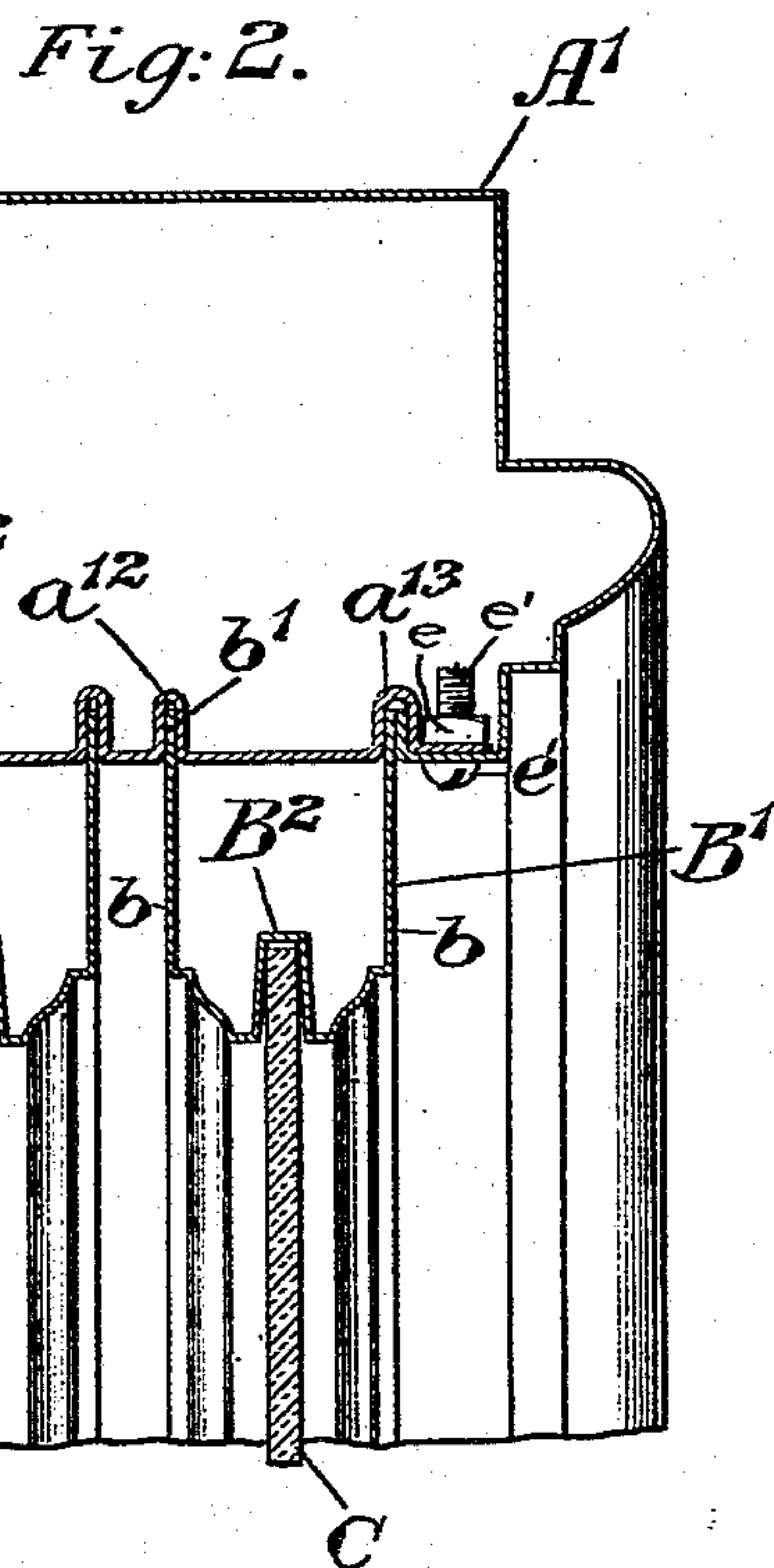


WINDOW.

911,813.

Patented Feb. 9, 1909.



Inventor
By Alfred J. Ellis
Frank M. Schlegel
Attorney.

UNITED STATES PATENT OFFICE.

ALFRED J. ELLIS, OF WOODCLIFF-ON-HUDSON, NEW JERSEY.

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To all whom it may concern:

Be it known that I, ALFRED J. ELLIS, a citizen of the United States, and a resident of Woodcliff-on-Hudson, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Windows, of which the following is a specification.

The subject of the present invention is a window and a window frame of sheet metal, the construction being such that the parts are assembled and connected in an extremely simple, durable and comparatively inexpensive manner, and the structure generally present a highly finished and attractive appearance.

The construction of the sashes are such that when closed, their meeting rails provide an absolute air tight joint and avoid all tendency to rattling.

There are other special features connected with the invention which in addition to those alluded to are clearly explained in the subsequent detailed description.

In the accompanying drawing forming part of this specification,—Figure 1 is a vertical central sectional view of a window frame and sashes disclosing one form of my invention, the sashes being represented in the closed position, this view being broken away at two places in order to provide for enlarged illustration. Fig. 2, is an enlarged sectional plan view of one of the sides of the window frame and through portions of both window sashes, the lower sash being in the raised position.

The lintel A, of the window frame is in the hollow sheet metal form indicated in Fig. 1, and provides the two depending offsets a and a' between which the top rail B of the upper sash, bears when said sash is in its raised position. Intermediate of the offsets a and a' the bottom of the lintel presents horizontal portions a^2 which merge in the vertical angular rib a^3 , the sides of which converge to the apex. It will be understood that the offsets a and a' , as well as the horizontal portions a^2 and angular rib a^3 , all extend the width of said top rail B. The vertical side members A' of the window frame appropriately connect with the lintel at their upper ends and the front of said side members, as well as at the front of the lintel, may be shaped to present a molding or ornamental character.

The sill portion A^2 of the frame comprises

a transverse section of sheet metal which is bent to provide the front and rear depending walls a^4 , a^5 , and the top a^6 . The sheet metal section forming said sill portion is also shaped to present the rear shallow shoulder a^7 , the short forwardly incline a^8 leading therefrom and the shoulders a^9 , a^{10} . It is desirable that the sill portion A^2 contain a filling a^{11} of cement or other suitable composition for imparting solidity to the base of the window frame.

The vertical rails B' of both the upper and lower sashes are each shaped as indicated in Fig. 2 and consist of a section of sheet metal bent to form the front and rear inwardly extending sides b and the U-shaped bearing B^2 for the reception of the vertical side edge of the window pane C of the sash. The side portions b , b , terminate in free edges b' which are received and slide within vertical bends a^{12} , a^{13} , formed in the inner wall of each side member of the window frame.

It will be observed that the inner wall of each side member of the window frame is presented by an independent sheet metal section A^2 shaped to provide the bends a^{12} , a^{13} , and that the bends a^{13} are so conditioned that their recesses are more liberal than are those of the bends a^{12} . This arrangement provides for the reception of the free edge of the adjacent side portion of both sashes and also the accommodation of angular turns a^{14} , which form the terminals of inwardly extending horizontal portions a^{15} of the sheet of metal forming the major portion of each side member.

The top rail B of the upper sash comprises two independent transverse sections B^2 , B^3 , which at their tops have inward horizontal bends b^2 terminating in short under turns b^3 . This enables the sheet metal strip B^4 forming the top of the rail B, to be moved laterally at a point represented by one of the ends of the sections B^2 , B^3 , to firmly engage the under bends of said side sections through the medium of bends b^4 , which interlock with said under bends. The sides B^2 , B^3 , of the rail B, are thus held in connected relation at the top of the rail, as well as a top being provided for said rail. The section B^4 has an upwardly extending angular rib b^5 , which when the upper sash is at the limit of its raised position, will snugly conform at the under side of the corresponding angular portion of the lintel bottom. It will be noted that the bends of both the side sections B^2 ,

B^3 , and those of the section B^4 , are so disposed that in their interlocked position they present a top surface for the sash B which will closely conform to the under side of the

5 lintel bottom between the offsets a and a' .

The lower portion of the sections B^2 , B^3 , as shown, are bent inward in the form of moldings and continuations, present upwardly converging flanges B^5 terminating in narrow

10 horizontal outward bends b^6 . A sheet metal clencher B^6 , of the character indicated in Fig. 1, is laterally slid to interlock with the bends b^6 , and thus connect and brace the sections B^2 , B^3 , at the under side of said rail B as well

15 as provide an upper bearing for the glass pane C.

The meeting rail B^7 of the sash B is for the major part formed of a single section of sheet metal, said section being shaped to

20 form the lower bearing B^8 for the glass panel, and at its front, the section forming said rail may be shaped to provide an ornamental molding b^7 and plain front b^8 , the section at the bottom of the rail having an inward bend

25 b^9 with an overturn. At its opposite side said section inclines downwardly for a considerable distance in the direction of the rear of the window, and then has a short rearwardly extending oblique shoulder b^{10} from which continues a further rearwardly inclined portion

30 b^{11} of the rear wall of the meeting rail, a forwardly extending horizontal bend b^{12} having a rearward overturn representing the free part of said sheet metal section at the rear

35 portion of the rail. A transverse sheet metal strip B^9 has under turns b^{13} and can be laterally slid from one end of the rail to engage the overturns thereof, and thus connect and brace said rail as well as close the same at

40 the bottom. It will be noted that here also the interlocking turns are so arranged that the external surface of the rail bottom will be practically flush and present a finished appearance. The meeting rail B^{10} of the other

45 sash, while presenting some of the characteristics of the companion of the top sash, differs somewhat in construction. In said meeting rail B^{10} of the top sash, the interlocking strip B^{20} , is necessarily at the top. The oblique

50 shoulder b^{14} is on the front side of the top rail of the lower sash so that the front wall of said rail closely conforms to the rear wall of the bottom rail of the upper sash when said upper and lower sashes are in their closed positions. Independent sections B^{11} and B^{12} forming the main parts of the rail B^{10} , have their lower parts conditioned similar to the sections B^2 and B^3 of the top rail of the upper sash, including outward bends to serve

60 with a clencher b^{15} applied the same as the clencher b^6 .

The bottom rail B^{13} of the lower sash is of a single section of sheet metal and is shaped at its top similar to the upper portion of the

65 rail B^7 to provide the bearing B^{14} for the

lower part of glass panel C, the sheet metal section constituting the rail B^{13} being also shaped to present the front and rear walls which when the lower sash is in its closed position extend down to the sheet metal

70 section forming the sheathing of the sill. It will be seen that the front wall extends down in front of the shoulder a^{10} and terminates in an upward bend which fits closely against said shoulder. The rear wall de-

75 pends down in close relation to the shoulder a^7 and terminates in an upward bend. A section B^{15} is shaped to intimately conform to the upper surfaces between the shoulders a^9 , a^{10} , as well as the incline a^8 , and has

80 bends which interlock with those of the front and rear walls of the lower rail of the bottom sash.

The upper and lower sashes are confined and guided in their sliding movements by

85 reason of their free edge portions being located within the bends a^{12} , a^{13} , a^{14} of the side members.

In case the free edge portions b' , of the side rails of the sashes, are slightly longer

90 than represented, such variation may be readily compensated for by means of nuts e , which are soldered upon the terminal horizontal portions of the sections A^2 , the threaded shanks of long screws e' passing

95 through openings therefor in the upward bends a^{15} , of the side members and through the sections A^2 , and the nuts e connected thereto. By simply turning the screws e' , in the proper direction, the plates A^2 , will

100 be moved and held somewhat away from the bends a^{15} , and thus provide for longer free edges of the side rails of the sashes.

The operation and advantages of the improved window will be readily appreciated

105 from the foregoing description. The several interlocked parts not only provide simple structural features, but impart durability to the window. The presence or omission of the molding will be optional.

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

1. In meeting rails for upper and lower window sashes, the meeting rail of the top

115 sash having its major part formed of a single section of sheet metal shaped at its top to present a bearing for the lower edge of the glass pane, said rail having a vertical front wall terminating in a rearward horizontal

120 bend with a forward overturn, the rear wall of said rail embodying two rearwardly inclined surfaces with a short intermediate oblique shoulder, said rear wall having a forward horizontal bend with a rearward over-

125 turn, an independent section having edge turns and adapted to be slid edgewise to engage its turns with those of the main part of the rail, the meeting rail of the other sash comprising independent front and rear sec-

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tions having upper horizontal bends with under turns and lower vertical flanges with outward bends, an independent section having bends at its edges and adapted to be moved endwise for engaging its bends with those at the top of the sections to close and constitute the top of said meeting rail, and a clencher adapted to be slid edgewise to interlock with the bends of the flanges to further connect and brace the independent sections relative to each other as well as contribute to form a bearing for the upper edge portion of a glass panel, the forward section of the meeting rail of the lower sash being configured to intimately conform with the rear wall of the companion meeting rail when the sashes are in their closed positions.

2. A window, the lintel of the frame of which is of sheet metal and presents transverse offsets and intermediate horizontal bends with an angular rib between, and an upper window sash, the top rail of which is of sheet metal and configured at its top to closely conform to the intermediate horizontal bends and angular rail as well as be received between the front and rear offsets, all provided by the bottom wall of the lintel.

Signed at New York in the county of New York and State of New York this 13th day of June A. D. 1907.

ALFRED J. ELLIS.

Witnesses:

WM. PAXTON,
FRANK M. ASHLEY.