April 14, 1925. 1,533,411

H. E. HEILMAN ET AL.

FORM SPACER

Filed Nov. 3, 1922

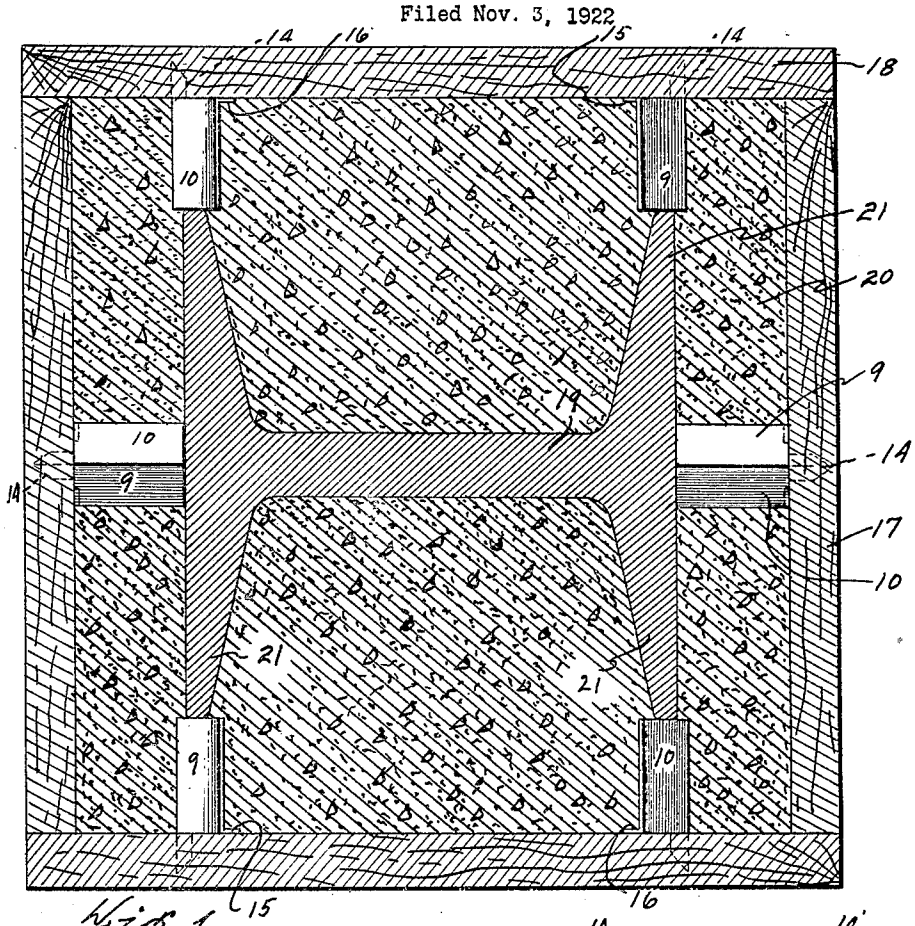


Fig. 1

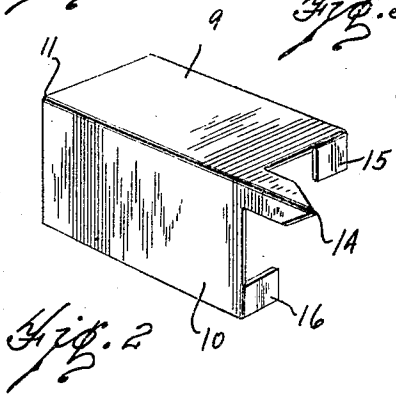


Fig. 2

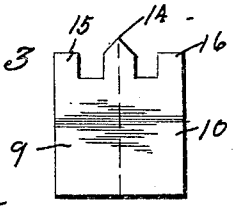


Fig. 3

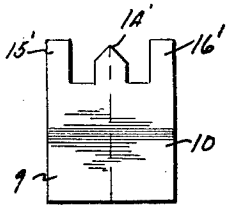


Fig. 4

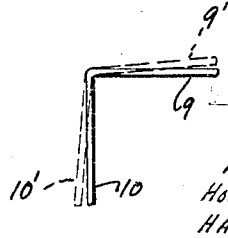


Fig. 5

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Patented Apr. 14, 1925. 1,533,411

UNITED STATES PATENT OFFICE.

HOWARD E. HEILMAN AND HAROLD SCARTH, OF DETROIT, MICHIGAN.

FORM SPACER.

Application filed November 3, 1922. Serial No. 598,779.

To all whom it may concern:

Be it known that we, HOWARD E. HEILMAN, a citizen of the United States, and HAROLD SCARTH, a subject of the King of England, both residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in a Form Spacer, of which the following is a specification.

Our invention relates to a new and useful improvement in a form spacer adapted for use with forms used in the construction of buildings and the like from concrete and is adapted for maintaining the proper spacing of the form from the frame-work of the building. It is particularly adapted for use in the construction of fire-proof buildings which embody a skeleton of structural iron work having concrete formed around the iron-work frame. In the construction of such buildings it is necessary, in order that the building may be rendered sufficiently fireproof to pass the inspection of the underwriters, that there be positioned about the iron work thereof a certain amount of fireproof material such as concrete. Where concrete is used it is necessary that the form used therewith be maintained the proper distance away from the iron work during the pouring of the concrete and while the same is setting. The present invention is adapted for maintaining the form at its proper distance and thus providing the necessary space into which the concrete may be poured and has for its object the provision of a spacer of this class which will be simple in structure, economical of manufacture and highly efficient in use.

Another object of the invention is the provision of such a spacer formed from a stamping.

Another object of the invention is the provision of such a spacer which may be easily and quickly secured to the form and which will be readily removeable therefrom after the concrete is set.

Another object of the invention is the provision of a spacer of this class embodying features which will leave the concrete or insulating material fireproof at all points after the removal of the form therefrom.

Another object of the invention is the provision of such a spacer as will present, after the form is removed, anchoring elements upon which or around which the superstructure may be fastened.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood from a reference to the accompanying drawings which form a part of this specification and in which,

Fig. 1 is a sectional view of an insulated I-beam showing the invention applied,

Fig. 2 is a perspective view of the invention,

Fig. 3 is a plan view of the blank from which the invention is made,

Fig. 4 is a plan view of the blank from which a modified form of the invention is made, and,

Fig. 5 is a diagrammatic view illustrating the angles in the invention.

With spacers as now used in this class of work the spacer is often removed from the concrete or insulating material when the form is removed. Many of the spacers used are not of themselves noncombustible, with the result that, when the spacer remains in the insulating material after the removal of the form, there is projecting through the insulating material into the frame-work, a plug of combustible material. This is often the case when wooden blocks, which are nailed to the forms, are used. This, of course renders the fire-proofing of the column or beam less efficient. In securing these blocks to the form it is customary to nail them to the form which takes considerable time and which makes an inaccurate job, owing to the fact that the blocks are not always of the proper length. When the block used for a spacer is made of wood the same expands when the concrete is moist and contracts as it dries with the setting of the concrete so that there remains considerable space between the concrete and the embedded block. The present invention is designed to overcome these difficulties in addition to the features named above. In its preferred form it comprises a stamping made from some suitable metal having the walls 9 and 10, integral with each other and bent on a line 11. Projecting outwardly from these walls, at the line of division thereof, is a tongue 14 which is tapered at its end to form a point to facilitate the driving of the same into the form. Formed on the wall 9, at one side thereof is a tongue 15 which is angularly turned and a similarly formed

tongue 16 is formed on the other wall, said members serving as an abutment for the device when the tongue 14 is forced into the form and thereby limiting the thrust of the tongue into the form material and preventing the edges of the walls from being forced into the form.

In use the tongue 14 is forced into the form before it is erected, the spread of the walls allowing considerable latitude in the point of insert of the tongue 14 into the form. The device is secured to the side and end walls, 17 and 18 respectively, of the form so as to allow the opposite ends of the walls 9 and 10 to engage against the top or bottom of the I-beam 19, or the column, as the case may be, and to allow them to also engage against the flanges 21 to afford the proper space between the form and the part insulated for the proper amount of concrete or other insulating material 20.

In the diagrammatic view shown in Fig. 5, we have illustrated the difference in the angularity of the walls 9 and 10 to each other at different points in their length. The part shown in dotted lines illustrates the spread of the walls near the end from which the tongue 14 projects, the walls 9′ and 10′ having a wider spread than the walls 9 and 10 nearer the end which engages against the insulated material, the walls being so spread as to present or form a more acute angle near the engaging end than is formed near the end from which the tongue 14 projects. This causes the device to be securely anchored in the concrete and prevents its removal at the time the form is removed.

In the view shown in Fig. 4, the tongues 15 and 16 are formed longer than in the preferred form so as to permit of their being used, after the form is removed and they are bent outwardly from the outer surface of the insulating material, as anchoring members for the plaster or other superstructure which is mounted on the insulated bodies. In such a case the tongue 14 may be similarly used. If it is not desired to use the tongue for this purpose the tongues 15 and 16 are allowed to lie flatly against the concrete and the tongue 14 is then flattened against the concrete.

It is evident that the device as described will remain in the insulating material and that it will not pull away therefrom when the form is removed, although it is not essential that the device be formed with the difference in angularity of the walls, this matter being left to the discretion and choice of the builder.

It will be noted that the device may be made from a single stamping and the cost of producing the same, on this account, materially reduced. Owing to the fact that the device need not be secured to the form in any exact place, the labor and time required to mount them on the forms is reduced to a minimum, and the spacer, when left embedded in the concrete, which will invariably be the case, presents a non-combustible material to the exterior.

While we have illustrated and described the preferred forms of structure, we do not wish to limit ourselves to the precise forms of structure shown, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. A form spacer comprising a stamping having a plurality of members in angular relation to each other; affixing means carried by said members at their point of meeting; and abutment means carried by said members, adjacent the end carrying said affixing means.

2. A form spacer comprising a plurality of members in angular relation to each other; affixing means carried thereby adjacent one end thereof, the angularity of said members to each other being different adjacent the end carrying said affixing means than adjacent the opposite end thereof.

3. A form spacer adapted for use in maintaining a form in spaced relation to material to be fireproofed, comprising a main body portion having a pair of angularly extending leaves adapted for free engagement at one end with said material; and affixing means projecting from said leaf members adjacent the opposite end and adapted for embedding in a portion of said form.

4. A form spacer adapted for use in maintaining a form in spaced relation to material to be fire-proofed, comprising a main body portion comprising a pair of angularly disposed leaves, adapted for free engagement, at one end, with said material; and affixing means projecting from the opposite end of said leaves and adapted for embedding in a portion of said form, said affixing means being positioned to lie in the plane of said leaves.

In testimony whereof, we have signed the foregoing specification at Detroit in the county of Wayne and State of Michigan.

HOWARD E. HEILMAN.
HAROLD SCARTH.