Aug. 13, 1929. O. GRAVEL 1,724,759

LATCH

Filed Aug. 29, 1927

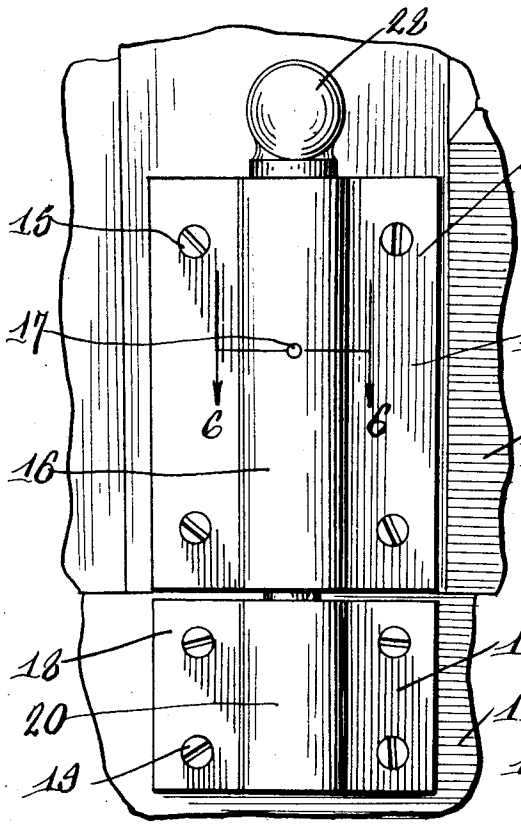


Fig. 1

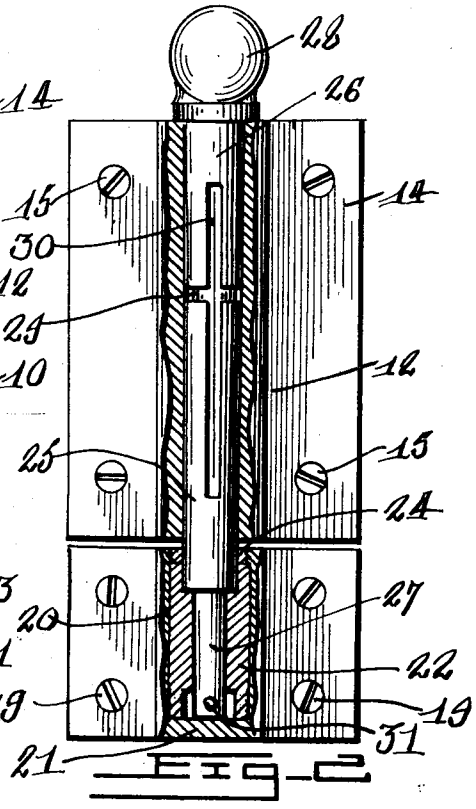


Fig. 2

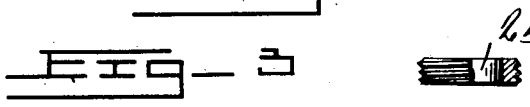


Fig. 3

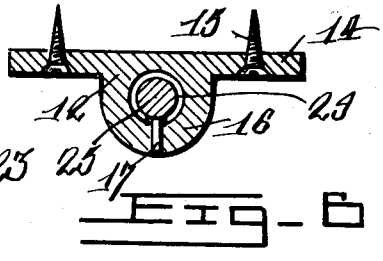


Fig. 6

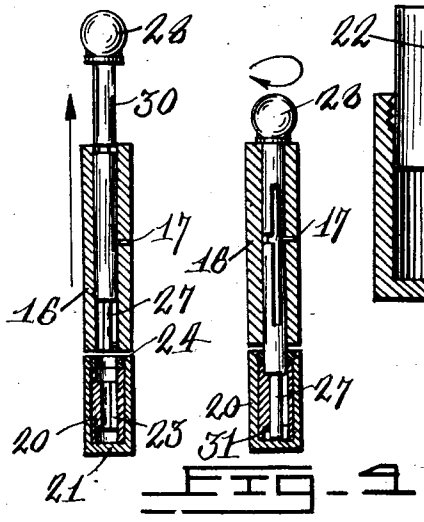


Fig. 4

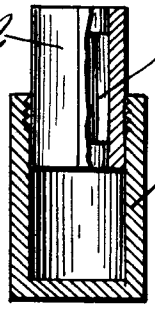


Fig. 5

Oneil Gravel Inventor

By Marion & Marion

Attorneys

Patented Aug. 13, 1929. 1,724,759

UNITED STATES PATENT OFFICE.

ONEIL GRAVEL, OF TROIS RIVIERES, QUEBEC, CANADA.

LATCH.

Application filed August 29, 1927. Serial No. 216,291.

The present invention relates to improvements in latch particularly adapted for locking window sashes, doors and the like.

An important object of the invention is the provision of a latch designed for quickly and conveniently locking windows and other movable elements with respect to a stationary frame.

A further object of the invention is the provision of a latch embodying a slidable and rotatable bolt adapted to positively engage both the stationary and the movable lock sections.

Still another object of the invention is the provision of a latch of the above character constructed so that the component elements may be individually replaced.

A still further object of the invention is the provision of a latch of simple and durable construction and designed so as to be manufactured at a relatively low cost.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawing forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

Figure 1 is a front elevational view of the latch in operative position on a window,

Figure 2 is a front elevational view of the latch, partly in section,

Figure 3 is a vertical sectional view showing the bolt in released position,

Figure 4 is a similar view showing the bolt in locking position,

Figure 5 is an enlarged sectional view through the stationary latch section in partly assembled position and,

Figure 6 is a transverse sectional view taken on the line 6—6 of Figure 1.

Referring to the drawing wherein for the purpose of illustration is shown a preferred embodiment of the invention the numeral 10 generally designates a fragmentary portion of the window sash mounted for swinging or sliding movement in a window frame.

Secured to the bottom rail of the window sash frame 10 adjacent one longitudinal edge thereof is a latch section 12 adapted to be securely fastened to the sash frame and cooperate with a complementary latch section 13 attached to the window frame 11. The upper movable latch section 12 embodies a rectangular shaped base plate 14 of longitudinally elongated form provided with a plurality of openings in its sides for receiving attaching screws 15. Formed longitudinally on the centre of the plate 14 and projecting from the face thereof is a hollow cylindrical sleeve 16 extending the entire length of the plate. Rigidly fixed in the intermediate portion of the sleeve 16 and projecting radially into the bore thereof is a pin 17, the purpose of which will be later described.

The complementary co-acting latch section 13 embodies a rectangular transversely elongated plate 18 adapted to be secured in position by screws 19 and formed with a hollow sleeve 20 on its longitudinal centre adapted to extend in longitudinal alignment with the sleeve 16 when the sections are in closing positions. The outer end of the sleeve 20 is enclosed by an end plate 21 while the inner end is interiorly screw threaded.

Slidably fitted in the sleeve 20 and adapted to be conveniently replaced when necessary, is a removable sleeve 22 the inner and outer ends having enlarged counter bores substantially equal in diameter to the bore of the complementary bore 16 while the intermediate portion is formed with a reduced longitudinal bore. The intermediate portion of the removable sleeve 22 is formed with a longitudinal slot 23 communicating with the end counter bores. The removable sleeve 22 is held in position by a threaded collar 24 adapted to be threaded in the upper end of the section sleeve 20 and tightly hold the removable sleeve in place.

Slidably fitted in the sleeve 16 and adapted for periodic engagement with the complementary sleeve 20 is a locking bolt 25 embodying a main cylindrical section 26 designed to be slidably projected through the sleeve 16 and the inner enlarged bore of the removable sleeve 22 positioned in the stationary sleeve 20. Formed at one end of the bolt 25 is a reduced longitudinally extending shank 27 slidably engageable with the reduced bore in the removable sleeve 22. Formed integral with or secured upon the opposed end of the bolt 25 is a knob 28 designed for convenient manipulation of the bolt and arranged to contact with the outer edge of the movable latch section 12. The intermediate portion of the bolt 25 is formed with an annular groove 29 adapted to coin-

cide with the inner end of the pin 17 when the bolt is in locking position. The enlarged portion of the bolt is also formed with a longitudinal groove 30 intersecting the annular groove 29 and arranged to slidably engage the pin during the longitudinal movement of the bolt. Tightly fitted in the lower extremity of the bolt and engageable with the enlarged counter bore formed in the outer end of the removable sleeve 22 is a fixed pin 31 rotatable in the counter bore and arranged so that the bolt may be withdrawn from the sleeve 22 when the pin 31 coincides with the slot 23. It will be noted that the main enlarged section of the bolt is constructed so as to extend entirely through the sleeve 16 of the movable locking section and project sufficiently to engage the counter bore in the adjacent end of the complementary lock section. When the lock is connected so that the complementary sections are necessarily spaced, the bolt 25 is of increased length corresponding to the distance between the adjacent ends of the lock sections.

In use, the present type of latch is adapted for application upon windows, sliding or swinging, and other various movable structures which are to be locked in closed or, in limited open positions. In the present example the latch is shown applied to a window preferably of the swinging type, the latch section 12 being attached to the swinging sash while the complementary co-extensive section 13 is secured to the stationary window frame. When the window is closed, as illustrated in Figure 1, the latch sections 12 and 13 will be arranged in vertical superposed positions, the bolt being in retracted position so that the intermediate groove 29 will engage the pin 17 of the upper section while the pin 31 carried by the lower end of the bolt will engage the enlarged recess formed in the bottom portion of the lower section.

To unlock the window for opening movement the bolt 25 is rotated through the instrumentality of the knob 28 until the longitudinal groove 30 coincides with the pin 17, the structure being designed so that the pin 31 will simultaneously coincide with the groove 23 in the lower section. The bolt can be then longitudinally extracted to disengage the stationary latch section 13 whereupon the window can be readily swung to open position.

It is, of course, apparent that the present construction is equally adaptable for sliding windows as, in locked position, the bolt is locked against longitudinal movement in the respective latch sections so as to prevent slidable operation of the window sash when the bolt is arranged in locking position in the sections.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same, and that various changes as to the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A latch of the character described comprising a pair of complementary sections, a bolt adjustably engageable with the sections, and means whereby the said bolt may be secured against displacement in the sections, including a pin fixed in one section engageable with a groove in the bolt, and a pin fixed in the bolt engageable with a recess in the complementary section.

2. A latch of the character described, comprising a stationary latch section having a longitudinal recess, a complementary section attached to a movable member, door or the like and formed with a longitudinal bore adapted to coincide with the recess in the stationary section in secured position, a pin fixed transversely in the complementary section and adapted to engage the recess of the stationary section in securing position, the said bolt being provided with an annular groove engageable with the pin of the complementary section upon rotation of the bolt, and a pin fixed in the lower end of the bolt and projecting therefrom adapted to engage an enlarged recess in the stationary latch section so as to secure the bolt against displacement when in securing position.

In witness whereof I have hereunto set my hand.

ONEIL GRAVEL.