May 17, 1938. S. MADSEN 2,117,489

FLAT SLAB CONSTRUCTION

Filed Feb. 18, 1937

Fig. 1.

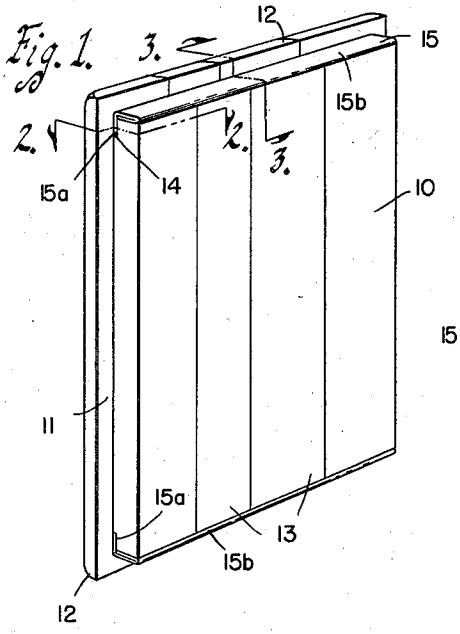


Fig. 1a.

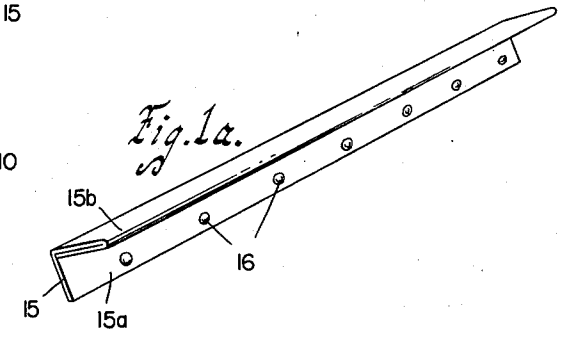


Fig. 3.

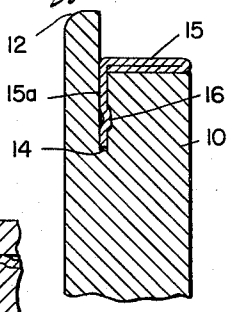


Fig. 4.

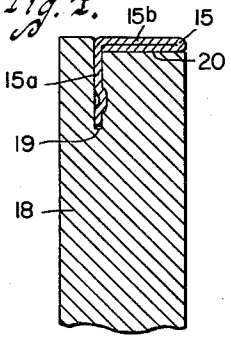


Fig. 2.

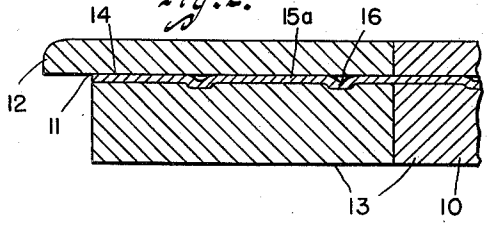


Fig. 5.

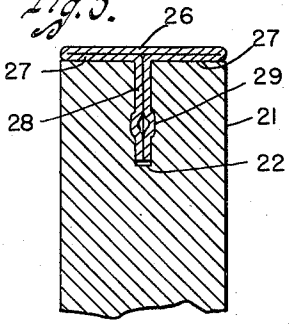
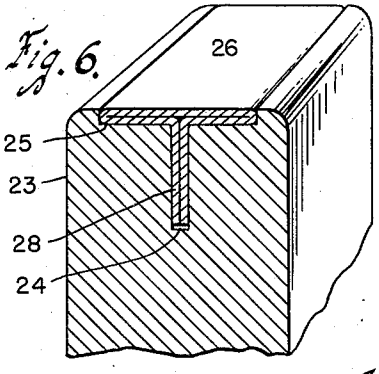


Fig. 6.



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FLAT SLAB CONSTRUCTION

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Application February 18, 1937, Serial No. 126,450

7 Claims. (Cl. 20—91)

My present invention relates to a reinforcing flat slab construction.

It is my object to provide a flat wooden slab and reinforcing members for the ends thereof, said slab and members having such coacting parts that they may be assembled together, so that the reinforcing members will resist warping and tend to restore the slab to normal shape in case it should warp to some extent, the structure being such as to also resist swelling across the slab from side to side.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my flat slab construction, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of a flat slab construction embodying my invention.

Figure 1*a* is a perspective view of the spline.

Figure 2 is a detail, sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detail, sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a view similar to that of Figure 3, showing a slightly different form of slab.

Figure 5 is another view similar to that of Figure 3 showing a different form of reinforcing member; and

Figure 6 is a sectional view, partly in perspective, showing still another form in which such a slab may be embodied.

Any flat slab made of wood is likely under certain conditions to warp or twist. A flat slab, of course, may be made of a solid piece of wood and may be made as hereinafter explained. It is a common idea to glue up strips, edge to edge, reversing the grain. It is sometimes the practice to cover such a built-up slab with cross laminations of veneer, not only in an effort to improve the appearance, but also with a purpose to keep such slabs straight and flat.

I will illustrate one way in which my invention may be practiced.

A slab 10 may be cut from a piece of wood. It may be run through a suitable machine, for cutting a rabbet 11 along each end and for giving the proper trim, as at the rounded edges 12.

I consider that the grain runs up and down the slab shown in Figure 1. Or if desired a series of narrow strips 13 with mixed grain may be glued together in edge to edge relationship as illustrated for instance in Figure 2.

When a slab of the proper overall dimension has been produced, the slab is run through a machine of the ordinary tenoner type, for example, which machine holds the stock in a flat straight position, while the ends and sides are trimmed and grooved or rabbeted in the desired manner.

Thus it will be seen that in Figures 1, 2 and 3, I have shown a rabbeted form of frame, in Figures 4 and 5, frames with square ends, and in Figure 6, one with a grooved end.

If for a moment the rabbeted type of slab is considered, it should be observed that at the ends (grain ends) a saw kerf-like slot 14 is cut, as shown in Figure 1, substantially parallel with the faces of the slab.

Considering for a moment only the form of slab shown in Figures 1, 2 and 3, it will be observed that I have provided what may be called a metal spline, indicated generally at 15, in the form of an angle bar, having one flange 15*a* and another flange 15*b*. The flange 15*b* may be doubled over on itself to be of double thickness if desired.

The flange 15*a* has a number of deformed portions 16, which may be in the form of buttons pressed from metal if desired. The flange 15*a* is driven into the slot 14 as shown in Figures 1, 2 and 3. It will be seen as the description proceeds that the deformations 16 may have various sizes and shapes.

The flange 15*b* rests snugly, flat against the end of the slab 10 at the bottom of the rabbet 11.

In Figure 1, I have shown a slab 10.

In Figure 2, I have shown a slab made of strips 13, the slab being indicated generally at 10.

Figure 3 illustrates the form of slab shown in Figures 1 or 2 indiscriminately.

In Figure 4, I have shown a different form of slab 18 which has in its ends the saw kerf slot 19, and has a rabbet 20 only deep enough to receive the flange 15*b*.

In Figure 5, I have shown a slab 21 with no rabbet at the end, but with a saw kerf-like slot 22, twice as wide as the slot 19.

In Figure 6, I have shown a slab 23 with a slot 24 similar to the slot 22. The ends of the slab 23 have a central groove 25 at the central bottom portion of which is the slot 24.

In the forms of slabs shown in Figures 5 and 6, I use a slightly different form of spline. In this spline, a strip is bent so as to form a central top outer member 26. The material is then folded under the member 26 at the side edges to approximately the center thereof, forming the underlying flanges or portions 27. At the center of the member 26, the material is extended away from the

strip **26** to form the leg strips **28**, lying parallel with each other and provided with the deformed portions **29** similar to the portions **16**.

The strips **28** are similar to the flange **15***a* and they project into the slot **22** as shown in Figure 5.

When the form of spline now under consideration is used with the form of slab shown in Figure 6, the strip members **28** extend into the slot **24** as best shown in Figure 6.

I have thus provided different forms of slabs and splines so that the splines may be concealed in the actual use or may be exposed as may be desirable. The parts fit snugly enough so that the flanges **15***a* or the strips **28** must be driven into the receiving slots.

When once thus assembled, I have provided a very simple and effective means of preventing warping or deformation of the slab. The double thickness of the spline resists any warping out of the plane of the slab. The deformed portions **16** serve to firmly anchor the splines to the slabs and prevent extraction of the spline, once it has been pressed into position in the anchoring groove. They resist shrinking and swelling to a very considerable extent. These button-like deformations **16** afford very substantial resistance to a change in the width of the slab, due to shrink or swell, but do not resist swelling to the extent of causing the wood to split.

I have found that if the shrink or swell increases to a point where it might split the wood of the slab, if further resisted, the deformations will allow the wood to slip without damaging.

These splines may be used with slabs made up in a very considerable number of ways, as has already been shown.

Slabs made up as shown in my drawing are considerably less expensive than those where strips are glued together and covered with cross laminations of veneer to thus prevent warping.

There is also more salvage value in stock spoiled especially where solid stock is used or glued strips alone. They can always be cut to smaller sizes or the material reworked for some other purpose. This, of course, is not true of core and veneer construction.

Slabs of this kind can be used for drawing boards, table tops, shelving, doors or any place where flat slab-like members made of wood can be employed.

The advantage of providing means for preventing the slab from warping is so obvious as to require no argument in its favor.

It will be seen from the foregoing explanation that other modifications of slabs embodying the essential spirit of my invention might be made, and it is, of course, my purpose to cover in the patent to be issued upon my application any modifications in structure, arrangement and material that may come reasonably within the scope of my invention and of my claims.

I claim as my invention:

1. The combination of a wood slab comprising a plurality of members secured together edge to edge with their ends flush, the end of the slab having a rabbet and a slot where the walls of the rabbet meet, a spline having a flange projected tightly into said slot and extending across the joints between the members which form the slab and folded over to form a flange of double thickness resting against the bottom of the rabbet in the end of the slab, the slab having a portion forming the other wall of the rabbet extending substantially beyond the spline parallel with the first flange.

2. The combination of a wood slab comprising a plurality of members secured together edge to edge with their ends flush, the end of the slab having a rabbet and a slot where the walls of the rabbet meet, a spline having a flange projected tightly into said slot and extending across the joints between the members which form the slab and folded over to form a flange of double thickness resting against the bottom of the rabbet in the end of the slab.

3. The combination of a wood slab comprising a plurality of members secured together edge to edge with their ends flush, the end of the slab having a rabbet and a slot where the walls of the rabbet meet, a spline having a flange projected tightly into said slot and extending across the joints between the members which form the slab and folded over to form a flange of double thickness resting against the bottom of the rabbet in the end of the slab, the folded edge of the double flange being flush with the edge along said end of the slab.

4. In a slab structure, a plurality of slab members secured together edge to edge and having flush ends, one end of the slab having a slot extending lengthwise of such end and a spline having a flange tightly received in the slot and a second flange folded double with its free edge underneath and resting against the end of the slab.

5. In a slab structure, a slab having in one end a slot extending lengthwise of that end, a spline comprising a metal strip folded double to a T shape with the shank of the T tightly received in the slot and the double oppositely extending flanges covering such end of the slab.

6. In a slab structure, a slab having in an end a slot extending lengthwise of that end and having a relatively wide groove at the mouth of the slot extending lengthwise of such end, a spline comprising a metal strip folded double into a T shape with the shank of the T tightly received in the slot and the double oppositely extending flanges filling the groove flush with the end.

7. The combination of a wood slab comprising a plurality of members secured together edge to edge with their ends flush, the end of the slab having a rabbet and a slot where the walls of the rabbet meet, a spline having a flange projected tightly into said slot and extending across the joints between the members which form the slab and bent over to form a flange resting against the bottom of the rabbet in the end of the slab.

SERN MADSEN.