

Jan. 26, 1932.

C. M. MARKHAM

1,842,684

COLUMN CLAMP

Filed Oct. 14, 1929

2 Sheets-Sheet 1

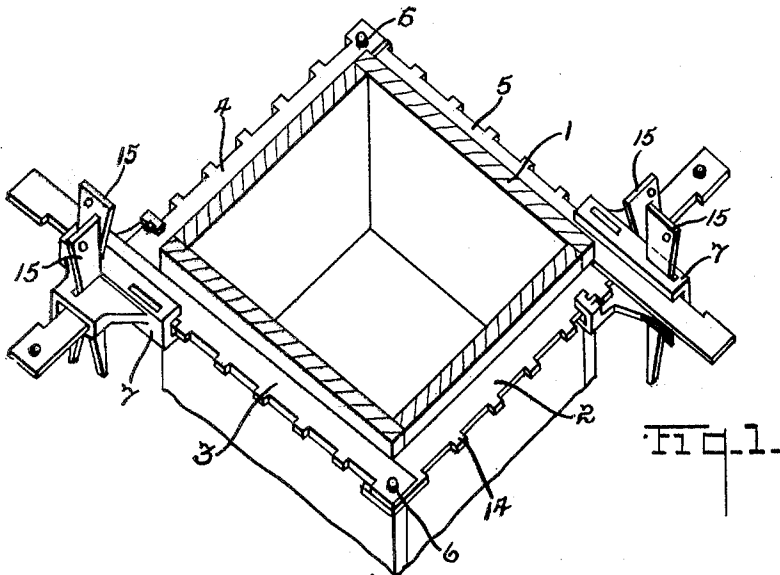


FIG. 1.

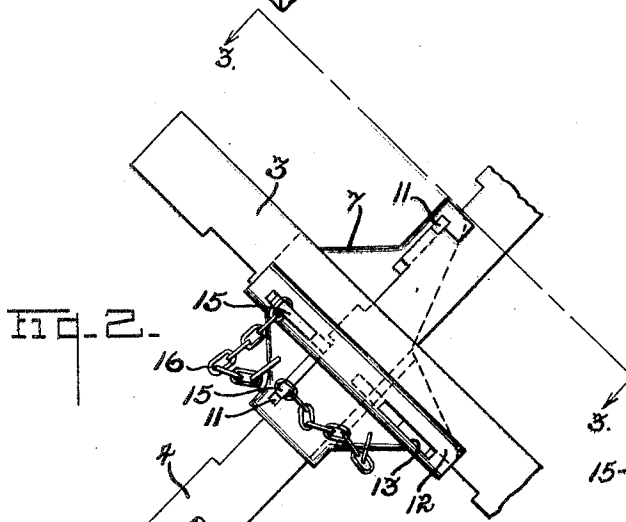


FIG. 2.

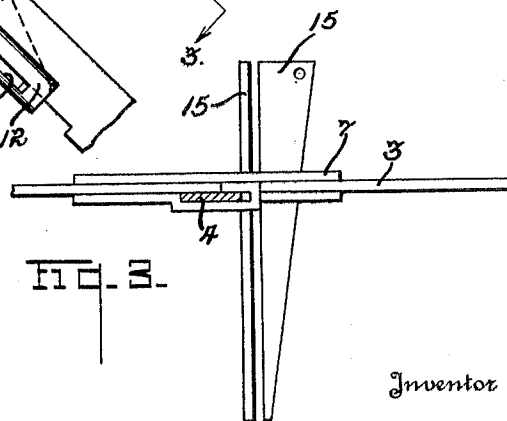


FIG. 3.

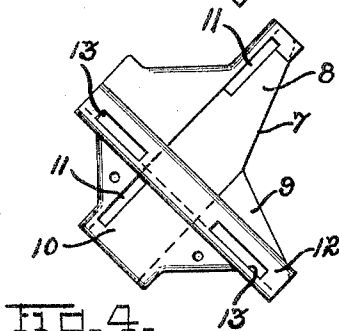


FIG. 4.

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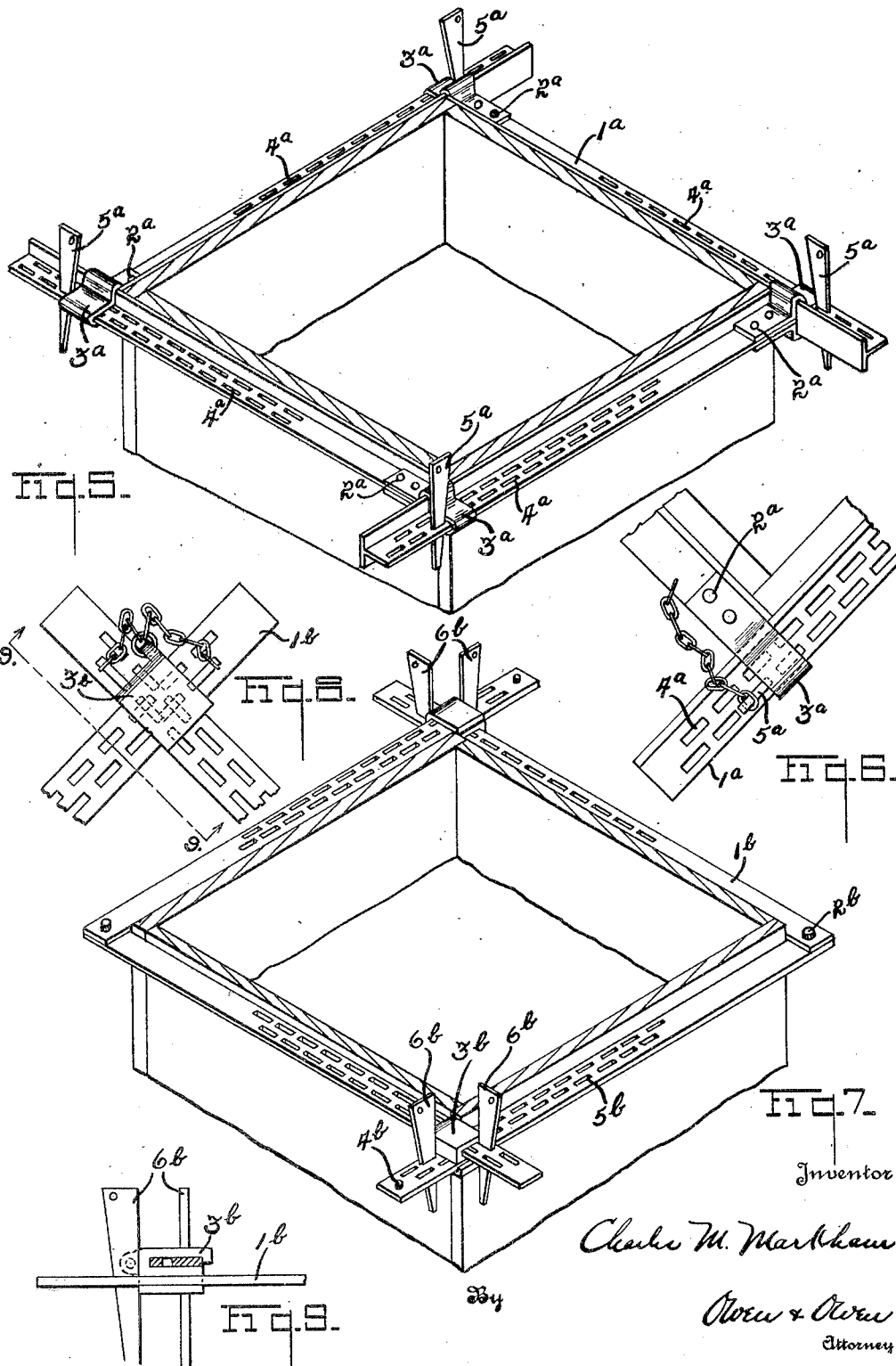
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

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COLUMN CLAMP

Application filed October 14, 1929. Serial No. 399,486.

This invention relates to devices for holding structural framework in proper position preparatory to pouring concrete or other material which must be held in shape for a period until it dries or sets, but more particularly to clamps for embracing column forms made up of disjointed planks and for securely holding forms in the desired position.

An object is to provide a simple and efficient clamping device of the above character, which may readily and conveniently be attached to or detached from a form or frame, and which may be simply adjusted against the frame.

Another object is to produce a clamping device for column frames or forms, which is simple in construction, reliable in operation, and may be manufactured at a minimum cost.

Other objects and advantages will hereinafter appear.

The invention is shown by way of illustration in the accompanying drawings, in which:

Fig. 1 is a perspective view of a column clamp in embracing relation to a column frame or form;

Fig. 2 is an enlarged plan view of the adjustable connection between ends of the clamping arms;

Fig. 3 is a sectional elevation on the line 3—3 of Fig. 2;

Fig. 4 is a top plan view of the connecting or bracket member;

Fig. 5 is a perspective view of an alternate form of clamping device;

Fig. 6 is a top plan view of the connection between the arms of the clamping device shown in Fig. 2;

Fig. 7 is a perspective view of another form of a clamping device;

Fig. 8 is an enlarged top plan view of the connection between adjacent arms of the clamping device shown in Fig. 7; and

Fig. 9 is an edge view of the parts shown in Fig. 8.

Referring to the drawings, the illustrated embodiment of the invention comprises a clamping device for embracing a column form which is made up of planks 1 arranged to enclose a substantially rectangular space

into which concrete or the like is poured to form the pillar or column. The clamping device, shown in Figs. 1 to 4, comprises metal arms 2, 3, 4 and 5, the arms 2 and 3 being pivotally connected together at 6. It will thus be seen that the arms are arranged in pairs, and the arms of each pair are pivotally connected.

The free ends of the arms 3 and 4 cross each other in overlapping relation, arms 2 and 5 being similarly arranged. Embracing these arms in the region of intersection are bracket members 7. Each bracket member has a channel or guideway 8 through which one arm (4 and 2 respectively) extends, and a channel 9 through which the other arm of each pair (3 and 5 respectively) extends. The channel 8 has an enclosed end portion 10, and is formed at one side thereof with horizontally spaced elongate openings 11. A lip 12 overhangs the channel 9, and formed in this lip are longitudinally spaced elongate openings 13. It will be observed that the channel or guide 8 is beneath, and is disposed at substantially right angles to the channel 9, in order to hold the arms in the proper position with respect to the column frame.

The outer edge of each arm is provided with a plurality of longitudinally spaced teeth 14 providing abutments. In this instance the abutments are spaced apart uniformly. The abutments 14 are adapted to extend into the channels beneath the openings 11 and 13.

In practice, the clamping device is assembled with an arm of each pair inserted through its channel in the bracket member 7 carried by an arm of the other pair. In order to hold the device in position a wedge 15 is inserted into one of the openings 11 and one of the openings 13. These wedges cooperate with the abutments 14 to force the arms into closer engagement with the planks 1. Then in order further to tighten the clamping device a second wedge is driven in the other opening of the pair (11 or 13) before removing the wedge already in position. By forcing in the second wedge the arms are moved relatively to each other, and after the second wedge is in place the first wedge is removed.

This adjustment may continue until the desired clamping force is obtained.

This may be more clearly explained by reference to Fig. 2. It will be observed that a wedge 15 is forced into the opening 13 at the left. By forcing another wedge into opening 13 at the right, it is evident that the wedge co-operating with the abutment 14 serves to force the arm 4 into closer relation with the framework. The arm 3 may likewise be adjusted progressively toward the work by driving wedges in the openings or slots 11 after the manner above described. The workman carries an additional wedge with him, the other wedges preferably being attached to the bracket members by chains 16 to prevent their being lost or mislaid.

The alternate form shown in Figs. 5 and 6 comprises arms 1^a which are T-shaped in cross section so that a relatively broad flat surface engages the frame work in order to prevent damage thereto. Secured by rivets 2^a to one end of each arm is a loop member 3^a which is shaped to embrace an adjacent arm. It will be observed that a loop member 3^a slidably engages each arm to provide a substantially rectangular enclosure. Formed in each arm are slots or openings 4^a arranged in laterally spaced rows with the slots arranged in staggered formation. Wedges 5^a are inserted into the slots in rear of the loop members 3^a to effect adjustment of the arms, one wedge being driven in, and when in place another slot is partially uncovered, and then by driving another wedge in the slightly uncovered slot the adjustment is obtained.

Another alternate form is shown in Figs. 7 to 9, in which the arms 1^b are arranged in pairs, the arms of each pair being pivotally connected by a pin 2^b. The free ends of the arms are connected by slides or brackets 3^b which are shaped to embrace each arm; lugs 4^b on the arms prevent slides 3^b from disengagement from the respective arms. Each arm is provided with staggered slots 5^b similar to those on the form shown in Fig. 5. Adjustment of the arms is obtained by wedges 6^b after the manner hereinbefore described.

From the above description it is apparent that I have produced a clamping device which is entirely free from parts liable to get out of order. The number of moving parts is reduced to a minimum, and the structure is so sturdy that it may be repeatedly used for an indefinite period without replacement or repair. From a manufacturing standpoint, it is obvious that this clamp is advantageous and practical, because of its simplicity, and absence from detail requiring especially exact dimensions.

While the above description has been given by way of illustration, it is not to be considered as limiting, because numerous changes in details of construction, arrangement, and

operation may be effected without departing from the spirit of the invention.

What I claim as new and desire to secure by Letters Patent is:

1. A column clamp comprising arms engageable with the sides of the column form, a bracket for connecting two arms and having a straight way extending therethrough to form a guideway, said bracket having also a channel transverse to and offset from said way, and having an open side so that the other arm may be inserted laterally therein, spaced abutments on at least one of said arms, and a pair of wedge members, cooperating with said bracket member and abutments for adjusting one arm, step by step, with relation to the other arm.

2. A column clamp comprising arms engageable with the sides of the column form, a bracket for connecting two arms and having a straight way extending therethrough to form a guideway, said bracket having also a channel transverse to and offset from said way, and having an open side so that the other arm may be inserted laterally therein, spaced abutments on said arms, said bracket having a pair of longitudinally spaced openings for each arm adapted to register respectively with the abutments on said arms, and wedges adapted to be inserted in said openings to cooperate with said abutments to force the arms into clamping relation to the column form.

3. A device of the class described comprising a plurality of articulated arms adapted to form an enclosure, longitudinally spaced abutments on said arms, said arms being arranged in pairs, a pivotal connection between each pair of arms, a member engaging the free ends of adjacent arms and constructed to hold said arms at a predetermined angle, said member having a pair of longitudinally spaced openings for each arm adapted to register respectively with the abutments on said arms, and wedges adapted to extend into said openings, the spacing of the openings being different from that of the abutments, whereby adjustment may be effected by forcing a wedge into one opening for engagement with an abutment to cause the respective arm to be moved and thereafter before such wedge is removed another wedge may be inserted into the other opening of the pair further to adjust such arm.

In testimony whereof I have hereunto signed my name to this specification.

CHARLES M. MARKHAM.