H. H. LAMPERT.

COLUMN CLAMP.

APPLICATION FILED DEC. 6, 1916.

1,308,084. Patented July 1, 1919.

Fig. 1.

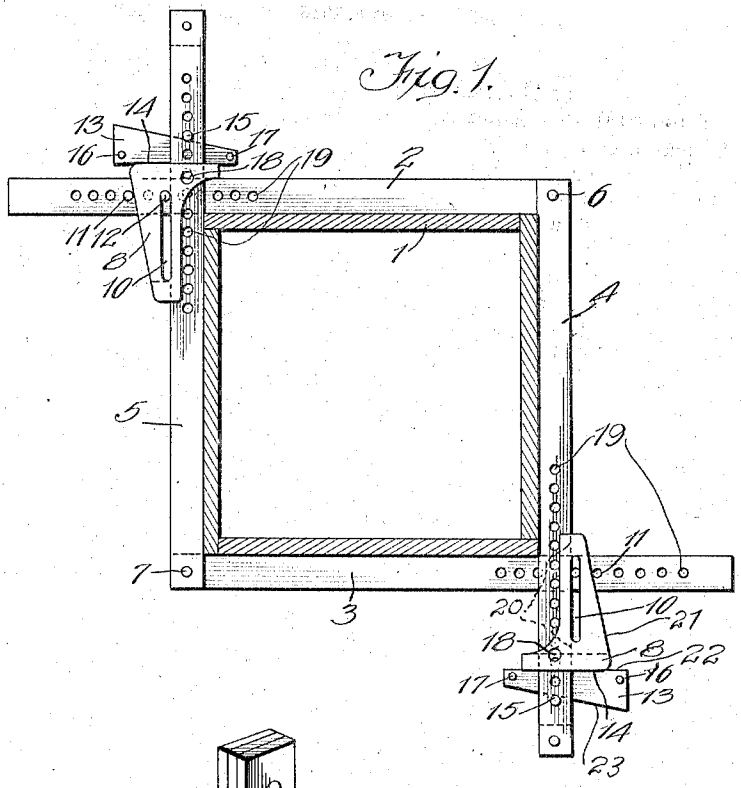
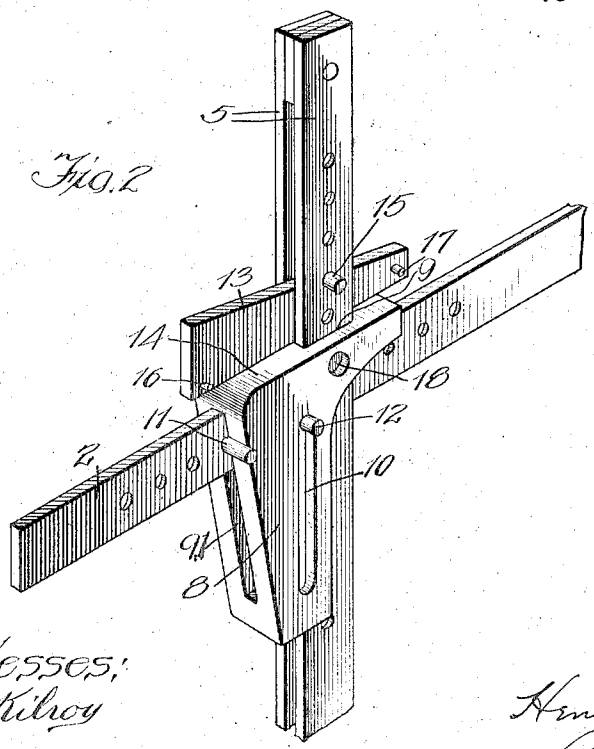


Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY H. LAMPERT, OF CHICAGO, ILLINOIS.

COLUMN-CLAMP.

1,308,084. Specification of Letters Patent. Patented July 1, 1919.

Application filed December 6, 1916. Serial No. 135,313.

To all whom it may concern:

Be it known that I, HENRY H. LAMPERT, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Column-Clamps, of which the following is a specification.

The main objects of this invention are to provide an improved clamping device particularly adapted for securing together the parts of a mold used for incasing beams, columns, etc., in concrete; to provide improved tightening means for drawing up the clamping members so as to force the mold parts together; and to provide improved means for looking the tightening means and the clamping members together either for the purpose of allowing said tightening means to be reset so as to take up further slack, or for the purpose of preventing any slackening of the mold during the pouring or setting of the concrete.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which—

Figure 1 is a plan of the improved form of clamp as applied to a rectangular column mold or form, which is shown in section.

Fig. 2 is an enlarged detail in perspective of one of the tightening means by which the clamping members are drawn up and locked.

In the construction shown in the drawings, the clamp is applied to a rectangular-shaped form or mold 1 and comprises clamping means, including members 2, 3, 4 and 5, arranged to embrace the mold and be drawn up relatively of each other by tightening means, in the form of wedges 8 and 13, for forcing and holding the mold parts together.

The clamping members 2 and 3 are in the form of single bars or slats, whereas the members 4 and 5 comprise two bars or slats arranged in spaced superimposed relation. One end of each of the members 2 and 3 is pivoted to one end of the corresponding members 4 and 5 by means of bolts 6 and 7 respectively. Thus the members 2 and 4 constitute one section of the clamp, and the members 3 and 5 constitute the other section. When put in use, the clamp sections are placed around the mold so that the free ends of the members intersect each other with the single bars interposed between the double bars. Rows of apertures 19 are formed in the intersecting ends of the members 2, 3, 4 and 5 and extend longitudinally of the respective members.

The wedges 8 embrace the intersecting ends of the clamping members, being provided with slots 9 for receiving the double bar members 4 and 5 and slots 9.1 for receiving the single bar members 2 and 3. The inner wedging faces 20 of the wedges 8 therefore bear against the edges of the double bar members 4 and 5, and the other or outer wedging faces 21 bear against suitable pins 11 inserted in apertures 19 in the single bar members 2 and 3.

The wedges 13 are arranged to be inserted between the two bars of the members 4 and 5 so that the inner wedging faces 22 bear upon the heads 14 of the respective wedges 8 and the other or outer wedging faces 23 bear against pins 15 adapted to be inserted in apertures 19 formed in the members 4 and 5.

The locking of the clamping members after they have once been fully drawn up, is provided for by slots or apertures 10 and 18 formed in the wedges 8 so as to register with the rows of apertures 19 in the respective members 2—3 and 4—5, into which suitable pins may be inserted. The locking means also serve to temporarily lock the clamping members so as to permit the wedges 8 and 13 to be readjusted to take up further slack in the respective members. To this end, the slots 10 are elongated longitudinally of the wedges 8 so as to extend substantially parallel to the members 4 and 5. Thus, a pin 12 inserted into the slot 10 and one of the registering apertures 19 in one of the members 2 or 3, permits the wedge 8 to be shifted back on the respective member to allow the pin 11 to be advanced into one of the apertures closer to the member 4 or 5. Likewise, a pin inserted into the slot or aperture 18 and a registering aperture 19 in the member 4 or 5, allows one of the wedges 13 to be retracted and the pin 15 advanced into another aperture closer to the member 2 or 3.

The wedges 13 are provided with pins or shoulders 16 and 17 located at opposite ends th reof, which prevent the withdrawal of the wedges from between the bars of the members 4 and 5.

The operation of the device shown is as follows:

The sections are placed around the form or mold with the free ends intersecting and extending through the respective slots in the wedges 8, as has been explained, and the parts drawn up by hand as tight as possible. With the wedges 8 in their retracted positions, the pins 11 are inserted into apertures in the members 2 and 3 so as to abut against the wedging faces 21 of the wedges 8. The heads 14 of the wedges 8 are then tapped by a hammer or other suitable implement, thereby drawing up the members 2 and 3 relative to the members 4 and 5. If, after having forced the wedges 8 in the full limit of their travel, it is found necessary to take up further slack in the clamp, pins 12 are inserted in the slots 10 and registering apertures 19 in the members 2 and 3, which secure said members in the place but allow the wedges 8 to be readjusted so that the pins 11 may be set up another aperture closer to the members 4 and 5. The pins 12 are then removed and the driving of the wedges repeated.

This operation is continued until the members 2 and 3 are drawn as tightly as possible, whereupon the wedges 13 are drawn back as far as permitted by contact of the pins 17 with the respective members 4 and 5. The pins or stops 15 are then inserted through the apertures 19 in the superposed members 4 and 5 so as to bear against the wedging faces 23. The wedges 13 are then driven inward so as to draw the members 4 and 5 relative to the members 2 and 3.

If, after the wedges 13 have been driven the limit of their movement, it is necessary to take up further slack, pins are inserted into the apertures 18 of wedges 8 and registering apertures in the members 4 and 5. The wedges 13 may then be retracted and the pins 15 reset in apertures closer to the members 2 and 3. The driving of the wedges may then be continued until the members 4 and 5 are drawn up tightly.

It will be observed that the second wedges 13 bear at all times upon the heads 14 of the wedges 8 and should the members 2 and 3 become loosened by the drawing up of the members 4 and 5, the driving in of the wedges 13 not only draws up the members 4 and 5, but also forces the wedges 8 downwardly, thereby drawing up the members 2 and 3.

This gives a compound or multiple adjustment of the clamping members and consequently effects a very fine adjustment of the clamp.

When it is desired to lock the clamp after having been drawn up as tightly as possible, pins are inserted into the slots 10 and 18 in the wedges 8 and registering apertures in the respective members 2—3 and 4—5, which positively secures the members to the wedges 8 and prevents slackening during the pouring or setting of the concrete.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A clamp comprising two members arranged in crossed relation and each slidable lengthwise on the other, a wedge having its inner wedging face bearing against one of said members and slidable longitudinally thereon with its head substantially parallel with the other member, a second wedge having its inner wedging face bearing against the head of said first wedge and slidable longitudinally thereon, and stops on said members bearing respectively upon the outer wedging faces of the wedges.

2. A clamp comprising two members arranged in crossed relation, a stop on each of said members, a wedge having its wedging faces bearing between one of said members and the stop on the other of said members, and a second wedge having its wedging faces bearing between said first-mentioned wedge and said other stop, whereby the slack in both said members may be simultaneously taken up by driving said second wedge.

3. A clamp comprising two members arranged in crossed relation, a stop on each of said members, a wedge having its wedging faces bearing between one of said members and the stop on the other of said members, a second wedge having its wedging faces bearing between said first-mentioned wedge and said other stop, whereby the slack in both said members may be simultaneously taken up by driving said second wedge, and apertures in said first-mentioned wedge adapted to register substantially simultaneously with apertures in both said members to receive locking pins.

4. A clamp comprising two members arranged in crossed relation, a wedge having one of its wedging faces bearing against one of said members, a stop on the other of said members against which the other wedging face of said wedge bears, coacting means on said members and said first mentioned wedge adapted to be used for locking said second member to said first mentioned wedge and at the same time permitting the longitudinal movement of said wedge on said first mentioned member.

5. A clamp comprising two members arranged in crossed relation, a wedge having one of its wedging faces bearing against one of said members, a stop on the other of said members against which the other wedging face of said wedge bears, said other member having a row of apertures therein, said wedge having a longitudinally disposed slot formed therein and extending substantially

parallel to said one member, and means adapted to be inserted into said slot and one of said apertures to secure said other member to said wedge in a manner permitting said wedge to be readjusted relative to said one member for further operation.

6. A clamp comprising two members arranged in crossed relation, a stop on each of said members, a wedge having its wedging faces bearing between one of said members and the stop on the other of said members, a second wedge having its wedging faces bearing between said first-mentioned wedge and the stop on said one member, whereby the slack in both said members may be simultaneously taken up by driving said second wedge, each of said members having a row of apertures formed therein, said first-mentioned wedge having apertures formed therein adapted to register respectively with the rows of apertures in said members, and locking means adapted to be inserted into the registering apertures on said wedge and respective members for locking said members to said wedge.

7. A clamp comprising a plurality of members, two of which are arranged in crossed relation, each of said members having a row of apertures extending longitudinally thereof, a wedge embracing each of said members adjacent to the intersection thereof and arranged to have one of its wedging faces bear against one of said members, its head being substantially parallel with the other member, a pin adapted to be inserted in one of said apertures in the other said member so as to bear against the other wedging face of said wedge, whereby said wedge may be actuated to draw said other member relative to said one member, a second wedge having one of its wedging faces bearing upon the head of said first-mentioned wedge, and a pin adapted to be inserted in one of the apertures in said one member whereby said second wedge may be actuated to simultaneously draw both of said members relative to each other.

8. A clamp comprising a plurality of members, two of which are arranged in crossed relation, each of said members having a row of apertures extending longitudinally thereof, a wedge embracing each of said members adjacent to the intersection thereof and arranged to have one of its wedging faces bear against one of said members, a pin adapted to be inserted in one of said apertures in the other said member so as to bear against the other wedging face of said wedge, whereby said wedge may be actuated to draw said other member relative to said one member, a second wedge having one of its wedging faces bearing upon the head of said first-mentioned wedge, and a pin adapted to be inserted in one of the apertures in said one member whereby said second wedge may be actuated to simultaneously draw both of said members relative to each other, said wedge having a longitudinally disposed slot formed therein and extending substantially parallel to said one member so as to register with the apertures in said other member, and a pin adapted to be inserted into said slot and a registering aperture in said other member so that said other member is secured to said wedge in a manner permitting said wedge to be adjusted longitudinally of said one member to permit the pin coacting with said other wedging faces to be advanced into closer proximity to said one member.

Signed at Chicago this 4th day of December 1916.

HENRY H. LAMPERT.