Oct. 23, 1928. 1,688,950

W. WAIT

METHOD FOR SHAPING COLUMNS, GIRDERS, BEAMS, AND THE LIKE FOR INTERLOCKING JOINTS

Filed March 31, 1927

Fig. 1.

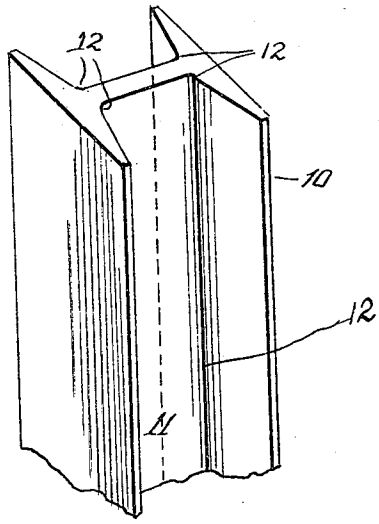


Fig. 2.

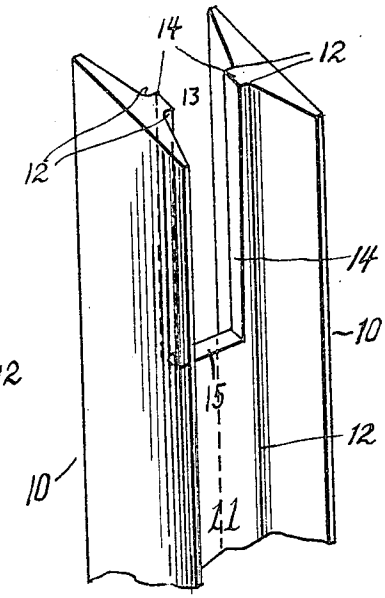
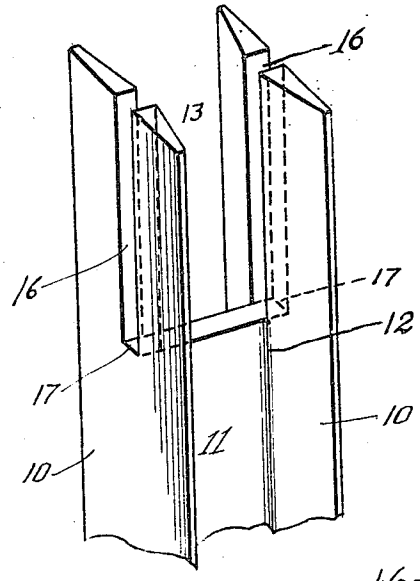


Fig. 3.



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UNITED STATES PATENT OFFICE.

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METHOD FOR SHAPING COLUMNS, GIRDERS, BEAMS, AND THE LIKE FOR INTERLOCKING JOINTS.

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This invention relates to an improved method for shaping webbed columns, girders and beams having flanged sides to provide seats for joints in the ends thereof. It has for its object the provision of a method for shaping such material that can be expeditiously performed to provide an exact pattern and of smooth finish. In the formation of interlocking joints for structural units of metallic frames employed in the erection of buildings, supports for mines, subways and like work, where the units are previously shaped to stock patterns to be subsequently interlocked at the installation of these units in a frame, it is essential that the parts forming the interlock be shaped in exact accord with the stock patterns so that mutual engagement of the joint parts can be readily obtained without preliminary fitting and trimming of the material. The instant method is adapted to the formation of one of the members of an interlocking joint and is specifically described hereinafter as being so applied.

In the drawings, in which similar reference characters designate corresponding parts:

Figure 1 shows a perspective of an end of a column section before it is shaped to form a joint member.

Figure 2 is a similar view showing the column section after one of the steps of the method has been performed.

Figure 3 is a like view, showing the complete joint member.

While the method will be described as applied to the formation of a joint member in the end of a column section, yet it can be applied to any structural unit having a web and flanged sides.

Referring to the drawings in detail, the building unit that is to be shaped, as shown in Fig. 1, is a column section comprising the flanged sides 10 and the connecting web 11. At the angles between the flanged sides and the web are the filets 12. This unit is to be shaped at an end to form one of the members of an interlocking joint.

In carrying out the method, the first step is to cut-away the web 11 to form a recess, as at 13, between the ends of the flanged sides 10, as shown in Fig. 2. The longitudinal edges of the cut extend along the web just inside of the filets 12, leaving narrow fins 14 extending with the filets. The purpose of so locating the longitudinal edges of the cut in the web, inset from the filets, is to provide a clearance between the cutting blade and the flanged sides so that there can be no contact between the blade and inclined faces of the flanged sides and filets to impart a directional bias to the movement of the blade or distort the material during the cutting operation. That is, should the blade impinge on the inclined faces of the flanged sides or the filets, the bevel of these faces would tend to force the blade inwardly or to force outwardly the ends of the flanged sides to impair the alinement of the latter; furthermore, such an engagement of the blade with the inclined faces would engender excessive friction and thereby require additional power to operate the cutter. The removal of the web at 13 provides at the remaining edge of the web a transverse seat 15.

After the removal of the web part at 13, the flanged sides 10 are slotted longitudinally as at 16, as shown in Fig. 3. The slots extend in the same plane as the web 11 and their width is slightly in excess of the thickness of the web. In length the slots are coincident with the recess 13 and at their inner ends transverse seats 17 forming continuations of the transverse seat 15 at the edge of the web. The seats 17 may be positioned above the seat 15 to meet certain requirements of the interlock. In the formation of the slots the material forming the pins 14 and the adjacent parts of the filets 12 is cut away so as to provide a smooth inner surface to the inner faces of the flanged sides 10 at the recess 13.

In carrying out the method of ordinary coping machine is employed, but especially designed cutting dies and work-holders are used to effect the shaping operation. As such mechanism is not essential to carrying out the method, it is not disclosed herein.

By employing the foregoing method a joint member can be formed that closely follows the stock pattern and which will be free from burs so that further tooling will not be required preliminary to the formation of a joint.

What I claim is:

1. The method of shaping webbed columns, girders and beams having flanged sides with filets at the angles between the web and sides to provide joint seats, consisting in first cutting away the web between the side filets

at an end of the member being shaped, the removal of the web between the filets forming fins on the inner faces of the flanged sides at the recessed part of the web, and then slotting the flanged sides in the plane of the web to remove the fins and filleted parts to form slots in the flanged sides coinciding with the recess previously formed in the web.

2. The method of shaping webbed columns, girders and beams having flanged sides to provide joint seats in the ends thereof, consisting in first cutting away the web at an end of the member being shaped to form therein a recess having a width less than the width of the web so that marginal parts of the web remain to form fins on the inner faces of the flanged sides, and then slotting each flanged side in the plane of the web to coincide with the previously cut-away part of the web, each of the slots so formed having a width in excess of the thickness of the web to remove the previously formed fin.

In testimony whereof I affix my signature.

WESLEY WAIT.