

A. FROMHOLD.
WINDOW CONSTRUCTION.
APPLICATION FILED NOV. 8, 1910.

996,846.

Patented July 4, 1911.

Fig. 1.

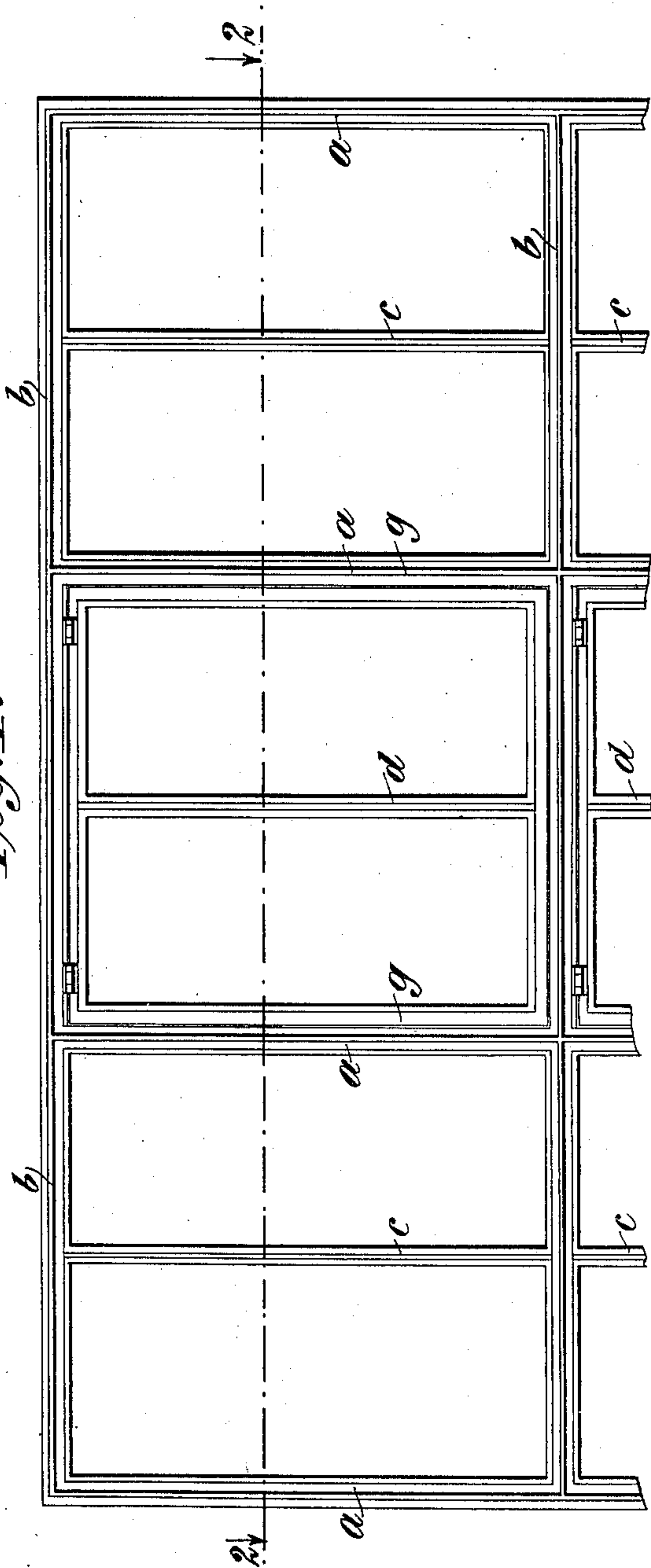
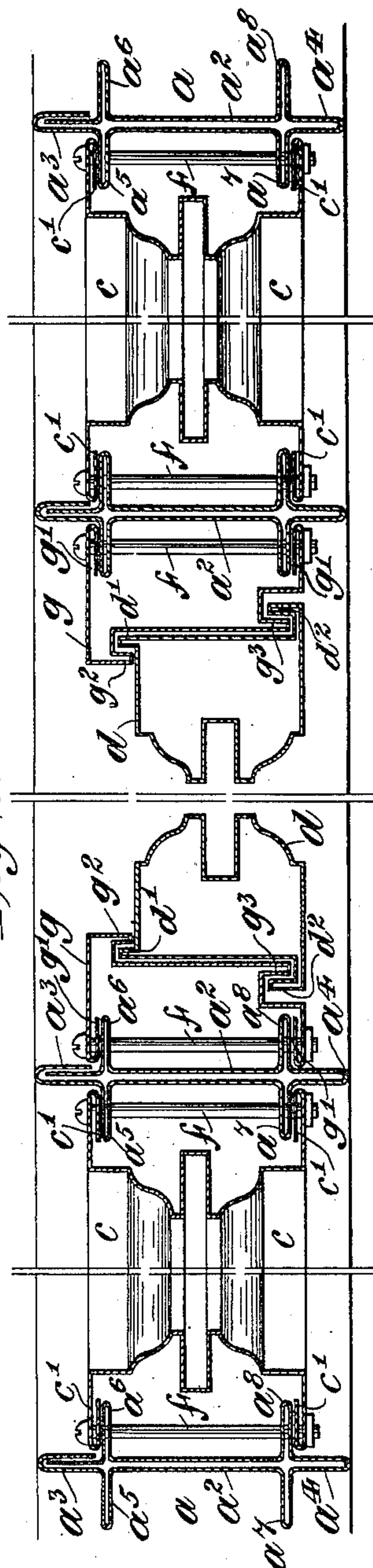


Fig. 2.



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UNITED STATES PATENT OFFICE.

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WINDOW CONSTRUCTION.

996,846.

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, ALEXANDER FROMHOLD, a citizen of the United States, residing in Rutherford, in the State of New Jersey, have invented certain new and useful Improvements in Window Construction, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

10 This invention relates to sectional metallic window construction in which window sashes, either fixed or swinging, are built up in a frame to fill large openings, the frame as well as the sashes being formed of folded
15 sheet metal, so that the area available for glass is reduced as little as possible by the frame members, while at the same time the construction is strong enough to withstand the superimposed weight and to resist wind
20 pressures.

The invention is concerned particularly with the means for securing the window sashes, either fixed or swinging, in place in the frame, the object being to facilitate the
25 manufacture and installation of such work while providing for strength and security.

The invention will be more fully explained hereinafter with reference to the accompanying drawing in which it is illustrated
30 and in which—

Figure 1 is a view showing a portion of an extended window frame or casing embodying the invention as applied to fixed window sashes and to swinging sashes as
35 well. Fig. 2 is a detail view in section on the plane indicated by the line 2—2 of Fig. 1, but on a larger scale and partly broken out.

The frame, as shown in the drawing, comprises vertical members a and horizontal members b which form openings adapted to receive fixed window sashes, as c , and swinging sashes, as d . The formation and connection of the members of the frame are
40 fully shown and described in another application for patent, Ser. No. 577,455, filed August 16, 1910, but will be described herein so far as may be necessary to enable the present invention to be understood. Each
45 frame member, whether vertical or horizontal, is preferably formed of a single, continuous strip of sheet metal folded upon itself so as to form, in cross section, a double rectangular cross, having a central portion
50 a^2 and, it may be, edge webs a^3 and a^4 in the

plane of the central portion. For the purpose of the present invention, each member has two closely folded, projecting transverse webs a^5 , a^6 and a^7 , a^8 on opposite sides respectively of the central body portion a^2 .
60 Each horizontal member b is formed in the same manner as each vertical member a , having likewise a central body portion and transverse webs with, it may be, edge webs in the plane of the central body portion. 65

It will be observed that each frame member comprises a continuous sheet of metal bent to form two projecting transverse webs on the same side connected at their bases by the intermediate portion of the sheet, so that
70 the webs are held rigidly in relation to each other and so that the webs of the sash, hereinafter referred to, may be made to overlap the webs of the frame member on either side as may be most convenient. 75

It is not essential that both the vertical members and the horizontal members of the frame shall have the transverse webs, since the sashes may be secured in place by means of the transverse webs of the vertical mem-
80 bers or of the horizontal members, but it is preferable that both the vertical and the horizontal members shall be provided with the transverse webs.

Each fixed window sash has on each edge, front and rear, closely folded, projecting webs c' which are adapted to overlap the corresponding transverse webs of the frame members a and b , preferably embracing such transverse webs between them or being them-
85 selves embraced between the transverse webs, the assembling of the frame and sashes being readily effected as the structure is built up in place. When the sashes and frame have been assembled as described, the sashes
90 are secured in place, against the possibility of accidental displacement through any cause, by bolts f which are passed through the overlapping webs. In the case of the swinging sashes, it is necessary to provide,
95 for each swinging sash d , an intermediate frame g which is also provided, on each edge, front and rear, with webs g' which cooperate with the transverse webs of the frame members a and b in the same manner
100 as in the case of the fixed sashes, already referred to, the holding of such intermediate frame in place being made still further secure by bolts f as before. The intermediate frame g is likewise formed of sheet metal 110

and may be provided with flanges g^2 and g^3 , perpendicular to the plane of the frame, for coöperation with corresponding flanges d' and d^2 of the swinging sash, a weather tight joint being thus provided.

The improved construction permits the entire structure for any job to be built completely at the factory, shipped knocked-down, and assembled easily on the job, while at the same time a very light but strong and rigid structure is provided.

I claim as my invention:

1. The combination of a sheet metal window frame member comprising a continuous sheet of metal bent to form two closely folded, projecting transverse webs on the same side, connected at their bases by the intermediate portion, and a window sash having

at its edge closely folded, projecting front and rear webs which overlap and fit closely upon the corresponding webs of the frame.

2. The combination of a sheet metal window frame member comprising a continuous sheet of metal bent to form two projecting transverse webs on the same side, connected at their bases by the intermediate portion, a window sash having at its edge front and rear webs which overlap the corresponding webs of the frame and bolts passed through the overlapping webs.

This specification signed and witnessed this first day of November A. D., 1910.

ALEXANDER FROMHOLD.

Signed in the presence of—

S. H. POMEROY,

LOUGHLIN J. RICE.