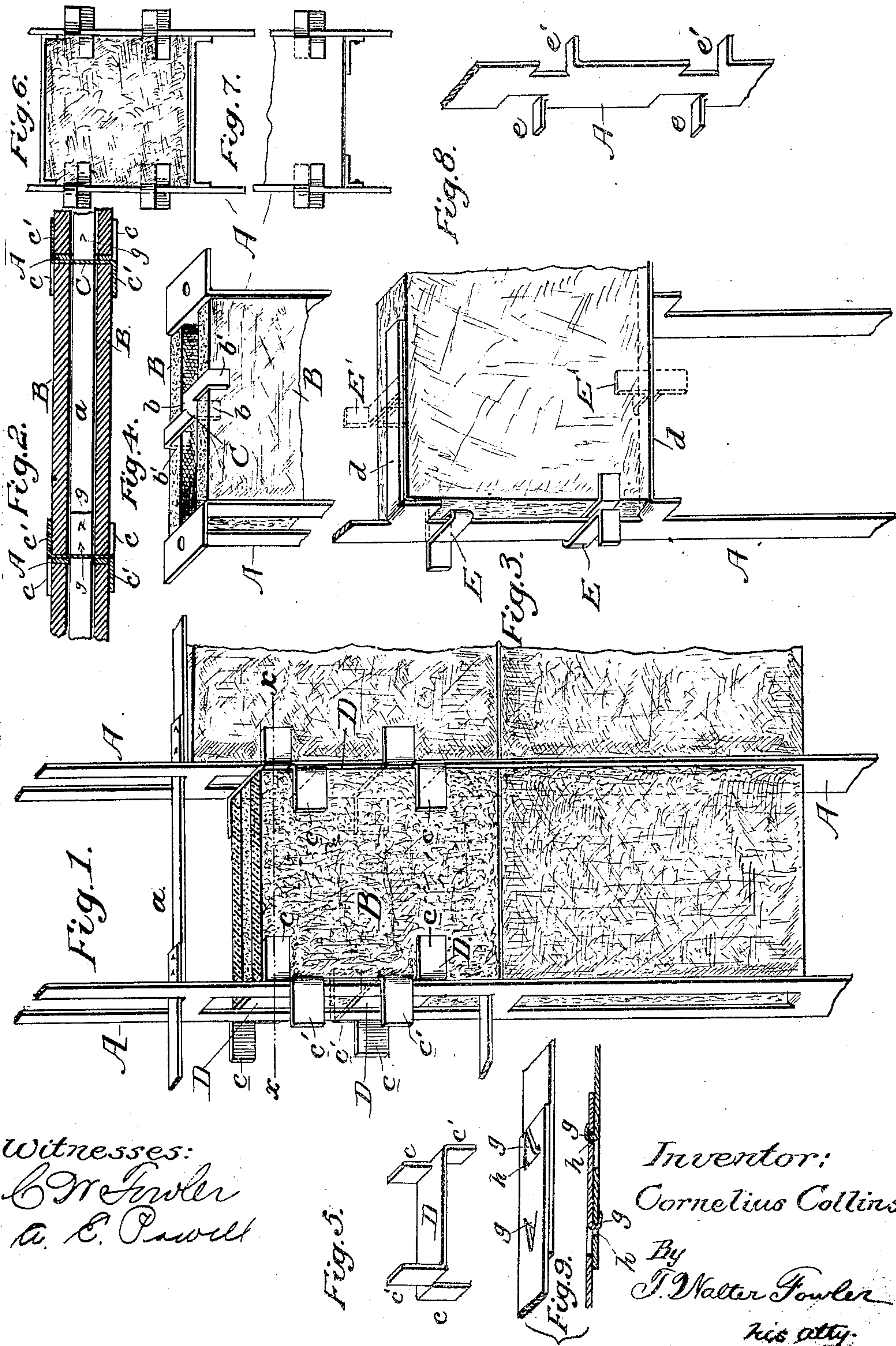


No. 878,276.

PATENTED FEB. 4, 1908.

C. COLLINS.
FIREPROOF BUILDING CONSTRUCTION.

APPLICATION FILED MAR. 14, 1906.



UNITED STATES PATENT OFFICE.

CORNELIUS COLLINS, OF SAN FRANCISCO, CALIFORNIA.

FIREPROOF BUILDING CONSTRUCTION.

No. 878,276.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed March 14, 1906. Serial No. 305,978.

To all whom it may concern:

Be it known that I, CORNELIUS COLLINS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Fireproof Building Construction, of which the following is a specification.

My invention relates to certain new and useful improvements in fireproof building construction, and it consists of the parts and the constructions and combinations of parts which I will hereinafter describe and claim.

In modern methods of building it is the tendency to eliminate wood and combustible material to as great an extent as possible, and to substitute in lieu thereof brick, stone, concrete or other non-combustible materials.

It is also desirable on account of the costly character of the aforesaid structures to economize the interior space as much as possible by making the interior walls, ceilings, and floors, as thin as is consistent with strength and sufficient solidity to maintain them in place without vibration, and to make them fireproof.

In the most approved methods of fireproof constructions structural metal is used, this being in the form of thin strips of sheet metal having little inherent rigidity in themselves, and these are so connected with each other and with supporting beams or members by lateral or transverse braces as to form rigid structures capable of supporting tiles, or mortar, concrete, or other plastic material which will harden after application whereby the metal and concrete become mutually supporting, and the metal parts are protected from the direct action of heat or from destruction by oxidation.

In some of the more recent constructions, tiles or slabs of composition have been extensively used as "plaster boards" or surfaces upon which the plaster is directly applied these tiles or slabs being usually composed of fireproof material as fire clay, or a composition of earthy or mineral matter containing asbestos, said tiles or slabs usually extending from one upright or beam to another and forming a partition or ceiling surface adapted to receive the finishing coat of plaster. These tiles or slabs may be employed for what is termed a solid partition in which case their thickness may substantially equal the width of the strips with which

they are associated, or said tiles or slabs may be much narrower than the thickness of the completed partition and may be spaced from each other to form what is known as a hollow partition.

In the accompanying drawings forming part of this specification and in which similar letters of reference indicate like parts throughout the several views,—Figure 1, represents in perspective a plurality of vertical uprights or strips with intermediate slabs forming substantially a hollow partition. Fig. 2, is a horizontal sectional view on the line $x-x$ of Fig. 1. Fig. 3, shows my invention as used in connection with a "side cut" strip. Fig. 4, illustrates a means for attaching the uppermost tiles or slabs of a tier of tiles or slabs. Fig. 5, represents one of the securing clips detached. Figs. 6, 7 and 8, are modifications to be referred to. Fig. 9, illustrates a method of uniting the ends of overlapping portions of bracing strips.

In carrying out my invention I prefer to employ uprights A of thin metal having in themselves but little inherent rigidity said strips being preferably, but not necessarily, of a width which approximates the thickness of the proposed partition from side to side minus the outer covering of plastic material. From these uprights I cut tongues or strips a which I bend transversely, or at any desired angle, to the length of the uprights and secure their free ends by some approved method to an adjacent upright or to a corresponding tongue or strip thereof whereby the tongues or strips serve as means for bracing and retaining the light metallic structure in position and making it substantially rigid.

The tongues or strips may be cut from the longitudinal central portions of the uprights and may be so cut as to leave one end permanently attached to the upright, or the tongues may be composed of separate strips secured to and extending between adjacent uprights as shown in Fig. 6.

The tiles, slabs or plaster-boards B shown in Fig. 1 are of the character now extensively used in fireproof building constructions and are, preferably, made of composition containing more or less of asbestos, or fire-clay or other suitable material. They extend from one upright to another, (the uprights being appropriately spaced apart for this purpose) and they are laid vertically

on edge in courses as shown with their outer surfaces approximately flush with the outer edges of the uprights. In practice, the lowermost tile or slab or plaster board of a tier on each side of the partition will be appropriately supported by the floor beams or other construction, and the succeeding tiles or slabs of the same tiers will be supported one on the other edgewise as shown until the required height of the partition is obtained after which the uppermost slabs of opposite tiers may be substantially tied together by a clip C which as shown in Fig. 4 may consist of a piece of sheet metal adapted to extend across the said uppermost slabs said piece being split at opposite points and the split portions bent to form tongues *b*, *b'*, said tongues *b* being preferably alternately placed with reference to the tongues *b'* and being adapted to be bent downwardly to lie against the inner sides of the tiles or slabs and the other tongues *b'* being likewise bent downwardly to lie against the outer sides of the tiles or slabs. This arrangement serves to brace the top tiles or slabs internally and externally against lateral movement. It will be understood, of course, that the other tiles or slabs of the tier and the top-most ones too, if necessary, will be braced against internal movement because of any external force by the tongues or braces *a* which extend from upright to upright across the backs of and in contact with the tiles or slabs.

In order to further secure the tiles or slabs against lateral displacement, I employ the clips D which are preferably formed of sheet metal split at opposite ends to form the bendable tongues *c* *c'*. These clips are inserted on edge between the flat sides of the uprights and the adjacent edges of the tiles or slabs, and the tongues *c* *c'* are bent right and left so that they will extend horizontally over the outer faces of the tiles or slabs a sufficient distance to form a reinforcement against the outward movement of the slabs. The tiles or slabs are thus confined in place between parallel uprights so that they cannot be readily displaced by a transverse force applied either internally or externally. When thus arranged and held they form a rigid surface for the reception of the plaster or plastic outer coating of the partition.

While I have thus far described a partition of parallel tiles or slabs forming what is known as a hollow partition, it will be manifest that the partition may be constructed "solid" or of tiles or slabs whose thickness is about equal to the thickness of the proposed partition. I show such a solid construction in Fig. 3 in connection with uprights having the braces or tongues *d* cut from the edges thereof which braces may form bottom supports for the slabs as well as braces for the uprights. The form of clip E used with the

"side cut" brace may also vary from the one used with "center-cut" braces so long as there is present tongues adapted to be bent over the outer faces of the tiles or slabs to retain said tiles or slabs against lateral displacement.

Even with the "center-cut" arrangement, the braces may be arranged at such distances apart vertically that the space inclosed by two adjacent braces and the two adjacent uprights will be in the form of a housing whose dimensions will approximate the height and width of the slab which it is intended to inclose as in Fig. 6, in which case the said tiles or slabs will rest upon the braces, in the manner described for the side cut strips. Also, if desired, the uprights may have tongues *e* *e'* cut from opposite edges, said tongues being bent right and left with the tongues of one edge of one upright extending towards the like tongues of corresponding edges of the adjacent strip, this arrangement inclosing or housing the edges of the slabs substantially in the manner before described.

Whenever the braces or tongues extend directly from upright to upright, it is desirable that the said tongues be given a length in excess of the distance between the uprights so that the brace or tongue from one upright will overlap the base of the brace or tongue of the next upright, and when this is done some provision should be made for securing said overlapping portions. One method of securing these overlapping portions may be by punching or otherwise forming each overlapping portion with a small tongue or bendable spur *g* and a slot *h* and so locking these parts that, when the braces or strips are overlapped, the tongue or spur *g* of one brace will register with the corresponding slot of the other brace whereby said tongue or spur may be passed through said slot and then bent to one side to secure the parts together.

When the wall is built up as before described, no metal lathing is necessary as the plaster coat may be applied directly to the exposed surfaces of the tiles or slabs, and the partition finished in the usual manner.

The foregoing arrangement may also be applied to ceiling construction without any departure from the spirit of my invention in which case the strips A instead of being upright will be horizontally disposed in the manner well known in this art and the slab sustained in place between adjacent strips and retaining clips in the manner substantially as hereinbefore pointed out.

If desired, additional clips E' shown in dotted lines in Fig. 3, may be employed and attached to the braces or tongues and having projecting tongues which may be bent upward and downward, one or both, to further secure the slabs in place.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is,—

1. A fireproof building construction comprising parallel strips and transverse bracing pieces extending therebetween, tiles or slabs between said strips and serving as a surface for an outer plaster coating, and clips extending transversely across the strips and embracing the strips and having tongues adapted to be bent over the slabs or tiles parallel with the sides thereof whereby the slabs or tiles are retained in place against lateral displacement.

2. A fireproof building construction comprising parallel strips, tongues fixed to said strips and extending transversely therefrom, tiers of fire-resisting slabs or tiles arranged on edge between said strips, and clips located between the strips and adjacent edges of the slabs or tiles extending transversely across the strips and embracing one side and the edges of the strips, said clips having tongue portions at the ends adapted to be bent over the sides of the slabs or tiles to hold the slabs or tiles against lateral displacement.

3. A fire proof building construction having in combination parallel strips and transverse bracing pieces extending therebetween, tiles or slabs between said pieces serving as a surface for the outer plastic coating, and clips extending transversely across the strips

and embracing the edges of the latter, said clips having a plural series of tongues with the tongues of one series bent in one direction over the edges of the strips and the tongues of the other series bent in an opposite direction over the slabs or tiles whereby the latter are retained in place against lateral displacement.

4. A fire proof building construction having in combination a frame work of structural metal and parallel courses of spaced fire resisting slabs or tiles arranged on edge, and means engaging the side edges for holding the slabs in place against lateral displacement, and means for spacing and connecting the uppermost slabs or tiles of adjacent courses, said last-named means comprising a clip extending transversely across the space between parallel tiles and over the top edges of said tiles, said clip being divided longitudinally from both ends to form a double set of tongues at each end, the tongues of one set being bent over the outer surface of the slab and the tongues of the other set being bent over the inner surface of the tiles.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CORNELIUS COLLINS.

Witnesses:

ROBT. WEISS,
JAMES SNEBIS.