

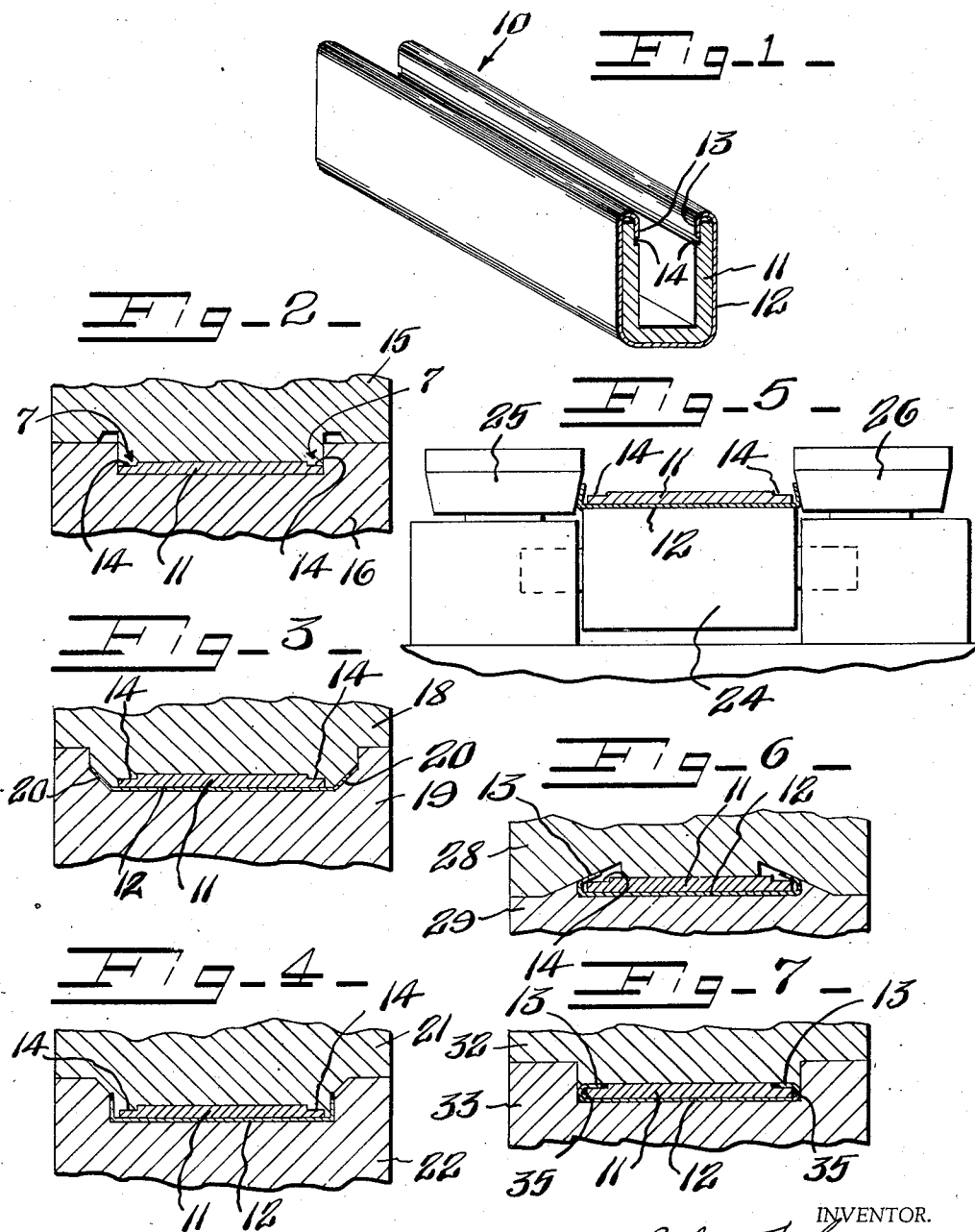
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J. F. LEVAN

2,041,004

METHOD OF FORMING FRAME MEMBERS WITH METAL VENEER FACING STRIPS

Original Filed Aug. 29, 1933 2 Sheets-Sheet 1



INVENTOR.

John F. Levan
BY Bradell's Thompson
ATTORNEYS

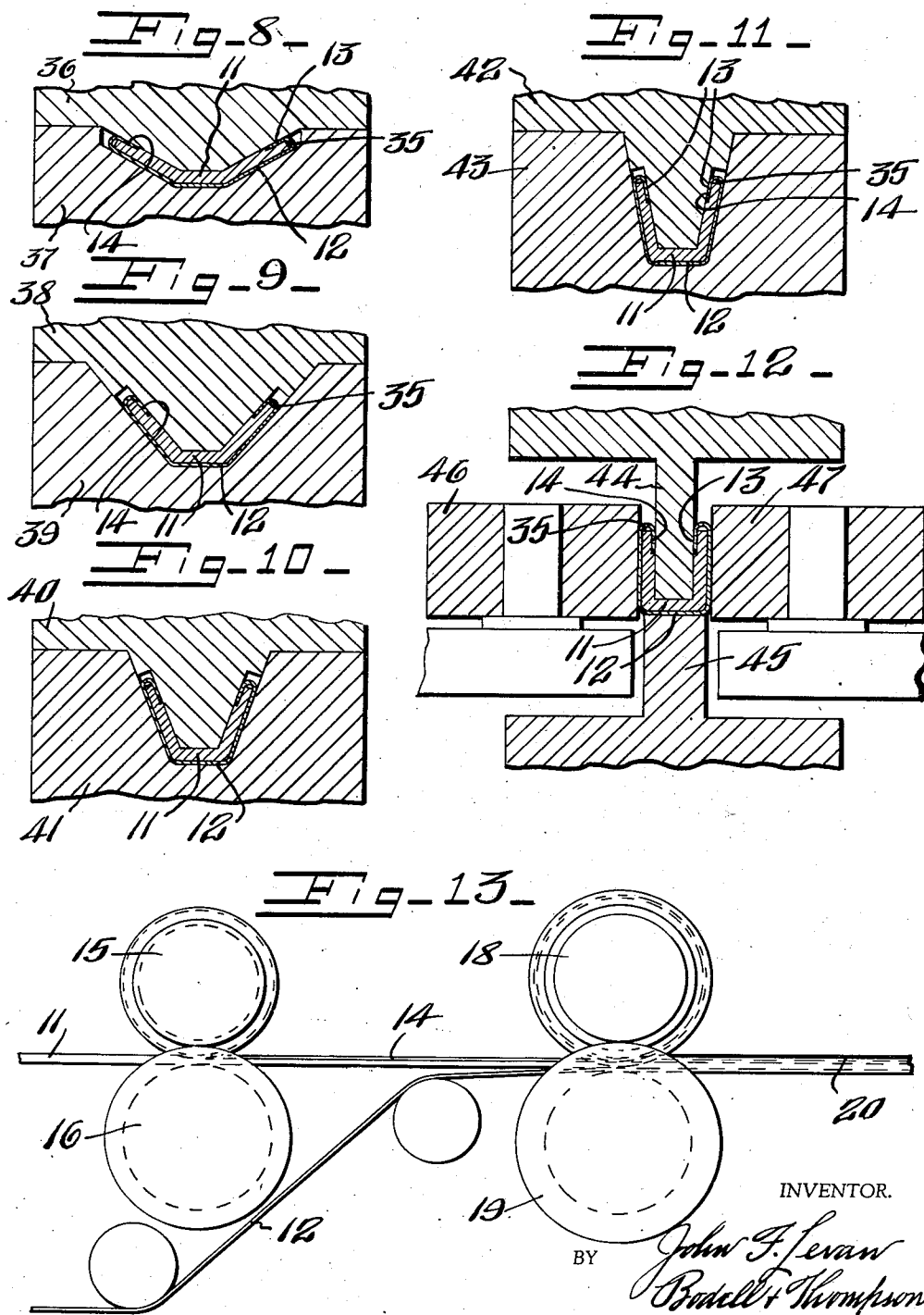
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INVENTOR.

BY

John F. Levan
Bodell & Thompson
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,041,004

METHOD OF FORMING FRAME MEMBERS
WITH METAL VENEER FACING STRIPSJohn F. Levan, Elkhart, Ind., assignor to Excel
Curtain Company, Elkhart, Ind., a corporation
of DelawareOriginal application August 29, 1933, Serial No.
687,340. Divided and this application June 28,
1934, Serial No. 732,889

4 Claims. (Cl. 153—1)

This invention has for its object a method of forming sheet metal frame members which are angular in general form in cross section, as for instance, channel-shaped, from flat base strips and providing the angular formation with a metal veneer facing strip enclosing the sides and bottom of the frame members.

The invention consists in the method herein-after set forth and claimed.

This application is a division of my pending application Ser. No. 687,340, filed August 29, 1933.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a fragmentary isometric view of one form of frame member produced by this method.

Figure 2 is a fragmentary sectional view showing the operation of the method of forming the base strip with marginal rabbets.

Figures 3, 4, 5, 6 and 7 are successive operation views similar to that shown in Figure 2 showing one set of operations applying a stainless steel veneer to the base strip.

Figures 8, 9, 10, 11 and 12 are views similar to Figure 2 illustrating the forming up of the operation of the base strip with a veneer strip applied thereto into final angular form.

Figure 13 is a fragmentary diagrammatic view illustrating the forming of the base strip with the rabbets and the bringing of the blank veneer strip in juxtaposition thereto and the forming up of the two strips together in angular formation by continuous successive operations.

In Figure 1, 10 illustrates one form of angular frame member, that shown being channel-shaped in cross section. 11 designates the base strip, usually of sheet steel and 12 a veneer strip of finished metal, preferably stainless steel which covers the outer side of the side flanges and the bottom of the channel formation or the outer sides or flanges of any other angular formation with the margins 13 of the veneer extending around the edges of the flanges and into rabbets 14 formed in the inner faces of the margins of the flanges.

By this method, the veneer strip is applied to the base strip while both are in blank form and the base strip with the veneer applied formed into final form by successive continuous operations.

The method consists in forming the base strip 11 while in blank form with the rabbets 14 by passing the strip through a pair or a series of pairs of rollers 15, 16, shaped as shown at 7 (Figure 2) to form the rabbets 14. Thereafter, the

veneer strip, as seen in Figure 13, is fed from a suitable roll or any other source in juxtaposition to the blank base strip, so as to overlie the face thereof unprovided with rabbets, which is the outer face of the finished product, and the two strips thus brought together are subjected to successive operations, here shown in Figures 3, 4, 5, 6 and 7, as rolling operations to apply and secure the veneer strip to the blank base strip. Thereafter, the base strip with the veneer strip applied is passed through a series of forming operations, here shown for the purpose of illustration as six in number, forming up the blank frame member with the veneer strip applied, into final form, these forming up operations being successive and usually continuous of the veneer applying operation.

In Figure 3, the base strip 11 and veneer strip 12 are brought in juxtaposition and passed between rolls 18 and 19 which fold the margins of the veneer strip out of the plane of the strip into an angle of approximately 45°, as shown at 20. Thereafter, the base strip with the veneer strip in the form shown in Figure 3 is passed between successive set of rolls 21 and 22 in which the margins are folded up into a position approximating a right angle to the body of the veneer strip. Thereafter, the assembled base and veneer strips are passed over a base roll 24 with the margins of the veneer strip between the rolls 25, 26 which fold them from the right angular position into a slightly inclined position overhanging the rabbets. Then the assembled strips are passed between rolls 28 and 29, further pressing the margins of the veneer strip into or toward the rabbets of the base strip and finally, insofar as the veneer applying operation is concerned, the assembled strips are passed between the rolls 32 and 33 to press the folded margin of the veneer strip into the rabbets of the base strip, so that these margins are now flush with the inner or upper face of the base strip. During the operations, illustrated in Figures 3, 4, 5 and 6, there is a slight clearance or space at 35 for the bend of the fold joining the margins with the body of the veneer strip and in the finished product, there is also a small space which is a remnant of this clearance.

After the veneer applying operations have been performed, that is, after the operation shown in Figure 7, the blank frame member consisting of the blank base strip with the veneer strip applied thereto passes through a series of forming operations, shown in Figures 8, 9, 10, 11 and 12, although some of these operations may be omitted.

ted, but in order to form a sharp clean-cut product, these several operations are preferable.

In Figure 8, the flat strip, after it leaves the rolls 32, 33, is passed between forming rolls 36 and 37 and subsequently between rolls 38 and 39 (Figure 9), thence between rollers 40 and 41 (Figure 10), 42 and 43 (Figure 11), these operations forming the blank up into channel-shaped form but with their flanges flaring outward out of planes at a right angle to the bottom of the channel. In the final operation, shown in Figure 12, a comparatively thin roller or disk 44, which is substantially the width of the channel, inserted into the channel rolling on the bottom thereof while the outer face of the bottom of the channel is rolling on a complementary disk or roller 45, and the side flanges of the frame member are bent from their inclined position into right angular position by rollers 46, 47, pressing against the outer sides of the roller 41 and owing to the rabbets in the base strip, which receive the inturned margins of the veneer strip, the rolls 46, 47, can press the side flanges tightly against the inner roll 44.

This method of forming frame members results in great economy compared with methods where the member is plated after being formed, it being borne in mind that frames or sashes are plated after they are formed and the plating, after they are formed, adds materially to the cost of the sash, and further that the frame members can not be plated before being formed up by the dies, as the forming operations would scratch the plated surface during the forming operation. Therefore, my method of applying a veneer of finished metal, as stainless steel, to the frame member or base strip thereof, while in flat blank form, and thereafter forming the assembled base strip and veneer strip into the finished frame members, and particularly by applying the veneer and forming up the frame member by continuous operations, results in very great economy in manufacture.

What I claim is:

1. The method of forming sheet metal frame members from base strips into a general angular form in cross section and providing the base strip with a metal veneer facing strip enclosing the sides and bottom of the angular formation, consisting in forming a flat base strip with rabbets on one side thereof along the longitudinal edges, bringing the blank veneer strip in juxtaposition

to the other side of the base strip and by continuous successive operations folding the margins of the veneer strip around the edges of the base strip into said rabbets and forming the base strip with the veneer strip thereon into final angular form.

2. The method of forming sheet metal frame members from flat base strips into a form generally angular in cross section and providing the base strip with a metal veneer facing strip enclosing the sides and bottom of said base strip consisting in forming by continuous successive forming operations, the blank base strip with rabbets on one side thereof along the longitudinal edges of the strip, bringing the blank veneer strip in juxtaposition to the other side of the base strip, folding the margins of the veneer strip around the edges of the base strip into the rabbets and forming the flat base and veneer strips so brought together into final angular form.

3. The method of forming sheet metal frame members from flat base strips into a form generally angular in cross section and providing said members with a metal veneer facing strip enclosing the sides and bottom of said base strip consisting in forming a blank strip with rabbets on one side thereof along the longitudinal edges of the strip, bringing the blank veneer strip in juxtaposition to the other side of the base strip and by successive rolling operations folding the margins of the veneer strip around the edges of the base strip into said rabbets, and forming the flat base strip with the veneer strip thereon into angular form, the rolling operations being continuous of the veneer strip applying operation.

4. The method of forming sheet metal frame members from base strips into general angular form in cross section and providing the base strip with a metal veneer facing strip enclosing the sides and bottom of the angular formation, consisting in bringing the blank veneer strip in juxtaposition to one side of the base strip and by forming operations folding the margins of the veneer strip around the edges of the base strip into rabbets provided in the longitudinal margins of the base strip on the side of the blank opposite to that on which the veneer strip is applied and forming the base strip with the veneer strip thereon into final angular form.

JOHN F. LEVAN.