

March 4, 1941.

A. VANDERVELD

2,233,719

METHOD OF PRODUCING METAL SHELF SUPPORT CHANNELS

Filed Aug. 2, 1939

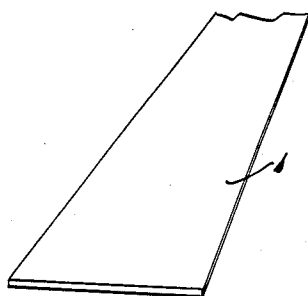


Fig. 1.

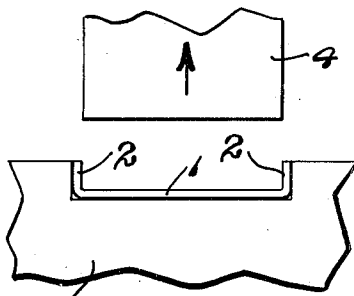


Fig. 2.

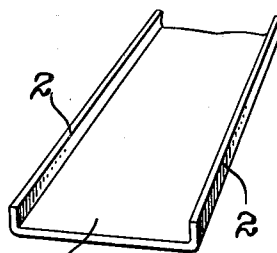


Fig. 3.

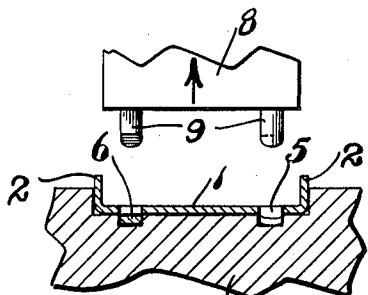


Fig. 4.

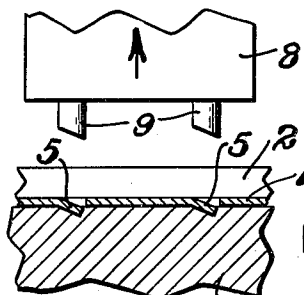


Fig. 5.

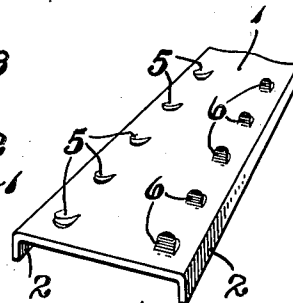


Fig. 6.

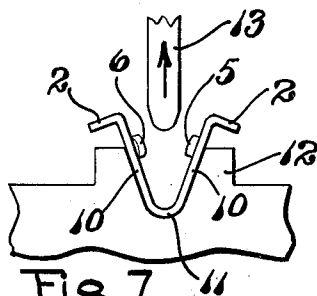


Fig. 7.

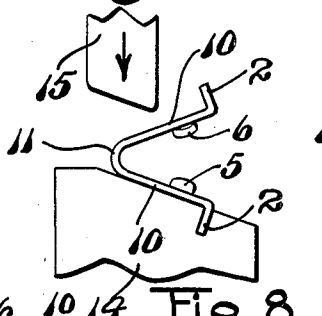


Fig. 8.

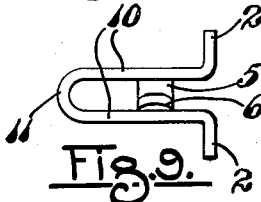


Fig. 9.

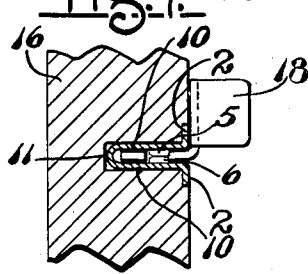


Fig. 10.

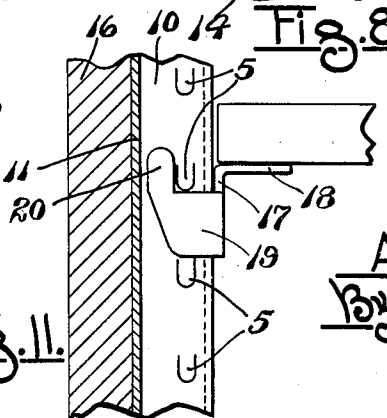


Fig. 11.

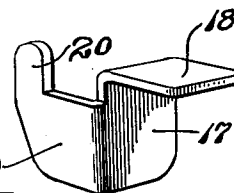


Fig. 12.

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UNITED STATES PATENT OFFICE

2,233,719

METHOD OF PRODUCING METAL SHELF
SUPPORT CHANNELS

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Application August 2, 1939, Serial No. 287,919

2 Claims. (Cl. 29—155)

This invention relates to a method of produc-
ing a very novel and practical back post made
from thin sheet metal, which post in use is adapt-
ed to be inserted in a longitudinal vertical groove
in the end of a shelving unit, cabinet or similar
support and upon which a variety of immediate
supporting devices may be adjustably mounted
at selected positions in the length thereof. The
construction of the vertical elongated backing
post is shown and is claimed in the pending ap-
plication of Welch, Ser. No. 276,655, filed May
31, 1939, now Patent No. 2,208,234 dated July 16,
1940. The present invention is directed to a
practical and efficient method of producing the
vertical back post from sheet metal, with a plu-
rality of consecutively spaced tongues extending
inwardly toward and overlapping each other in
accordance with the construction disclosed in
the prior application above identified.

The invention is fully described in the follow-
ing description, taken in connection with the ac-
companying drawing, in which,

Fig. 1 is a fragmentary plan view of a flat elon-
gated strip of metal from which a back post is
made.

Fig. 2 illustrates one way of performing the
first step of the method, which consists in turn-
ing short flanges at each side edge of the metal
strip.

Fig. 3 is a fragmentary perspective view of the
flanged strip after the first step of manufacture
has been done.

Fig. 4 is a fragmentary section of the die used
in the succeeding method step for punching rows
of spaced tongues from the body of the flanged
strip of metal.

Fig. 5 is a longitudinal section taken at right
angles to Fig. 4.

Fig. 6 is a fragmentary perspective view of the
flanged plate after two series of tongues are
struck therefrom in reverse order to each other,
the plate having been turned over to the posi-
tion which it will occupy in the next succeeding
method step.

Fig. 7 is an end elevation showing also in frag-
mentary elevation the dies which are used to
bend the elongated metal member shown in Fig.
6 longitudinally midway of its sides into substan-
tially V-shape, with the tongues struck there-
from approaching each other.

Fig. 8 is the final method step, illustrating the
dies used and their operation in bringing the two
sides of the previous V-construction in parallel
relation to each other, and with the two series
of tongues, one series carried by each side brought

into substantial bearing contact relation with
each other.

Fig. 9 is an end elevation of the completed back
post.

Fig. 10 is a fragmentary vertical section show-
ing such back post mounted upon the end of a
shelving structure, cabinet or the like, and with
a shelf supporting element detachably connected
therewith.

Fig. 11 is a fragmentary vertical section on a
plane at right angles to Fig. 10, midway between
the opposed sides of the back post, and

Fig. 12 is a perspective view of one form of
supporting element which may be detachably
connected with the back post.

Like reference characters refer to like parts in
the different figures of the drawing.

In the method of producing the novel back
post, there is first provided an elongated flat strip
of relatively thin metal, indicated at 1, of the
length of the back post which is to be produced.
Of course, for shorter back posts the method steps
which are to be described can be performed on a
relatively long strip of metal and the finished
back posts cut to proper lengths. The first oper-
ation to be performed is to turn short flanges, as
indicated at 2, in the same direction from the
opposite side edges of the body of the plate 1.
In Fig. 2 this is shown as being performed by a
fixed die 3 which will have a suitably formed
elongated recess therein over which the length
of metal 1 may be placed, and a punch 4 which
may be brought down to press the flat metal into
the recess of the die to thus form the flanges 2
one at each side edge thereof. It is, of course,
to be understood that such flanging of the metal
may also be performed in other ways, for exam-
ple, as by rolling or other equivalent methods.

In the succeeding step, the web or body 1 of
the flat metal between the flanges 2 is operated
upon to produce two series of spaced apart
tongues 5 and 6, one series lying a short distance
within but relatively adjacent to one of the
flanges 2 and the other similarly positioned with
respect to the other flange. The tongues 5 and
6 when struck from the web of the metal channel
lie at acute angles to the plane of the web, but
are reversely positioned with respect to each other
as shown in Fig. 6. The channel-shaped member
illustrated in Fig. 3 is placed in the recess of a die
7 and a punch 8 with tongue severing auxiliary
punches 9 at its lower end is forced downwardly
against the metal so as to sever it at both sides
and one end leaving the tongues integral with the
web 1 at their other ends. The auxiliary punches

9 are beveled or inclined at their lower ends so as to properly force the tongues 5 and 6 into suitable recesses to receive them in the die 7 at the inclined positions which they occupy relative to the plane of the web of the channel member. The flanges 2 during this operation extend upwardly from the web 1 while the tongues 5 and 6 are pressed in a downward direction.

In the next method step the channel member produced with the tongues 5 and 6 struck therefrom is turned over, as in Fig. 6, and is then placed between dies so as to form the metal channel into a substantially V-shape in cross section as shown in Fig. 7, the metal being bent along a central longitudinal line to provide opposite sides 10 located at an acute angle to each other integrally connected by the bend at 11. The die 12 has a suitably shaped recess to receive the form of the V-shaped structure made, while the punch 13 is narrow in width and when moved in a downward direction against the flat upper side of the web 1 of the channel it bends it into the V-form shown in Fig. 7, bringing the tongues 5 and 6 toward each other and with the flanges 2 at the free ends of the sides 10 turned outwardly away from each other. The punch 13 is as narrow as it may be and yet be capable of withstanding the service which it has to undergo.

In the final step the two sides 10 of the V-shaped structure are brought in parallelism to each other as in Fig. 9. The length of metal having been shaped to the V-form in cross section shown in Fig. 7, is placed upon a supporting die 14 and a punch 15 is brought downwardly against the upper side 10 thereby forcing the two sides 10 into parallel relation their inner ends being integrally connected by the U-bend at 11. When this is done the tongues 6 which are on one leg 10 of the U are brought to the tongues 5 on the other leg 10, their adjacent inclined sides bearing against each other so that the space between the legs 10 of the back post is bridged across by a consecutive series of pairs of tongues spaced from each other, each pair consisting of a tongue 5 and a tongue 6.

In Figs. 10 to 12, inclusive, the use which may be made of the back post is shown. The vertical end 16 of a supporting carcass which may be either a post, the end of a shelving unit, the end of a cabinet or the like, is vertically grooved and the metal back post produced in accordance with the method described is inserted fully in said groove. The outer sides of the legs 10 frictionally engage the sides of the groove and the bend at 11 reaches substantially to the bottom of the groove, while the flanges 12 may be seated in shallow recesses therefor, so that their outer surfaces are flush with the inner side of the part 16. Such metal back post is capable of having attached thereto between any two pairs of consecutive tongues 5, 6 supporting brackets, one form only of which is shown in Fig. 12. In this form of bracket shown, a section of flat metal is bent to provide a vertical section 17 from which, at its upper end, a horizontal ledge 18 is turned at right angles. From one of its vertical sides and extending from its lower edge upwardly to a point short of the upper end of the section 17, a section 19 is turned rearwardly at right angles to the plane of the section 17, which at its free upper corner is continued upwardly in a finger 20. Such section 19 and the finger 20 has a thickness slightly less than the distance between the inner

sides of the legs 10 of the back post and may be inserted between one pair of tongues 5, 6 and the next pair immediately above. The lower edge of the section 19 will rest upon the upper end of the tongue 6 of the pair of tongues 5, 6 below, while such finger comes back of the inner edges of both tongues 5 and 6 of the next adjacent upper pair of tongues as illustrated in Fig. 11. The weight resting upon a tongue 6, should it have any tendency to bend the tongue away from its position, will be resisted by the support and reinforcement of the tongue 5 which bears against the side of the tongue 6 which sustains the weight, holding it against displacement.

The method of producing the back post is 15 practical and useful and is what is used continuously in commercial production. As previously stated the dies are of the proper length for a length of back post which is to be produced and it is evident that the punches 8 which carry the 20 auxiliary punches 9 at their lower ends are of length equal to the length of the strip of metal 1 which is being converted into a back post; and that a large number of the auxiliary punches 9 are required to sever the large number of tongues 25 5 and 6. These in practice are equally spaced from each other and at a relatively short distance from each other compared to the length of the back strip which carries them.

Having thus fully described my invention what I desire to claim and secure by Letters Patent is:

I claim:

1. The herein described method of producing a back post which consists, in providing an elongated plate of flat metal, bending flanges, one at each longitudinal edge thereof and extending in the same direction from the plate, striking two parallel series of spaced apart tongues from the metal longitudinally thereof and substantially symmetrical to the center line of the plate, said tongues in each of the rows lying at an acute angle to the plate and reversely positioned with respect to each other, bending said plate along its center line into a substantially V-shape longitudinally thereof whereby said tongues of one series are brought toward those of the other series and the flanges at the outer edges of the plate extend outwardly away from each other, and bending the V-form into substantially U-form with one row of tongues brought against and substantially engaging with the other row of tongues at adjacent sides, as specified.

2. The method of forming a back post which consists, in providing an elongated plate of flat metal, striking two parallel series of spaced apart tongues from the metal longitudinally thereof and substantially symmetrical to the center line of the plate, said tongues lying at an acute angle to the plate and reversely positioned with respect to each other, bending said plate substantially along its center line to substantially V-shaped form, whereby said tongues of one series approach those of the other series, and then bending the plate farther to bring the sides of the V-formation into substantial parallelism and with the tongues of one series of tongues on one side thereof bearing against the corresponding tongues of those of the other series on the other side, the bearing faces of said tongues being inclined to the planes of two sides of the post, as specified.

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