

No. 709,666.

Patented Sept. 23, 1902.

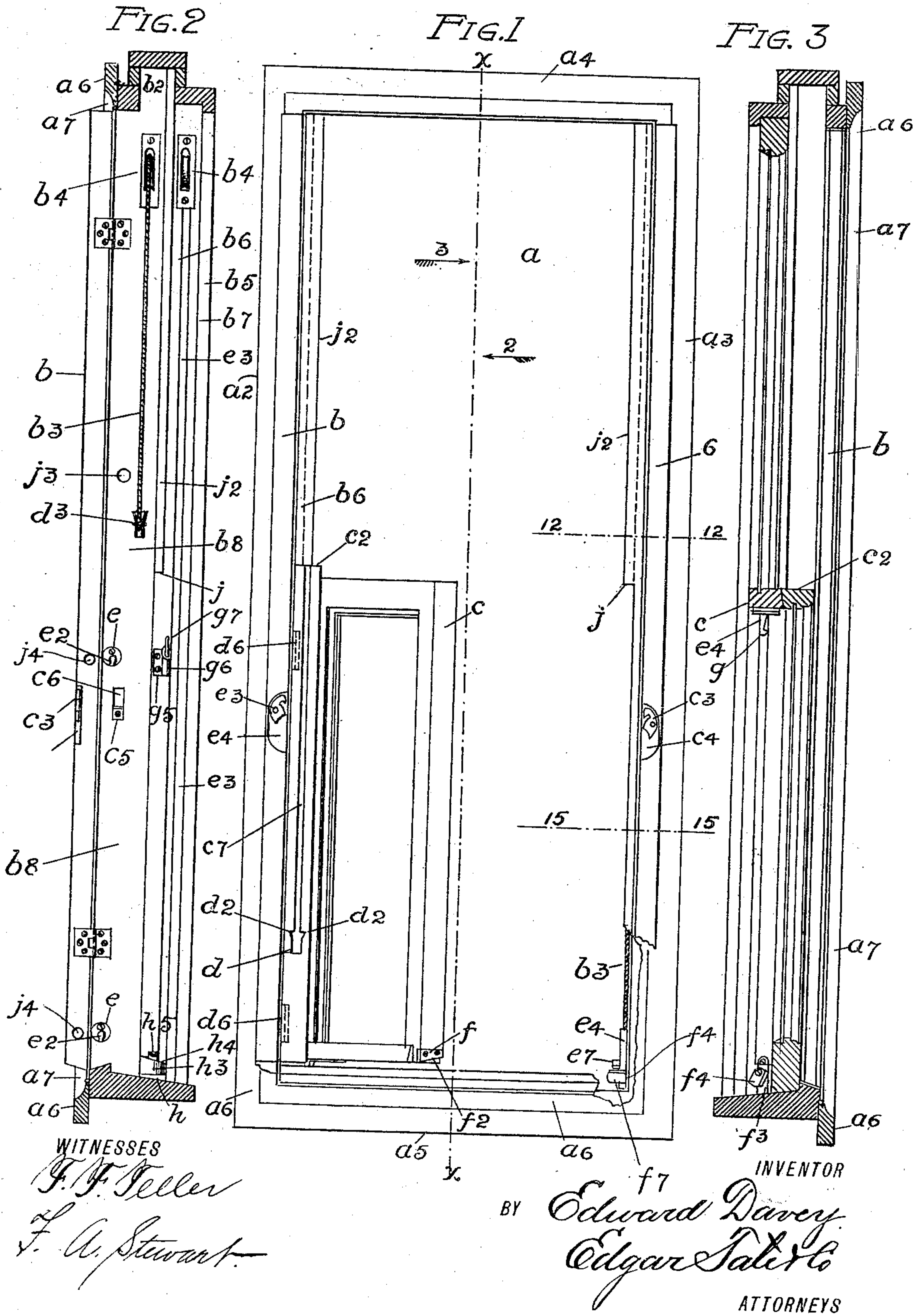
E. DAVEY.

WINDOW FRAME AND SASH.

(Application filed Jan. 22, 1902.)

(No Model.)

3 Sheets—Sheet 1.



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FIG. 4

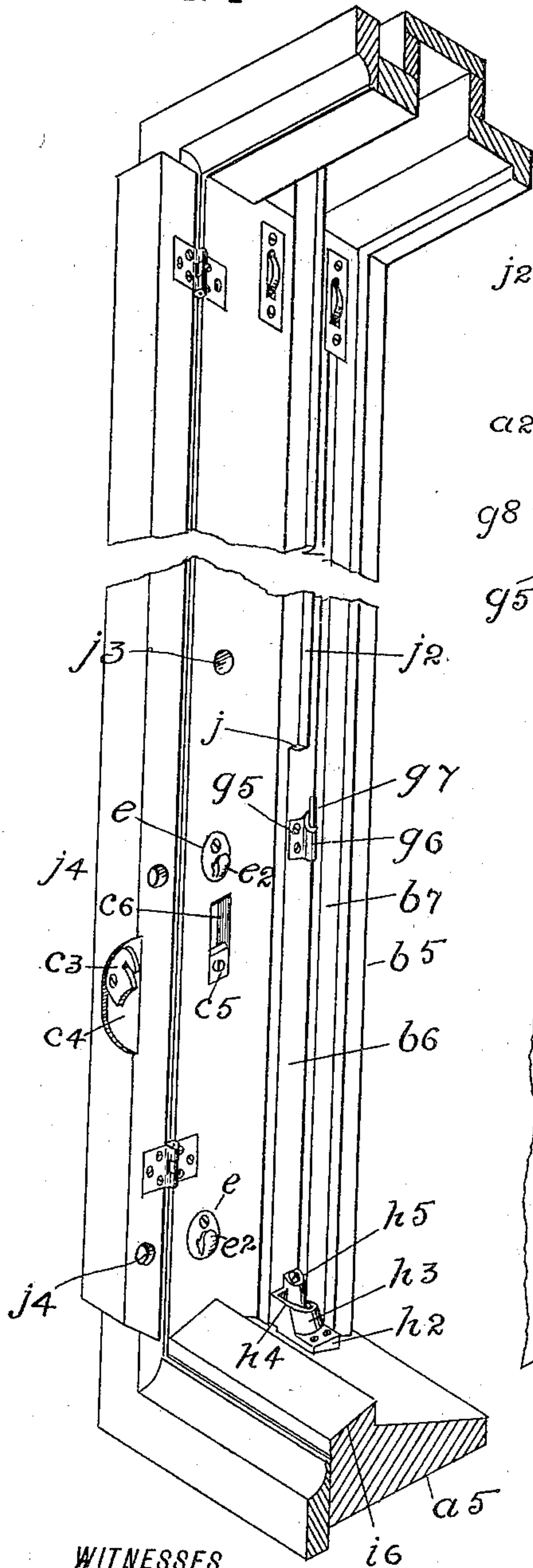


FIG. 5

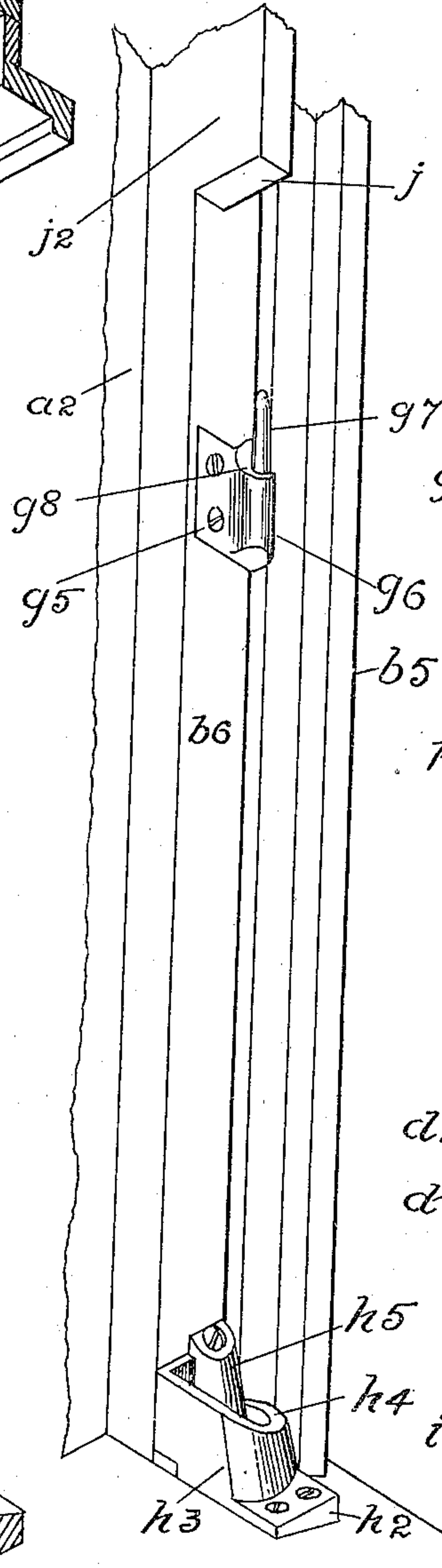
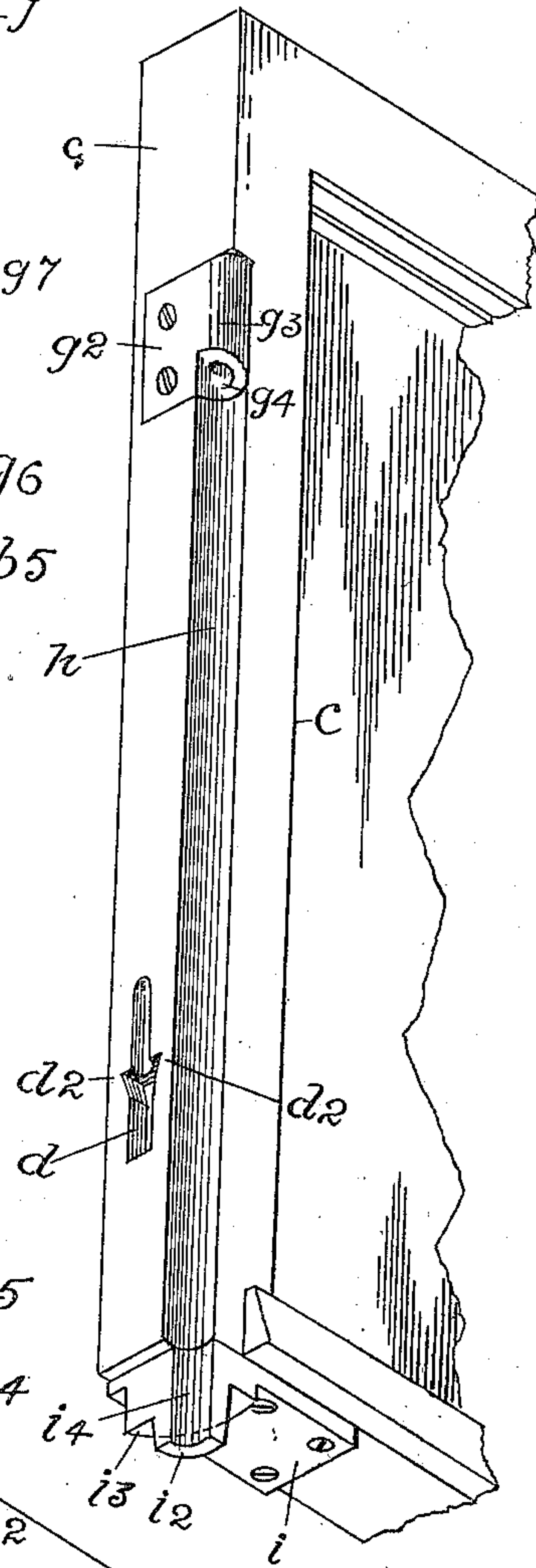


FIG. 6



WITNESSES

F. J. Keller
L. A. Stewart

INVENTOR
BY *Edward Davey*
Edgar Tate & Co
ATTORNEYS

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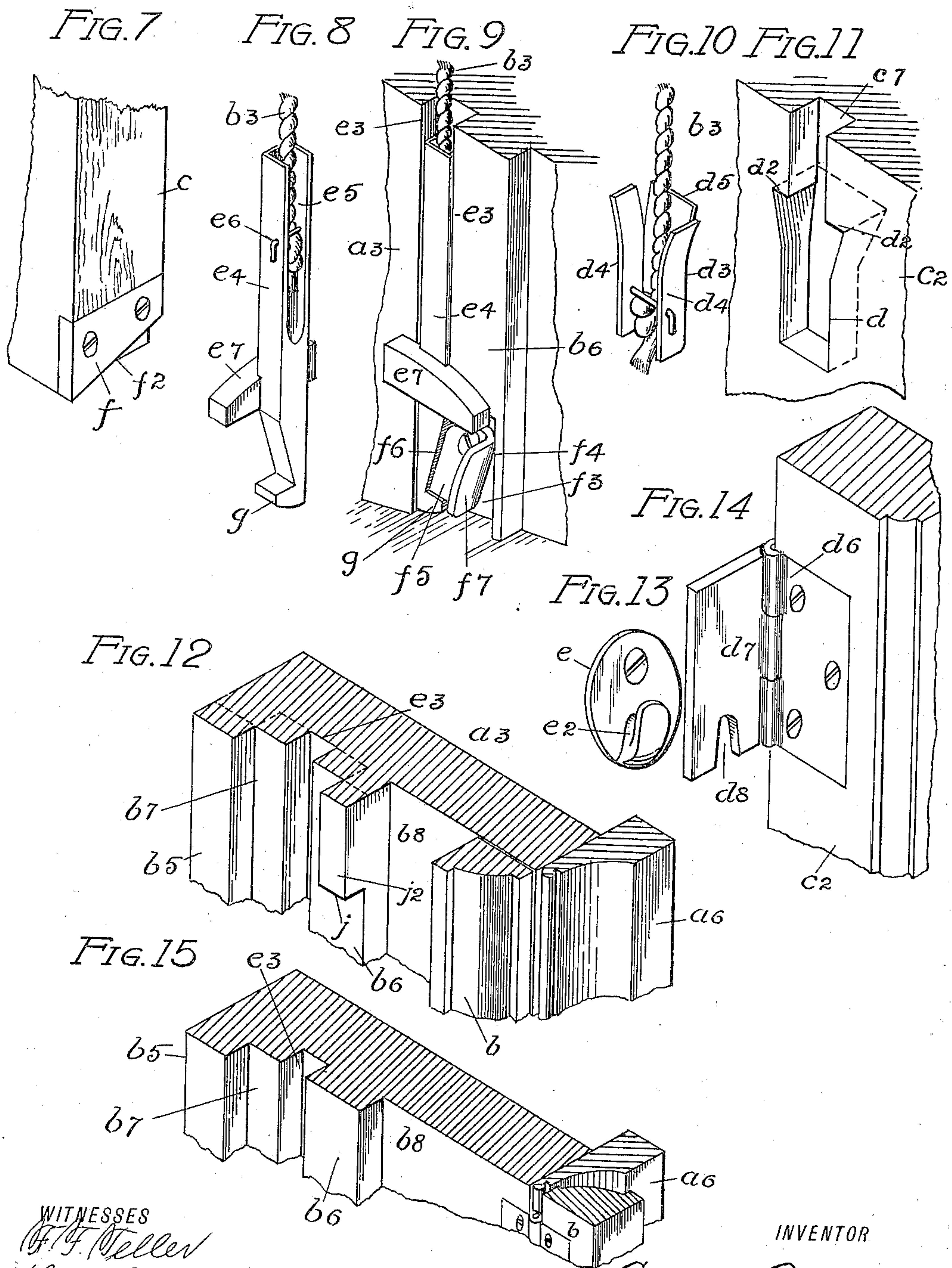
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3 Sheets—Sheet 3.



WITNESSES
G. F. Teller
F. A. Stewart

INVENTOR
BY
Edward Davey
Edgar Tate & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD DAVEY, OF NEW ROCHELLE, NEW YORK.

WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 709,666, dated September 23, 1902.

Application filed January 22, 1902. Serial No. 90,767. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DAVEY, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Window Frames and Sashes, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improvement in window frames and sashes which involves an improvement in the construction of the frame or frames and in the construction of the sashes and the means for suspending the sashes within the frames and the connection of the sashes with the frames, whereby the sashes may be conveniently raised and lowered and may also be turned inwardly, so as to facilitate the cleaning thereof, a further object being to provide improvements of this class whereby the sashes may be swung inwardly separately or both sashes so operated at the same time and whereby both sashes are in the bottom frame when so operated; and with these and other objects in view the invention consists in an improvement in window frames and sashes constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a front view of a window-frame involving my invention and showing the sashes both in the lowered position and swung inwardly; Fig. 2, a section on the line X X looking in the direction of the arrow 2 and showing the hinged left-hand front bead-strip turned outwardly and the sashes removed; Fig. 3, a section on the same line looking in the direction of the arrow 3 and showing both sashes in their normal position; Fig. 4, an inside perspective view of the left-hand side of a window frame with the front bead-strip turned outwardly; Fig. 5, a similar view of a part of the construction shown in Fig. 1 on an enlarged scale; Fig. 6, a perspective view of the left-hand side portion of the upper sash; Fig. 7, a perspective view of the lower

right-hand corner of the upper sash; Fig. 8, a perspective view of the device by which the sash-cord is connected with the right-hand side of the upper sash; Fig. 9, a perspective view of the bottom portion of the right-hand side of the window-frame and showing the operation of the sash-support shown in Fig. 8; Fig. 10, a perspective view of a device which I employ for connecting the sash-suspending cord with the left-hand side of the upper sash and for connecting both of the suspending-cords with the lower sash; Fig. 11, a perspective view of a part of one side of the bottom sash and showing the means for connecting the sash-supporting device shown in Fig. 10 therewith; Fig. 12, a perspective sectional view of the left-hand side of the window-frame on the line 12 12 of Fig. 1 and showing the hinged front bead-strip in its normal position; Fig. 13, a perspective view of a fastening device which is employed in connection with the left-hand side of the window-frame and with which the lower sash is connected in the operation of swinging the said sash inwardly; Fig. 14, a view of a portion of the left-hand side of the window-sash and showing the means for connecting the same with the fastening device shown in Fig. 13, and Fig. 15 a perspective transverse section of the lower half of the right-hand side of the window-frame on the line 15 15 of Fig. 1 and showing the front hinged bead-strip turned outwardly.

In the practice of my invention I provide a window-frame a , a front view of which is given in Fig. 1, and this frame comprises a left-hand side portion a^2 and a right-hand side portion a^3 , a top portion a^4 , and a bottom portion a^5 . I also preferably secure to the front of the side portions a^2 and a^3 and to the front of the top and bottom portions a^4 and a^5 molding-strips a^6 .

The molding-strips a^6 are grooved out at the inner edges thereof, as shown at a^7 , and hinged to the side portions a^2 and a^3 of the frame are the front bead-strips b , both of which are open and turned outwardly in Fig. 1, the left-hand bead-strip in Fig. 2 being also turned outwardly, while the right-hand bead-strip b in Fig. 3 is turned inwardly or in its normal position, and the said bead-strips are beveled, so as to fit in the grooves a^7 in the molding-

strips a^6 when said bead-strips are turned outwardly.

The top portion of the window-frame is provided with a chamber b^2 , adapted to receive the inner or lower sash when in its highest position, and both sashes are suspended by cords b^3 , which are passed over pulleys b^4 at the top of the window-frame in the usual manner and provided with weights, said weights being not shown.

The window-frame is also provided at the back thereof and at both sides thereof with an inwardly-directed bead or strip b^5 , which may be formed integrally with said frame or be connected therewith, and said frame is also provided at both sides with a central bead or strip b^6 , and between the beads b^5 and b^6 are the vertical side spaces b^7 , in which the outer or upper sash c is placed. The hinged front bead-strips b when in their normal or closed position operate in connection with the central beads or strips b^6 to form the vertical side spaces b^8 , in which the inner or bottom sash c^2 is placed, and said hinged front bead-strips b are each provided with a catch c^3 , pivoted in a recess c^4 , formed in the inner side of said bead or strip, and these catches are adapted to engage each with a lock-piece c^5 , secured in the opposite sides of the window-frame, said lock-pieces consisting of metal plates secured in recesses c^6 , and in the operation of these parts the catches c^3 , which are provided at their upper ends with hooks, pass into the recesses c^6 and engage with the lock-plates c^5 , and in order to disconnect said catches from said lock-plates the lower sash is raised to its highest position and a finger of one hand is passed inwardly of said bead-strips and into the lower end of the recess c^4 and the catch therein is manipulated so as to disconnect it from the lock-plate c^5 .

Each side of the lower sash c^2 is provided with a groove c^7 , and these grooves are adapted to receive the sash-cords b^3 , which support the lower sash, and these grooves are also provided at their lower ends with enlarged chambers d , the sides of which are enlarged at the top to form lateral recesses d^2 , and the sash-cords b^3 , which support the upper sash, are provided at their ends with fastening devices d^3 , one of which is shown in Fig. 2 and also on an enlarged scale in Fig. 10, and these fastening devices are open at the front and consist of side plates d^4 and a back plate d^5 , and the side plates d^4 are curved outwardly at their upper ends and adapted to engage the recesses d^2 in the sides of the sash c^2 . In practice the fastening devices d^3 are set into the enlarged chambers d at the lower ends of the grooves c^7 and remain therein without any other securing device, and the sides of the window-frame at the opposite sides of the bottom or inner sash are not provided with grooves in the usual manner. The lower inner sash c^2 is also provided at the left-hand side thereof with hinges d^6 , which are indicated in dotted lines in Fig. 1 and one

of which is shown in full lines in Fig. 14, and one of the plates of these hinges is free, as shown at d^7 , and provided in its lower end with a vertically-arranged U-shaped opening d^8 , and secured to the corresponding side or to the left-hand side of the window-frame are fastening devices e , consisting of plates provided at their lower edges with upwardly-directed hooks e^2 . Two of these fastening devices are shown in Fig. 2, and one of them is shown detached and on an enlarged scale in Fig. 13, and in order to swing the lower or inner sash inwardly said sash is raised until the bottom hinge is between the two fastening devices e , at which time the free plates d^7 of the hinges d^6 are turned outwardly against the side of the window-frame and the sash is moved downwardly until the hooks e^2 of the fastening devices e pass into the U-shaped openings d^8 in the hinge-plates d^7 , at which time the sash c^2 may be swung inwardly, as will be readily understood, and said sash is shown in this position in Fig. 1.

The vertically-arranged spaces or chambers b^7 in the opposite sides of the window-frame, and in which the outer or upper sash c is placed, are grooved, as shown at e^3 in Fig. 2 and in Figs. 9, 12, and 15, to receive the suspending-cords b^3 of the upper sash. The said upper or outer sash is provided in the left-hand side thereof and near the bottom thereof with a vertically-arranged chamber or recess d , the sides of which are spread at their upper ends to form lateral recesses d^2 , exactly as shown in Fig. 1 and as in the opposite sides of the lower sash, and the left hand suspending-cord b^3 of the upper sash is provided with fastening devices d^3 , exactly the same as the suspending-cords of the lower sash, and one of which is also shown in Fig. 10, and said fastening device d^3 of the upper left-hand suspending-cord b^3 of the upper sash is placed in the chamber or recess d at the left-hand side of the lower sash exactly in the same manner in which said devices are connected with the lower sash.

The suspending-cord b^3 at the right-hand side of the upper sash, which is shown in Figs. 8 and 9, is provided with a fastening device e^4 , which is also shown in said figures and which consists of a vertically-arranged bar adapted to fit in the groove e^3 in the right-hand side of the window-frame and the upper outer side of which is open longitudinally, as shown at e^5 , and passed through the said fastening device e^4 is a pin e^6 or other fastening device, which holds the cord b^3 therein.

The fastening device e^4 is provided near its lower end with a transverse block e^7 , which is adapted to fit under a block f , secured to the bottom of the right-hand side of the upper sash and provided at its lower outer edge with an inclined surface f^2 , similar to the upper surface of the block e^7 , and pivoted in the recess f^3 in the bottom of the central bead or strip e^3 at the right-hand side of the window-frame is a catch f^4 , consisting of a plate f^5 ,

having an upwardly-inclined edge f^6 and an inclined flange-plate f^7 at its front edge. The right-hand side of the upper or outer sash c rests on the block e^7 , and the fastening device e^4 is provided at its lower end with a forwardly-directed projection g , which is adapted to pass beneath the lower inner corner of the catch-plate f^5 , as shown in Fig. 9, and when the sash is moved downwardly to the bottom of the window-frame the fastening device e^4 , which engages the catch f^4 , and the suspending-cord b^3 , connected therewith, will remain in this position, and the upper sash may be swung inwardly, as shown in Fig. 1 and as hereinafter described, and when it is desired to close the upper sash it is swung outwardly into its proper position, and the inclined surface f^2 of the plate f passes over the inclined surface at the top of the block e^7 , and the catch f^4 may be drawn inwardly by means of a flange f^7 , and the said outer sash may be raised, as will be readily understood. The upper or outer sash is also provided at its left-hand side or near the top thereof with a plate g^2 , which is countersunk therinto and the inner edge of which is provided with a tubular member g^3 , the lower end of which is provided with an inclined or cam surface g^4 , and secured to the corresponding side a^2 of the window-frame is a plate g^5 , having a shoulder or projection g^6 , provided with an upwardly-directed pintle g^7 , adapted to enter the tubular member g^3 of the plate g^2 , and the shoulder or projection g^6 is provided at its upper end with an inclined cam-surface g^8 , which corresponds with the inclined or cam surface g^4 . The left-hand side of the upper or outer sash c is also provided in the inner edge thereof with a groove h , which extends downwardly from the plate g^2 to the bottom of said sash and in which the shoulder or projection g^6 of the plate g^5 moves when the said sash is raised or lowered.

Secured in the bottom left-hand corner of the window-frame, as shown in Figs. 2, 4, and 5, is a block h^2 , having an upwardly-directed oblong casing h^3 , the top of which is provided with a downwardly and backwardly inclined surface h^4 and the side of which adjacent to the middle of the window-frame is preferably segmental in form, and within the casing h^3 is an upwardly-directed inclined stud member h^5 , which when the block h^2 is secured in place is closely adjacent and abuts against the corresponding side of the window-frame. Secured to the bottom of the upper or outer sash c and to the left-hand corner thereof is a plate i , having a downwardly-directed member i^2 , which is segmental in cross-section, the outer side thereof being segmental in cross-section and the inner side being provided with a groove i^4 , which corresponds to the groove h in the left-hand side of the sash, and surrounding the upper part i^2 is an inclined shoulder or projection i^5 , which corresponds to the inclined top surface h^4 of the part h^3 of the plate h^2 , and when the sash c

is in its lowest position the member i^2 of the plate i passes into the casing h^4 and together with the stud h^5 forms a cam-hinge on which the said sash c may be turned inwardly, and in this operation of turning the sash c inwardly the said sash is raised by means of the form of the separate parts of said hinge, so as to clear the weather strip or guard i^6 at the bottom of the window-frame. It will also be seen that the separate parts of the hinges on which the sash c is free to swing inwardly engage in the operation of lowering said sash before the said sash is in its lowermost position, and this enables the said lower sash also to turn inwardly over the weather strip or guard i^6 .

In my improvement the upper or outer sash is narrower than the bottom or inner sash, and the sides of the window-frame or space in which said sashes are placed are correspondingly formed, as will be seen on an examination of Figs. 12 and 15. The central beads or strips are also wider above the top of the lower sash than they are below said point, the wider portions of said beads or strips terminating at j , as shown in Figs. 1, 2, 4, 5, and 12, this construction being necessary in order to manipulate the sashes, as hereinbefore described, and in order to produce this result I provide the central beads or strips at each side of the window-frame and above the top of the lower sash with longitudinal and inwardly-directed members j^2 , formed in or secured to the inner edges or side portions thereof, and it is these members j^2 that operate in connection with the outer beads or strips b^5 to hold the outer or upper sash in place. I also form in the opposite sides of the window-frame and near the top of the lower sash when the latter is in its normal position, holes or openings j^3 , adapted to receive the fastening devices d^3 , the smaller ends of which are inserted therinto when said fastening devices are detached from the lower sash, it being understood that whenever said lower sash is swung inwardly, as hereinbefore described and as shown in Fig. 1, the right-hand suspending-cord is disconnected therefrom and the fastening device d^3 , with which said cord is provided, is inserted into the corresponding hole or opening in the said frame in order to hold said fastening device and prevent it from being drawn to the top of the frame by the weight with which the cord is connected, and whenever necessary the said fastening device may be again connected with the sash, as hereinbefore described. By means of this construction the sashes may be both raised and lowered to any desired point, and both sashes may when in the bottom of the frame be swung inwardly, so that both sides thereof may be easily and conveniently cleaned. Both sashes may also be entirely detached from the frame, if desired, and the suspending-cords at both sides of the bottom sash and at the left-hand side of the upper sash may be detached whenever necessary and

conveniently replaced whenever desired without the use of any tools of any kind or class, it being understood that the suspending-cord at the right-hand side of the upper sash is automatically detached by means of the construction shown in Figs. 8 and 9, when said sash is dropped into its lowest position, at which time the said sash may be swung inwardly, and when said sash is swung back into its normal position the catch f^4 must be pulled inwardly in order to release the fastening device e^4 , so that the right-hand suspending-cord b^3 will operate to raise the sash in connection with the left-hand suspending-cord, with which said sash is provided. It will also be understood that in the operation of lowering the upper or outer sash the part g^2 , connected therewith, engages the part g^5 , connected with the corresponding side of the window-frame, and these parts also form a cam-hinge similar to the parts i and h^2 at the bottom of said sash and frame, and these two hinges operate jointly to support the sash and permit of its being turned inwardly, as hereinbefore described.

By forming the chamber or recess d^2 in the top of the window-frame over the inner or lower sash and constructing said frame and said sashes as hereinbefore described I provide means whereby the inner or lower sash may be raised entirely above the outer or upper sash when said outer or upper sash is in its lowermost position, and whereby said outer or upper sash may be swung inwardly when said inner or lower sash is in its highest position, and this also facilitates the cleaning of the outer or upper sash. I also form in the hinged bead-strips b holes or openings j^4 , adapted to receive the hooks e^2 of the fastening devices e when said bead-strips are swung into their normal position, so as to hold the lower sash in place.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A window-frame, the sides of which are provided with vertically-arranged spaces adapted to receive the sashes, the upper sash and the space in which it is placed being narrower than the lower sash and the space in which it is placed, hinged beads or strips at the front of the frame for holding the lower sash in place, and central beads or strips the upper portions of which are provided with thickened or inwardly-directed members for holding the upper sash in place, vertically-movable sashes mounted in said frame and provided with hinges at one side, a part of said hinges being secured to the frame and a part to the sash, and said parts of said hinges being adapted to engage when the sashes are lowered, whereby said sashes may be swung inwardly, substantially as shown and described.

2. A window-frame, the sides of which are provided with vertically-arranged spaces

adapted to receive the sashes, the upper sash and the space in which it is placed being narrower than the lower sash and the space in which it is placed, hinged beads or strips at the front of the frame for holding the lower sash in place and central beads or strips the upper portions of which are provided with thickened or inwardly-directed members for holding the upper sash in place, sashes mounted in said frame and provided with hinges at one side, a part of said hinges being secured to the frame and a part to the sash and said parts of said hinges being adapted to engage when the sashes are lowered, whereby said sashes may be swung inwardly, the hinges of the upper sash being cam-hinges and adapted to raise said sash in the operation of swinging it inwardly, substantially as shown and described.

3. A window-frame provided with sashes which are vertically movable therein, said sashes being each provided at one side with hinges composed of separate parts, parts of said hinges being secured to the frame and parts to the sashes, said parts of said hinges being adapted to engage only when said sashes are in the lowered position, and the connection between the separate parts of said hinges when said sashes are lowered, being automatic, said frame being also provided with hinged front beads or strips at the sides thereof and with central beads, the upper portions of which are wider than the bottom portions thereof, substantially as shown and described.

4. A window-frame provided with a vertically-movable sash detachably hinged at one side and adapted to turn inwardly, the upper hinge consisting of a cylindrical head secured to the frame and provided with an upwardly-directed pintle and a socket-plate secured to the sash and adapted to engage said pintle, said sash being grooved vertically to form a space for said head to move in, and the lower hinge consisting of a cam member secured to the frame and a corresponding member secured to the bottom of the sash and adapted to engage therewith, substantially as shown and described.

5. A window-frame provided with a vertically-movable sash and counterbalance cord and weight, the cord being detachably connected with the sash by means of an oblong block e^4 having a transverse piece e^7 and a bottom foot g and the window-frame being provided with a pivoted catch f^4 in connection with which said foot operates, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 20th day of January, 1902.

EDWARD DAVEY.

Witnesses:

F. A. STEWART,
F. F. TELLER.