

No. 771,608.

PATENTED OCT. 4, 1904.

F. W. CHAFFEE.
FASTENER FOR DECK OR OTHER SASHES.

APPLICATION FILED DEC. 1, 1902.

NO MODEL.

Fig. 1.

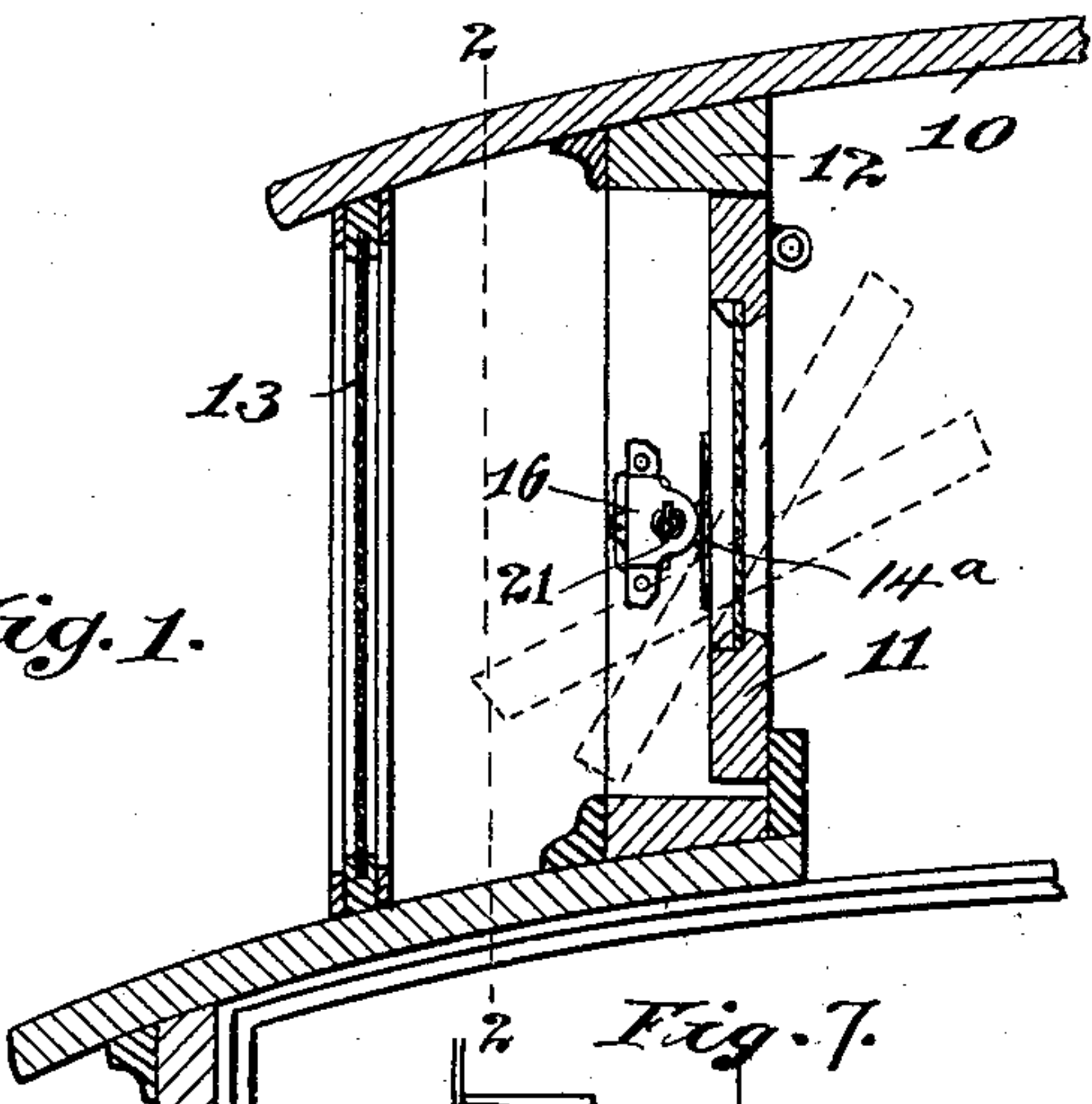


Fig. 2.

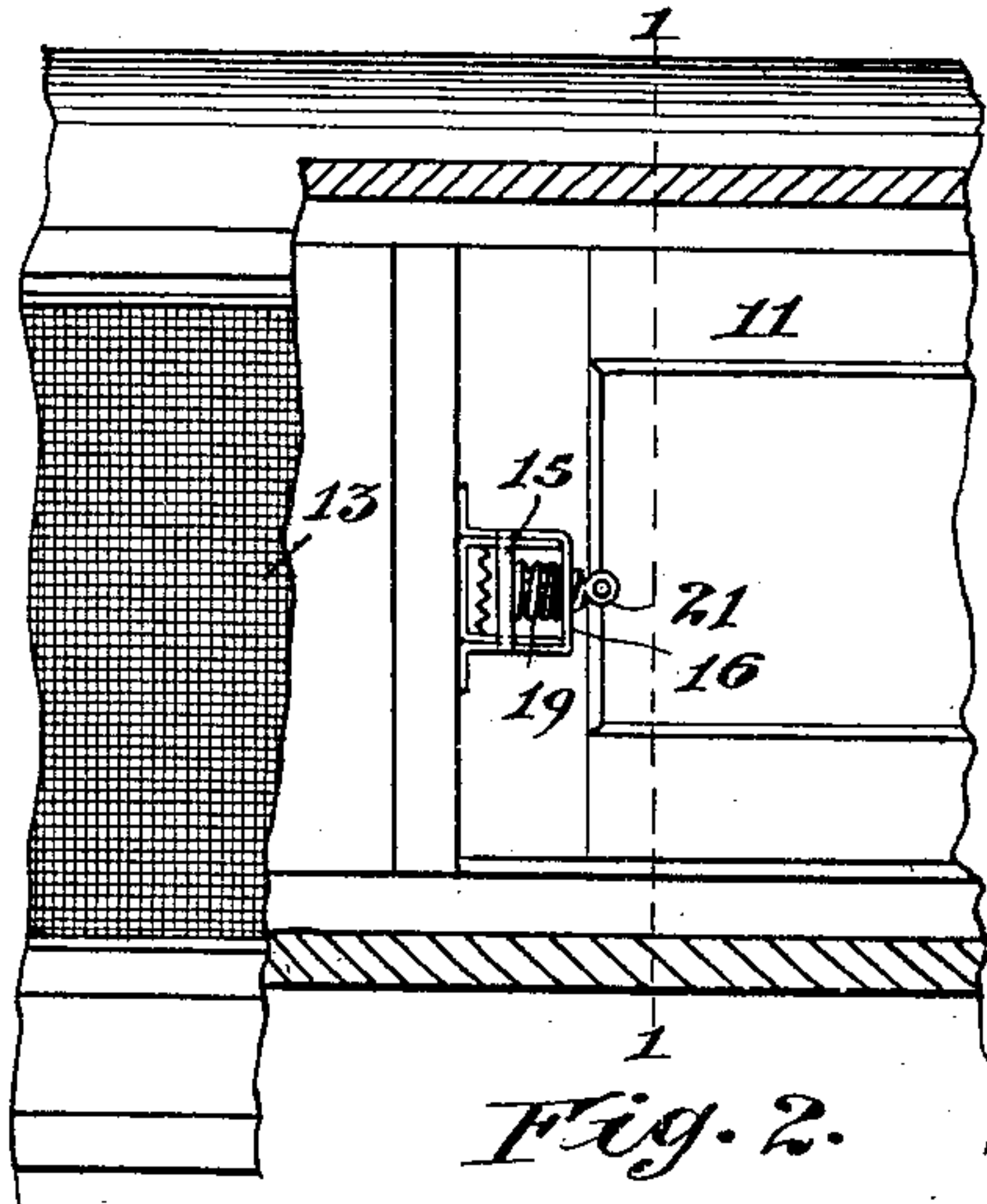


Fig. 6.

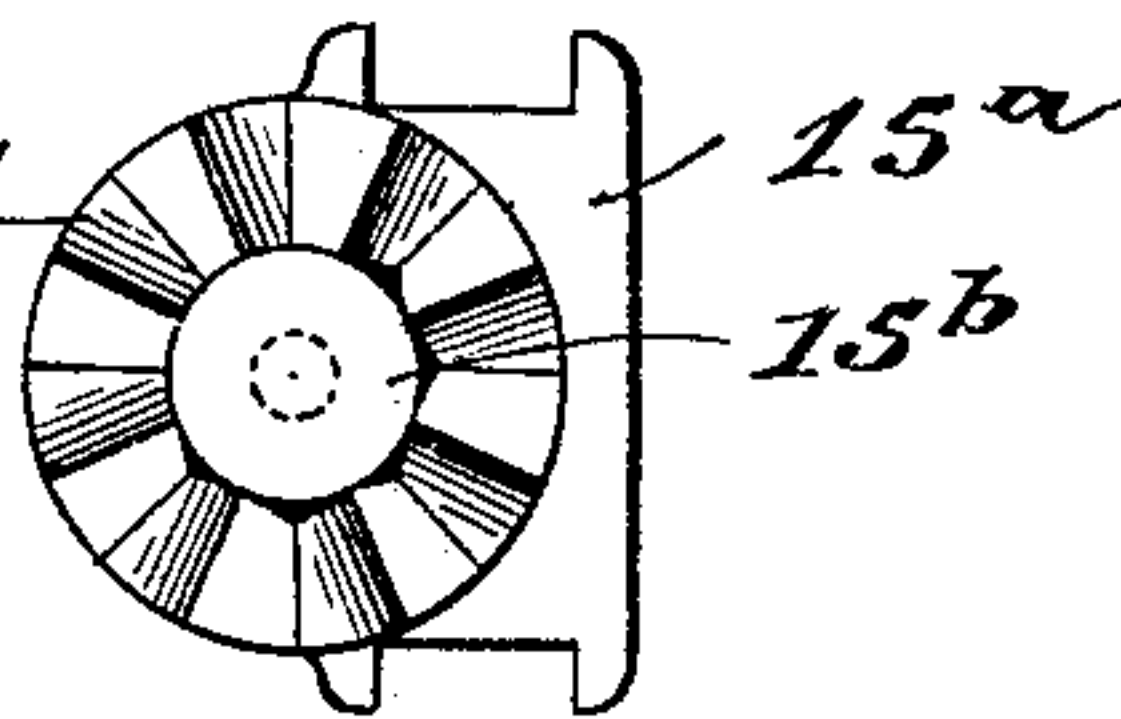


Fig. 4.

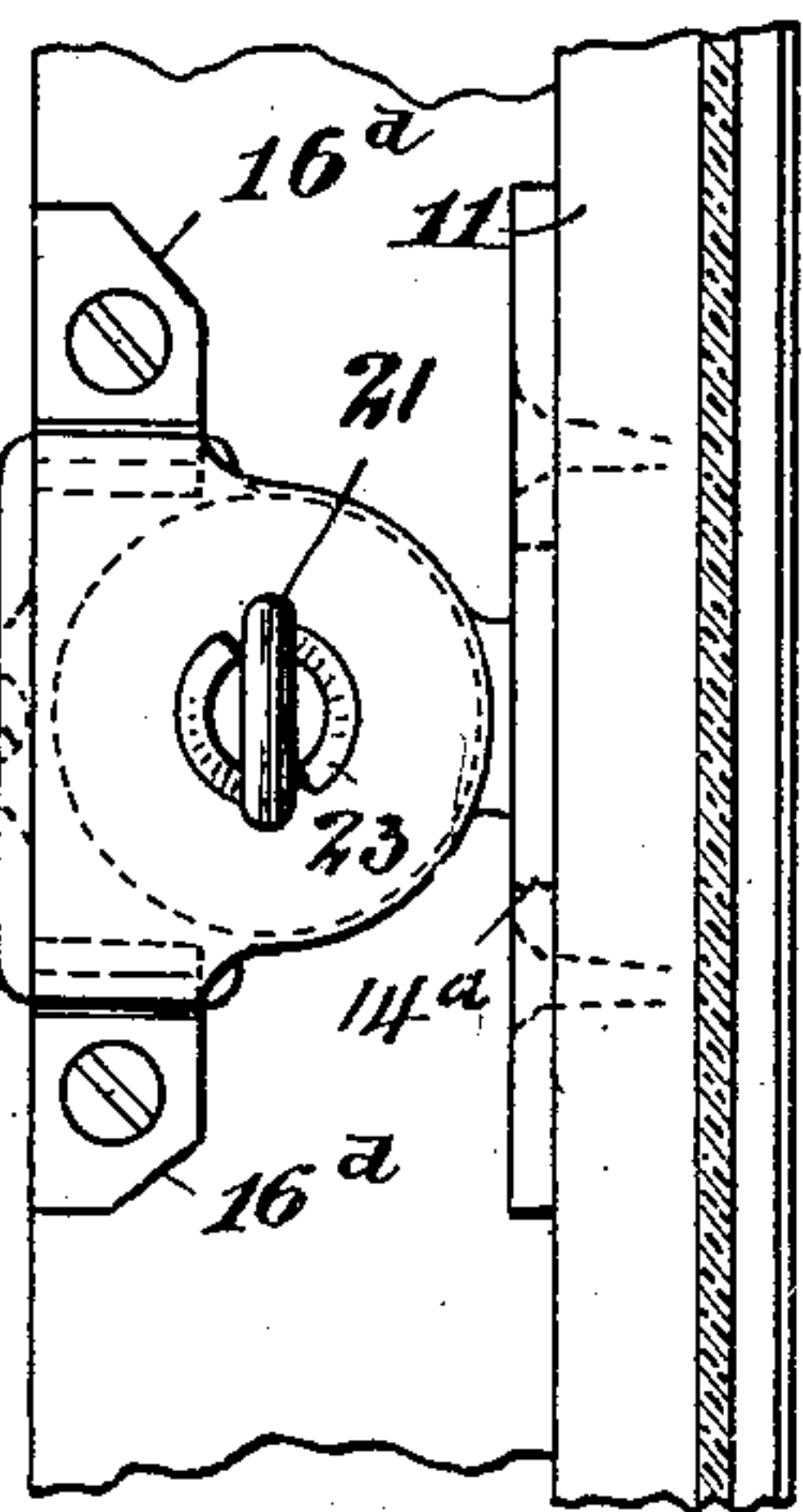


Fig. 5.

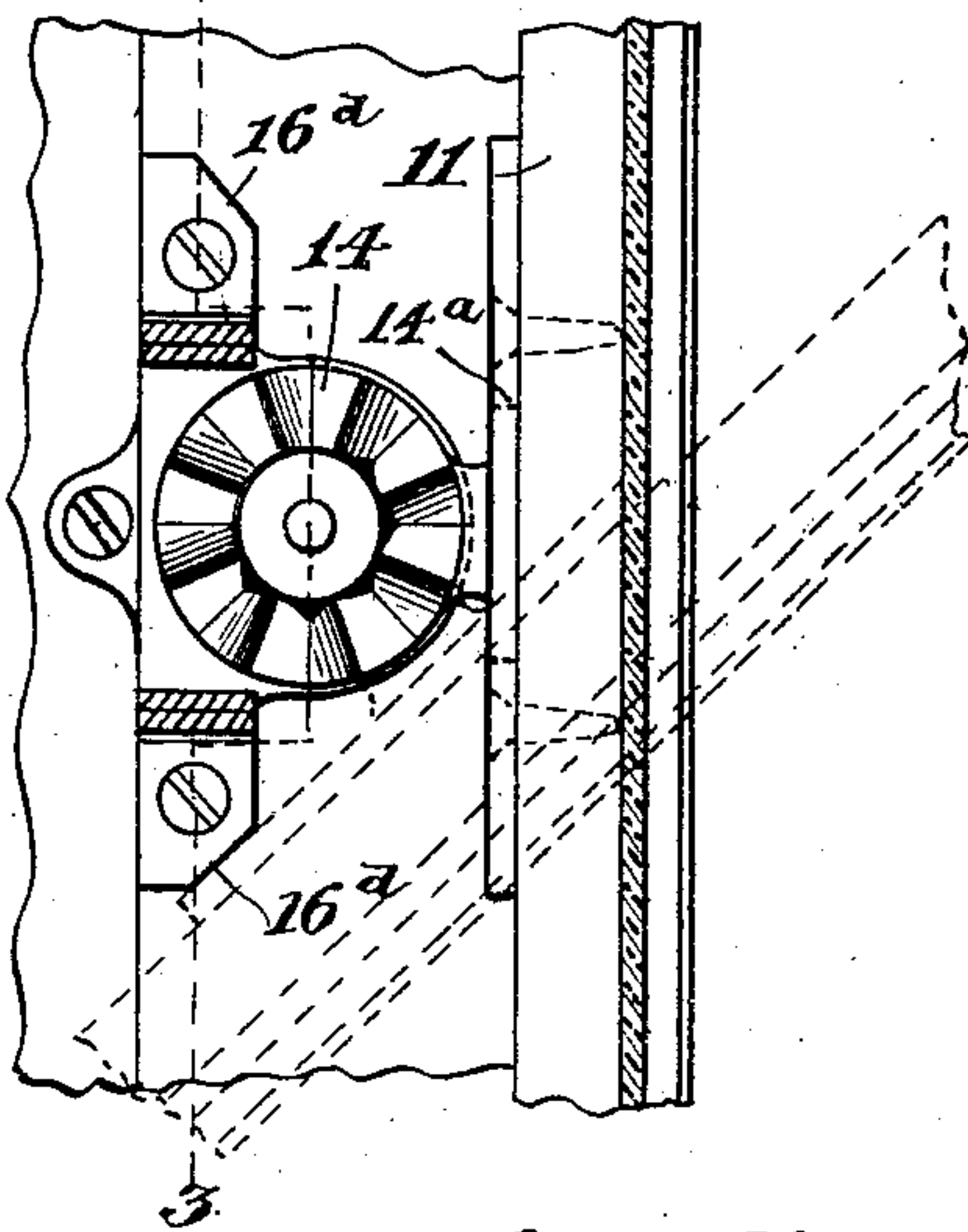
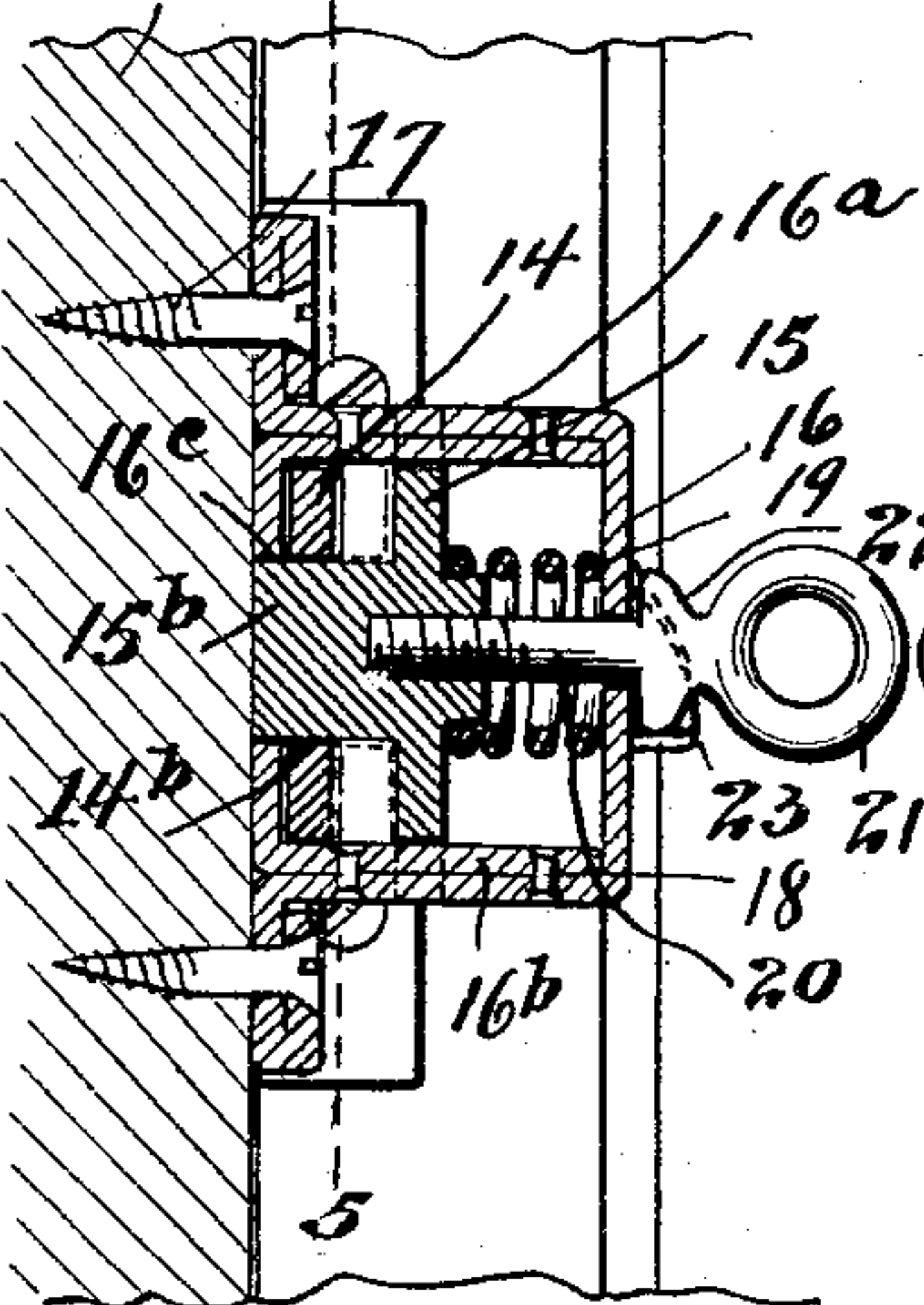


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK W. CHAFFEE, OF ALBANY, NEW YORK, ASSIGNOR TO GEORGE H. FORSYTH, OF CHICAGO, ILLINOIS.

FASTENER FOR DECK OR OTHER SASHES.

SPECIFICATION forming part of Letters Patent No. 771,608, dated October 4, 1904.

Application filed December 1, 1902. Serial No. 133,440. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. CHAFFEE, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Fasteners for Deck or other Sashes, of which the following is a specification.

This invention relates to sash-fasteners, and more particularly to that class or type of fasteners most frequently employed upon the deck-sashes of railway-cars, and which serve to permit the sash to be adjusted to various angular positions relatively to the frame and to hold the sash in any position to which it may be adjusted against all jar or vibration of the car or any other disturbing effect, except a positive movement to open or close the same.

My invention has for its principal object to simplify preëxisting devices of this character through the production of a device containing fewer elements or parts than have heretofore been employed, thus effecting a desirable economy in the cost of equipment, a secondary object of the invention being to provide a construction which will permit the entire sash to be conveniently applied to or removed from its operative position in the frame from the inner side of the car.

To these and other ends my invention resides in an improved sash-fastener possessing the novel principle of operation and relative arrangement and disposition of parts substantially as hereinafter described, and more particularly pointed out in the claims.

In the accompanying drawings I have shown what I conceive to be the best out of many mechanical forms in which my invention may be embodied, and wherein—

Figure 1 is a vertical transverse section through the upper portion of the car and one of the deck-sashes thereof, the latter being secured by a fastener constructed in accordance with and embodying the invention, the section being taken on the dotted line 1 1 of Fig. 2. Fig. 2 is an exterior side elevation, partly broken away and partly in section, of the same, the sectional portion of Fig. 2 being on the dotted line 2 2 of Fig. 1. Fig. 3

is an enlarged central vertical longitudinal section through the sash-fastener and shows the adjacent portions of the car-framing and deck-sash, this figure being a sectional view on the dotted line 3 3 of Fig. 5. Fig. 4 is a vertical transverse section through the plane of the sash and showing the fastener in end elevation. Fig. 5 is a section on the line 5 5 of Fig. 3. Fig. 6 is a detached view of a ratchet-plate constituting the preferred form of one member of the fastening, and Fig. 7 is a detail elevational view illustrating the cam action of the engaging elements of the ratchet-plates to normally maintain the sash tightly closed.

In the drawings, 10 designates a portion of the deck of a railroad-car; 11, the deck-sash; 12, the frame in which said sash is mounted, and 13 the usual exterior protecting-screen.

The deck-sash 11 is pivotally mounted at its ends to the vertical ends of the frame 12 in such a manner that when vertical it affords a complete and effective closure for the frame and when open is capable of occupying various angular positions relatively to the frame to provide more or less ventilation, as may be desired, and my present invention is concerned, primarily, with a novel means of supporting the deck-sash in its frame with capacity for the several adjustments referred to, my invention also being designed to support the sash in any adjusted position under normal circumstances until positively closed or adjusted to a new position. Describing now the preferred form of the means employed for these purposes, 14 and 15 designate, respectively, two engaging members, here shown as in the form of cooperating circular ratchet-plates and constituting the principal elements of my improved fastener. The member 14 has formed integral therewith and offset from the margin or periphery thereof a bracket 14^a, whereby it is secured rigidly to the outer face of the vertical end member of the sash. (See Fig. 5.) The member 15 is connected with the opposed vertical end member of the frame 12 in such a manner as to be bodily slidable toward and from said frame member, but held against rotation through en-

gagement with a rectangular frame 16, united to the vertical wall of the sash-frame, as by the screws 17, said member 15 having a radially-extending guide-plate 15^a, Fig. 6, notched at top and bottom to slidingly engage the corresponding top and bottom horizontal members of the fixed frame 16, and said ratchet-plate 15 is further provided with a projecting hub extension 15^b, which enters a central opening 14^b, formed in the companion ratchet-plate 14, whereby said ratchet-plates are maintained in coaxial relation to each other, but with capacity for relative rotation. The containing frame or housing 16 may be made in the form of a U-shaped casting; but I find a simpler and more economical construction thereof to consist in a pair of wrought-metal strips 16^a and 16^b bent into U shape, inversely arranged one within the other, and securely united, as by rivets 18. This forms a frame or housing possessing fully the required rigidity and strength and capable of manufacture at less cost and with greater ease than the castings usually employed in this relation.

It is designed that the ratchet member 15 shall normally engage the companion ratchet member 14 under sufficient pressure or tension to prevent the turning of the latter under the unbalanced condition of the sash, but nevertheless be capable of yielding in a direction away from said ratchet member 14 to permit the latter to turn and even to permit it to be withdrawn entirely through disengagement from the hub 15^b. In order to effect this desired relation of the engaging ratchet members, I interpose between the back of the member 15 and the opposite vertical member of the housing 16 a coiled spring 19, and as a convenient means of retracting the member 15 manually when desired a pin 20 is passed loosely through an aperture in the inner wall of the housing, the inner end of this pin being rotatably connected to or in the hub of the ratchet-plate 15. The opposite end of the pin lying outside the housing is formed with an annular head 21 in the nature of a thumb-piece, whereby the pin may be readily turned, and between said head and the outer face of the housing is provided with a collar 22, which collar is adapted when the pin is turned to ride over a stationary cam 23, formed on the said outer face of the housing, whereby such turning of the pin will obviously effect a retraction of the ratchet member 15 to withdraw the toothed face thereof out of engagement with the corresponding toothed face of the ratchet-plate 14 and if retracted to its entire extent will also withdraw the hub 15^b from engagement with the ratchet-plate 14, thus enabling the latter to be withdrawn from the frame or housing 16 and the sash member to be bodily removed.

With the parts assembled as shown in the drawings the ratchet-plates 14 and 15 are

held in face-to-face contact by the spring 19, with the radially-disposed teeth of one plate interfitting the corresponding teeth of the other.

When the sash is swung into or out of an oblique position relatively to the frame, the ratchet-plate 14, which is fast with the sash, turns on the hub 15^b of the companion ratchet-plate and through the cam-like action of its teeth upon the corresponding teeth of the non-rotary ratchet-plate 15 thrusts the latter outwardly against the compression of the spring 19 until the opposed points of the teeth on the respective ratchet-plates have passed each other, whereupon the spring 19 again forces the plate 15 back into interlocking engagement with the plate 14, thereby supporting the sash in its newly-adjusted position. During this adjustment of the sash the hub 15^b will not leave the bearing-apertures 14^b, said hub being of sufficient length to permit the outward movement of the ratchet-plate 15 to an extent sufficient to pass the teeth of the ratchet-plate 14 without lifting the latter plate.

When the parts composing the fastener are in their normal or rest position, as shown in Fig. 3, the end of the hub 15^b will lie within an aperture 16^c in the base of the frame 16.

When for any reason it is desired to withdraw the sash bodily from the frame, this is readily accomplished by merely turning the pins 20 to an extent sufficient to withdraw from the ratchet-plate 14 the hub 15^b, whereupon the sash may be removed without separating or disconnecting any permanently-attached parts of the device. The sash when removed may be replaced in a similar manner by first retracting the hub 15^b by turning the pins 20 to provide space for the insertion laterally of the frame 16 of the ratchet-plates 14 and then allowing the spring 19 to react and force the hubs 15^b through the apertures in said ratchet-plates.

It will be observed that the end portions of the base-plate of the bracket 16 are thickened, as by doubling the metal over on itself, and the inner corners of such thickened end portions are beveled off, as at 16^d, thus forming stops against which the corresponding end portions of the base-plate of the bracket 14^a are adapted to abut when the sash is opened to its widest capacity, for which purpose said end portions of bracket 14^a are preferably made of a width sufficient to insure contact with said stops throughout the full thickness thereof.

It will also be observed by reference to Fig. 7 that the engaging ratchet-plates 14 and 15 are so positioned that when the sash is in its closed position the teeth do not interfit and engage through their entire depth, but one side of the teeth on the movable plate engages the opposed side of the teeth on the stationary plate with a cam-like action, which, under the

force of the spring 19 tending to crowd the ratchet-plates together, has the effect of pressing and holding the sash tightly in closed position when adjusted to occupy the latter position. This is important, since a looseness of fit between the sash and casing frequently exists through imperfect construction or assembling of the parts or arises by reason of wear, and the peculiar relative disposition of the members of the engaging ratchet-plates hereinabove described, and more particularly shown in Fig. 7, prevents the possibility of such looseness of fit by constantly maintaining the sash pressed upon the casing when the sash is in closed position.

Among the several advantages possessed by my invention as compared with prior devices of this general nature with which I am acquainted may be mentioned the fact that the engaging members 14 and 15, constituting the principal elements of the device, are directly pivoted one within or upon the other, but in such a manner that they may be readily separated to permit the bodily removal of the sash from the frame, and the further fact that the direct pivotal connection of the two ratchet-plates with each other constitutes also the pivotal connection of the sash in the frame, thus permitting a lesser number of elements to be employed than in prior constructions, wherein the pivotal relation between the coacting ratchet-plates has been established only indirectly through the pivotal connection between the sash and frame.

By reason of the fact that one of the ratchet-plates is mounted to turn upon the other said plates are always maintained axially coincident, and hence are never thrown out of perfect alinement under the strains of service. Also, by reason of the described cam-like engagement of the teeth of the ratchet-plates when the sash is closed, my invention also increases the efficiency of the sash when closed as an excluder of cold air, drafts, dust, and the like.

I claim—

1. The combination with a sash and a frame, of a stationary guide affixed to and projecting inwardly from an end wall of the frame, a ratchet-plate slidingly mounted upon said guide and confined against rotation thereby, a companion ratchet-plate secured to the corresponding end of the sash and capable of being introduced to and withdrawn from said stationary guide laterally of the latter, one of said plates being centrally apertured, and the other provided with a hub upon which said apertured plate is mounted with capacity for relative rotation and longitudinal separation within the limits of said stationary guide, and

means for pressing said plates into yielding face-to-face contact.

2. The combination with a sash and a frame, of a rectangular guide-frame affixed to and projecting inwardly from an end wall of the frame, a ratchet-plate slidingly mounted upon and between the horizontal members of said guide-frame and confined against rotation thereby, said ratchet-plate having an elongated hub, a laterally insertible and removable companion ratchet-plate secured to the corresponding end of the sash and mounted to turn upon said elongated hub, a spring interposed between said first-named ratchet-plate and the inner vertical member of the guide-frame and normally forcing said ratchet-plates into face-to-face contact, and means for retracting said first-named ratchet-plate out of contact and engagement with said last-named ratchet-plate.

3. The combination with a sash and a frame, of means whereby the sash may be adjusted to and held in varying angular positions relatively to the frame comprising engaging members pivoted one within or upon the other, and connected to the sash and frame respectively, and means for retracting one of said engaging members out of pivotal connection with the other whereby to remove the sash from the frame.

4. The combination with a sash and a frame, of means whereby the sash may be moved to and held in varying angularly-adjusted positions relatively to the frame comprising engaging members having a pivotal engagement the one within or upon the other, said pivotal engagement constituting the pivotal connection between the frame and the sash, and means whereby said last-named pivotal connection may be maintained when the cooperating parts of said engaging members are disengaged.

5. The combination with a sash and a frame, of engaging members connected with said parts, respectively, adapted, when in cooperation, to hold the sash in varying angularly-adjusted positions relatively to the frame, said engaging members being provided with cooperating cam-surfaces which stop short of the limit of their relative sliding movement on each other when the sash is in closed position, and means tending to force said cam-surfaces into cooperation whereby the sash when closed is pressed snugly upon its seat, substantially as described.

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Witnesses:

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