

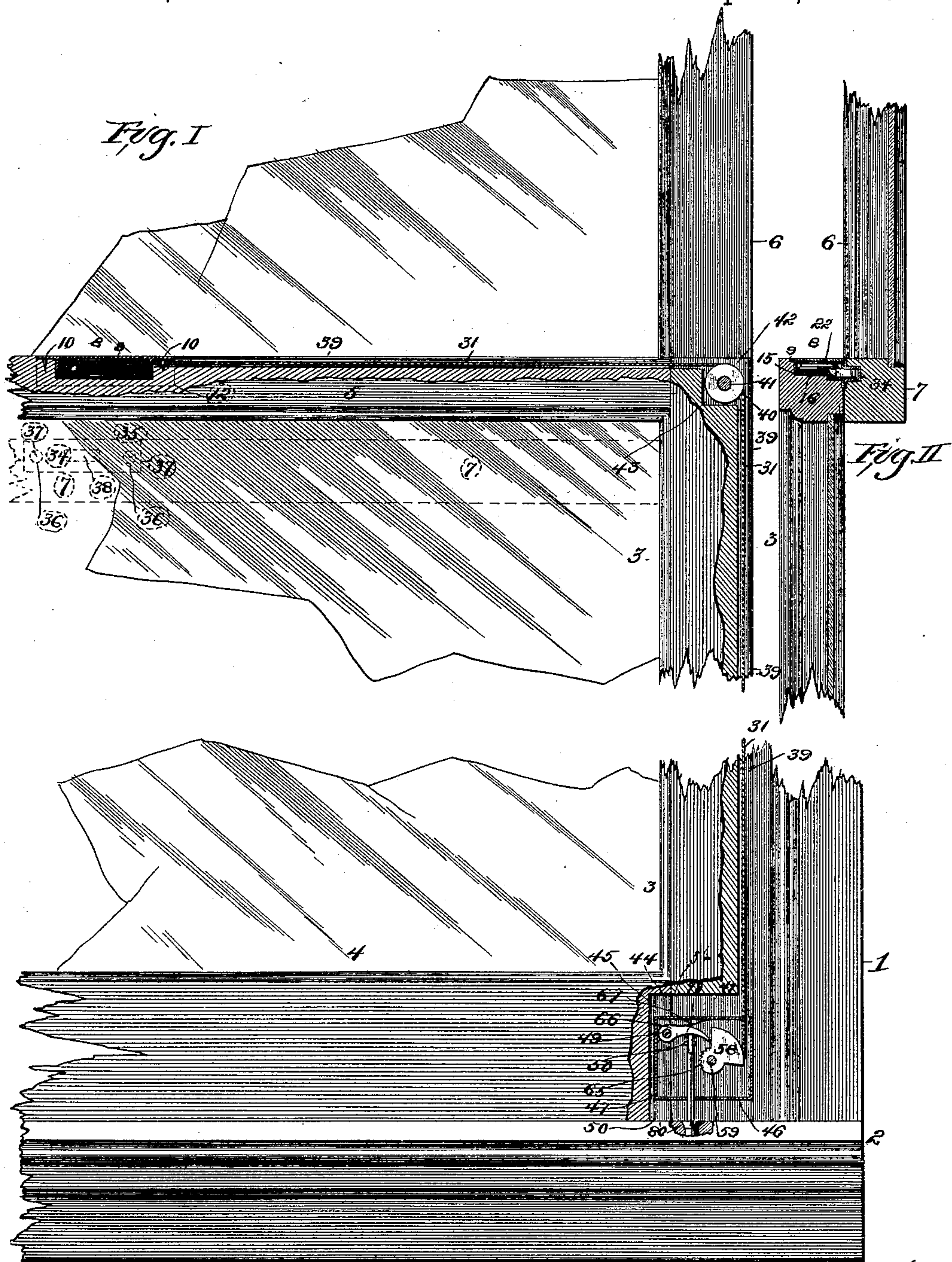
(No Model.)

2 Sheets—Sheet 1.

G. SOLARI.
AUTOMATIC SASH FASTENER.

No. 482,280.

Patented Sept. 6, 1892.



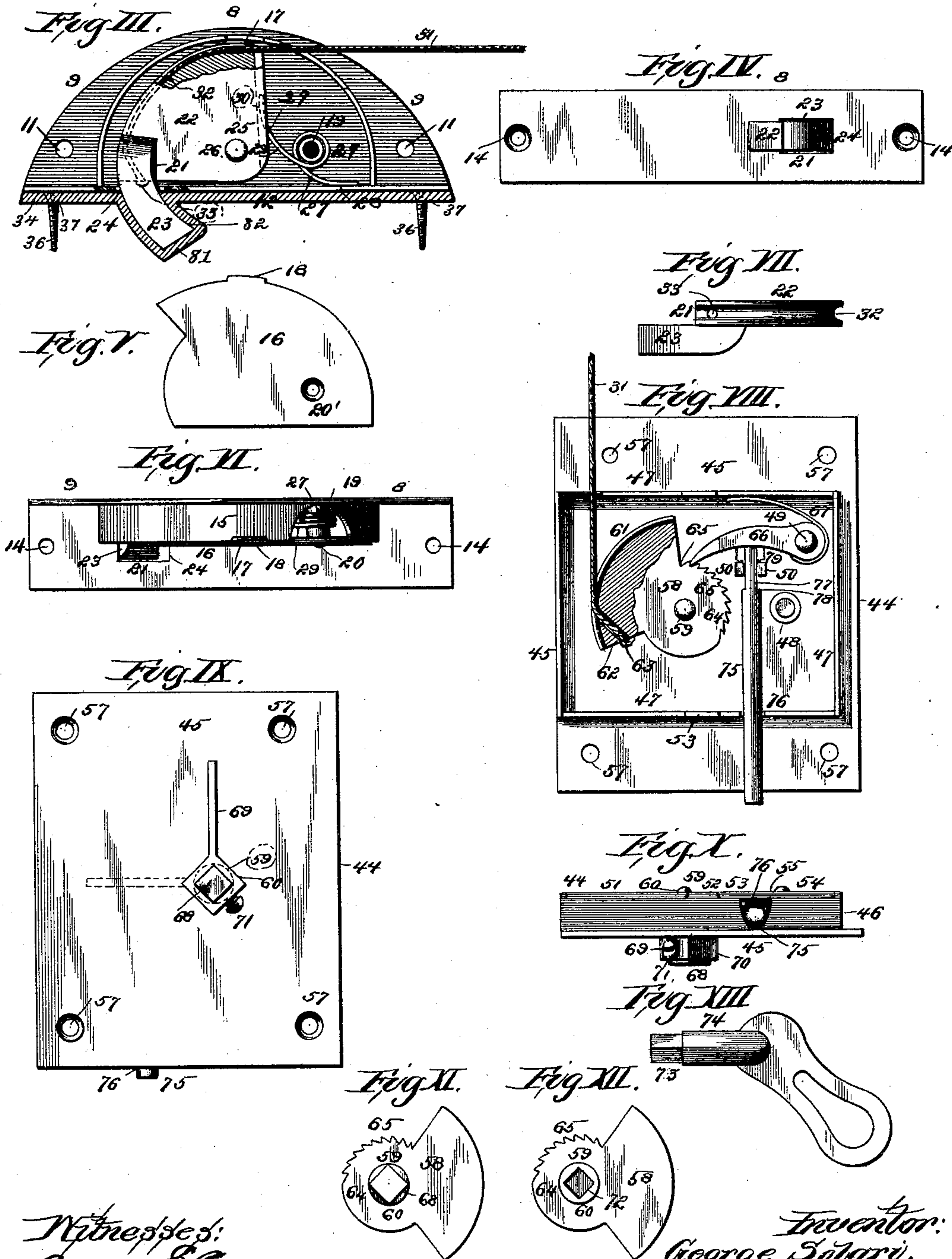
Witnesses:
George C. Elerum
Harry J. Parker

Inventor:
George Solari,
By Knight Bros.
Attys.

G. SOLARI.
AUTOMATIC SASH FASTENER.

No. 482,280.

Patented Sept. 6, 1892.



Witnesses:
George E. Clarke.
Lamp J. Rohrer.

Inventor:
George Solari.

By Knight Bros. Attys.

UNITED STATES PATENT OFFICE.

GEORGE SOLARI, OF ST. LOUIS, MISSOURI.

AUTOMATIC SASH-FASTENER.

SPECIFICATION forming part of Letters Patent No. 482,280, dated September 6, 1892.

Application filed April 5, 1892. Serial No. 427,912. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SOLARI, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Automatic Sash-Fasteners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention relates to a self-locking anti-burglar sash-fastener which has a hid lock and a hid trip-trigger bolt and spring-actuating device for effecting said lock, the said lock being embedded in the meeting-rails of the
15 sash, and the concealed automatic tripping device being far removed from said lock, where it would be unsuspected by burglars, in the bottom of said sash, and the trip-bolt, as the sash closes, coming in contact with a
20 metal boss-plate in the sill is thrown up and trips a pawl from its ratchet-seat in the circle stem of a quadrant-plate, which quadrant in its constrained ratchet-held position by means of a connecting-cord had previously withheld
25 the spring-lock bolt from engagement, which bolt thus automatically released, locks the meeting-rails of the sash.

Figure I is an inside detail elevation of the automatically-locked window-sash with parts
30 broken away to effect a larger view, and other parts broken away to show the embedded spring-lock fastening of the meeting-rails; also the trip-bolt, spring-pawl, ratchet-quadrant, the captor-cord that connects said quadrant to the spring-bolt of the lock, and the
35 pulley-wheel, around which said cord rides. Fig. II is a detail vertical section and shows the embedded spring-lock in its engaged position. Fig. III is a top view of the spring-
40 lock with its inner casing-plate removed, and shows the quadrant backing-plate of the bolt with part broken away to show the moorage of its captor-cord. It also shows the spring that enforces the engagement of the bolt when
45 released by said captive cord and the keeper-plate with its safety-box, into which said bolt is sprung and guarded. Fig. IV is a front view of the lock and shows the bolt sprung forward into its engaged position. Fig. V is
50 a top view of the cap-plate. Fig. VI is a rear view of the lock and shows the spring mounted on its pedestal. Fig. VII is a perspective view

of the spring-lock bolt and integral quadrant backing-plate. Fig. VIII is a rear view of the automatic tripping device and shows the
55 quadrant with part broken away to show the attachment of the captor-cord that restrains the spring-pawl ratchet-lock of said quadrant, that in conjunction with said cord holds said lock-bolt
60 captive in its unlocked position, as also the trip-bolt, which as it strikes the sill in the closing of the sash, trips said spring-pawl from its ratchet-hold of the quadrant, and thus releases the previously captive lock-bolt, whose
65 spring then throws the same into its locked position in the keeper. Fig. IX is a front view of the attachment-plate, which carries said tripping device and which is secured on the inside to one of the lower corners of the lower sash.
70 It also shows the screw-set lock winding-key mounted on the axle that carries the quadrant, by which key said quadrant with its captive cord is turned to withdraw the spring-bolt of the lock, to release the sash for raising,
75 and when the lock-bolt is thus withdrawn the spring-pawl and ratchet holds said quadrant and captive cord in their restraint of said bolt until when the sash again descends the automatic trip-bolt again throws up and
80 releases said pawl. Fig. X is a bottom view of the boxing that carries said tripping device. Fig. XI is a side view of the quadrant, and shows its pawl, ratchet-seat and key-stem. Fig. XII is a modification of said quadrant and
85 shows a keyhole-socket to its winding stem, and Fig. XIII is a perspective view of a modification of the winding-key, which has a square stem that fits in the keyhole-socket shown in Fig. XII.
90

Referring to the drawings, 1 represents the window-frame, 2 the window-sill, 3 the side-rails of the lower sash, 4 its base-rail, and 5 its meeting-rail.

6 are the side rails of the upper sash, and 7 is its meeting-rail.

8 represents the spring-lock that fastens the meeting-rails, and consequently locks both sashes. The boxing of said lock is constituted of the top boxing-plate 9, which is countersunk in the top of the meeting-rail 5 of the
100 lower sash, to which it is secured by the screws 10, seated in the perforations 11, the integral facing-flange 12 of said boxing-plate,

which is countersunk in the meeting face of said meeting-rail, to which it is secured by the screws 13, seated in the perforations 14, the integral pendent circumferential flange 15 and the attachable inner case-plate 16, which fits within said facing-flange and within said circumferential flange in a notch 17, in which latter flange the projecting lug 18 of said plate is seated. The said attachable plate also rests on the screw-socket spring-bearer pedestal 19, that is pendent and projects from the top plate, and said attachable plate is secured to said pedestal by the screw 20, which is seated in the perforation 20' in said plate and engages in the screw-socket of said pedestal.

21 represents the pivotal spring quadrant-bolt of said lock, which is of a peculiar formation, having a quadrant-shaped backing-plate 22 that insures a sufficient momentum to its movements and provides vantage ground for the attachment and working of its various coadjutory parts. The arc-shaped bolt proper 23 is integral with said quadrant-plate and works in its throw and withdrawal through the slot-aperture 24 in the facing-flange 12. The said quadrant-plate is mounted and has its movements on the pivot-pedestal 25, which is pendent from the top boxing-plate 9 and is seated in its bearings 26 in said plate.

27 represents the spiral spring, which is mounted on the pedestal 19, and whose heel 28 is braced against the inner side of the facing-flange 12, and whose active arm 29 has its elastic drive-seat in and against the concave rear edge 30 of said quadrant-plate, so as to enforce the locking-engagement of said bolt, except when it is held captive and restrained by the combined captor and trip cord 31, which cord is preferably made of brass wire but may be of any other suitable material, and is seated in the concave channel-groove 32 in the arc edge of said quadrant, and its end is passed through the perforation 33 in the quadrant and is knotted or otherwise secured at the outer end of said perforate seat.

34 represents the keeper-plate, which is countersunk at 35 in the inner edge of the meeting-rail of the upper sash and is there secured by the screws 36, which are seated in the perforations 37 in said keeper. The lock-bolt 23 engages in the slot 38 in said keeper when it is sprung into locking-engagement, being seated in its safety-box 81 of said keeper.

39 represents a channel-groove in the upper edge of the meeting-rail 5 of the lower sash and in the outside edge of one of the side rails 3 of said sash, and 40 is a pulley-box on the journal-pin 41 of which the pulley-wheel 42 is mounted. The said pulley-box and its pulley are countersunk at 43 in the upper outer corner of said side rail of the sash. In said channel-grooves 39 and around said pulley-wheel 42 the said captor-cord 31 is bedded and works.

44 represents the automatic tripping device, whose boxing front plate 45, facing-flange 46, box-rim flanges 47, screw-socket pedestal 48, pawl-journal pedestal 49, and trip-bolt-carrier lugs 50 are all cast or made integral.

51 represents an inner cap-plate, which is seated on the rim-flanges 47 and whose side notches 52 clamp onto the projecting lugs 53, and the screw 54, which is seated in the perforation 55 in said cap-plate, engages in the aforesaid screw-socket pedestal 48 and with the aid of said lugs 53 holds the cap-plate to the boxing it caps. The said boxing, which carries the captor and the tripping devices that automatically spring the lock to fasten the sash, is countersunk at 56 in the inside lower corner of the sash beneath the channel-groove 39, and it is secured to said sash by screws which are seated in the perforations 57 in the front plate 45 and are screw-seated in said sash.

I will now describe the captivating and automatic trip-releasing works located within said box.

58 represents the captor quadrant-plate, whose side journals 59 have their perforate bearings 60 in the front plate 45 and in the inner cap-plate 51. 61 represents the arc shaped and grooved edge of said captor quadrant-plate, which along said circumferential surface said edge is grooved in a convex form to make a bed for the combined captive and trip end of the aforesaid captor-cord 31, whose extreme end passes through a perforation 62 in said quadrant-plate and is knotted at 63 or otherwise secured. The rear pivotal end of said quadrant-plate is of circumferential form 64 and bears a ratchet-toothed edge 65, in which in the unlocked position of the sash the point of the pawl 66 engages, which pawl is mounted on the aforesaid pivotal pedestal 49, and said pawl is held to said engagement with said ratchet-teeth by the spring 67, which spring is secured to the rear of said pawl and its loose end engages against the upper rim of the box-flange 47.

68 represents the square key end, that projects beyond the enlarged round journal 59 in front of the bearing in the front plate 45, and 69 is the key whose square flange-seat 70 is seated on and embraces said key-head and is there secured by the set-screw 71.

In Fig. XII is shown a modification in which instead of said square key-head a square-socket keyhole 72 is made in said journal-shaft, in which the square stem 73 of the modified key 74 is seated.

75 represents the automatic pendent trip-bolt, that passes through and works in the slot 76 in the under flange 47 of the box, and its reduced elongated neck 77 between its shoulders 78 and head 79 is seated and works vertically between the aforesaid projecting carrier-lugs 50.

80 represents a metal boss or plate that is inlaid in the window-sill immediately beneath

the trip-bolt. The said boss may be, as shown in Fig. I, the head of a screw, which screw is inserted in said window-sill or other like device.

5 The operation of the device is as follows: Supposing the sash to be open and, consequently, unlocked, then the captor-cord, ratchet-toothed quadrant, spring-pawl, and automatic trip-bolt will be in the position shown
10 in Fig. VIII. In said position the brass captor-cord 31, being held in stress by the pawl-ratchet and captive quadrant-plate, draws the captive pivoted quadrant-plate 22 of the spring-lock, so as to withdraw its bolt 23 clear
15 within the facing-plate 12 of said lock. When said open sash or window is closed, then the lower end of the trip-bolt 75 strikes the boss 80 in the window-sill, thus elevating said bolt and the spring-pawl 66, the point of which
20 pawl is thus tripped out of its ratchet-seat 65, and the pivoted captor quadrant-plate 58, being itself released, releases its draft *via* the captor-cord on the pivoted-spring quadrant-bolt 21, which latter is immediately pre-
25 cipitated by the spiral spring 27, so that its then projecting bolt 23 engages in the keeper 34 in the corresponding meeting-rail 7, the said bolt being housed and guarded from the intrusion of burglar-tools by the afore-
30 said safety-box 81, against the arc turn 82 in which box said bolt also clamps to prevent the rattling of the meeting-rails.

When it is required to again unlock the sash or window, the key 69 or the modified
35 insertible key 74 is turned from the position shown in broken lines in Fig. IX to that shown in full lines in the same figure, which action turns around the captor-quadrant 58 from the position shown in Fig. I to that shown in Fig.
40 VIII, in which the pawl again engages in its ratchet-seat 65, and the captor-cord 31 again withdraws the pivoted captive quadrant-plate 22 of the lock and its bolt 23, so that the sashes can be respectively raised and lowered
45 and the window opened.

The meeting-rails when in engagement are spring-locked by the automatic action of the pendent trip-bolt, and not only is said lock concealed out of sight of burglars or of any
50 parties who may seek surreptitiously to open the window, but also the means of tripping the release of the captive bolt to effect the lock and of unlocking the same is also concealed, and that at a remote corner from said
55 lock where it would be unsuspected by parties outside.

I do not confine myself to a metal cord or cable which, as previously stated, is preferably made of brass wire, for what is termed the
60 "captor-cord" in the specification, for it may not only be made of any other suitable material, but also it may be in the form of a chain instead of a cord.

The keeper-plate 34 has an integral recess-box, into which the lock-bolt springs, which
65 makes a safety-guard around the sprung bolt

that protects it from the assaults of burglars, who are thus prevented from boring through the meeting-rail of the sash from the outside to the end of said bolt and then forcing it
70 back.

It will be seen that the pivoted quadrant lock-bolt, moving on the arc of a circle, effects a grasping-clutch hold within said safety-boxing of said keeper, and thus clamps
75 the meeting-rails of the sash tight together, and prevents the rattling of the sash from the wind, and also effects a tight joint that is impervious to drafts. It will also be seen that when unlocked either sash may be
80 raised and lowered independent of the other.

I claim as my invention—

1. In a sash-fastener, the combination of the spring-lock that fastens together the meeting-rails of the sash, the captor-cord that capti-
85 vates the spring-bolt of said lock in its disengaged position, and the pivoted captor quadrant-plate that holds said cords, substantially as described.

2. In a sash-fastener, the combination of the
90 spring-lock that fastens together the meeting-rails of the sash, the captor-cord 31, the pivoted captor quadrant-plate 58, connected by said cord to the bolt of said lock, the ratchet-teeth 65 on said quadrant-plate, and the
95 spring-pawl 66, that engages in said ratchet and maintains the stress of said quadrant-plate on said cord, substantially as described.

3. In a sash-fastener, the combination of the
100 spring-lock that fastens together the meeting-rails of the sash, the captor-cord 31, the pivoted captor quadrant-plate 58, the ratchet-teeth on said captor-plate, the spring-pawl that engages in said teeth, and the automatic
105 trip-bolt 75, that trips said pawl out of engagement with said ratchet, substantially as described.

4. In a sash-fastener, the combination of the pivoted spring captive-quadrant lock-bolt 21, the captor-cord 31, that when said lock-bolt
110 is not engaged holds it captive, the spring 27, that when said bolt is released by said cord throws it into its engaged position, the keeper 34, and the safety-box 81, the said box having the anti-rattler locking-surface 82, against
115 which said bolt locks, substantially as described.

5. In a sash-fastener, the combination of the countersunk boxing of the spring-lock, embedded in one of the sash-rails, the keeper-
120 plate having its safety-boxing 81 embedded in the corresponding sash-rail, the pivoted quadrant-bolt, the spring that projects said bolt into engagement with said keeper-plate, the captor-cord 31, the captor-plate 58, that
125 holds the initial end of said cord, the serrated rack on said captor-plate, the pivoted pawl 66, whose point when the spring-bolt is held captive engages with said rack, the
130 spring 67, that projects said pawl, the trip-bolt 75, having the elongated neck 77, and the trip-bolt-carrier lugs 50, between which

said elongated neck is seated and works, substantially as described.

6. In a sash-fastener, the combination of the window-sill, the boss 80, embedded in said sill, the upper and the lower sash, the spring-lock countersunk in the meeting-rail of one sash, the keeper countersunk in the corresponding meeting-rail of the other sash, the captor-cord 31, secured to the spring-actuated bolt of said lock, the perforate seat 33, in which said cord is secured, the serrated rack and grooved captor pivoted plate 58, the perforate seat 62, in which the other end of said captor-cord is secured, the pivoted spring-pawl which engages with said rack, the trip-bolt 75, that vertically surmounts said boss 80 and when the sash is closed strikes the same and trips said

pawl from engagement with said rack, substantially as described.

7. In a sash-fastener, the combination of the spring-lock 8, the captor-cord 31, that controls the action of the spring-bolt of said lock, to which bolt it is secured, the pivoted captor-plate 58 with its serrated rack 65, to which captor-plate the other end of said cord is secured, the pivoted spring-pawl 66, the automatic trip-bolt 75, the key-seat stem of the journal-shaft of said captor-plate, and the key that operates the same, substantially as described.

GEORGE SOLARI.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.