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PATENTED JAN. 27, 1903.

T. COLLINS.

STRUCTURAL METAL SUPPORT.

APPLICATION FILED NOV. 30, 1900. RENEWED SEPT. 11, 1902.

NO MODEL.

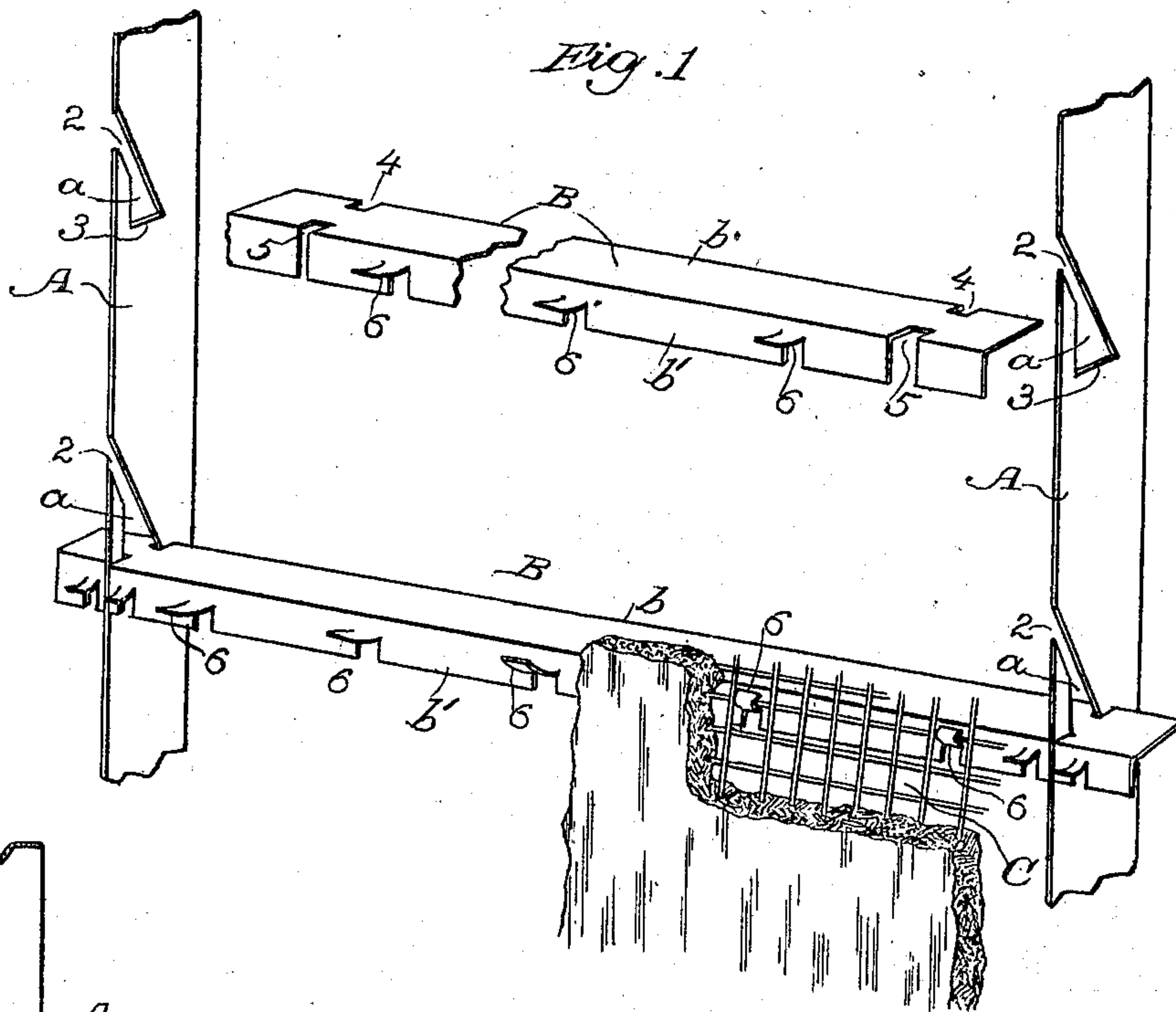


Fig. 2

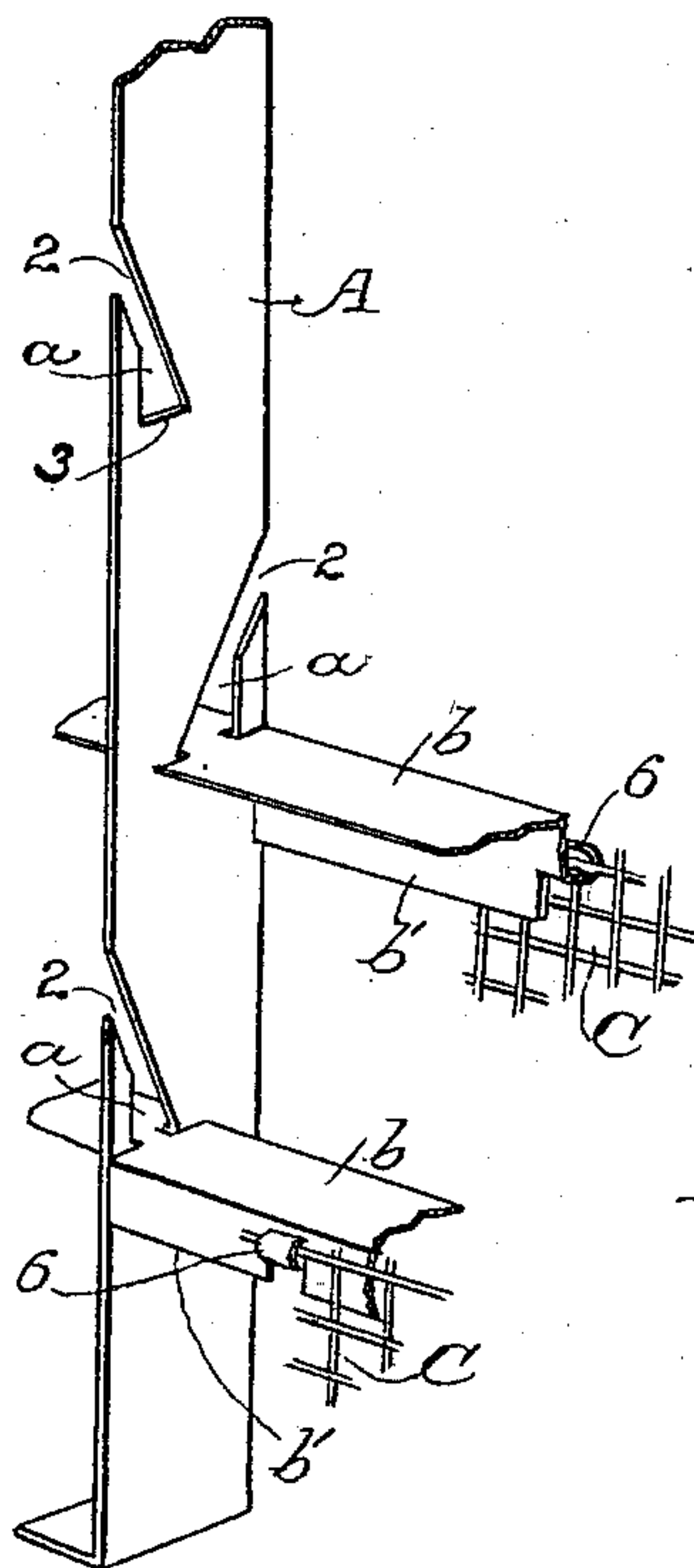
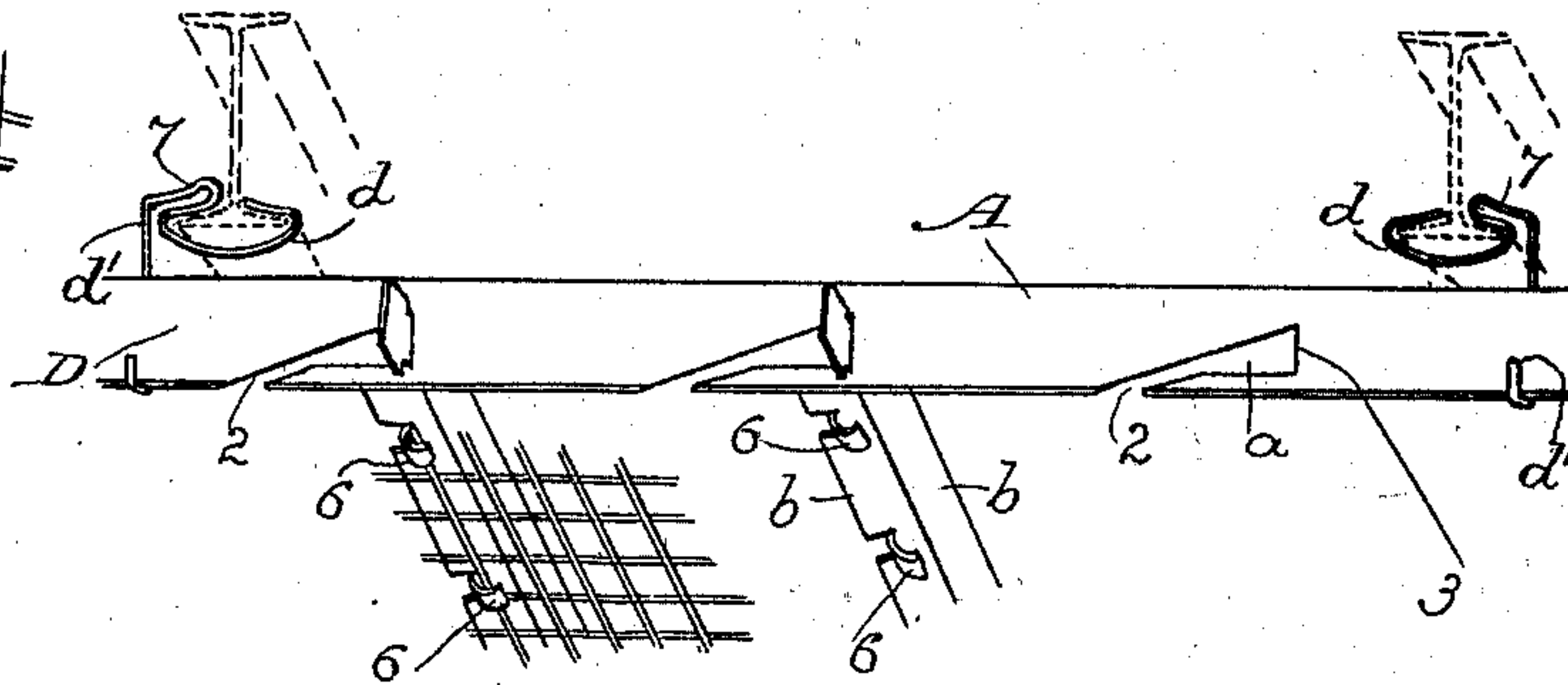


Fig. 3



Witnesses,
[Signature]

Inventor,
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att

UNITED STATES PATENT OFFICE.

TIMOTHY COLLINS, OF SAN FRANCISCO, CALIFORNIA.

STRUCTURAL METAL SUPPORT.

SPECIFICATION forming part of Letters Patent No. 719,191, dated January 27, 1903.

Application filed November 30, 1900. Renewed September 11, 1902. Serial No. 122,962. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY COLLINS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Structural Metal Supports; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in metal structures used in partitions and ceilings or wherever a support or frame of extreme lightness and thinness combined with utmost rigidity is needed.

It consists, essentially, of supports or studs, angularly slotted, and angle-shaped transverse bars adapted to rest in these slots, the edge of the studs and the vertical faces of the cross-bars being in the same plane, (the vertical faces of the cross-bars may have burs upon them by which metallathing may be attached, said studs and bars being rigidly retained in position in relation to each other without the use of rivets, bolts, or clenching devices,) and of details more fully to be set forth in the following specification and accompanying drawings.

Figure 1 shows my device as used on a wall. Fig. 2 is a similar view showing the structure as a partition. Fig. 3 shows its application to a ceiling.

My invention is intended particularly to unite in such rigid structure strips of thin sheet metal which in themselves have little or no inherent rigidity or capability of resisting strains. It is customary in this form of structure to cut out strips from the studs and have these strips so united as to form the connecting-braces between the studs. This action weakens the resisting power of the studs, and the flat cross-strips have a tendency to buckle in case of unusual horizontal thrust or strain. This difficulty I have endeavored to obviate by making the cross-bars angle-shaped, by which means they are capable of resisting a far greater amount of strain coming from any direction.

Having reference to the drawings, A represents the vertical studding in case of a wall or partition. In these studs I cut a slot *a*, having a small opening at the top 2, tapering and widening to the bottom. The bottom 3 of this slot is transverse to the length

of the stud. The cross-bars B are bent longitudinally to present two faces at right angles to each other. At intervals notches 4 are cut in the horizontal face *b* and opposite thereto are notches, as 5, so that the cross-bar may be inserted into the slots *a* in the studs. The width of the face *b* between the notches 4 and 5 corresponds to the length of the bottom of the slot *a*, and the cross-bar rests in this slot and is prevented from vertical displacement by reason of the converging sides of the slot. When the lathing is attached to the structure, as we will presently see, any displacement whatever of these parts is impossible.

It is to be noted that neither rivets, bolts, or any clenching devices are necessary, and a great economy in the matter of time in setting up the structure is effected.

The notches 5 in the cross-bars are so made that when the horizontal faces *b* rest in the slots the vertical faces *b'* are flush with the front edges of the studs A. In the vertical faces I cut burs, as 6. Thus when the lathing C, of expanded metal wire or other suitable material, is laid against the structure it is rapidly and securely attached in position by means of the burs 6.

By making the edges of the cross-bars and studs flush it is seen that the lathing has a more equal support than it would if the front edge of these cross-bars were not in the same plane with the edge of the studs, and all possible sagging of the lathing is prevented.

If the structure is for use as in a partition-wall, it is only necessary to slot the studs on both sides, having these slots preferably placed alternately on opposite sides. It is thus possible to make a wall of almost any degree of thinness.

Where this structure is to be used for ceiling purposes, some means are necessary whereby it may be secured to the I-beams or other support. For such cases I have provided a hanger, as D, which consists of a rod or plate so bent as to form a clip portion *d*, by which the base of the I-beam is grasped, and the pendent portion *d'* forms a hook adapted to hold in place a bar, as the stud A. By bending the parts *d* and *d'* upon each other, as shown at 7, a very strong joint and good supporting part is formed. This is suitable for

hanging various forms of iron or other structures.

The features I desire to emphasize particularly are, first, the use of all bolts, rivets, or like securing devices is dispensed with in forming or setting up my support; second, the edges of the cross-bars and the edges of the studs are in the same plane; third, the lathing is supported firmly against all parts of the structure and is prevented from sagging.

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

1. The combination of parallel strips having slots opening through the edge and diverging inwardly, and transverse strips provided with notches adapting said strips to be inserted edgewise into the slots and then turned so that the portions between opposite notches interlock with the base of the grooves without the aid of supplemental fastening devices.

2. The combination of parallel strips having slots opening through the edge and having a contracted entrance, and notched strips adapted to be inserted edgewise through said contracted opening and then turned in the wider portion of the slots whereby they are secured without the aid of supplemental fastening means.

3. A support consisting of parallel strips having slots with contracted entrances in the edge, and transverse strips adapted to be inserted edgewise into the slots and having notches which allow the said strips to be turned in the wider portions of the slots and to interlock with the sides of first-named strips.

4. A support consisting of parallel strips having slots opening through the edge, trans-

verse strips, angular in cross-section and having notches in one of their angular faces and in the opposite edge, said transverse strips engaging the slots of the parallel strips and held thereto without the aid of supplemental fastening devices.

5. A support consisting of parallel strips having slots opening through the edge, and transverse strips, angular in cross-section and held within the slots, and having one of their angular faces substantially in the same plane with the corresponding edges of the parallel strips.

6. A support consisting of parallel strips or bars having slots made therein, angle-shaped cross-bars having notches adapted to engage in the slots whereby one of the faces of the transverse bars is essentially horizontal, and the other in the same plane with the front edge of the parallel bars.

7. A support consisting of parallel strips or bars having slots, angle-shaped cross-bars adapted to be held therein so that one face of the cross-bar is essentially horizontal, and the other flush with the edge of the parallel bars, and burs or projecting tongues cut in the vertical faces of the cross-bars.

8. The combination with a structural metal frame, and an I-beam or like fixed support, of a hanger adapted to grasp the base of the I-beam, and having a portion bent upon itself to form a hook dependent from one side of the I-beam.

In witness whereof I have hereunto set my hand.

TIMOTHY COLLINS.

Witnesses:

JULIUS CALMANN,
S. H. NOURSE.