July 12, 1927. 1,635,336

O. V. NELSON

ALL METAL WINDOW SASH

Filed Nov. 26, 1926 2 Sheets-Sheet 1

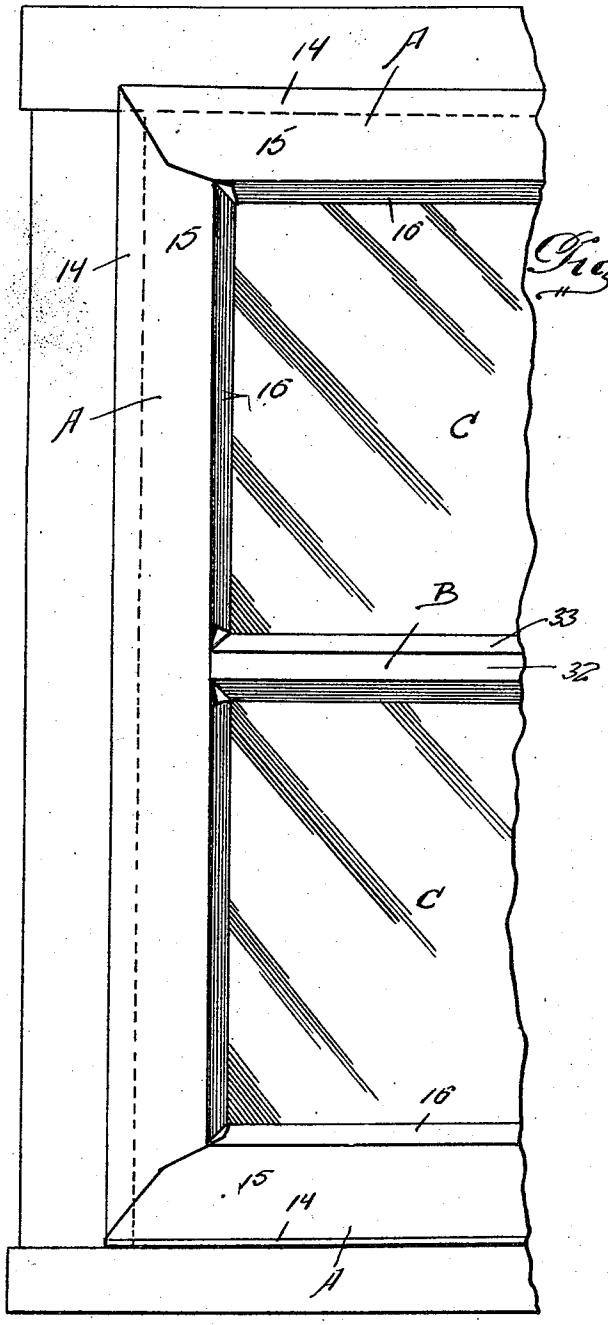


Fig. 1.

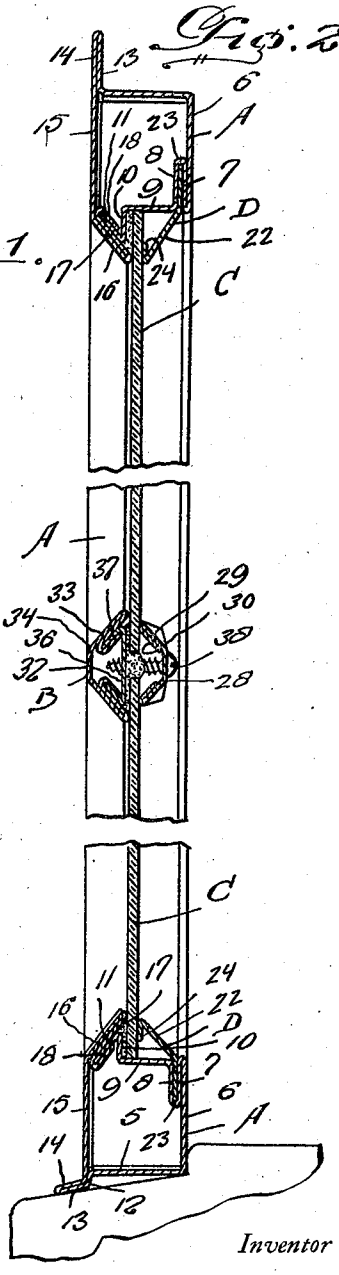


Fig. 2.

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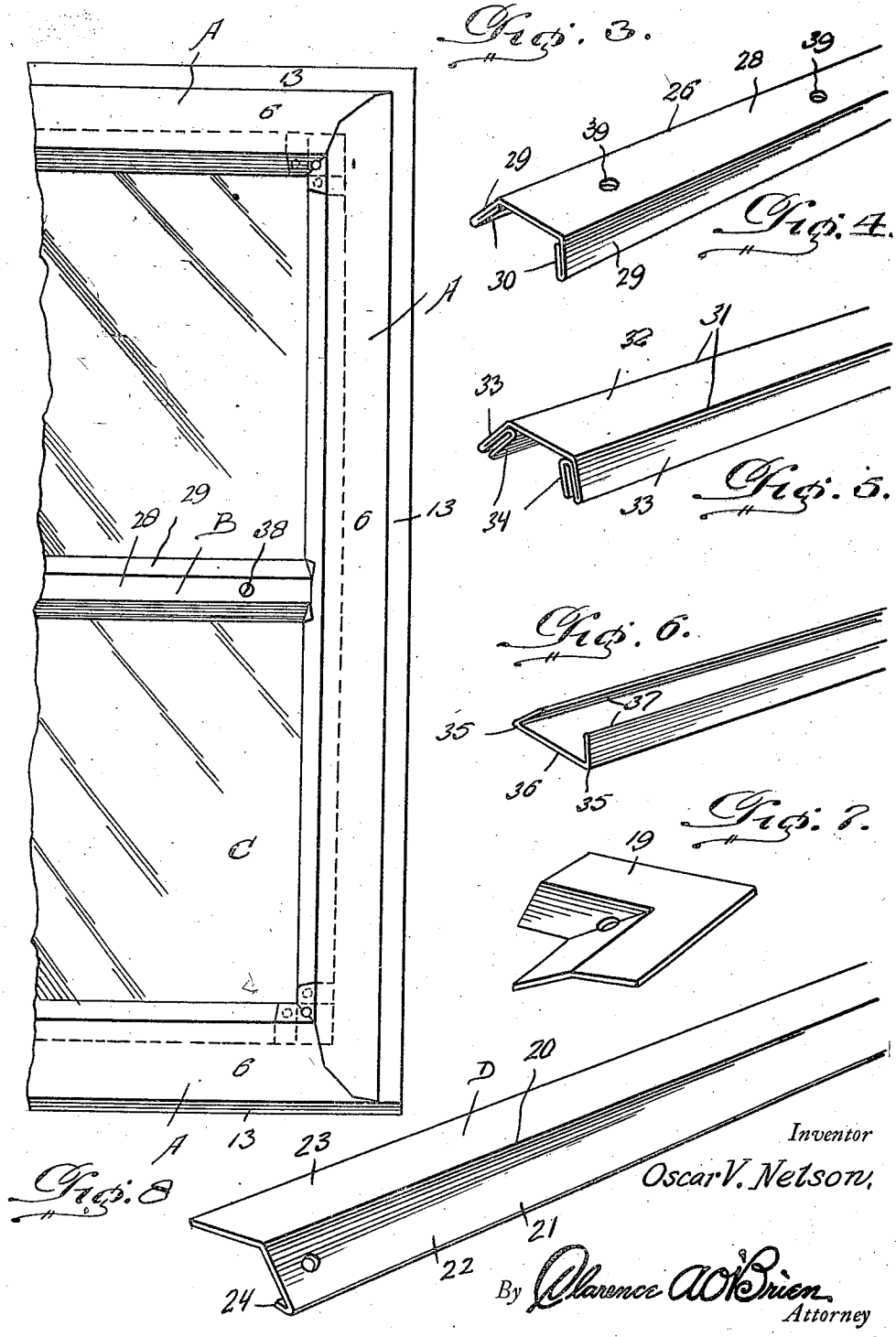
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Patented July 12, 1927. 1,635,336

UNITED STATES PATENT OFFICE.

OSCAR VENDAL NELSON, OF RACINE, WISCONSIN.

ALL-METAL WINDOW SASH.

Application filed November 26, 1926. Serial No. 150,918.

The present invention relates to a window sash and has for its principal object to provide a structure formed of all metal parts so as to be fire proof, strong, and durable, rigid, thoroughly efficient and reliable in use, relatively inexpensive to manufacture, easy to assemble, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as well be hereinafter more fully described and claimed.

In the drawings:—

Figure 1 is a fragmentary front elevation of the sash embodying the features of my invention,

Figure 2 is a vertical longitudinal section therethrough,

Figure 3 is a fragmentary rear elevation thereof,

Figure 4 is a fragmentary detail perspective view of one member of the trough joints,

Figure 5 is a similar view of the other member of the trough joint,

Figure 6 is a similar view of a part of the last mentioned member,

Figure 7 is a detail perspective view of one of the corner pieces, and

Figure 8 is a fragmentary detail perspective of one of the pointer strips.

Referring to the drawing in detail it will be seen that the letters A denote generally the top, bottom, and side rails of the sash, while the letter B denotes the cross joint between the side rails for connecting the panes of glass C. The rails A are disposed to form a rectangular sash and are of the same construction as far as the essence of the invention is concerned varying only as to their length, and it is thought that a detail description of one of the rails will suffice for all.

Referring, therefore, to one of the rails in detail it will be seen that it is formed from a single strip of sheet metal material which is bent along certain parallel spaced longitudinal dimensions. In this detail description of a single rail particular attention is directed to the bottom rail shown in Figure 2. The outer plate 5 of this rail merges at its inner edge into the inner plate 6 which merges into a portion overlying the plate 6 for a distance as is indicated at 7 and merging into a portion 8 which overlies the portion 7 in spaced parallelism thereto, the portion 8 merging into a right angularly outwardly extending inner plate 9 disposed in parallelism with the plate 5 and merging into an inwardly and right angularly extending portion 10 which in turn merges or terminates in an outwardly and acutely disposed tongue portion 11. The outer edge of the plate 5 is curved downwardly as at 12 and merges into a portion 13 disposed at an obtuse angle in respect to the outer surface of the outer plate 5. This portion 13 merges into an overlapping portion 14 which in turn merges into an inwardly extending outer plate 15 disposed at right angles to the plate 5 and in parallelism to the plate 6, and at right angles to the plate 9. This outer plate merges into a portion 16 disposed obtusely to the inner surface of the outer plate 15 which merges into an overlapping portion 17. This portion 17 merges into an overlapping spaced parallel portion 18 forming with the portion 17 a pocket for receiving the tongue terminals 11. The rails A are held together by means of corner pieces 19, one of which is shown in detail in Figure 7 and the position thereof is indicated in dotted lines in Figure 3. The letters D denote pointer strips which are formed of sheet metal bent along the longitudinal dimensions 20 and 21 to form an intermediate body portion 22 having at one edge an obtuse extension 23 and at its other edge an acute extension 24. The obtuse extension 23 is adapted to be received in the pocket formed by overlying portions 7 and 8, while the acute extension 24 is adapted to engage the pane C. Putty or like packing material is adapted to be placed between the portions 10 and 17 and the adjacent portion of the pane C as is indicated in Figure 2. It is to be noted that there is a slight difference between the side and top rails and the bottom rails which may be ascertained by referring particularly to Figure 2 wherein it will be seen that the portions 13 and 14 of the bottom rail are disposed obtusely to the plates 5 and 15 and whereas in the top rail and in the side rails these portions 13 and 14 are disposed at right angles to the plate 5 and in parallelism with plate 15.

The joint cross piece B includes generally three members shown respectively in Fig-

ures 4, 5 and 6. The member shown in Figure 4 is in the inside member, and is formed from a single sheet of metal bent along parallel longitudinal dimensions 26 and 27 to provide an intermediate plate portion 28 merging at its edges into obtuse extensions 29 each of which is bent inwardly over upon itself as at 30. The member shown in Figure 5 is bent along spaced parallel longitudinal dimensions 31 to form a center strip plate 32 which merges into obtuse extensions 33 which are bent over upon themselves to form U-shaped extensions 34 that provide pockets. The member shown in Figure 6 is bent along spaced parallel longitudinal dimensions 35 to provide a center strip 36 which merges at its edges into acutely disposed extensions 37 adapted to be received in pockets 34 as is clearly shown in Figure 2. The members shown in Figures 5 and 6 form the outside portion of the joint piece, while the member shown in Figure 4 forms the inside piece thereof. Screws 38 pierce openings 39 in the plate portion 28 and pierce the strip plate 36. Packing such as putty or the like may be interposed between the two panes which are held in place by these joint members as clearly shown in Figure 2.

All parts of this window sash are formed from sheet metal bent in the manner described. The sash thus formed is fire proof, strong, durable, and rigid, and will therefore prove thoroughly efficient and reliable in use. It is thought that the construction, utility, and advantages of the all metal sash will now be clearly understood without a more detail description thereof. It is to be understood, of course, that the joints of the various rails and cross joint pieces may be soldered together in the well known manner.

The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention, and the above description. It is apparent that the changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

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

1. A window sash of the class described including a plurality of rails, each rail being formed from a single sheet of metal bent along parallel spaced longitudinal dimensions to form a hollow construction having an outer plate merging at its inner edge into a right angularly extending inside plate which merges into an overlapping portion that is bent over upon itself and merges into an inner plate disposed in parallelism with the outer plate and at right angles to the inside plate, said inner plate merging into an inwardly directed right angular extension merging into an outwardly disposed acutely extending tongue, the outer edge of the outer plate merging into an overlapping extension which in turn merges into an outside plate extending perpendicularly to the outer plate and merging into an obtuse extension overlapping itself and having a spaced overlapping portion for forming a pocket to receive the tongue.

2. A window sash of the class described including a plurality of rails, each rail being formed from a single sheet of metal bent along parallel spaced longitudinal dimensions to form a hollow construction having an outer plate merging at its inner edge into a right angularly extending inside plate which merges into an overlapping portion that is bent over upon itself and merges into an inner plate disposed in parallelism with the outer plate and at right angles to the inside plate, said inner plate merging into an inwardly directed right angular extension merging into an outwardly disposed acutely extending tongue, the outer edge of the outer plate merging into an overlapping extension which in turn merges into an outside plate extending perpendicularly to the outer plate and merging into an obtuse extension overlapping itself and having a spaced overlapping portion for forming a pocket to receive the tongue, a pointer strip associated with each rail and formed from a single sheet of metal bent along two parallel spaced dimensions to form an acute extension at one side and an obtuse extension at the other side.

3. A window sash of the class described including connected rails and a pane cross joint, said joint cross piece including three members, one inside and two outside, one of said outside members being formed from a single strip of sheet metal to provide a center plate having obtuse extensions merging into inwardly disposed U-shaped portions to form pockets, the other outside member being formed from a single sheet of metal bent to provide a center plate and edge acute extensions receivable in the pockets, said inner member being formed from a single sheet of metal bent to provide a center plate having obtuse extensions bent inwardly over upon themselves.

4. A window sash of the class described including connected rails and a pane cross joint, said joint cross piece including three members, one inside and two outside, one of said outside members being formed from a single strip of sheet metal to provide a center plate having obtuse extensions merging into inwardly disposed U-shaped portions to form pockets, the other outside member being

formed from a single sheet of metal bent to provide a center plate and edge acute extensions receivable in the pockets, said inner member being formed from a single sheet of metal bent to provide a center plate having obtuse extensions bent inwardly over upon themselves, said outside members being fixed to the rails of the sash, and screws piercing the second mentioned outside member and the inside member for holding said members clamped in relation to window panes.

In testimony whereof I affix my signature.

OSCAR VENDAL NELSON.