Jan. 17, 1928. 1,656,741

G. LANE

JOIST BRACE

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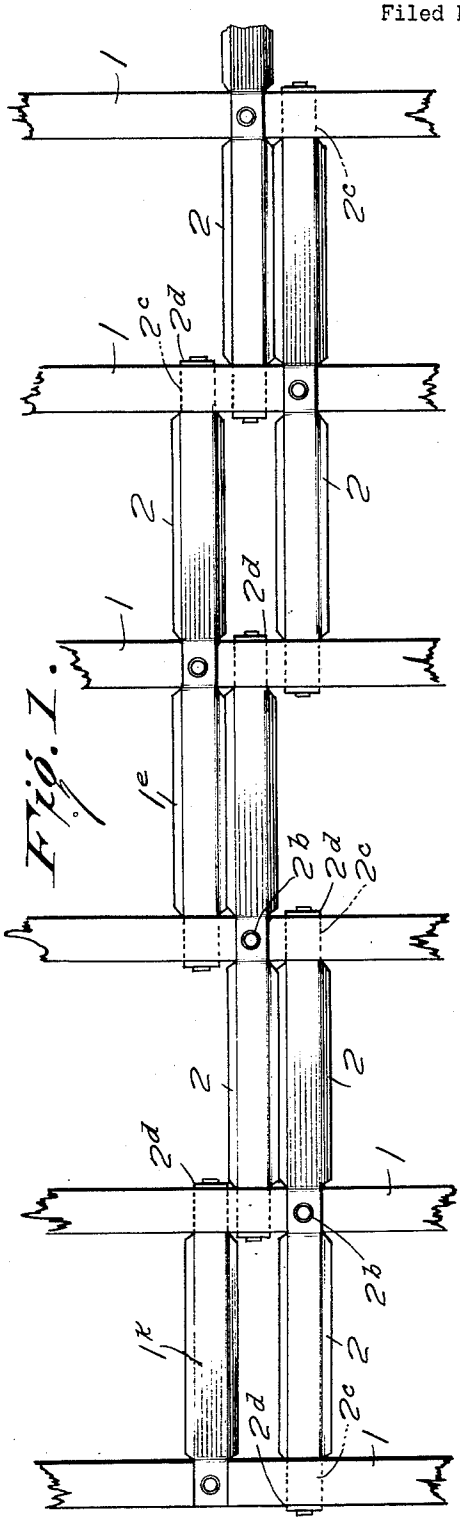


Fig. 1.

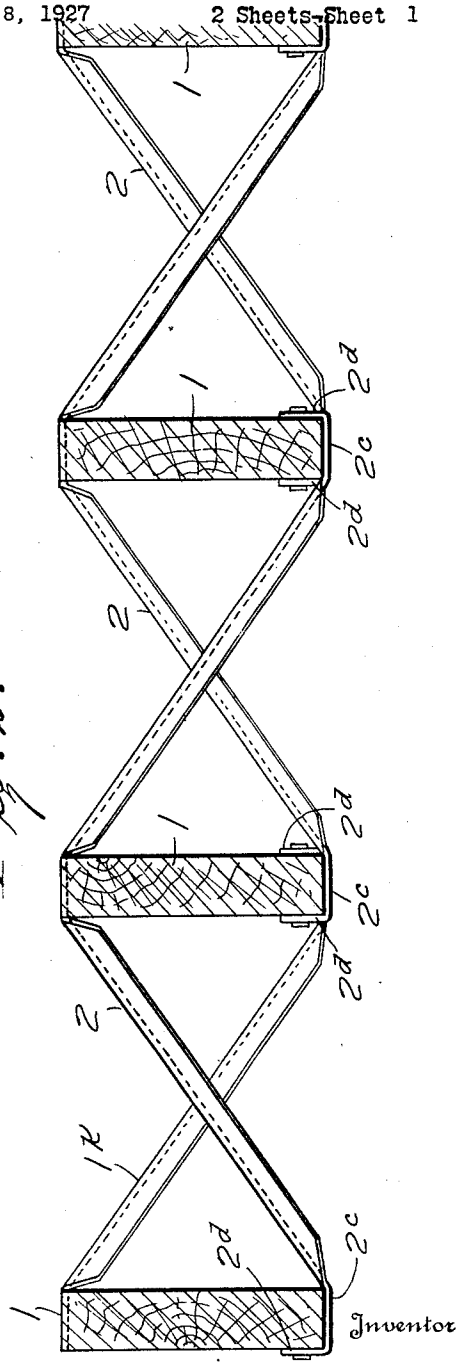


Fig. 2.

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Fig. 4.

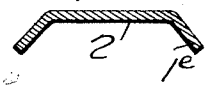


Fig. 3.

Fig. 5.

Fig. 6.

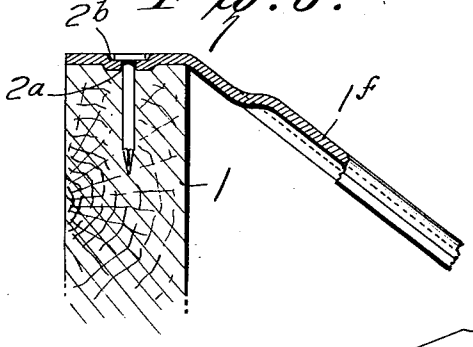
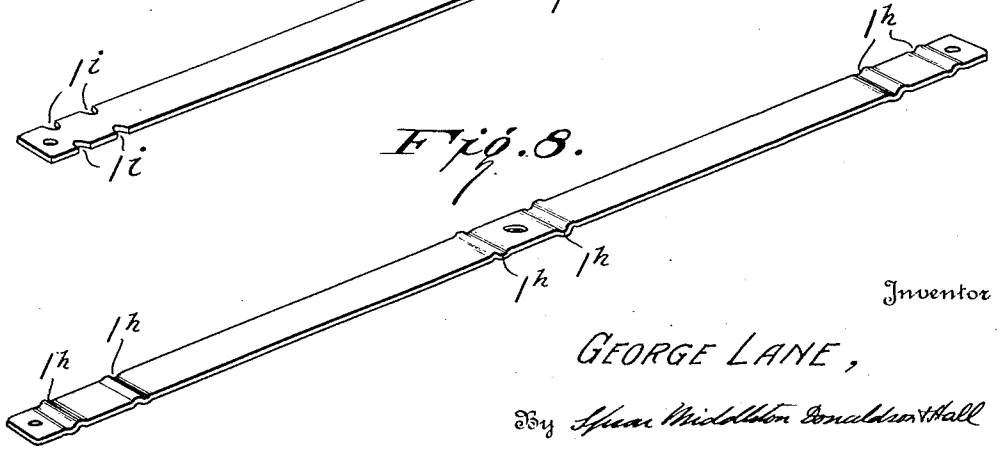


Fig. 7.

Fig. 8.



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Patented Jan. 17, 1928. 1,656,741

UNITED STATES PATENT OFFICE.

GEORGE LANE, OF POUGHKEEPSIE, NEW YORK.

JOIST BRACE.

Application filed February 8, 1927. Serial No. 166,725.

My said invention relates to improvements in sheet metal bridging for wooden floor joists and aims to provide a construction which can be more easily applied in the required manner and will, as finally applied, be more economical and efficient than kinds heretofore used of which I am aware.

The invention includes the novel features hereinafter described and illustrated in the accompanying drawings, what I regard as my invention being defined and ascertained by the claims appended hereto.

In the said drawings:—

Figure 1 is a plan view showing a number of floor joists with my improved bridging applied thereto.

Fig. 2 is a transverse section of the same.

Fig. 3 is a perspective view of one of the bridging members.

Fig. 4 a transverse section thereof.

Figs. 5 and 6 are detail views of a modification in perspective and section respectively.

Figs. 7 and 8 are perspective views of further modifications.

Notwithstanding the fact that numerous patents have been granted for metal floor bridging, so far as I have been able to ascertain the old wooden brace type is still almost universally used, comprising individual braces having beveled ends which are nailed respectively to the side of one joist adjacent the top and the adjoining joist adjacent the bottom. In applying these the universal practice among builders is to secure the braces by nailing their upper ends to the joists before the flooring is applied, leaving the lower ends of the braces unattached. After the flooring is laid the lower ends of the braces are nailed fast, the workman of course operating from underneath.

It has been found impracticable to secure the lower ends of the braces prior to laying the flooring as this results in one or more of the following faults, to wit, the production of an uneven floor, failure to secure the floor boards in contact with the joists at all points, and the working loose of the nails securing the braces during the nailing of the floor.

The present invention aims to provide a metal bridging or bracing which can be applied in the same manner as are the ordinary wooden braces, to wit, by securing the upper ends prior to the laying of the floor and the lower ends after the flooring is secured in position.

Referring by reference characters to the drawings the numerals 1, 1, etc., designate the customary floor joists and 2, 2, etc., my improved bridging. Each of these latter comprises a strip of sheet metal such as galvanized iron, steel, or the like, said strip being relatively narrow and of such a length that, when its central portion is applied to and over the upper edge of one joist its opposite ends will extend beneath the lower edges of the two next adjacent joists and up for a suitable distance on the outside faces of such adjacent joists.

The aforesaid central or saddle portion is provided with a nail hole 2^a and the portion of the metal immediately surrounding said nail hole is depressed as indicated at 2^b to provide a countersink for the head of the nail, the depressed portion being driven into the wood of the joist as the nail is driven home.

The free ends of the bridge piece extend under the next adjacent joists, having portions 2^c bent to lie flat against the bottom edges of the joists and upturned ends 2^d to lie against the outside faces of the joists, thereby forming stirrups.

After the saddle portion has been applied and nailed in place the flooring is laid, during which period the stirrups are left unattached. After the laying of the flooring is completed the stirrups are nailed in place.

In practice the ends 2^d of the stirrups are not bent up into vertical position (perpendicular to parts 2^c) until the time for nailing them.

The final bending into position by the carpenter just before nailing enables accurate adjustment to any variations in spacing.

I have found that which such a saddle and stirrup construction, a single nail for the saddle and end portions suffices for holding purposes, thereby effecting a saving in time and material, though additional nail holes may be provided if desired particularly for the ends, or stirrup portions.

The strips may be in the shape of plane strips, (Figs. 7 and 8) or they may be provided with stiffening ribs or flanges. In the form shown in Figs. 1 to 4, I provide them with angularly turned edge flanges 1^e which terminate short of the saddle and stirrup portions.

Instead of using marginal stiffening ribs I may strike up the metal to produce strengthening or stiffening ribs 1^f interme-

diate the edges as shown in Figs. 5 and 6.

Bridging according to my invention may be made at the factory of the inverted V-shape for application, or it may be marketed in the form of flat strips adapted to be bent into the required shape at the place of use. In this event it is desirable to provide means for facilitating the bending at the proper points which may take various forms, as for example transverse bends or corrugations indicated at 1^h, Fig. 8 or the edge notches 1^i, Fig. 7.

Where straight strips are used they should be placed in staggered relation as shown in Fig. 1.

It is pointed out that this is an advantage in laying the floor because the slight rise, caused by the thickness of the material, does not come in the same place on the floor boards at the different joists. For instance if the braces were in line with the edge of a floor board, throughout its length, it might tend to make the edge of said board a little high, but as these high spots are distributed, the effect is not so apparent.

The attaching of the lower ends of the bridging to the vertical far side of the joists, by nailing is considered an important feature and preferably to nailing on the under side of the joist for two reasons:

First, it makes a more secure fastening for tensional strains, causing a broad bearing on the joists, and

Second, upon compression, the strap will flex and not pull the nails. Said compression strains are inevitable, if, for no other reason, through the shrinking of the joist after being placed in the building, the reduced vertical measurement of the joist of course, producing a diagonal compression strain on the bridging.

It will be apparent that on the first and last joists a half brace must be used as indicated at 1^k having only a single stirrup portion.

I claim:

1. A sheet metal joist brace having a saddle portion adapted to be secured to the upper edge of a joist prior to the laying of the flooring and a stirrup portion adapted to engage the lower edge of the next adjacent joist and overlap the far side thereof, the overlapping part being adapted for attachment after the flooring is laid.

2. A joist brace having a saddle portion adapted to hang on one joist and to be secured thereto prior to the laying of the flooring, said brace having ends forming stirrup portions adapted to pass under and to be secured respectively to the adjacent joists on either side after the flooring is laid.

3. In combination in a floor structure, floor joists, joist bracing, each brace being of inverted V-shape and having a saddle portion resting on the top of a joist and having angularly depending ends forming stirrup portions embracing the lower edges respectively of the adjacent joists on either side, said ends being accessible for removal and adjustment in order to align the joists and for tightening up the structure.

4. A bridging member for bracing a plurality of parallel joists, comprising a medial portion shaped to fit over the upper edge of one of said joists and adapted to be secured thereto, and a pair of struts integrally formed with said medial portion and projecting in opposite directions therefrom, each of said struts being adapted to be fastened at its free end to an adjacent joist.

In testimony whereof, I affix my signature.

GEORGE LANE.