The invention relates to a latch for use with a sliding closure member for a wall opening for adjustably limiting the space between an edge of the closure and the opposed side of the wall opening for preventing an undesired entrance of a person through the provided space from the outer closure side.

In general terms, an installed present latch device is particularly adapted for its one-way cooperation with sliding closures, such as a window sash installed in a window opening, for limiting the opening of the window aperture from the opposite or outer side thereof from the operatively installed latch beyond a set open position thereof, for providing ventilation, with the bolt of the latch normally operative as a stop to prevent the entrance through the provided opening, or a releasing access to the latch from the outside of the window by a would-be intruder. Also, the present latch device is arranged for its manual release from the inner sides of the window elements which mount its parts for providing a limited adjusted opening of the sash to an intrusion-preventing degree, while allowing a closing movement of the opened sash without requiring a manual release of the latch bolt.

An object of the invention is to provide a window latch device of the character described normally having its bolt member operatively disposed, but temporarily and manually displaceable in operative position solely against the action of gravity.

Another object is to provide a latch means of the present type which functions for all possible relative disposals of sliding sash of a cooperative pair of window sash in the space of a window opening.

A more specific object is to provide a window sash latch such that its cooperative parts are normally cooperative between the usual sash cross-members which are complementarily engaged when both sash of a pair cooperate to fully close the window opening, or while either or both sash are in an open position therefor, whereby the operating latch bolt is inaccessible from the outside when a limited intrusion-preventing opening is provided between the sash and the top and/or bottom of the window opening.

An added object is to provide a window latch device which may replace present cam lock devices which immediately lock the cooperative lower and upper sash together only when both sash are in closed positions.

Yet another object is to provide a window latching device which lacks spring members and requires the provision and use of a minimum number of particularly simple elements in its assembly.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth or be apparent in the following description of a typical embodiment thereof, and in the accompanying drawings, in which,

FIGURE 1 is a perspective view showing the present sash latch as applied to a cooperative pair of window sash slidably mounted in an installed window frame.

As illustrated, the latch device of interest is shown as applied directly to a variable connection of upper and lower pane-carrying sliding sash U and L which are variably cooperative with each in the window frame space defined between an upper head member H and a bottom sill member S and parallel jambs J of the window frame; in practice, the members of the upper and lower sash are usually independently counterbalanced in suitable manners (not shown) for remaining in set positions in opposed slideways J' and J" of the jambs J. As particularly indicated, the sash U and L respectively have upper cross-bars U' and L' and lower cross-bars U" and L" with said cross-bars of the different sash connected by sash side bars T" and T' which are retainedly engaged in the slideways J' and J" provided by the jambs, and with the lower and upper cross-bars U" and L' of the respective sash U and L formed for their lateral interengagement with each other transversely of the mutually parallel sash planes for weather-sealing purposes when the window space is fully closed by the cooperating sash.

In its preferred form, the present latching device essentially and solely comprises a unitary dogging assembly 8 fixedly mounted on one end of the upper cross-bar L' of the lower window sash L and an elongated plate member 9 fixedly mounted on the corresponding side bar of the upper sash U providing a line of spaced circular keeper openings therein and thereon for cooperation with a relatively straight and uniform latch bolt 11 of the dogging unit 8 which comprises a support member 12 carrying the bolt 11 on a pivot pin 13 that transversely engages the bolt 11 intermediate thereof for a limited swinging thereof in an upright working plane including the line of rack openings 10. The weight of the dogging bolt 11 is preferably so distributed with respect to its axis of swinging on the pivot pin 13 that the bolt portion 14 providing its rack-engaging working end 15 is constantly biased by gravity to a limited lowered position, while the other bolt portion 16 extends beyond the adjacent face of the upper cross-bar L' of the mounting sash L for its downward manual engagement to rock the bolt against gravity resistance for operatively disposing its working end 15 with respect to the rack openings.

In its present embodiment, the unitary dogging assembly 8 further includes a flat-bottomed base part 17 arranged for its fixed mounting upon the top of a cross-bar L' of a lower window sash L, and provides spaced opposed upstanding parallel rib portions 18 and pivot pin 13 for securing the latch bolt 11 between them for swinging in its operative plane, with the manually engageable bolt portion 16 extending inwardly of the cross-bar L' of the inner sash L while the other working bolt portion 14 extends outwardly beyond the part 17 for a normal dogging application of its end 15 to a rack opening 10. As shown, an inner portion 19 of the base part 17 depends from said part to provide an inside corner for fittedly receiving the supporting said cross-bar L', and said portion is provided with at least two holes 19' for receiving attaching screws 19" for the mounted unit.

The opposite inner and outer upper side edges 21 and 22 of the sash-mounted plate 17 are arranged for engagement by the pivoted bolt 11 for functioning as stops to limit a swinging of the bolt through a relatively small angle of the order of thirty degrees between positions in which the bolt portion 14 is respectively disposed in its limiting lowered and raised positions.

It will now be noted that the diameter of the rack openings 10 is such that when a bolt end 15 is disposed therein, and a downward manual displacement of the portion 16 is effected to its permitted limit, the resulting raising of the arm 14 providing the working end 15 of the bolt is arranged to swing said end inwardly of the
exposed rack face 9’ to free both sash for their independent adjustments. Accordingly, when a unit 8 is mounted on the upper cross-bar L’ of the lower sash L at an end thereof for a movement of the gravitatively-lowered dogging end 15 of the bolt 11 opposite and along the corresponding side bar T’ of the upper sash U while the sash U and L are disposed in their limiting raised and lowered positions to cooperatively close the window opening, a rack member 9 would be fixedly attached to the opposed inner face of the side bar T’ of the upper sash U, as by screws 23 applied through transverse openings provided in the rack, while the bolt end portion 15 rests on the bottom of the lowermost rack with its top edge disposed substantially horizontally as by the downward positioning pressure of a finger G applied to its arm 16 and indicated in FIGURE 6.

Having the mounted dogging assembly 8 and the rack member 9 related to the associated sash U and L, as aforesaid, it will be understood that when the latch bolt 11 is gravitatively positioned in supported engagement with the outer edge 22 of the base 17 of the unit 8, a lowering of the upper sash U will be limited to the relatively short movement permitted by the lowering of the upper side of the bolt-receiving rack opening 10 to engage its top with the upper side of the bolt at its end 15 if the lower sash is fully lowered, or a continued such movement will effect a downward closing movement of the raised lower sash, whereby the desired maximum total window opening provable at its top or bottom will be maintained. Similarly, an appreciable raising of the lower sash L will be limited to the relatively short movement permitted by the raising of the bolt to engage the upper side of the bolt end 15 with the upper side of the bolt-receiving rack opening 10 to engage its bottom with the under side of the bolt at its end 15 if the upper sash is then fully raised, or a continued such movement may effect an upward closing movement of the lowered upper sash, whereby the total window opening provided will again be maintained.

It will now be noted that when both of the sash U and L are in full closing position in the window opening with the bolt extending into a rack, or latch plate, opening 10, the gravity-positioned bolt end portion 15 (FIGURE 4) is then operative to prevent free adjustments of either sash from the outside of the window. At the same time, if the latch bolt 11 is manually rocked from the inside of the window by the downward application of a finger to the bolt arm portion 16 to effect an inoperative disposal of the bolt end 15 with respect to any rack opening 10, the sash are then mutually freed for their independent adjustment until the bolt is released for its re-positioning to enter an opening 10 for again connecting the sash in their current relation. On the other hand, while the bolt end 15 is operatively disposed in a rack opening 10, a closing movement of either sash from an open position thereof is permitted by reason of a ratchet coaction of the bolt end 15 along the rack as a gravity-positioned pawl with respect to the rack openings whenever a possible closing movement of either sash is effected, whereby only the same or a reduced total opening is provable in the window space without requiring a manual rocking of the bolt.

Understanding that a present latch device may be provided at one or both sides of a cooperative pair of sliding window sash, it will be understood that an operative installation thereof eliminates the need for present cant-type locks for intermediately connecting the upper and lower cross-bars of cooperative sliding window sash. Furthermore, a present latch assembly 8 requires only a one-piece keeper rack 9, the one-piece latch bolt 11, a castable bolt-mounting base unit 12, the pivot pin 13, and usual screws for securing the rack 9 and the unit 12 to the different wood or metal sash members T’ and L’, and

is therefore particularly simple and inexpensive to produce.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the present window sash latch arrangement will be readily understood by those skilled in the art to which the invention applies. While I have shown and described a structure and relations of parts which I now consider to present a preferred embodiment of my invention, I desire to have it understood that the showings are primarily illustrative, and that such changes and developments may be made, when desired, as fall within the scope of the following claims.

I claim:
1. In a means for normally preventing an increased relative opening movement of a pair of mutually parallel and lapped outer upper and inner lower sash in a framed window opening for their relative adjustment in the opening between limited open and closed positions with respect to the top and bottom of the opening, means on an upper right member of the outer sash providing an upright line of inwardly-opening bolt-receiving recesses, a rigid and straight elongated bolt member carried on and transversely across the inner sash, means for oppositely directed arm portions thereof with the outwardly-directed bolt arm terminating in a working end portion selectively engageable in a said recess to normally hold the sash of the pair against relative opening movements while the upper edge of the working end of the bolt is slightly downwardly inclined and in engagement with a pair of said mounting means while a ratcheting relative closing movement of the sash is permitted, said bolt being swingable upwardly about said axis for a disposal of its recess-engaging engagement in a said recess inwardly of the opposed recess side bar of the outer sash and its said arm downwardly inclined and in engagement with a second part of said mounting means to then disengage the sash for their free relative adjustment in the window opening and the other said arm being constantly exposed inwardly of said hinging means for its direct manual engagement from above for effecting said upward swinging of the bolt through a relatively small acute angle to provide free adjustability of the sash.

2. The combination of claim 1 whereof the means mounting the bolt member comprises a support element fixed upon the top of the lower sash and providing hinging mounting for the bolt, the bolt arm providing the working end portion thereof is gravitatively biased to a lowered position, and said bolt-mounting element provides a stop means for preventing a lowered disposal of the latter arm to withdraw its working end from a receiving said recess.

3. The combination of claim 2 whereof the bolt-mounting element provides a stop means for so limiting a manually-effected upward swinging of the recess-engaging bolt from a recess that said arm remains biased toward its lowered position.

References Cited by the Examiner

UNITED STATES PATENTS

758,952 5/1904 Baxter
1,141,286 6/1915 Takacs
1,870,332 8/1933 Jokubaitis
2,257,996 4/1941 Mitchell
2,495,930 1/1950 Guinard
2,718,422 9/1955 Peoples.

EDWARD C. ALLEN, Primary Examiner.
RICHARD E. MOORE, Examiner.