

W. F. ALDRICH & G. A. WIELAND.

FIREPROOF METAL WINDOW.

APPLICATION FILED JUNE 1, 1911.

Patented Aug. 13, 1912.

1,035,132.

3 SHEETS-SHEET 1.

Fig. I.

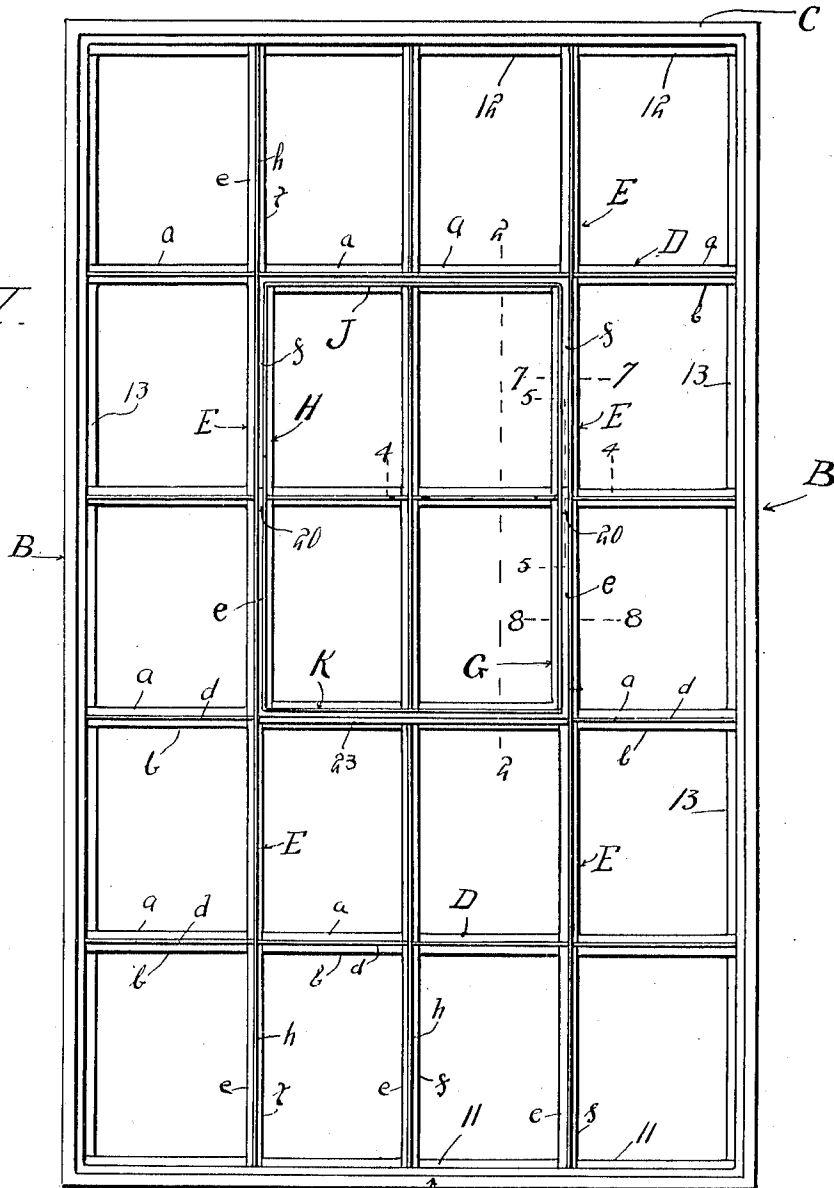
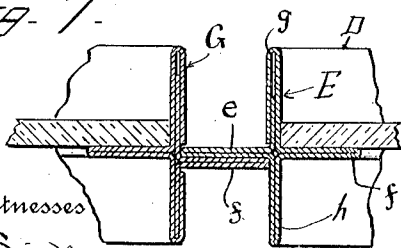
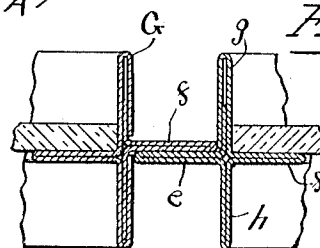


Fig. 7.



Witnesses

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By

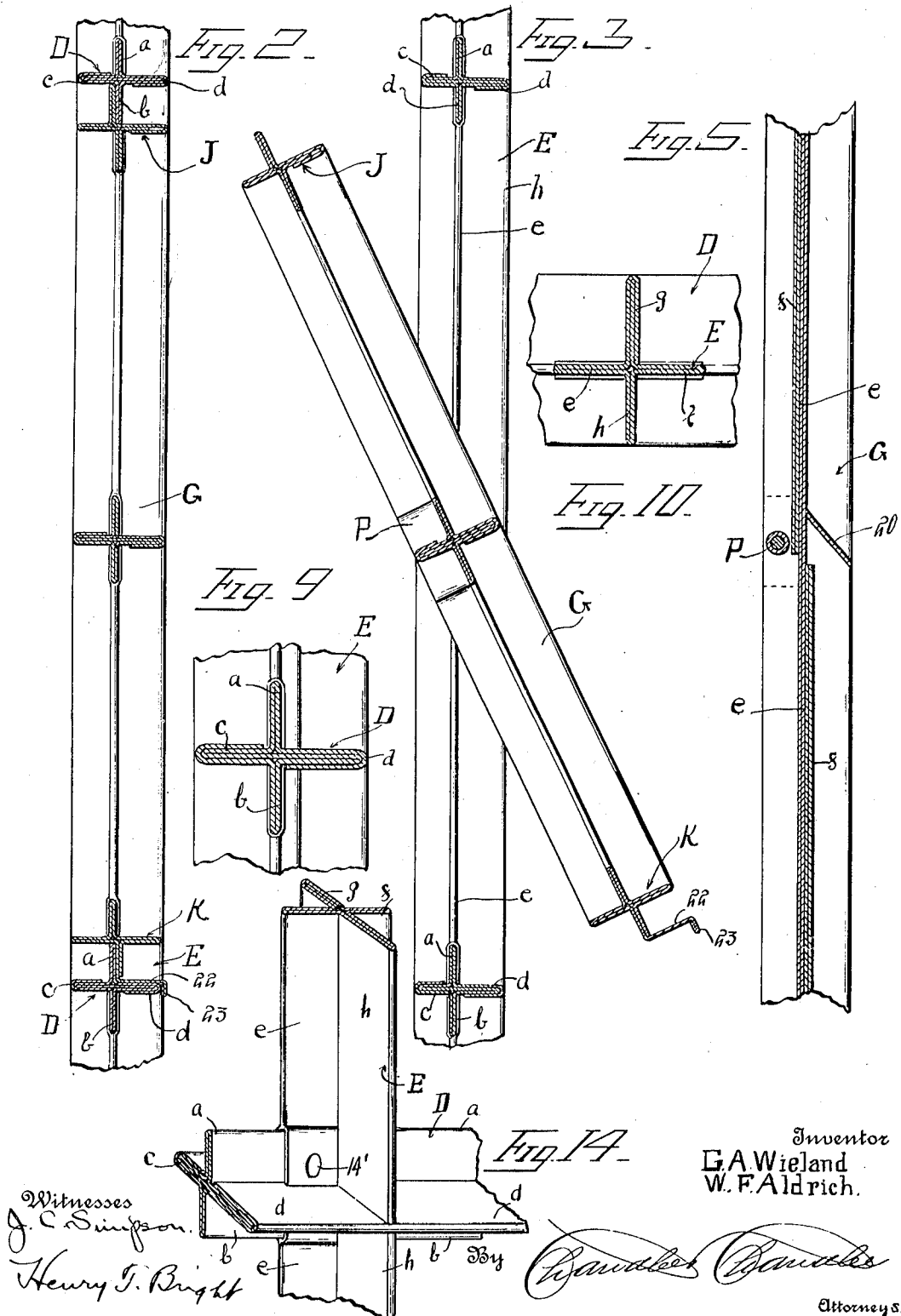
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3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

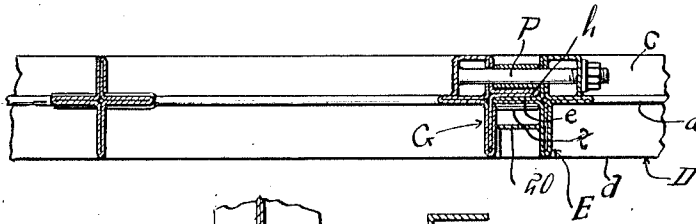


Fig. 4.

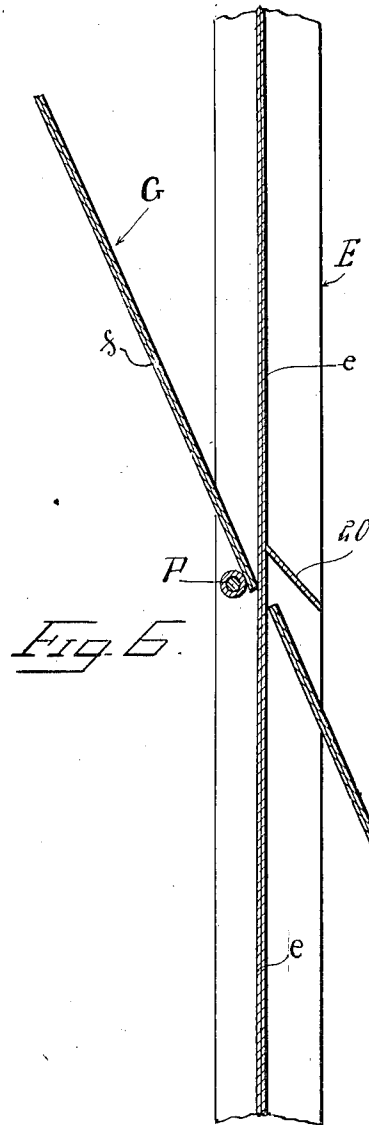


Fig. 6.

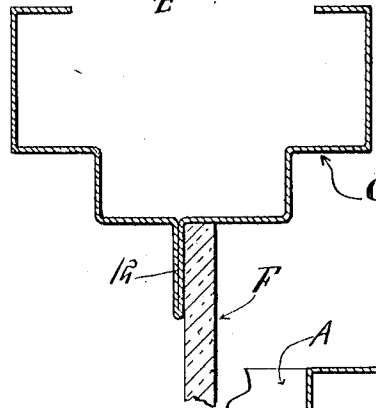


Fig. 11.

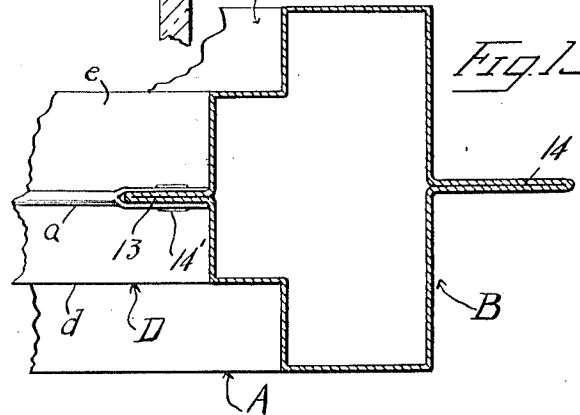


Fig. 13.

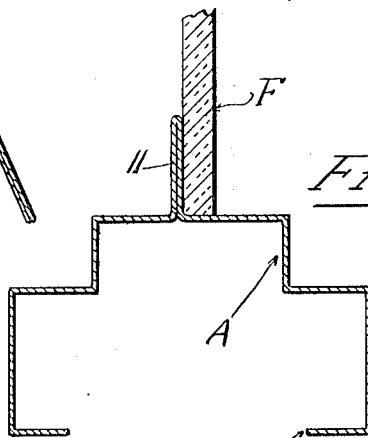


Fig. 12.

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UNITED STATES PATENT OFFICE.

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FIREPROOF METAL WINDOW.

1,035,132.

Specification of Letters Patent.

Patented Aug. 13, 1912.

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To all whom it may concern:

Be it known that we, WILLIAM F. ALDRICH and GEORGE A. WIELAND, citizens of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented certain new and useful Improvements in Fireproof Metal Windows; and we do hereby 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 fire-proof metal windows.

The object of the invention resides in the construction of a fire-proof metal window in which the parts or members are built up of sheet metal plates pressed into suitable shape to form sills, side jambs, lintels and muntins and then suitably secured together to produce weather tight and dust proof windows.

A further object of the invention resides in the construction of a window of the character mentioned in which the parts of the window are connected together in a novel manner adapted to produce tight joints and to give a neat and smooth finish to a completely assembled window.

A still further object of the invention resides in the construction of a window of the character named which includes a stationary and a pivoted portion associated with each other in a novel manner which serves to effect weather tight joints at the side, the top, and bottom of the pivoted portion of the window when it is closed against the fixed portion.

Still another object of the invention resides in the provision of a window which may be constructed with economy as to material and labor, and which will permit the parts to be made by machinery, so that they may be quickly assembled with but little hand labor and expense.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claims.

In describing the invention in detail, references will be had to the accompanying drawings, wherein like characters of refer-

ence denote corresponding parts in the several views, and in which—

Figure 1 is an outside elevation of an assembled window embodying the invention, Fig. 2 an enlarged section on the line 2—2 of Fig. 1 with the glass pane of the window removed, Fig. 3 a view similar to Fig. 2 with the pivoted portion of the window swung open, Fig. 4 an enlarged section on the line 4—4 of Fig. 1, Fig. 5 an enlarged section on the line 5—5 of Fig. 1, Fig. 6 a view similar to Fig. 5 with the pivoted portion of the window swing to open position, Fig. 7 an enlarged section on the line 7—7 of Fig. 1, Fig. 8 an enlarged section on the line 8—8 of Fig. 1, Fig. 9 an enlarged transverse section through one of the horizontal muntins of the stationary portion of the window, Fig. 10 an enlarged transverse section through one of the vertical muntins of the stationary portion of the window, Fig. 11 an enlarged transverse section through the lintel, Fig. 12 an enlarged transverse section through the sill of the window, Fig. 13 an enlarged transverse section through one of the side jambs of the window, and Fig. 14 a detail perspective view showing the manner in which the horizontal and vertical muntins are interlocked when secured together in the assembled window.

Referring to the drawings, the frame of the window is shown as built up of a sill A, side jambs B, a lintel C, horizontal muntins D and vertical muntins E, the sill A, jambs B and lintel C being connected together in a suitable manner to form the limiting portion of the window frame. The sill A is formed from a suitable blank of sheet metal bent longitudinally to produce a hollow or box like structure having its lower portion open as at 10. During the formation of the sill A, the intermediate portion of the blank is bent upon itself to form a flange 11 disposed inwardly of the frame when the sill is assembled and constituting a seat for the glass panes F as will hereinafter appear. The lintel C is likewise formed from a sheet metal blank in a manner similar to the sill A, said lintel having an inwardly disposed flange 12 serving as a seat for the panes F. The side jambs B are each formed from a metal blank bent longitudinally to produce a hollow member having opposite interior

and exterior flanges 13 and 14 respectively, the former constituting a pane seat and the latter adapted to be built into a wall to secure the window in position.

5 The horizontal muntins D are each formed from a metal blank bent upon itself to produce a bar having a transverse section of a cross, including arms *a*, *b*, *c* and *d*, the arms *c* and *d* being disposed horizontally and transversely of the window in substantially the same plane, while the arms *a* and *b* are disposed vertically and longitudinally of the window. In forming the horizontal muntins D the folding of the metal blank is continued so that four layers thereof are contained in the horizontal arms *c* and *d*. These horizontal muntins D extend completely across the window from side jamb to side jamb except where the pivoted portion of the window, to be hereinafter referred to, is mounted. The terminals of the horizontal muntins D are connected to respective side jambs B by slitting the vertical arms *a* and *b* at each end so as to receive the flanges 13 of the side jamb. When these flanges 13 are disposed in the slitted ends of the vertical arms of the muntins D they are positively secured to said muntins by rivets 14' passed through the vertical arms of the muntins and the respective flanges 13. If desired, the connection between the horizontal muntins and the side jamb can then be soldered so as to render the joint therebetween more neat and pleasing to the eye.

35 The vertical muntins E extend at the bottom of the window from the sill A to the adjacent horizontal muntins D while those at the top of the window extend from the lintel C to the adjacent horizontal muntin D. The vertical muntins located intermediately of the window extend between the adjacent horizontal muntin except where they are adjacent the pivoted portion of the window, in which instance they extend the full length of the opening occupied by said pivoted portion. These vertical muntins E are each formed from a metal blank bent longitudinally to produce a bar having a transverse section of a cross including arms *e*, *f*, *g*, and *h*. The arms of the vertical muntins E are preferably each constructed of only two layers of metal as they are subjected to strain longitudinally and therefore do not require the strength necessary in the horizontal muntin D.

In securing the vertical muntins E, which are disposed between the sill A and the adjacent longitudinal muntin D in place, the arms *e* and *f* are slitted longitudinally at each end so as to receive respectively the flange 11 of the sill A and the arm *b* of the lowermost horizontal muntin D. After the arm *b* and the flange 11 are positioned in the slits at the end of respective vertical muntins they are riveted and soldered to

the latter. The vertical muntins E between the lintel C and the uppermost horizontal muntin D are secured in place in a similar manner. In this instance the flange 12 and the arm *a* of the horizontal muntin is inserted in respective slits at the ends of the vertical muntins E. The intermediate vertical muntins E of the stationary portion of the window are also secured between adjacent horizontal muntins in a manner similar to that just described, the slits at the ends of the vertical muntins receiving respectively the arms *a* and *b* of respective adjacent horizontal muntins.

The vertical muntins which form the side members of the opening in which the pivoted portion of the window is mounted, are of a length equivalent to the length of said opening.

The limiting frame of the pivoted portion of the window is formed of side members G and H and top and bottom members J and K respectively. The side members G and H are constructed of members formed similar to the vertical muntins E except that the arm *f* of the side member G consists of a pair of offset sections so that when said member is disposed against the adjacent vertical muntin E, the upper section of the arm *f* will be disposed on the inner side of the arm *e* of said vertical muntin, while the lower section of the arm *f* will be disposed on the outer side of the arm *e* of said vertical muntin. When in this relation the side member G is secured to the adjacent vertical muntin E by a pivotal connection P between the arms *g* of the side member and the vertical muntin. A similar connection is made between the side member H and the adjacent vertical muntin E, so that the frame of the pivoted portion of the window is free to swing to open and closed position. A stop 20 is mounted on each of the vertical muntins E adjacent the side members of the pivoted frame of the window to limit the swinging movement of said frame and also to act as a shield against the weather for the pivotal joint between the stationary and pivotal portions of the window. The top member J of the pivoted window is constructed from a sheet metal blank in a manner similar to the vertical muntins E and is positioned so that the upwardly extending arm thereof engages the inner face of the arm *b* of a horizontal muntin D when the pivoted portion of the window is in closed position. Likewise the bottom member K of the pivoted portion of the window is constructed from a blank of sheet metal in a manner similar to the top member J with the exception that the downwardly extending arm thereof is positioned to engage the outer face of the arm *a* of one of the horizontal muntins D. This downwardly extending arm of the lower member K is car-

ried outwardly and then downwardly as at 22 and 23 so as to overhang the arm *d* of the muntin D with which it engages. This overhanging portion serves to produce a weather tight joint when the pivoted portion of the window is closed. The side, top and bottom members of the pivoted portion of the window have mounted therebetween horizontal and vertical muntins in a manner similar to a stationary portion of the window so that same may be supplied with panes of glass.

What is claimed is:

1. In a metal window, a frame comprising a lintel, sill and side jambs, each of which latter is composed of a single strip of metal bent to form a tubular member having a longitudinal flange disposed interiorly of the frame, and a horizontal muntin connecting said side jambs having its terminals provided with recesses to receive respective flanges of the side jambs and securing means positively connecting the interlocking portions of respective terminals of the muntins and flanges of the side jambs.

2. In a metal window, a frame comprising a lintel sill and side jambs, a plurality of horizontal muntins connecting said side jambs each of which is composed of a single strip of metal bent to form a bar having a transverse section of a cross including oppositely extending vertical and horizontal arms, and a plurality of vertical muntins connecting adjacent horizontal muntins, each of said vertical muntins having their terminals provided with longitudinal recesses receiving respectively the upwardly and downwardly extending vertical arms of the adjacent horizontal muntins, and securing means positively connecting the interlocking portions of said vertical and horizontal muntins.

3. In a metal window, a frame comprising a lintel, side jambs and sill, the latter being composed of a single strip of metal bent to provide a flange disposed interiorly of the frame and extending transversely thereof, a horizontal muntin connecting the side jambs, said horizontal muntin having a longitudinal flange disposed in opposition to the flange of the sill, and a vertical muntin connecting the sill and horizontal muntin, said vertical muntin having its terminals provided with longitudinal recesses receiving respectively the flanges on the sill and the horizontal muntin, and securing means positively connecting the interlocking portions of the vertical muntin, horizontal muntin and sill.

4. In a metal window, the combination of a frame including top, bottom and side members, said top and bottom members being provided with interiorly disposed flanges, a vertical muntin connecting said top and bottom members, said vertical muntins being composed of a single strip of metal bent to form a bar having a transverse section of a cross including oppositely extending arms disposed in and transversely to the plane of the frame, and having its terminals provided with longitudinal recesses receiving respectively the flanges of the top and bottom members of the frame, and securing means positively connecting the ends of said vertical muntins to the flanges of the top and bottom members of the frame.

In testimony whereof we affix our signatures, in presence of two witnesses.

WILLIAM F. ALDRICH.
GEORGE A. WIELAND.

Witnesses:

WM. KIMS,
W. H. BEANSTON.