A. TURNEY.

SASH LOCK.

APPLICATION FILED JUNE 12, 1916.

1,396,478. Patented Nov. 8, 1921.

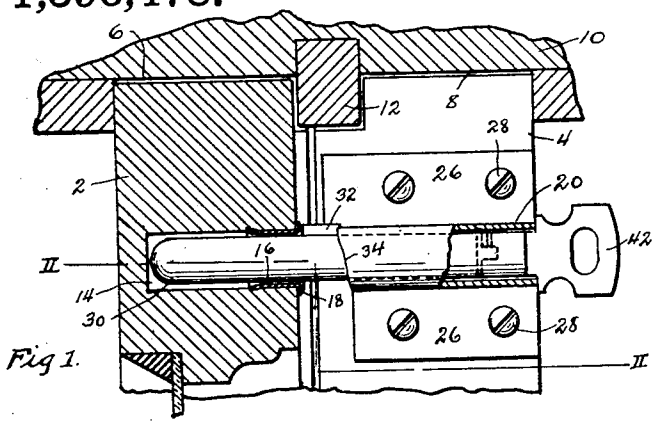


Fig 1.

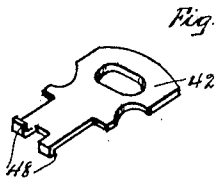


Fig. 6.

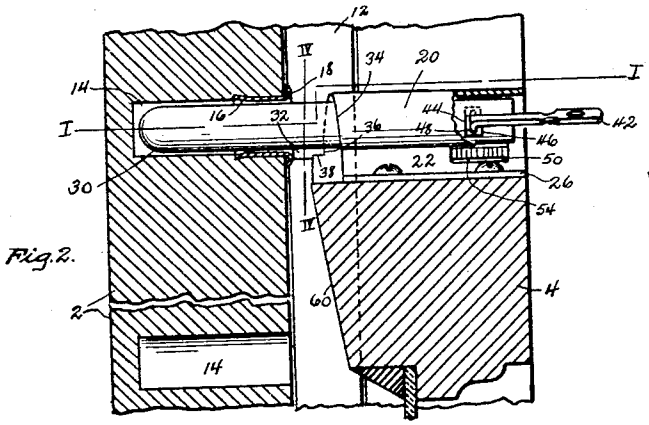


Fig. 2.

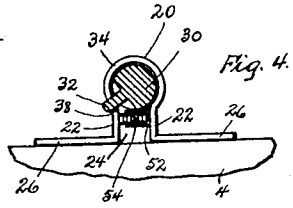


Fig. 4.

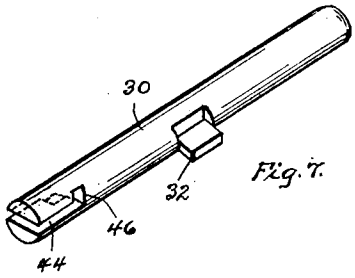


Fig. 7.

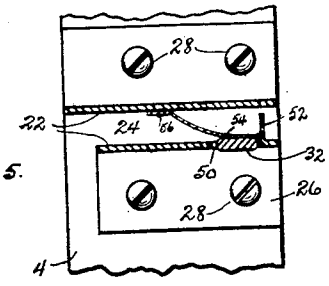
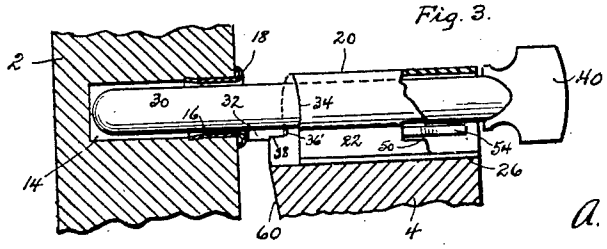


Fig. 5.

Fig. 3.



Inventor

A. Turney.

Witness:

R. Hamilton

By Chas. C. Gerard

His Attorney

UNITED STATES PATENT OFFICE.

ALBERT TURNEY, OF KANSAS CITY, MISSOURI.

SASH-LOCK.

1,396,478. Specification of Letters Patent. Patented Nov. 8, 1921.

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To all whom it may concern:

Be it known that I, ALBERT TURNEY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sash-Locks, of which the following is a full and exact specification.

The present invention relates to locking devices, and particularly to window locks of the side sash type. The principal object in view is to devise a construction adapted for convenient manual operation to effect binding of the sash members in the sash grooves or runways at any desired point by imparting a slight separating movement to the sashes while at the same time positively locking the same against relative vertical movement. To this end a locking bolt is provided for positively locking the sash members, being adapted to be projected into a bolt opening or socket in one of said members and arranged to coöperate with the margin of the opening for effecting a slight separating movement of the sash members when the bolt is turned.

Another object is to devise a locking device which is of few parts and simple in construction, cheap to manufacture and effective in its operation; and further objects will appear in the course of the detail description of the invention taken in connection with the accompanying drawing, in which—

Figure 1 is a horizontal sectional plan view of a lock construction embodying the present improvements, the section being taken on the line I—I of Fig. 2;

Fig. 2 is a vertical sectional view of the same, taken on the line II—II of Fig. 1, and Fig. 3 is a similar view illustrating a slightly modified form of construction;

Fig. 4 is a section on the line IV—IV of Fig. 2;

Fig. 5 is a horizontal section through the cam lug passage of the bolt sheath member; and

Figs. 6 and 7 are perspective views of the key and bolt members, respectively.

Referring to the drawing in detail, the usual sash construction is illustrated, comprising the upper sash member 2 and lower sash member 4, operating in the usual sash grooves or runways 6 and 8, respectively, formed in the window stile 8 and separated by the parting strip or bead 12.

In one side of the upper sash 2 is formed a series of bolt openings or sockets 14, each extending the major portion of the distance through the sash. The lower opening 14 is left plain (see Fig. 2), while the remaining openings 14 are each provided with a metallic thimble or sleeve 16, the inner end of which is expanded by any suitable method into tight frictional engagement with the walls of the socket. The outer edge of each thimble 14 is rolled to produce a slight marginal projection or bead 18 about the mouth of the opening, for a purpose to be explained.

Upon the lower sash 14 is mounted a bolt sheath member stamped out of a single strip of any suitable metallic sheet material to form a cylindrical portion 20 for providing a bolt passage, and parallel longitudinally extending portions 22 (arranged radially with reference to the bolt passage) for providing a cam lug passage 24, from the lower edges of which portions 22 project lateral flanges 26 adapted to rest flat upon the sash 4 and secured thereto by screws 28. The bolt 30, which is also of integral formation, is mounted within the sheath 20, and its forward end is rounded off for ready insertion into the openings 14 when opposite either the lower plain opening 14 or one of the upper openings provided with said thimbles or sleeves 16. Intermediate its ends the bolt 30 is swaged to produce a lug portion 32 adapted, when the bolt is traveling into or out of the openings 14, to move along the passage 24; but, when the bolt approaches the forward limit of its movement, said lug 32 is free to move out of the passage 24 and engages a cam edge 34 formed on the forward end of the sheath 20, whereupon, on rotation of the bolt, said bolt and its lug 32 are moved farther forward with the latter in engagement with the mouth of the opening, or its marginal projecting bead 18 and coöperating therewith to effect a separating movement of the sash members.

The sleeve or thimble 16 projects slightly beyond the mouth of the opening 14 producing an opening slightly longer than the opening which does not contain such thimble or sleeve and hence the outer margin of the openings containing such sleeve or thimble is nearer the plane of the lower sash than the opening which does not contain the sleeve or thimble, and it is to be understood that the openings referred to include

not only the opening in the sash proper but the lengthened opening formed by the bead on the thimble. The cam edge 34 terminates in a direction deviating slightly backward, as indicated at 36, Fig. 2, for holding the lug 32 properly seated in locking position; this deviation may be in the form of either a straight line at right angles to the bolt, as indicated at Fig. 2, or of a pocket as illustrated at 36′ in Fig. 3. A stop shoulder 38 is formed at the end of said seat portion 36, or 36′, for limiting the turning movement of the bolt by engagement with the lug 32.

For projecting and retracting the bolt, the same may either be formed with an integral handle portion 40, as illustrated in Fig. 3, or provided with a detachable handle or key member 42 so that, after the bolt has been projected into locking position, the key member may be removed and the bolt remain incapable of being retracted except by reapplication of the key. The key member 42 is adapted to be inserted into a slot 44 provided in the outer end of the bolt 30, said slot being formed at its inner end with the oppositely turned notches or recesses 46 for engagement by the similarly disposed prongs 48 provided on the end of the key member. Thus the key is adapted to be clutched with the bolt by a slight relative rotative movement of the parts, and the arrangement is such that the rotative movement for clutching the parts is that necessary for unseating the cam lug 32 (*i. e.*, counter-clockwise in the construction illustrated), for the reason that in unlocking the bolt it is essential that the key be securely clutched therewith for exerting the required pull in retracting the same. When the bolt is rotated in unlocking, the lug 32 is carried into the passage 24 and against the right hand side wall 22 of said passage (*i. e.*, the side wall formed with the stop shoulder 38), and as the bolt is retracted the reaction thus afforded by the pressure on the lug 32 serves to maintain the key securely clutched with the bolt.

Suitable stop means is provided for limiting the rearward movement of the bolt and preventing the same from being withdrawn from the sheath. For this purpose a slot 50 may be cut in one of the side walls 22 of the passage 24, into which slot the lug 32 may be rotated, and the opposite ends of the slot thus constitute stop shoulders preventing the movement of the lug in either direction until rotated back into the passage 24. The material of one of the side walls 22, moreover, may be struck inward, as from the slot 50 (see Fig. 5), to form a stop lug 52 projecting across the passage 24 and guarding against withdrawal of the bolt therefrom. Thus a stop shoulder, for limiting the rearward movement of the bolt, is produced in the example illustrated, of continuous form extending across the rear end of the slot 50 to the inner end of the projection 52 within the passage 24. A spring 54 is provided for the purpose of properly positioning the lug 32 between said stop shoulders when the bolt is retracted, this spring being secured at 56 at one side of the passage 24 and extending diagonally across the same to a point adjacent the rear end of the slot 50.

It will thus be apparent that a neat, simple and efficient arrangement and construction have been devised for fulfilling the objects of the invention. It will be understood that in locking the sashes, the bolt 30 is positioned opposite the desired opening 14 and projected into the latter until the lug 32 comes into engagement with the margin of said opening. If this should be the lower plain opening 14, used for simply locking the sashes in closed relation, it will be noted that it is unnecessary to make provision in the lock for binding the sash members in their grooves, for this function is taken care of at this point by the usual bevel formation 60 on the meeting rails of the sashes (only one of the bevel faces 60 being shown). For the lowermost opening 14, therefore, the bolt is designed to exercise merely a locking function for maintaining the sash members against relative vertical movement. With all the other bolt openings 14, since the said meeting rails do not engage, any separating movement of the sash members must be produced by the bolt's action, and accordingly the thimbles or sleeves 16 are provided for presenting the marginal projecting beads 18 for coöperation with the bolt through the medium of the lug 32 as the latter rides along the cam edge 34 during the rotation of the bolt. This operates to effectively spread the sash members apart and bind them against the outer edges of their grooves or runways 6, 8, in addition to locking the sashes securely against any relative vertical movement. The depth to which the bolt is projected into the upper sash (being a distance approximately one-half the length of the bolt, or at least twice the diameter thereof) is of importance, as this is such that when the bolt is once seated in one of the openings 14 it exerts a positive locking action which can not be overcome except by breaking or shearing off the bolt, and the bolt can not possibly be made to act cantaliverwise to pry off the sheath member 20. To release the sash members from their locked relation, it is only necessary to reversely rotate the bolt and retract the same, during which movement the lug 32 will engage the spring member 54 and be actuated thereby into position between the stop shoulders and held in such position during any movements of the lower sash member while unlocked. Obviously the device is not only simple and compact, but

is of inexpensive construction and not likely to get out of order, and while the foregoing represents what is now deemed to constitute the preferred form of embodiment of the invention, the right is reserved to such formal changes and modifications as may fairly fall within the scope of the appended claims.

Claims:

1. A sash lock construction comprising upper and lower sash members, the upper of said members being provided with a bolt-receiving opening, a bolt sheath carried by the lower sash member, said bolt sheath having one end formed as a cam edge of curved contour and corresponding in size to the size of said bolt-receiving opening and adapted to be positioned opposite and in register with said opening, and a bolt movably mounted on said lower sash member and adapted to be projected through said bolt sheath into said opening, said bolt being provided with a lug adapted, on turning of the bolt, to coöperate with said cam edge and the margin of said opening to effect a separating movement of the sash members.

2. A sash lock construction comprising upper and lower sash members having beveled meeting rails, the upper sash member being provided with a vertical series of bolt-receiving openings including a lowermost opening located for use on engagement of said meeting rails with each other, the outer margins of the upper openings of said series being located nearer the plane of the lower sash member than the outer margin of the lowermost of said openings, and locking means including a bolt carried by the lower sash member and adapted to be projected into any one of said openings, said bolt being provided with means coöperating with the margins of the upper openings of said series to effect a separating movement of said sash members.

3. A sash lock structure comprising a sash, a bolt sheath carried by said sash, and a bolt movably mounted in said sheath and provided with a lug, said sheath having its base portion formed with a housing intermediate the bolt and the top of the sash providing a longitudinal passage for accommodating the lug during the longitudinal movements of the bolt.

4. A sash lock structure comprising a sash, a bolt sheath carried by said sash, a bolt movably mounted in said sheath and provided with a lug, said sheath having its base portion formed with a housing intermediate the bolt and the top of the sash providing a longitudinal passage for accommodating the lug during the longitudinal movements of the bolt, said housing being provided with a slot in one of the side walls thereof near one end of said passage, and means acting automatically upon retraction of the bolt to swing said lug laterally into said slot.

ALBERT TURNEY.