returned to their position for normal operation by the spring 39.

I claim:

1. Means for locking motor vehicle doors comprising an outer lever handle for operating a latch having an actuating spindle, a boss on said handle, a cylindrical extension on said boss coaxial therewith, a sleeve surrounding said extension and rotatable relatively thereto, said sleeve being mounted on the latch spindle, means for locking said sleeve to said extension selectively by axial displacement of the latch spindle, an inner handle having a boss operatively connected to the latch spindle, a cavity with said inner handle boss, a cam face on said boss within said cavity, a member located within said cavity and mounted for sliding movement on the spindle, a cam face on said member complementary to and engaging the cam face on the inner handle boss, said member and handle rotating together during normal operation but being rotatable relatively to one another for causing said axial displacement of spindle to unlock said sleeve from said extension whereby the outer handle may be freely rotated without actuating the latch.

2. Means for locking motor vehicle doors according to claim 1, wherein said extension is provided with longitudinally extending grooves and said sleeve is provided with spring-pressed balls co-operating with said grooves to locate the spindle and the outer handle with respect to the locking means.

JOHN ASHLEY CLARK.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
535,525	Ball	Mar. 12, 1895
1,090,772	Wilson	Mar. 17, 1914
1,560,503	Doenges	Nov. 3, 1925
1,668,403	Haven	May 1, 1928
1,826,472	Keeler	Oct. 6, 1931