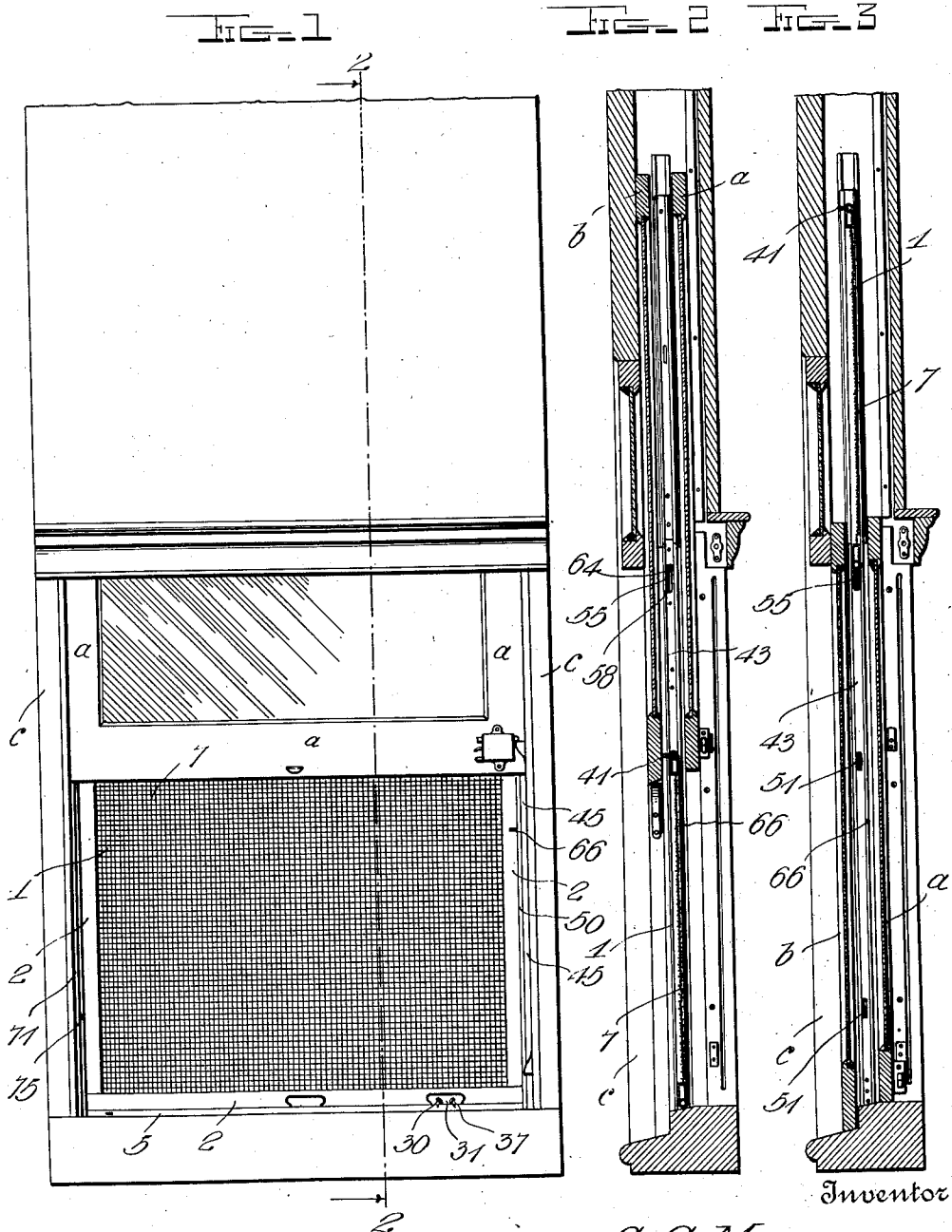


C. G. MORGNER.
 SCREEN FOR CAR WINDOWS.
 APPLICATION FILED FEB. 26, 1912.

1,047,828.

Patented Dec. 17, 1912.

5 SHEETS—SHEET 1.



Witnesses

E. Clement
C. E. Hunt

C. G. Morgner

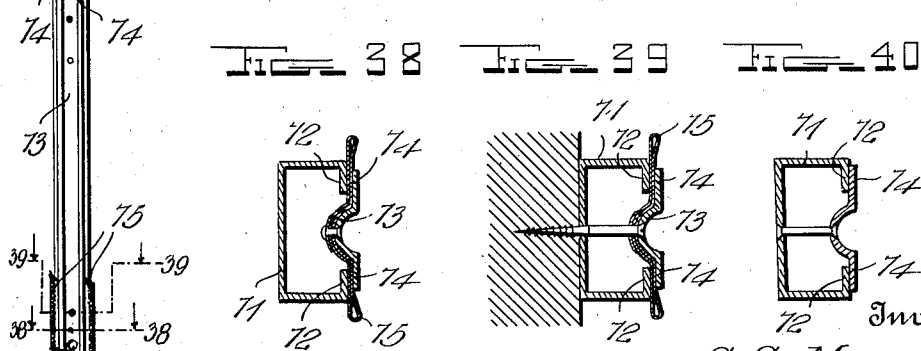
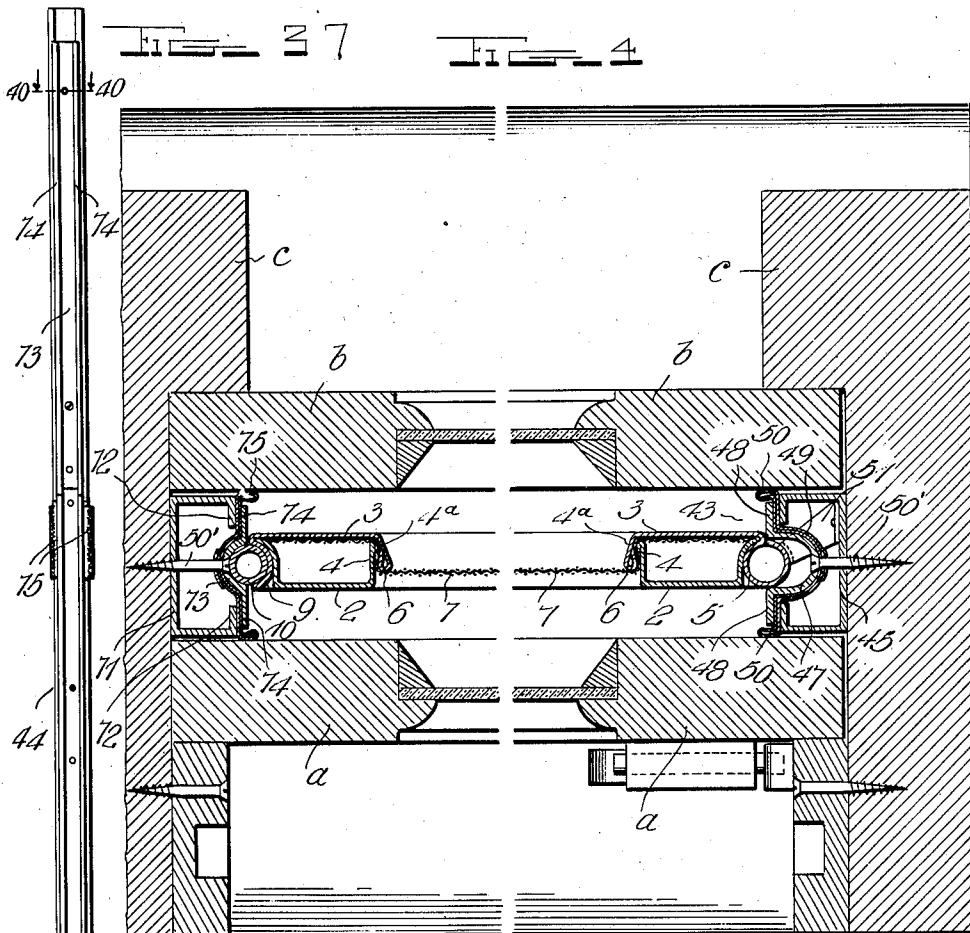
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5 SHEETS—SHEET 2.



Witnesses
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 C. E. Hunt

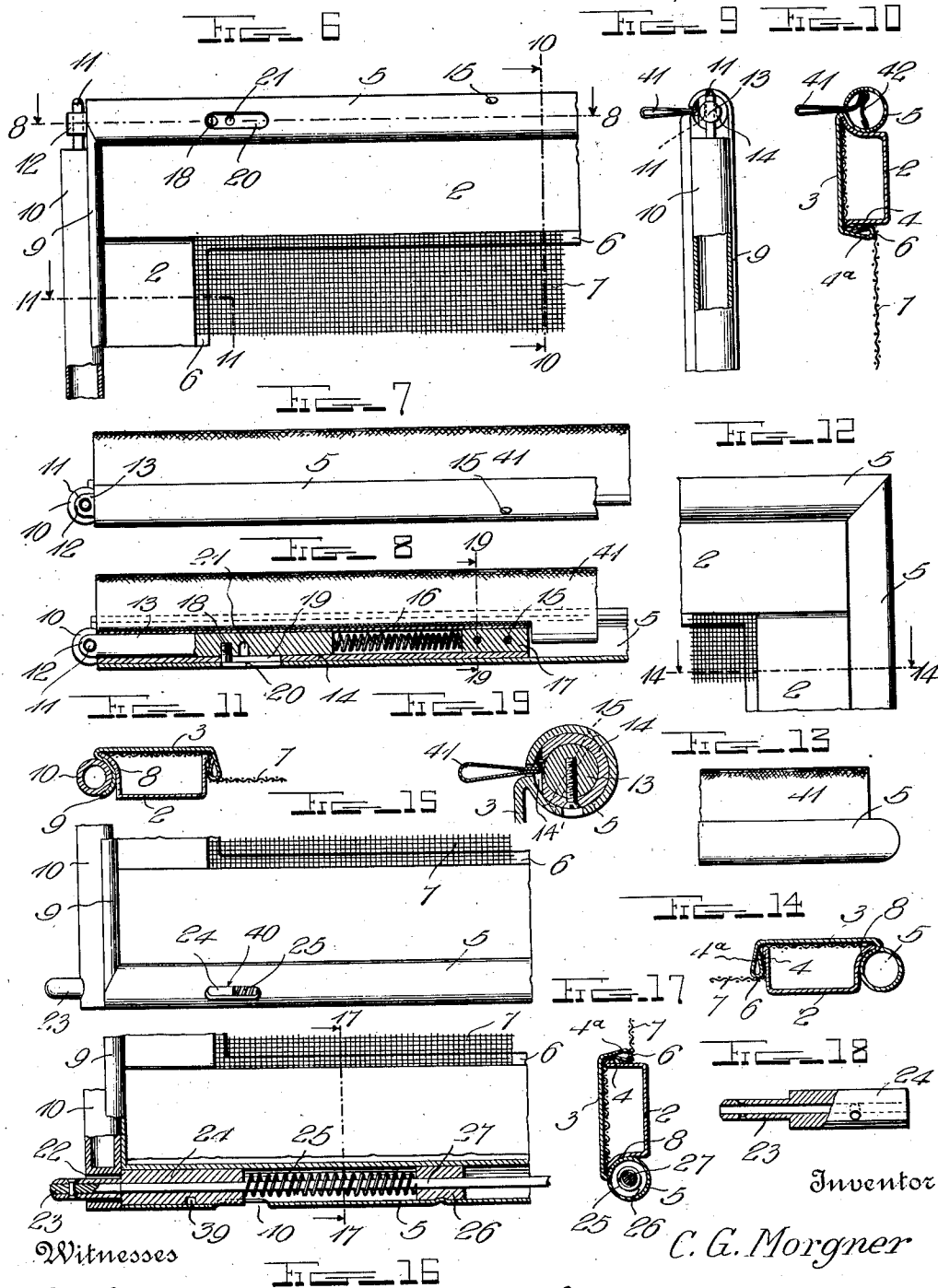
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5 SHEETS-SHEET 3.



Witnesses
 C. E. Hunt.

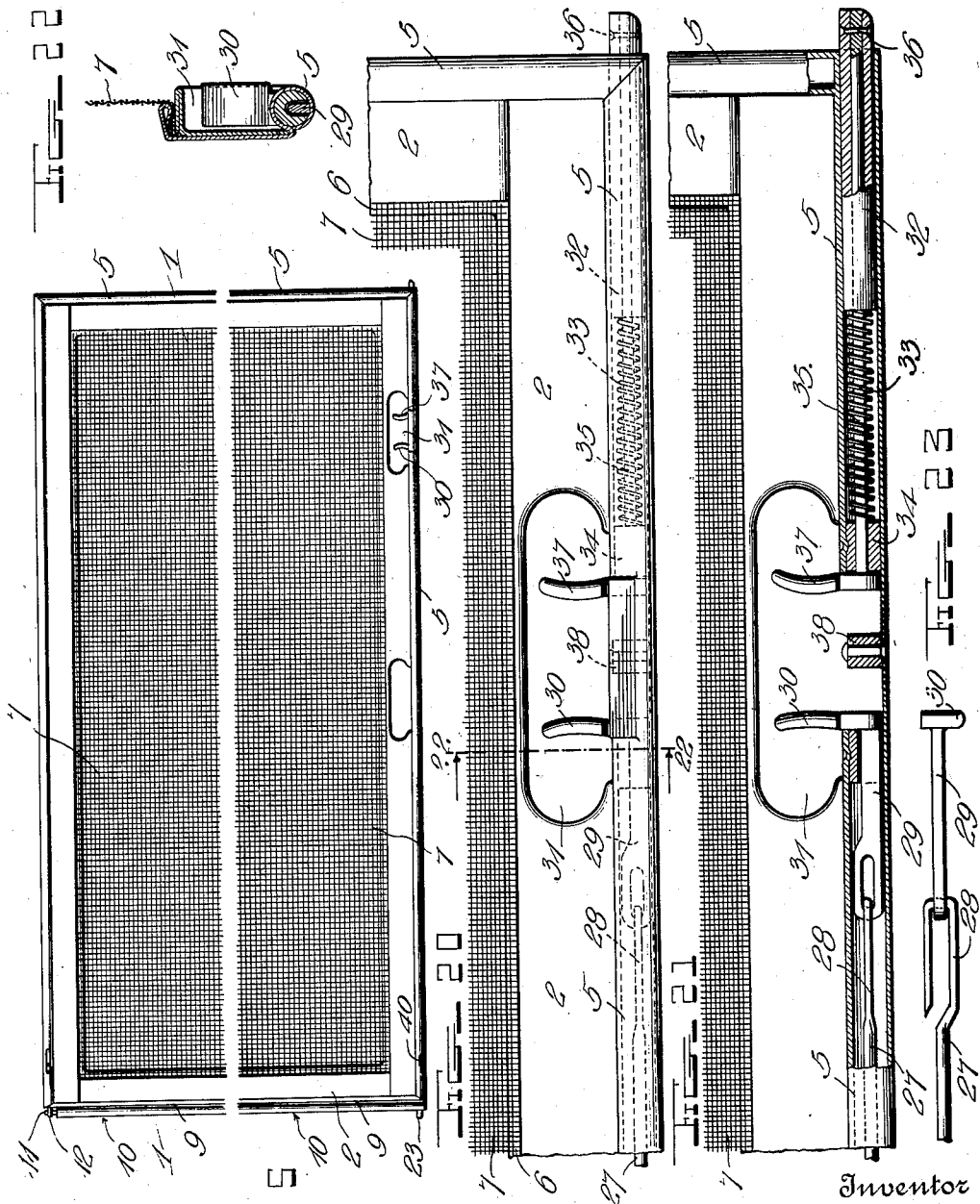
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5 SHEETS—SHEET 4.



Witnesses
 C. E. Hunt
 C. E. Hunt

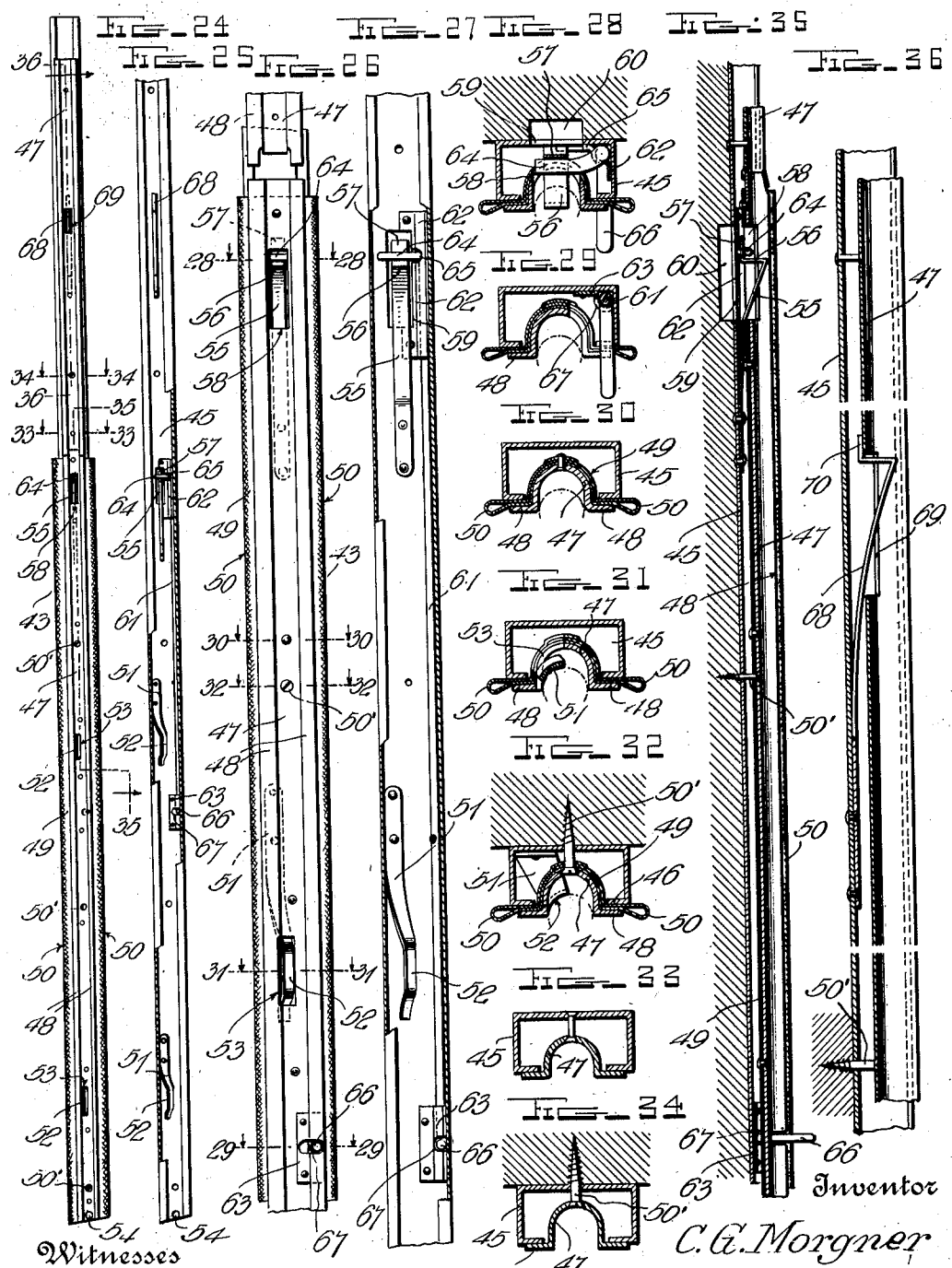
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 5 SHEETS—SHEET 6.

1,047,828.



Witnesses
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UNITED STATES PATENT OFFICE.

CARL GUSTAV MORGNER, OF HARVEY, ILLINOIS.

SCREEN FOR CAR-WINDOWS.

1,047,828.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed February 26, 1912. Serial No. 679,892.

To all whom it may concern:

Be it known that I, CARL GUSTAV MORGNER, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Screens for Car-Windows; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to screens for car windows.

One object of the invention is to provide a screen of this character having an improved construction and arrangement of frame, between the members of which the edges of the wire screen covering are firmly secured.

Another object is to provide an improved construction and arrangement of combined sash parting strips, screen guides and weather strips arranged between the inner and outer sash and adapted to slidably support and guide the screen.

A further object is to provide an improved means for detachably holding the screen in engagement with its guides whereby the screen may be readily removed when desired and having means for supporting the screen in raised or in partly raised position.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is an inner side view of a portion of one side of a car, and a window showing my improved screen applied thereto and in a lowered position; Fig. 2 is a vertical cross sectional view on the line 2—2 of Fig. 1; Fig. 3 is a similar view showing the window sash lowered and the screen raised to an inoperative position; Fig. 4 is a horizontal sectional view through the window frame and screen on an enlarged scale with the central portion of the sash and screen frame broken out; Fig. 5 is an inner side view of the screen and its retaining mechanism with parts broken out; Fig. 6 is an enlarged in-

ner side view of the upper left hand corner of the screen and its retaining member showing the manner in which the upper end of said retaining member is detachably secured to the screen frame; Fig. 7 is a top plan or upper edge view of the parts shown in Fig. 6; Fig. 8 is a horizontal sectional view thereof on the line 8—8 of Fig. 6; Fig. 9 is a side edge view of the parts shown in Fig. 6; Fig. 10 is a cross sectional view of said parts taken on the line 10—10 of Fig. 6; Fig. 11 is a horizontal sectional view taken on the line 11—11 of Fig. 6; Fig. 12 is an enlarged front side view of the upper right hand corner of the screen frame; Fig. 13 is a top plan or upper edge view thereof; Fig. 14 is a horizontal sectional view on the line 14—14 of Fig. 12; Fig. 15 is a front side view of the lower left hand corner of the screen frame and the lower end of the screen retaining member; Fig. 16 is a similar view with the lower portion of the frame in section to illustrate this end of the screen fastening mechanism and means for holding the lower end of the screen retaining member in place; Fig. 17 is a vertical cross section on the line 17—17 of Fig. 16; Fig. 18 is a detail side view partly in section of the locking plunger for the lower left hand corner of the screen; Fig. 19 is an enlarged cross sectional view, on the line 19—19 of Fig. 8 showing the manner in which the weather strip for the upper edge of the screen is secured in the left hand upper corner of the frame; Fig. 20 is an enlarged front side view of the lower right hand corner of the screen showing the screen fastening mechanism for this side of the screen, and illustrating the means whereby the screen fastening devices of the opposite sides of the screen are retracted to permit the screen to be raised; Fig. 21 is a similar view with the lower portion of the frame in section to more clearly illustrate the screen fastening and releasing devices shown in Fig. 20; Fig. 22 is a cross sectional view on the line 22—22 of Fig. 20; Fig. 23 is a detail plan view of the left hand releasing devices and means for connecting the same to the left hand fastening mechanism of the screen; Fig. 24 is an outer side or face view of the right hand parting strip and screen guide; Fig. 25 is a similar view with

the outer member of the parting strip and screen guide removed and parts of the inner member thereof broken away and in section to illustrate the screen supporting and holding springs of the parting strip; Fig. 26 is an inner side view, on a larger scale, of a portion of the right hand parting strip and screen guide shown in Figs. 24 and 25; Fig. 27 is a view similar to Fig. 26 with the outer member of the strip removed and parts of the inner member broken away and in section; Fig. 28 is a horizontal sectional view on the line 28—28 of Fig. 26; Fig. 29 is a similar view on the line 29—29 of Fig. 26; Fig. 30 is a similar view on the line 30—30 of Fig. 26; Fig. 31 is a similar view on the line 31—31 of Fig. 26; Fig. 32 is a similar view on the line 32—32 of Fig. 26; Fig. 33 is a horizontal sectional view on the line 33—33 of Fig. 24; Fig. 34 is a similar view on the line 34—34 of Fig. 24; Fig. 35 is an enlarged vertical sectional view of a portion of the right hand parting strip and screen guide taken on the line 35—35 of Fig. 24; Fig. 36 is an enlarged vertical section of a portion of the upper part of the screen guide and parting strip taken on the line 36—36 of Fig. 24 showing more clearly the arrangement of the spring for supporting the screen in full raised position; Fig. 37 is an outer side or face view of the left hand parting strip and screen guide; Fig. 38 is a cross sectional view thereof on the line 38—38 of Fig. 37; Fig. 39 is a similar view on the line 39—39 of Fig. 37; and Fig. 40 is a similar view on the line 40—40 of Fig. 37.

My improved screen 1 comprises a frame, the side, top and bottom bars of which are formed of inner and outer channel shaped members 2 and 3. The inner edges of the members 2 and 3 of the bars are bent at right angles to form overlapping flanges 4 and 4^a, the flanges 4^a on the outer members having their edges bent or folded inwardly to form beads 6 between which and the flanges 4 is firmly gripped the edges of the screen cover or fabric 7. The edges of the screen fabric 7, after passing between the flanges 4 and 4^a extend along the inner side of the outer member 3 of the frame bars as shown.

The outer edges of the members 2 of the frame bars are bent inwardly to form a slightly curved flange 8 and the adjacent edges of the outer members of the top, bottom and right hand side bars of the frame are carried over the edge of said flange and bent to form tubes or cylindrical extensions 5, the purposes of which will be hereinafter described. The edge of the outer member 3 of the left hand side bar of the frame adjacent to the flange 8 of the inside member of said bar is bent to form a curved flange 9, which fits closely against the flange 8 as

clearly shown in Fig. 11 of the drawings, said curved flange 9 forming a seat to receive a screen retaining member 10 hereinafter described.

The screen retaining member 10 is in the form of a tubular cylindrical rod or bar the upper end of which terminates a short distance below the upper edge of the screen and has secured therein an upwardly extending pin or stud 11 which is loosely engaged with an eye 12 in the outer end of a plunger 13 which is slidably mounted in a guide tube 14 secured in the adjacent end of the tube or cylinder 5 of the upper bar of the screen frame by a pin 15 arranged diagonally through the same, as shown in dotted lines in Fig. 19 of the drawings. The plunger 13 is normally projected or forced outwardly to bring the eye 12 in the outer end thereof in line with the pin 11 of the retaining rod by a coiled spring 16 which is arranged in the tube 14 between the inner end of the plunger and a block 17 secured in the inner end of the tube as clearly shown in Fig. 8 of the drawing. The outward movement of the plunger by the spring 16 is limited by a stop screw 18 arranged in the plunger and having its outer end engaged with a slot 19 in the tube 14 as shown. In the adjacent portion of the tube or cylinder 5 of the upper bar of the screen frame is also formed a slot 20, which registers with the slot 19 in the tube 14 and through said registering slots and into engagement with a recess or socket 21 in the plunger, is adapted to be inserted a wire nail or any other instrument whereby the plunger may be retracted when the pin 11 of the screen retaining rod 10 is disengaged therefrom, thus preventing the projecting end of the plunger 13 from interfering with the removal of the screen from its guide ways, as will be hereinafter more fully described.

The lower end of the screen retaining rod or bar 10 has formed therein a transverse passage or aperture 22 with which is engaged the reduced outer end 23 of a left hand screen fastening or locking plunger 24 which is slidably mounted in the tube or cylinder 5 of the lower bar of the screen frame as clearly shown in Fig. 16 of the drawings. The plunger 24 is normally projected or forced outwardly to an operative position to engage the reduced end 23 thereof with the passage 22 of the retaining member 10 by a coiled spring 25 which is arranged in the tube 5 between the inner end of the plunger and a plug 26 fastened in said tube and spaced a suitable distance from the plunger as clearly shown in Fig. 16. The plunger 24 is provided with a retracting mechanism comprising a retracting rod 27 having its outer end inserted through a bore in the plunger 24 and extension 23, in

which extension the end of the retracting rod is riveted or otherwise securely fastened as shown. The rod 27 passes through the spring 25 and has a sliding engagement with a passage in the plug 26. The rod 27 extends through the tube 5 of the lower bar of the screen frame to a point a short distance from the right hand side of the screen frame and has its inner end flattened and bent to form a rectangular hook 28 which is engaged with the slotted inner end of a short bar 29 forming part of a retracting lever or thumb piece 30 which is arranged in a hand hole or opening 31 formed in the lower bar of the screen frame as clearly shown in Figs. 20 and 21 of the drawings.

Co-acting with the left hand plunger 24 is a right hand screen locking or fastening plunger 32 which is slidably engaged with the right hand end of the tube 5 of the lower frame bar. The plunger 32 is forced outwardly to normally project the end thereof beyond the right hand edge of the screen frame by a coiled spring 33 arranged in the tube 5 between the inner end of the plunger and a plug 34 secured in the tube a suitable distance from the inner end of the plunger as shown. The plunger 32 is retracted to release the screen by a plunger retracting rod 35, the outer end of which extends through a bore in the plunger and has its end riveted or otherwise firmly secured to the outer end of the plunger as shown at 36 in Fig. 21 of the drawings. The inner portion of the retracting rod 35 has a sliding engagement with a passage in the plug 34 and the inner end of said rod is firmly secured to a retracting lever or thumb piece 37 which is also arranged in the opening 31 in the lower bar of the screen frame a suitable distance from the thumb piece 30 of the retracting mechanism for the left hand plunger 24. By thus arranging the levers or thumb pieces 37 it will be seen that in order to retract the screen fastening plungers 24 and 32 it is simply necessary to grip the thumb pieces or levers and to draw the same inwardly or toward each other, which operation will, through the retracting rods connecting said levers with the plungers, retract or draw the latter inwardly against the pressure of their projecting springs. The inward movement of the levers or thumb pieces 30 and 37 is preferably limited by a stop block 38 arranged in the tube 5 as shown. When the retracting mechanism just described is operated the reduced end 23 of the plunger 24 will be retracted to bring the extremity of said reduced end flush with the outer side of the retaining rod 10 which is sufficient to release this side of the screen to permit the latter to be raised. If, however, it is desired to release the lower end of the retaining rod 10 to permit the screen to

be removed, a further retraction of the plunger 24 will be required in order to disengage the reduced extension 23 thereof from the passage 22 in said retaining rod. To effect this additional retraction of the plunger 24, the latter is provided with a socket or recess 39 formed in one side thereof and adapted to be brought opposite to a slot 40 in the adjacent side of the tube 5 whereupon a wire nail or any suitable instrument may be engaged with the socket 39 and the plunger retracted a sufficient extent to disengage the end 23 thereof from the passage 22 in the retaining rod as will be readily understood. When the plunger is retracted to its greatest extent for releasing the rod 10, the loose connection between the rectangular hook 28 on the inner end of the retracting rod 27 and the slot in the end of the bar 29 will permit the hooked inner end of the retracting rod 27 to slide back in the slot of the bar 29, so that the connection between the rod and the bar will not interfere with the retracting movement of the plunger 24.

In the tube or cylinder 5 of the upper bar of the screen frame is arranged a weather strip 41 which projects outwardly from the outer side of the tube in a position to engage the adjacent side of the outer sash of the window, thus closing the space and preventing entrance of dust or insects between the inner side of the outer sash and the upper end of the screen. The weather strip 41 may be constructed of any suitable material and is preferably folded upon itself lengthwise and has its edges inserted between the edge of the tube 5 and the adjacent portion of the outer member 3 of the upper frame bar. The ends of the weather strip 41 when thus engaged with the tube 5 are secured therein by a longitudinally disposed metal bar 42 which is curved longitudinally and inserted in the tube 5, said bar having its edges bent or folded inwardly and having secured between the folded upper edge thereof the inner edges of the weather strip 41 as clearly shown in Fig. 10 of the drawing. The strip 41 at the end of the tube 5 in which the plunger supporting tube 14 is arranged has its inner ends secured by riveting the same to the side of the tube 14, which is cut away along the outer side of the tube 5 as clearly shown at 14' in Fig. 19 of the drawings.

The screen 1 is slidably supported between the inner and outer sashes *a* and *b* of the window frame *c* by right and left hand combined sash stops and screen guide ways 43 and 44, which are adapted to receive respectively the tube 5 on the right hand side bar of the screen frame and the screen retaining rod 10 on the left hand side of the screen whereby the screen is slidably supported and may be raised and

lowered to any desired elevation. The right hand parting strip and screen guide way comprises an inner channel shaped member 45 which has the edges of its sides bent inwardly to form right angular flanges 46, the purpose of which will be hereinafter described. The inner member 45 of the strip extends from the bottom or sill of the window upwardly to a point above the upper edges of the sashes and screen frame when raised to their greatest extent. Secured to the inner member 45 of the strip is an outer channel shaped screen guiding member 47 having on its edges, right angular laterally projecting clamping flanges 48 between which and the flanges 46 on the side edges of the inner member 45 is clamped a weather strip 49. The weather strip 49 is preferably formed from a single piece of material of suitable length and width, said strip having its edges folded or doubled upon itself to form loops 50. The edges of the folded material overlap and when the strip is thus arranged, it is engaged with and riveted to the inner side of the outer guide member 47 of the strip with its folded edges clamped between the flanges 46 and 48 of the inner and outer members of the parting strip and projecting beyond the opposite sides of the strip in position to engage the inner surfaces of the adjacent sides of the sashes as clearly shown in Figs. 4 and 30 of the drawings. It will be noted that the weather strips 49 extend upwardly only to the height of the lower sash and it will also be noted that the guide strip 47 is formed in upper and lower sections, the lower section terminating at the height of the screen and that the upper section of said guide strip begins at the upper end of the lower section and extends substantially to the upper end of the inner member. The inner and outer members of the parting strip are secured to the inner side of the window frame between the sashes *a* and *b* by screws or similar fastening devices 50'.

Arranged at suitable points in the inner member 45 of the parting strip are screen engaging and holding springs 51, the lower portions of which are bent to form screen engaging surfaces 52 which project outwardly through slots 53 in the inner portions of the outer guiding members 47 of the stop strips, said screen engaging surfaces being slightly curved or convex to fit the curvature of the cylindrical outer surface of the tube 5 of the side bar of the screen when said tube is engaged with the grooves or channels of the guide member 47 as is clearly indicated in Figs. 31 and 32 of the drawings. It will be noted that the springs 51 are arranged to project at an angle of forty-five degrees and that the projecting portions of said springs engage the

tube 5 of the screen frame to one side of the tube as shown. The springs 51 when thus arranged will effectually hold the screen from rattling and will temporarily support the same at any desired elevation.

In the lower ends of the inner and outer members 45 and 47 of the parting strip are formed alined holes 54 with which are engaged the projecting ends of the right hand screen fastening plunger 32 whereby this side of the screen may be fastened in its lowered position. Arranged in the upper portion of the inner member 45 of the parting strip 43 near the upper end thereof is a screen supporting spring 55, said spring curving outwardly and having said upper end bent inwardly at substantially right angles to form a seat 56 and then bent upwardly at right angles to form a spring retracting lug 57. The outwardly extended right angularly bent upper end of the spring 55 projects through a slot 58 formed in the inner portion of the outer guide member 47 and is in position to receive the projecting end of the plunger 32 when the screen is raised to a sufficient extent to bring said end of the plunger above the seat 56. In thus raising the screen the projecting end of the plunger coming into engagement with the outwardly extending upper portion of the spring forces the upper end of the latter back through a slot 59 formed in the rear side of the member 45 of the strip and into a recess 60 formed in the adjacent portion of the window frame. After the end of the plunger has passed the outwardly projecting upper portion of the spring, the same will spring outwardly to bring the seat 56 beneath the end of the plunger, said seat thus supporting the screen in its raised position.

In order to release or retract the spring to permit the end of the plunger to pass the same when the screen is to be lowered, I provide a suitable spring retracting mechanism comprising a releasing rod 61 which is arranged in one corner of the inner member 45 of the parting strip and is supported and adapted to turn in upper and lower bearing plates 62 and 63 which are riveted to the inner side of the member 45 as shown. On the upper end of the rod 61 is formed a right angularly bent slightly curved spring retracting finger 64 which projects and works through a slot 65 in the upper bearing plate 62 and is adapted to be engaged with the retracting lug 57 on the upper end of the spring 55 whereby when the rod 61 is turned in the proper direction, said arm 64 will by its engagement with the lug 57 retract the right angular projecting upper end or seat 56 of the spring, thus permitting the end of the plunger 32 to move downwardly past the spring. The rod 61 is of such length that its lower end will be

in a position to be conveniently reached for retracting the spring 55 and on the lower end of said rod is formed a right angularly projecting crank arm 66 which projects through and is adapted to be turned in a slot 67 in the lower bearing plate 63 of the rod.

In order to prevent the upper portion of the screen from rattling when in a full raised position and supported by the spring 55, I provide a screen holding spring 68 which is secured at its lower end in a suitable position in the upper portion of the inner member 45 of the stop strip 43. The upper end of the spring 68 curves outwardly and projects through a slot 69 in the adjacent portion of the upper section of the inner guide member 47, said outwardly projecting upper end of the spring being bent inwardly and upwardly at right angles to form a stop 70 which engages the inner side of the guide member 47 and thus limits the outward movement of the spring as clearly shown in Fig. 36 of the drawings. When thus arranged the upper end of the spring 68 is in position to frictionally engage the tube 5 on the side of the screen frame thus holding the screen against rattling.

The left hand parting strip and screen guide is constructed similarly to the right hand parting strip and comprises an inner channel shaped member 71 having on its sides inwardly extending flanges 72. On the inner member 71 is arranged an outer guide member 73 having a central groove or channel corresponding to, but of less depth than the channel of the corresponding member 47 of the parting strip 43. The edges of the member 73 are in the form of clamping flanges 74 between which and the flanges 72 are clamped the looped edge of the weather strip 75 for this side of the sashes, said weather strip 75 being constructed and arranged in the same manner as the weather strip 49 on the opposite side of the window and a further description of this weather strip is not thought to be necessary. The outer guide member 73 is formed in upper and lower sections in the same manner as the guide member 47 of the opposite parting strip and in the lower ends of the members 71 and 73 of the parting strip 44 are formed registering screen locking apertures 76 with which are engaged the reduced extended end 23 of the plunger 24, thereby locking the left hand side of the screen in a lowered or closed position, said fastening together with the fastening mechanism on the opposite side of the screen securely fastening the screen in closed position.

When the screen is in position between the parting strips the tubular retaining rod 10 on the left hand side bar of the screen frame

will be in sliding engagement with the guide 6. grooves or channel of the guide member 73 of the left hand parting strip while the guide tube 5 on the right hand side bar of the screen frame will be in sliding engagement with the groove or channel of the 70 guide member 47 of the right hand parting strip. When thus arranged, the retaining rod 10 will hold the screen in sliding engagement with said guide members. In order to remove the screen it is necessary 75 to retract the plunger 24 on the left hand side of the screen frame in the manner described and until the reduced extension 23 on the plunger is entirely disengaged from the aperture 22 in the lower end of the retaining rod whereupon when the screen 80 frame is raised the retaining member will remain stationary and the eye 12 in the projecting end of the plunger will be lifted off from or out of engagement with the pin 11 85 on the upper end of said retaining member after which the plunger 13 may be retracted in the manner described, so that the projecting end thereof will clear the guide member 73, whereby when the screen has 90 been raised to the upper end of the retaining rod the latter may be removed from the guide member 73 after which the screen may be again lowered and readily removed from between the guide members of the parting 95 strips.

In replacing the screen the same is arranged between the parting strips with the tube 5 of the right hand side bar of the screen frame engaging the guide member of 100 the right hand parting strip after which the screen is raised to a position slightly higher than the length of the retaining rod 10, whereupon said rod is placed in position in the guide member of the left hand parting 105 strip. After the retaining member has thus been arranged the screen is pulled downwardly against the retaining rod which seats itself in the flange 8 on the left hand side bar of the screen frame and when the screen is pulled down the eye 12 in the projecting end of the plunger 13 will engage the pin 11 on the upper end of said retaining rod. When the screen has been pulled down to its lowermost position, the reduced ex- 115 tension 23 on the plunger 24 in the lower end of the screen will be forced outwardly and into engagement with the passage 22 in the lower end of the retaining rod by the spring 25, thus again fastening said retain- 120 ing rod in operative engagement with the screen to hold the latter in position between the guide member of the parting strips.

The screen retaining rod 10 may be of various sizes to compensate for any slight 125 variations in the width of the windows, thus providing a close fit for the screen.

From the foregoing description taken in

connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

5 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

10 Having thus described my invention, what I claim is;

1. A window screen of the character described, comprising a frame consisting of inner and outer members bent to form an interlocking engagement with each other, 15 tubular guide members on the outer edges of the upper bar and side bars of the frame, a screen covering secured at its edges between said inner and outer members, a weather strip whose edge enters the guide 20 on the upper bar of the frame, and a metal bar within said guide having its upper edge folded over to clamp the edge of said strip.

2. A window screen of the character described, comprising a metal frame consisting of inner and outer members bent to form an interlocking engagement with each other, a tubular guide member formed on one of the side bars of the frame, a combined guiding and retaining member arranged on the 30 opposite side bar, means to detachably secure said guiding and retaining member in operative engagement with the side bar of the frame, and a screen covering secured between the inner and outer members of the 35 frame.

3. A window screen of the character described, comprising a metal frame consisting of inner and outer members, the edges 40 of which have an interlocking engagement and form hollow side, top and bottom bars of the frame, a tubular guide member formed on one of the side bars of the frame, a combined guiding and retaining member 45 arranged on the opposite side bar thereof and having in its lower end an aperture, a retaining pin arranged in the upper end of said member, a spring projected plunger arranged in the upper bar of the frame, and 50 having in its outer end an eye adapted to receive the pin on the upper end of the retaining member whereby said upper end is secured in position, and a spring projected plunger arranged in the lower bar of the 55 frame and having its end engaged with the member whereby the latter is detachably separated in the lower end of the retaining cured to the screen frame.

4. A window screen of the character described, comprising a metal frame having 60 its sides and top and bottom bars formed of inner and outer channel shaped members, the edges of which are bent to form an interlocking engagement whereby said channel

shaped members are secured together to form 65 said bars, tubes formed on the outer edges of the top, bottom and right hand side bars of the frame, a curved flange formed on the outer side of the left hand side bar of the frame, a combined guiding and retaining 70 member engaged with said flange and, together with the tube on the right hand side bar of the frame, forming supports and guides for the screen frame, a screen fabric having its edges clamped between the inner 75 edges of the members forming the bars of the frame, a weather strip secured in the tube of the upper frame member, combined parting and guiding strips adapted to be secured to the window frame to receive the 80 guide members on the side bars of the frame, said parting strips and guide members having therein near their lower ends, locking apertures, spring projected plungers arranged in the tube of the lower bar of the 85 frame and adapted to engage the apertures in said parting strips whereby the screen is fastened in a lowered position, and plunger retracting thumb pieces having an operative connection with said plungers whereby the 90 latter are retracted and disengaged from the locking apertures of the parting strips to permit the screen to be raised.

5. A window screen of the character described, comprising a metal frame having 95 on the outer edges of its top, bottom and side bars, tubular extensions, said tubular extensions of the side bars forming guiding and supporting members, a weather strip retaining member arranged in the tubular 1 extension of the upper bar of the screen, a weather strip having its inner edges engaged with said tubular extension and fastened to the bar therein whereby said 1 weather strip is secured to the upper bar of the screen frame, spring projected locking plungers arranged in the tubular extension of the lower bar of the frame, thumb pieces having an operative engagement with said flanges whereby the latter may be retracted to release the screen, combined parting strips and screen guides adapted to be secured to the inner sides of a window frame between the sashes thereof, said strips having therein near their lower ends, locking apertures adapted to receive the ends of the spring projected plungers in the lower bar of the screen frame whereby the latter is fastened in a lowered position, frame engaging springs arranged in one of said parting strips, a frame supporting spring arranged in said strip to support the screen in a raised position, and means whereby said screen supporting spring is retracted to permit the screen to be lowered.

6. A window screen of the character described, comprising a frame having on its side bars, guide members, combined parting

strips and screen guides adapted to be secured to the window frame in position to slidably support the screen, said guides and parting strips comprising inner and outer members, a weather strip secured between said members and projecting beyond the sides thereof in position to engage the adjacent portions of the inner and outer sashes of the window, screen engaging springs secured in the inner member of one of said parting strips and projecting through the outer member thereof in position to engage the sides of the screen, a screen supporting spring arranged in the inner member of said strip and projecting through the outer member thereof, and a fastening mechanism carried by said screen whereby the latter is locked in a closed position, said locking mechanism being adapted to engage said supporting spring when the screen is raised to a full open position, and a suitably mounted spring retracting rod whereby said screen supporting spring is retracted to permit the screen to be lowered.

7. A window screen of the character described, comprising a frame having on the outer edges of its side bars guide members, spring projected locking plungers arranged in the lower bar of the frame, combined screen guides and parting strips adapted to be secured to the window frame, said strips comprising inner and outer channel shaped members secured together, a weather strip clamped between said members, screen engaging springs arranged in said strip and adapted to engage the guide member on one side of the screen frame whereby the latter is held in firm engagement with the guides, a screen supporting spring arranged in said strip and guide and adapted to receive the projecting end of one of the screen locking plungers in the lower bar of the screen when the latter is raised, a spring retracting rod suitably mounted in said strip, a spring retracting member on the one end of said rod adapted to engage said supporting spring, a crank arm on the other end of said rod whereby the latter may be rocked to engage the upper end thereof with said spring thereby retracting the latter and permitting the screen frame to lower.

8. A screen of the character described comprising a metal frame having on the outer edges of its top, bottom and one side bar tubular extensions, the tubular extension of said side bar forming one guide member, a combined guiding and screen retaining member arranged on the other side bar of the frame and having in its lower end an aperture, a spring projected plunger in the tubular extension of the upper bar of the frame, said plunger having in its outer end, an eye, a pin in the upper end of said guiding and retaining member to engage the eye

in said plunger whereby the upper end of said member is detachably secured to the screen frame, right and left hand spring projected screen fastening plungers in the ends of the tubular extension on the lower bar of the frame, said left hand plunger having a reduced extension adapted to project through and beyond the apertured lower end of the frame guiding and retaining member whereby the latter is held in place at its lower end, combined parting strips and screen guides adapted to be secured to the window frame and having in their lower ends locking apertures to receive the projecting ends of said locking plungers, plunger retracting thumb pieces in the lower bar of the screen frame and having an operative connection with said locking plungers whereby the same are retracted to release the screen, means whereby said left hand plunger is further retracted to disengage the reduced end thereof from the apertured lower end of the screen guiding and retaining member, and means whereby the plunger in the upper screen bar is retracted when disengaged from the pin in the upper end of said guiding and retaining member.

9. A window screen of the character described, comprising a metal frame having its bars formed of inner and outer channel shaped members, the edges of which are bent into interlocking engagement, tubes formed on the outer edges of the top, bottom and right hand side bars, a curved flange formed on the left hand side bar, a combined guiding and retaining member engaged with said flange and, together with the tube on the right hand side bar of the frame, forming supports and guides for the screen frame, a screen fabric secured within the frame, combined parting and guiding strips adapted to be secured to the window frame to receive the guide members on the side bars of the frame, said parting strips and guide members having locking apertures, spring projected plungers in the tube of the lower bar and adapted to engage the apertures in said parting strips, and thumb pieces having an operative connection with said plungers.

10. A window screen of the character described, comprising a metal frame having hollow bars, a guiding member on one side bar and having in its lower end an aperture, a pin in the upper end of said member, a spring projected plunger in the upper bar of the frame and having an eye adapted to receive said pin, and a spring projected plunger in the lower bar of the frame and having its end engaged with the aperture in the lower end of the guiding member.

11. A window screen of the character described, comprising a metal frame, a tubular guide member formed on one of the side bars of the frame, a combined guiding and retain-

ing member on the opposite side bar, means to detachably secure said guiding and retaining member in operative engagement with the frame, and a screen covering secured
5 within the frame.

12. A window screen of the character described comprising a hollow sheet metal frame, a guide member on one of its side bars, a guiding and retaining member on the
10 opposite side bar, manually operated devices in the upper and lower bars of the frame

engaging the last-named member to hold it detachably in place, and a screen covering within the frame.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CARL GUSTAV MORGNER.

Witnesses:

MILES E. HOTCHKISS, Jr.,
L. BRAUN.