

(No Model.)

2 Sheets—Sheet 1.

A. CULPIN.
REVERSIBLE WINDOW SASH.

No. 469,079.

Patented Feb. 16, 1892.

FIG. 1

FIG. 2.

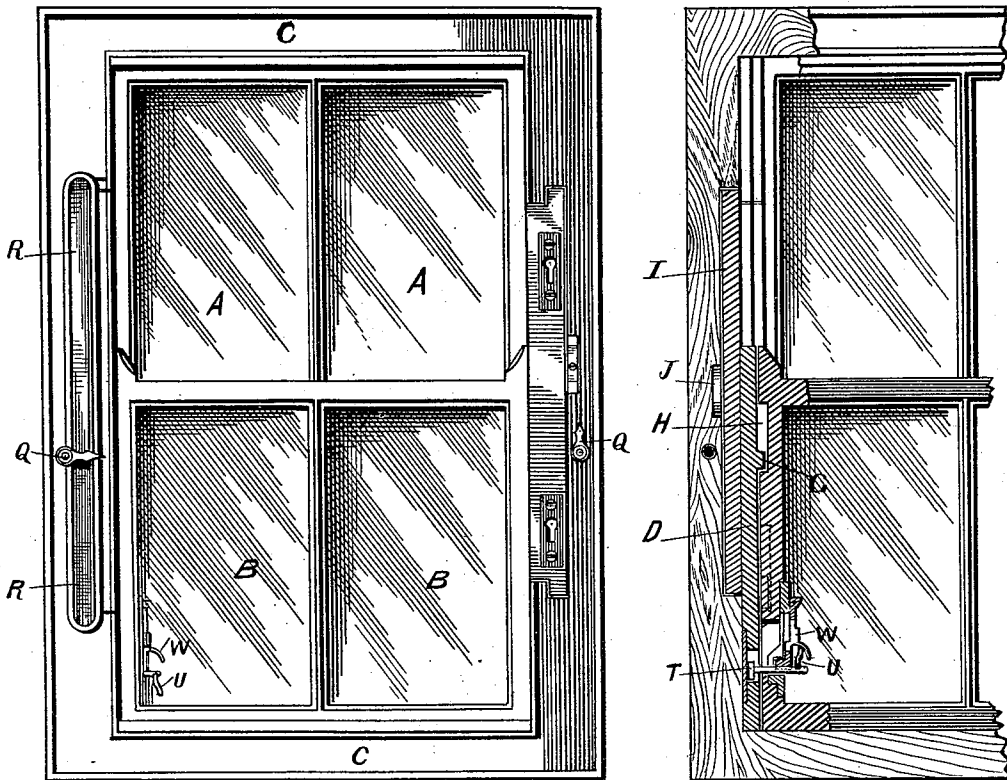
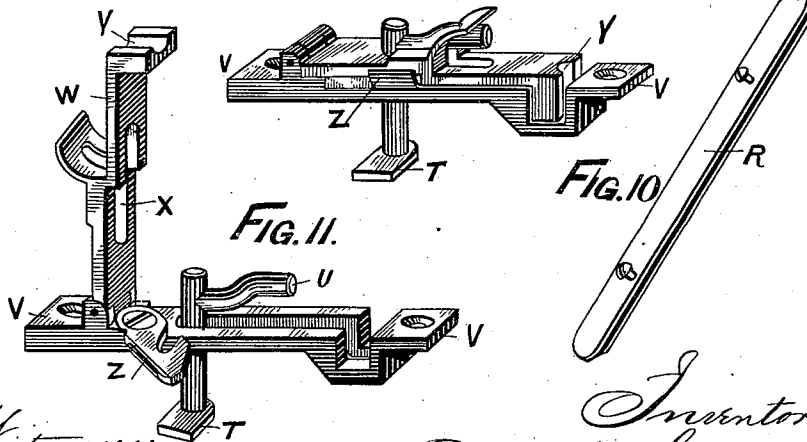


FIG. 12

FIG. 10



Witnesses:
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Robert Burnett

Inventor:
Arthur Culpin.
By James D. Norris.
Attorney

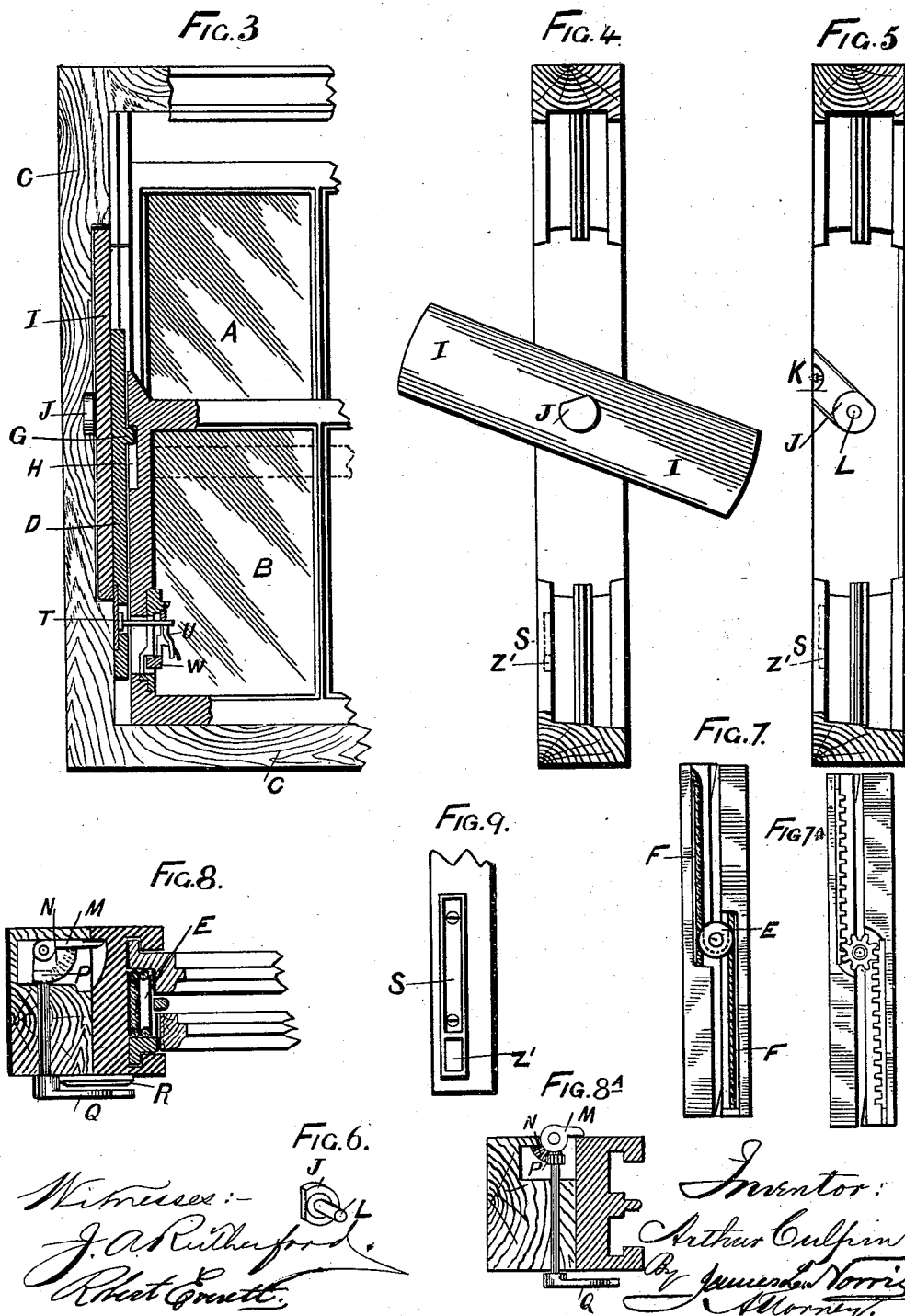
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ARTHUR CULPIN, OF WORCESTER, ENGLAND.

REVERSIBLE WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 469,079, dated February 16, 1892.

Application filed October 21, 1891. Serial No. 409,426. (No model.) Patented in England July 15, 1891, No. 12,050.

To all whom it may concern:

Be it known that I, ARTHUR CULPIN, a subject of the Queen of Great Britain, residing at No. 1 Sidbury, Worcester, in the county of Worcester, England, have invented new and useful Improvements in Reversible Window-Sashes and in their Frames and Appliances Connected Therewith, (patented in Great Britain, No. 12,050, July 15, 1891,) of which the following is a specification.

This invention has for its object certain improvements in reversible window-sashes and in their frames and appliances connected therewith.

For the purpose of my invention I attach two sash-lines to each side of the upper sash, one near the top thereof and one just below the center. The other ends of said sash-lines are connected to a strip, that from the upper end of the upper sash to near the upper end of the strip and the other to near the bottom end of the strip, the two lines being rove round a double-grooved pulley in opposite directions. The strip occupies a position between the lower sash and its side frame and is provided with a feather, which when the lower sash is placed in position comes within a slot formed in the side of the lower sash, and within which groove the feather has an amount of play according to the position at which a locking device is arranged, said locking device being within the strip, with its stem projecting through a slot of the lower sash and provided with a handle by which it can be turned. The handle can be affixed in an upward or a downward position by a throw-over flap, which constitutes part of the locking device, said device having, also, a claw-catch for embracing the stem of the appliance for holding the strips rigidly in connection with the lower sash, so that the lower sash becomes temporarily affixed to the strip and moves with it and secures the lower sash in a closed position, while the upper sash is open a short distance. Thus ventilation at the upper part of an apartment may be obtained by the lowering of the upper sash and a permanent locking of the lower sash, as well as the upper sash. The double-grooved roller has free motion on an axle projecting from a head-piece fixed in an angled slot provided in the sash-frame, which slot when the head is

in place may be locked by a wedge-piece inserted in the angled slot, the head being prevented from turning by a chamfer cut on its periphery. Between the strip and the sash-frame is another strip, and this is also pivoted on the axle before mentioned, which enables it when the two sashes are brought together to be turned over or reversed to bring the outside of the sashes to the inside of an apartment, a portion of the side beads within which the sashes run being on this second strip, which keeps the two sashes in their respective positions. At the part of the sash-frame where the last-named strip has a turning motion a crevice or slit is formed between it and the sash-frame in the apartment side of the sash-frame, and an affixable facing-board is placed over it to give approximately a flush appearance thereto; but the corresponding crevice at the outside of the sash-frame is closable by a plate, preferably packed with a piece of sheet-rubber, said plate being on a quadrant and turnable by a pinion within a recess made for it in the sash-frame and partly within the second-named strip. The pinion is operated by an index hand or finger projecting from the inside of the room, so as to be within easy reach of an attendant. When the handle of the locking device is turned in one direction, a locking-plate on its inner end has free motion up and down with the strip; but when the lower sash or the strip has to be locked in either of the positions at which they can be arranged the locking-plate can be caused, when the handle is turned, to enter one or other of a couple of slots in the front bead of the lower sash.

I have described the strips and locking device and other movable portions as at one side of the sash-frame only; but a duplicate set is arranged at the other side for corresponding manipulation to be effected.

The invention will be more particularly understood by reference to the annexed drawings.

Figure 1 is an elevation of a pair of sashes and a sash-frame one side of which has the facing-board in position and the finger-indicator turned to indicate that the outside slit is covered by the quadrant-plate. The right-hand side of said figure represents its finger-indicator turned up and the facing-board re-

moved, the sashes being closed. Fig. 2 is a
 part sectional elevation of one-half window
 and of the frame, partly in section, showing
 one of the reversible strips with its axle-head
 5 and one of the adjustable strips and with the
 handle of the locking-key turned up, the fall-
 down flap locking the key, both sashes being
 held firmly coupled together. Fig. 3 is a cor-
 responding view to Fig. 2, showing the upper
 10 sash lowered, the position of sliding strip be-
 ing changed, and the fall-down flap of the
 fastener over the handle of the key which
 locks the two sashes firmly in the position
 shown. Fig. 4 is a sectional elevation of a sash-
 15 frame, showing the grooves at top and bottom
 and the race in which the sashes have motion
 for reversing; the same figure also showing
 one of the turnable strips with the axle-
 head projecting as if removed from the an-
 20 gled slot of the side sash-frame. (Not shown.)
 Fig. 5 is a corresponding view of the sash-
 frame to Fig. 4 with the sashes removed and
 the aperture in which the axle-head engages
 when fixed by the wedge-piece. Fig. 6 is a
 25 perspective view of the axle and its head de-
 tached from its sashes. Fig. 7 is a view of
 the upper sash, partly in section, and the slid-
 ing strip in the positions they occupy when
 the two sashes are brought together. Fig. 7^a
 30 shows rack-and-pinion arrangement for oper-
 ating my reversible sashes. This method
 may be adopted in conjunction with my bal-
 ancing by sash-lines or without it, in which
 case the double-grooved pulleys E are not re-
 35 quired. Fig. 8 is a part sectional plan of the
 two sashes, a frame, and a side box in which
 the outer seam is covered by the quadrant-
 plate operated by the pinion and indicator-
 finger and with the front strip in position
 40 covering the front slit of the frame and box.
 Fig. 8^a shows the quadrant-plate outside the
 box. Fig. 9 is a face view of a recessed
 plate into which the key of the locking device
 fits when ventilation is required at the top.
 45 Fig. 10 is an inner face view of one of the in-
 side slit facing-boards. Figs. 11 and 12 show
 the key and the locking device in an open
 and a closed condition, such as when the up-
 per sash is lowered, as indicated at Fig. 3, and
 50 the lower sash down and fastened. The key
 is attached to the side sliding strip, and as
 the key is moved up or down it carries the
 side sliding strip and enables the sash-lines
 to be adjusted whether the sashes be opened
 55 or closed.

A B are upper and lower sashes, respectively;
 C, the sash-frame; D, the sliding side strip;
 E, the double-grooved pulley; F F, the sash-
 cords, rove in opposite directions round double
 60 pulley and with their ends attached to the
 upper sash and sliding strip, respectively; G,
 a feather on sliding strip; H, the slot in edge
 of lower sash for the feather to ride in to limit
 the distance to which the upper sash can be
 65 opened when required for ventilation pur-
 poses; I, the side turnable strip; J, the axle-
 head; K, the wedge for holding axle-head in

position in sash-frame; L, the pivot-pin of
 axle-head, on which the two sash-frames A B,
 the sliding piece D, and side strips I can turn
 70 for reversing the sashes for cleaning purposes;
 M, the slit-closing plate; N, the quadrant; P,
 the pinion for operating quadrant; Q, the fin-
 ger-indicator; R, the front-slit facing-board;
 S, the slotted plate on an enlarged scale, but
 75 shown in dotted lines at Figs. 4 and 5; T, the
 key of locking device; U, the handle thereof; V,
 the slotted plate affixed to lower sash to per-
 mit of movement of stem of locking device,
 which is attached to side strip D; W, the fall-
 80 down flap; X, the slot in fall-down flap to
 pass over handle U to lock it when the up-
 per sash is down, as at Fig. 3 and as indicated
 at Fig. 12, and Y is the notch in end of fall-
 down flap, which bears against the stem of
 85 the catch T when at the bottom of the slot
 and locks the sliding strip and the lower sash
 together, the sliding strip being at the bot-
 tom of its course and coincident with the
 lower sash, the catch T engaging in the slot Z',
 90 which locks the lower sash and strip, and
 since the upper sash cannot move without the
 lower sash or the strip the upper sash becomes
 also locked; but by turning the handle a quar-
 95 ter of a circle without raising the fall-down
 flap the fastener T is released from the slot
 in the side bead and the two sashes are free
 to be moved up and down, respectively, to
 the fullest extent of their travel.

To operate these sashes for the reversing
 100 action, supposing the two sashes be in the po-
 sition shown at Fig. 3, the flap W is raised
 and the handle U turned to release catch T
 from its grip in slot in plate S. The lower
 sash B is then lifted until the bottom of the
 105 slot H comes into contact with the feather G.
 This will bring lower sash B and strip D to
 coincide with each other. The handle U is
 now turned down for its catch T to again
 grip in the slot of plate S, and the flap W is
 110 shut down over the handle U. The two sashes
 A B are now in balance and free to be moved
 by raising the lower sash U. The upper sash
 A will lower to a corresponding distance or
 until one is directly in front of the other, as
 115 indicated at Figs. 7 and 7^a. The finger Q is
 now turned upward to operate pinion P and
 quadrant N. This causes plate M to get clear
 of meeting seam and allows of the facing-
 board R to be removed and the two sashes to
 120 be reversed on the pivot-pin L, the sliding
 strip D and strip I going with them. The
 two sashes can now be moved up and down
 in their reversed condition as freely as if in
 their proper position.

I have described the actions and operations
 necessary for one side of the sash-frame only;
 but since both sides of the sash-frames are
 similarly provided with strips D, fingers Q,
 130 pinions P, quadrants N, closing-plates M, and
 facing-boards R and the lower sashes with
 strips I and locking appliances W U it will
 be understood that the manipulations above
 described have to be performed at each side.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the balanced window-sashes and the window frame or casing, of a sliding side strip D, having a feather G engaging a slot H in the edge of the lower sash, and a lock for locking the side strip to and releasing it from the lower sash, substantially as described.
2. The combination, with the reversible balanced window-sashes and the window frame or casing, of a sliding side strip D, having a feather G engaging a slot H in the edge of the lower sash, and a side turn-table I, interposed between the sliding side strip and the window frame or casing and journaled to the latter, substantially as and for the purpose described.
3. The combination, with reversible balanced window-sashes, the sash frame or casing, and a sliding side strip connected with the sash-cords and having a feather adapted to ride in a slot in the edge of the lower sash, of a side turn-table, an axle-head having a pivot-pin on which the two sashes, the sliding strip, and the turn-table can turn for reversing the sashes, and a wedge for holding the axle-head in position, substantially as described.
4. The combination, with reversible balanced window-sashes and means for coupling said sashes in balance, of a locking-key for se-

curing the sashes in the desired position, a side strip to which the key is attached, a slotted plate attached to the lower sash for passage of the key-stem, and a slotted and notched fall-down flap for engaging the handle of the key, substantially as described.

5. The combination of the upper sash A, the lower sash B, having its edge provided with a slot H, the sliding side strip D, connected with the sash-cords and provided with a feather G, engaged in the slot H, the turn-table I, the catch or key T, having handle U, the slotted plates S and V, and the hinged flap W, having slot X and notch Y, substantially as described.

6. The combination, with the reversible sashes A B, coupled in balance, and the sash-frame C, provided with ventilating-slits, of the slit-closing plates M and R, the quadrant N, the pinion P, and the indicator Q, connected with the pinion-shaft, substantially as described.

In witness whereof I have hereunto signed my name, in the presence of two subscribing witnesses, this 14th day of August, 1891.

ARTHUR CULPIN.

Witnesses:

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