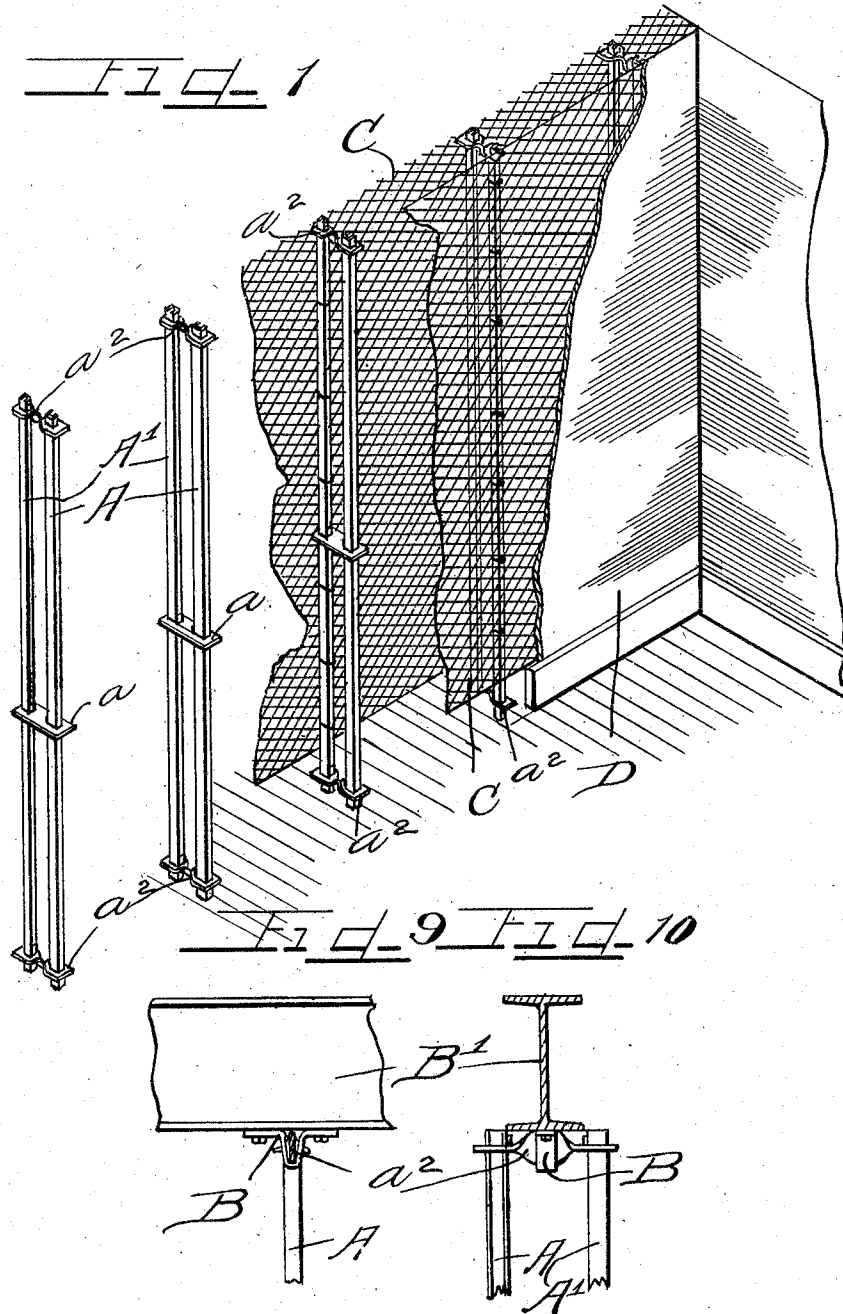


F. VOSS.
METALLIC STUD FOR FIREPROOF PARTITIONS.
APPLICATION FILED DEC. 24, 1908.

981,040.

Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 2

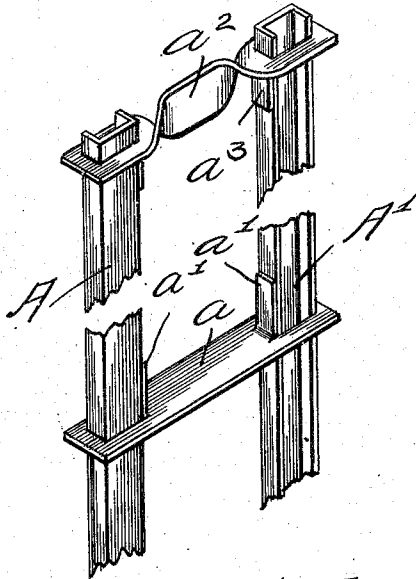


Fig. 4

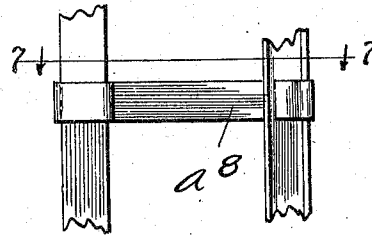


Fig. 5

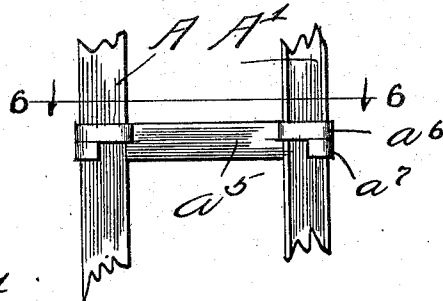


Fig. 3

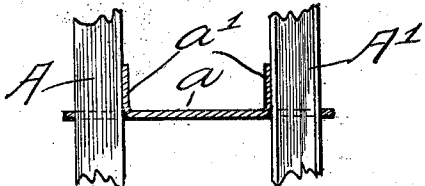


Fig. 8

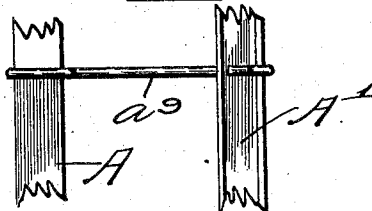
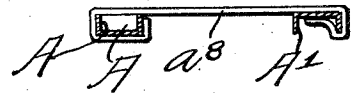


Fig. 6

Fig. 7



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METALLIC STUD FOR FIREPROOF PARTITIONS.

981,040.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed December 24, 1908. Serial No. 469,115.

To all whom it may concern:

Be it known that I, FREDERICK VOSS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Studs for Fireproof Partitions; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of fireproofing material adapted to afford protection in part by affording an air space between the component parts thereof. Heretofore, while numerous specially rolled metallic studs have been devised, some of which have gone upon the market and into more or less extended use, most of these have been formed of thin gage sheet steel and have relied mainly upon their cross sectional form for whatsoever strength they may possess.

In practically all of such constructions the attempt was made to economize in the construction by enabling a single strip of sheet steel to be rolled, formed or pressed to permit metallic or wire lath to be secured on opposite sides of each stud. In consequence, where studs such as described are used, even a small fire close to such partition soon generates sufficient heat to affect the stud and in consequence, owing to the conductivity of the metal, the entire stud soon buckles allowing the partition to fall.

The object of this invention is to afford a composite stud which may be constructed of light structural steel bars rigidly attached together at intervals in their length in parallel relation, the stud so formed affording independent vertical members to receive the wire of other metallic lath on each side thereof and affording, for the entire length of the stud and the partition, an independent air space, effectually protecting the side of the partition (opposite that near which a fire may occur) from any effects of the heat.

It is also an object of the invention to afford a double metallic stud comprising parallel members spaced a distance apart and rigidly jointed together at intervals for their entire length, each adapted to afford attachment for the wire lath with which the opposite sides of the partition are covered.

It is furthermore an object of the invention to afford an exceedingly strong, cheap and durable stud, which, should one side member thereof buckle with the heat, the other will afford sufficient rigidity to support the partition.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a perspective view partly broken away and illustrates a partition construction in which are the studs embodying my invention. Fig. 2 is an enlarged, fragmentary detail thereof in perspective. Fig. 3 is a section taken longitudinally the central tie plate. Fig. 4 is a fragmentary face view illustrating another form of tie strip than that illustrated in Figs. 1, 2 and 3. Fig. 5 is a similar view of a slightly modified tie strip. Fig. 6 is a section taken on line 6—6 of Fig. 5. Fig. 7 is a section taken on line 7—7 of Fig. 4. Fig. 8 is a view similar to Figs. 4 and 5, but illustrates the use of round rods for tie strips. Figs. 9 and 10 illustrate one method of engaging the stud to I beam ceiling joists.

As shown in the drawings: referring first to Figs. 1, 2 and 3, the studs are shown as comprising parallel channel bars A—A', which are faced oppositely and are of comparatively narrow web and light gage. These are rigidly secured together in parallel relation in suitable lengths to afford the ceiling heights for the room or building in which to be used, by means of tie plates comprising, as shown in Figs. 1, 2 and 3, a central tie plate a , having holes punched therethrough at the ends and upwardly directed tongues a' . The apertures in said tie plate a , are sufficiently near the ends of the tie plate to afford but a narrow portion of metal beyond the vertical member A, or A', insufficient to present an obstruction for the securing of the lath or to project out sufficiently to cause any inequality in the plastering.

At the upper and the lower ends respectively are duplicate tie plates a^2 . These also are punched at the ends to correspond at the apertures in the tie plate a , and likewise tongues a^3 , are directed downwardly on each of the stud members A or A', and assist in clamping the tie plate in place. The central portion of the tie plate both at the upper and lower end of the stud may, if desired, be turned to afford a vertical web over

which may be straddled a staple adapted to be driven in the floor or in a ceiling joist (if of wood), or straps of metal B, may be engaged over said web and either bolted or otherwise secured, as shown in Figs. 9 and 10, to the I beam or other structural metal joists B', in a fireproof building. To the opposite members of said studs when secured in place at suitable distances apart, are secured strips of fireproof lath fabric of woven wire C, or of any suitable material, which conveniently may be wired to the stud member against which the same lies, to hold the same firmly in place. On this the plaster D, of any kind is spread, of course, as is usual.

Of course, the ties may assume any desired form, as for instance, the tie plate shown in Figs. 5 and 6, comprises a metallic plate α^5 , slitted longitudinally at its ends to afford tongues α^6 — α^7 , which are clasped about the respective stud members A—A', as shown in Figs. 5 and 6, to firmly engage the same together. The construction shown in Figs. 4, 7 and 8 is similar.

In Figs. 4 and 7, a flat plate α^8 , is bent at its ends to engage around the stud members A—A', said tie plate affording a vertical web which firmly engages the stud members together. The tie member shown in Fig. 8 is identical with that shown in Figs. 4 and 7 with the exception that instead of a flat plate, a metallic rod α^9 , is used.

The operation is obvious from the construction described. The studs may be either assembled at the mill or factory or may be shipped knocked down, as preferred, and assembled upon the job. The upper and lower ends of the studs may be engaged in place by wiring, stapling or by means of metallic straps engaging the ends thereof to the corresponding floor and ceiling joists and when erected, and lathed and plastered, as shown in Fig. 1, the metallic structure on each side of the partition is entirely dissociated from that on the other except at the tie plates. In consequence in case of fire, dead air space is afforded throughout the entire partition affording the best possible non-conductor for the heat and protecting the partition from damage, inasmuch as the stud member on the side of the partition more remote from the fire will be practically unaffected by the heat and affords sufficient strength to support its companion stud member exposed more directly to the heat, thus tending to prevent even the heated stud member from buckling and thus insuring the safety of the partition.

Of course, while I have shown and have mentioned channel bars as a desirable structural form for all partitions of this class, it is quite obvious that any other structural

form of metal bar may be employed for the purpose, and although I believe the channel is one of the most effective bars for use for the purpose, nevertheless the particular type or form of bar will unquestionably vary with the individual preference of the architect and perhaps with the nature and weight of the partition to be supported. Of course too, any number of tie plates may be employed intermediate the ends of the studs, though for ordinary ceiling height, one intermediate tie plate is sufficient. In none of these particulars, however, do I purpose limiting this application for patent otherwise than necessitated by the prior art, as obviously numerous details of construction may be varied without departing from the principles of this invention.

I claim as my invention:

1. A stud embracing parallel light weight bars of structural form having their outer faces a distance apart to afford the width for the desired stud and having their inner faces spaced a distance apart to afford an air chamber when in place, tie plates engaging said stud members together at intervals throughout their length, the tie plates at the ends of the stud having the web turned vertically and a central tie plate having a web struck up from each end providing apertures to receive the bars therethrough and the webs bearing against the inner faces of the bars.

2. A metallic stud embracing parallel structural steel bars of light weight and slight width, tie plates perforated near the ends to receive said bars therethrough engaging said bars in parallel relation at their ends and intermediate their ends, and webs integral with the plates bearing against the inner faces of the bars, the webs on the end plates directed inwardly and those on the intermediate tie plate directed outwardly longitudinally of the bars.

3. A stud of the class described embracing two relatively narrow structural steel bars of suitable length and faced oppositely in parallel relation, metallic tie plates rigidly engaging said bars in unvarying relation with each other, each comprising a plate having the ends parallel and the central part twisted at an angle with the ends and tongues struck from the tie plates in the parallel ends to provide apertures for the bars to extend therethrough and the tongues acting to brace the bars.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

FREDERICK VOSS.

Witnesses:

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LAWRENCE REIBSTEIN.