April 9, 1929. R. H. TROUTH 1,708,163

BUILDING CONSTRUCTION

Filed May 7, 1928

FIG. 1.

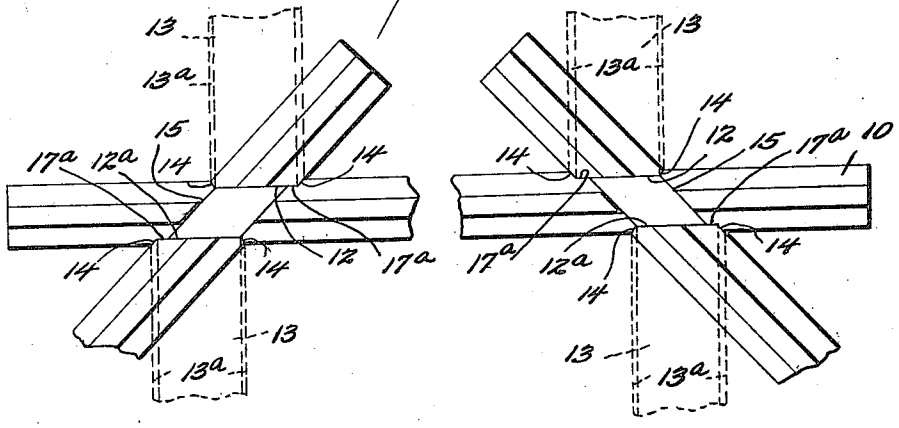


FIG. 2.

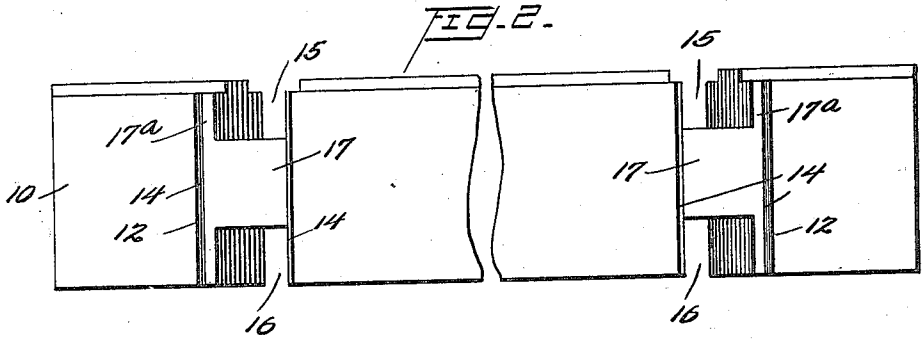
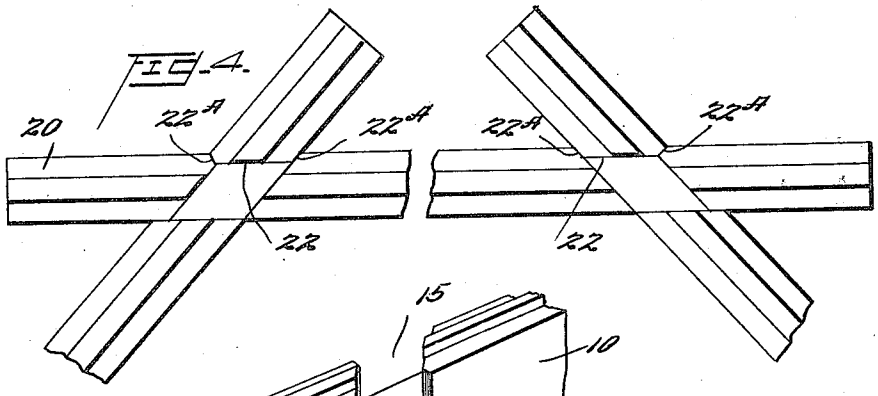


FIG. 4.



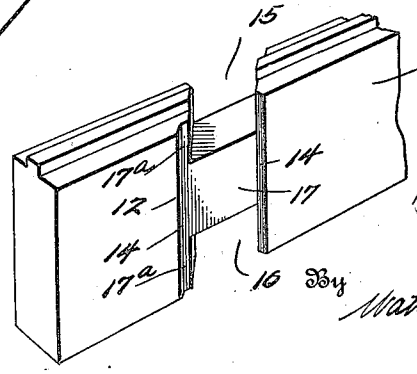


FIG. 3.

Inventor

Ralph H. Trouth

By Watson, Cole, Grosz & Greindle

Attorneys

Patented Apr. 9, 1929. 1,708,163

UNITED STATES PATENT OFFICE.

RALPH HENRY TROUTH, OF EDMONTON, ALBERTA, CANADA.

BUILDING CONSTRUCTION.

Application filed May 7, 1928. Serial No. 275,868.

This invention relates to a building construction of the type disclosed and claimed in my co-pending application Ser. No. 680,149, filed December 12, 1923.

The object of the present invention is to provide a construction which avoids certain defects of my prior construction and which can be more easily and cheaply manufactured. In the construction of my said prior application, the grooves on the sides of the beams are produced by cutting into the vertical faces of the beams at an angle to the longitudinal axis thereof. In order to produce a cut of that kind, it is necessary that the cutting tool be arranged at an angle to the direction of movement of the beam, and thus the production of beams of that kind involves mechanism which is considerably complicated.

Also, at one side of each of the grooves, made in accordance with the former construction, it is necessary to have an overhanging shoulder. It has been found that such shoulders or corners are very apt to break or split off, thus rendering the beam defective and permitting snow and rain to get into the joint.

The present invention aims to overcome these difficulties by providing the beams with grooves which do not have the overhanging shoulders above mentioned, and which can be formed in the vertical faces of the beams by cutter heads rotating in a plane perpendicular to the axis of the beam. This results in a simplification in the machinery necessary to make the beams, because with the cutter heads or dado heads arranged as stated, the beams may be given one pass through a series of four cutters which will thus complete the formation of the grooves in one operation.

My improved construction is set forth in the following specification and illustrated in the accompanying drawings, in which

Figure 1 is a plan view of one form of construction, showing the cutter heads in dotted lines;

Figure 2 is a vertical elevation of one of the beams;

Figure 3 is a perspective view of the end of a beam such as shown in Fig. 2; and

Figure 4 is a slightly modified construction in which grooves are formed on one side only of the beams.

It will be understood that beams of the type herein disclosed are used for building structures of octagonal shape or other shapes, if desired, and are particularly adapted for the construction of silos, water tanks, small houses and the like. The beams are so arranged as to be laid in courses, one on top of the other, until the structure is built to the required height. The subject matter of the invention has to do with the joints formed where one beam is laid across another.

Referring to the drawings in detail and particularly to Figures 1, 2 and 3, the beams are indicated by the numeral 10. Each of the beams at each end is jointed to the adjacent beams in the same horizontal course. This is accomplished by providing suitable grooves and notches as now to be described.

In the present construction, each beam 10 is provided on one of its vertical sides or faces with grooves 12 one of such grooves being adjacent each end of the beam. Also, the other vertical face or side of the beam is provided with similar grooves 12^a. The grooves 12 and 12^a are preferably cut into the beams by means of cutter heads indicated at 13. These cutter heads are arranged in pairs and each is mounted in a plane perpendicular to the axis of the beam to be cut or grooved. It will be obvious that all the cutter heads 13 may be geared together and operated as a single unit; so that by passing the beam 10 only once between these cutter heads, the pairs of grooves at each end of the beam may be cut in a single operation. The cutter heads 13 are provided on each side with a beveled portion 13^a; and it will be evident that these beveled portions will cut corresponding beveled sides in the grooves, that is, each groove will have the sides thereof inclined outwardly or flared from the bottom of the groove to the vertical face of the beam, such inclined sides of the grooves being indicated at 14. All the grooves 12 and 12^a are similar and all are provided with such inclined sides 14. It will be evident that by this arrangement there will be no sharp overhanging corners adjacent the grooves as in the case of my former construction.

At each end, the beam 10 is also provided with an upper notch 15 and a lower notch 16. The notches 15 and 16, on each end of the beam merge with the grooves at that end. The result is that at each end of the beam a tenon 17 is formed. The grooves 12 and 12^a are made somewhat wider than the tenons 17 thus forming ledges 17^a at the bottom of the grooves. The pair of grooves 12, 12^a at each end of the beams are not arranged di-

rectly opposite to each other but are offset laterally. The notches 16 and 17 therefore extend diagonally of the length of the beam. This offset arrangement of the grooves and diagonal arrangement of the notches is, of course, necessary as the beams are intended to be laid at an obtuse angle to each other in forming an octagonal or other building having obtuse angles at the corners.

Figure 4 shows an arrangement in which the beams 20 are provided with grooves 22 on one vertical face only, the other face being left straight. This arrangement, however, is similar to that shown in the other forms of the device in that the grooves 22 are provided with inclined side walls 22A which flare outwardly from the bottom of the groovs to the surface of the vertical sides. The rest of the joint arrangement, illustrated in Figure 4, it is not necessary to describe as this forms no part of the present application.

It will be apparent that the present improvement provides a construction which is simpler and more easy to manufacture than my prior device thus making it cheaper, and at the same time it avoids the structural objection of having sharp overhanging shoulders in connection with the grooves which are difficult to form and which are apt to split or break off.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A rectangular building beam having on one vertical side a pair of spaced vertical grooves therein and also having upper and lower notches on each edge merging with said grooves to form tenons in the beam, each of said grooves increasing in width from the bottom thereof outwardly to the surface of the vertical side of the beam.

2. A rectangular building beam having on one vertical side a pair of vertical grooves, spaced apart, and also having upper and lower notches on each edge merging with said grooves to form tenons in the beam, the side walls of each of said grooves flaring outwardly from the bottom of the groove to the surface of the vertical side of the beam.

3. A rectangular building beam having on each vertical side thereof a vertical groove, a notch on each edge of the beam merging with said grooves, whereby a tenon is formed in the beam, the side walls of each of said grooves flaring outwardly from the bottoms of the grooves to the surface of the vertical side of the beam.

4. A rectangular building beam having on one vertical side a pair of vertical grooves spaced apart and also having notches on the upper and lower edge thereof merging with said grooves to form tenons, each of said grooves at its outer portion being wider than it is at the bottom thereof.

5. A rectangular building beam having a pair of vertical grooves one on each vertical side thereof, a notch on each edge of said beam extending between said grooves, whereby a tenon is formed in the beam, the bottom of each groove being wider than the length of the tenon, and the side walls of each groove flaring outwardly from the bottom thereof to the surface of the vertical side of the beam.

In testimony whereof I hereunto affix my signature.

RALPH HENRY TROUTH.