No. 720,816. PATENTED FEB. 17, 1903.

E. C. KARL.

CLAMP.

APPLICATION FILED MAR. 5, 1902.

NO MODEL.

Fig. 1.

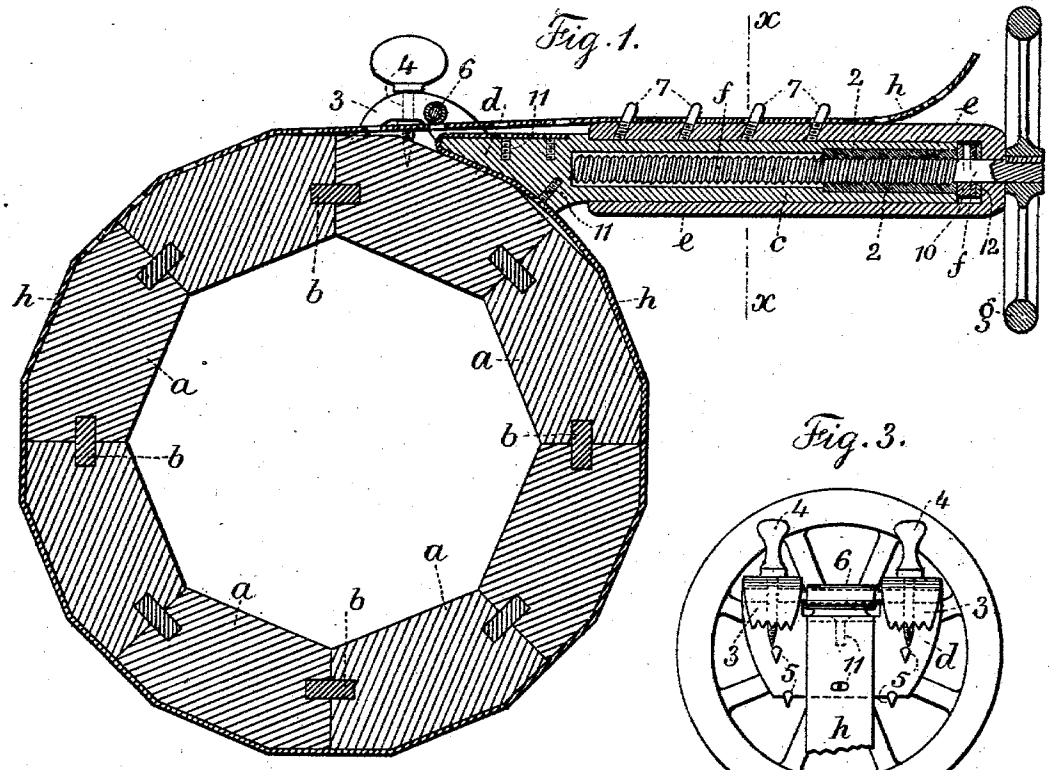


Fig. 3.

Fig. 2.

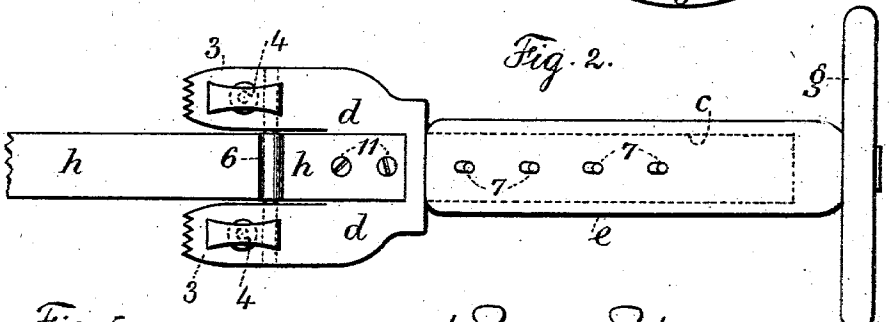


Fig. 5.

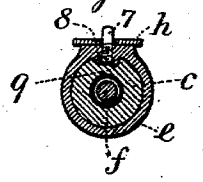
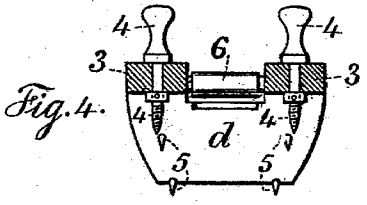


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDUARD C. KARL, OF HAWTHORNE, CONNECTICUT.

CLAMP.

SPECIFICATION forming part of Letters Patent No. 720,816, dated February 17, 1903.

Application filed March 5, 1902. Serial No. 96,792. (No model.)

To all whom it may concern:

Be it known that I, EDUARD C. KARL, a citizen of the United States, residing at Hawthorne, in the county of Fairfield and State of Connecticut, have invented an Improvement in Clamps Employed in the Manufacture of Staved Columns or Pillars, of which the following is a specification.

My invention relates to a device for drawing together and holding under great pressure the staves of wooden columns or pillars while the glue is setting. Devices having this object in view have heretofore been employed; but the same have been more or less inefficient and unsatisfactory.

In carrying out my invention I employ a tubular metal body with a forked edge at one end and an interior screw-thread at the other end, a sleeve surrounding this body and having pins engaging perforations in one end of an encircling strap of metal, the other end of which strap is secured to the jaw, and I employ a screw-stem and operating hand-wheel, with a nut on the screw-stem within the end of the sleeve. I prefer to employ screws and prongs forming parts of the jaw and which enter the wood of the column or pillar and serve to connect the clamping device temporarily thereto, and one end of the encircling strap is connected to the jaw, and after passing the strap around the column the perforations therein are passed over the aforesaid pins and the screw-stem operated by the hand-wheel to draw the sleeve longitudinally of the tubular body, so as to put a strain on the strap and apply a great pressure to draw together the staves of the column or pillar and hold the same while the glue is drying.

In the drawings, Figure 1 is a longitudinal section of the clamp device and a cross-section of the column or pillar. Fig. 2 is a plan of the clamp device alone. Fig. 3 is an end view of the same. Fig. 4 is a cross-section and end elevation through the jaw portion of the clamp, and Fig. 5 is a cross-section at *x x* of Fig. 1.

The wooden column or pillar is formed in the usual manner well known in the art of the staves *a*, which run lengthwise of the column and which are provided with substantially parallel surfaces or sides and beveled edges, the beveled edges being on radial lines from the imaginary axis of the column and at inclinations proportioned to the number of sections composing the column. I have shown these staves as provided with slip-tongues *b* and which are the equivalent of an ordinary tongue and groove, both of which structures are well known in the art.

The clamp device comprises the following parts: A tubular body of metal *c* is provided at one end with an interior screw-thread 2 and at the other end with a jaw *d*, forked by a central space, so as to provide projecting fingers 3. The ends of these fingers are preferably provided with serrated points or teeth, so as to stick into the wood of the column, and I employ screws 4, which pass through the fingers and at right angles to the axis of the tubular body and which screws simply rotate, having heads at the top, with concave sides and of the shape shown, and a nut upon the under side of the fingers, so as to prevent longitudinal movement of the screws the points of which are adapted to penetrate the wood of the column. These screws can be started in the wood by a hammer and turned by the fingers. I further provide the under surface of the jaw edges inclined to the tubular body with prongs 5, and there is a roller 6 on a suitable axis extending across the jaw between the fingers 3. A sleeve of metal *e*, closed at one end, except for an aperture, surrounds the tubular metal body *c*. The screw-stem *f* passes through the aperture of this sleeve into the tubular body, the threads thereof engaging the interior threads of the tubular body. This sleeve is provided with pins 7 in line and at regular spaced-apart intervals, and upon the interior of the sleeve and longitudinally thereof is a rib 8, fitting a groove 9 in the outer surface of the tubular body *c*, said rib and groove permitting longitudinal movement of the parts with reference to one another, but preventing rotation. The rib 8 is in line with the pins 7 and increases the thickness of metal and consequent bearing for the pins. A nut 10 is secured upon the screw-stem *f* by a pin or suitable device, so that the same is fixed to the stem *f* and comes against the inner surface at the end of the sleeve *e*, and when the parts are in the position shown in Fig. 1 the nut is between the sleeve and the end of the tubular body *c*. On

the outer end of the stem *f* is a hand-wheel *g*, preferably keyed thereto and employed as a device for rotating the screw-stem *f*. A band of metal *h* is at one end bent around the jaw *d*, as shown in Figs. 1, 2, and 3, and is secured thereto by the screws 11, the other end of the band of metal being provided with equidistant spaced-apart perforations which agree with the distances apart of the pins 7. This band passes between the fingers 3 of the jaw and beneath the roller 6.

In the operation of the clamping device hereinbefore described the screws 4 and the prongs 5 are driven into the wood of the column or pillar and the band *h* passed around the pillar between the fingers 3 and beneath the roller 6, and with the parts in the position shown in Fig. 1 the pins 7 are passed into the perforations of the band, so that the band is held to the sleeve *e*. The hand-wheel *g* and screw-stem *f* are now rotated and the sleeve moved longitudinally of the tubular body, drawing upon and straining the band in a line substantially tangential to its circumference and compressing and holding together the staves of the column or pillar with force, putting the same under great pressure. Any number of these clamping devices are to be employed, as required in the length of the column, and the parts are left in the strained position until after the glue is set, when the band is slackened by turning the hand-wheel and screw-stem in the opposite direction sufficient to uncouple the band from the pins and remove the device from the column.

I prefer to employ a washer 12, of brass, between the nut 10 and the inner surface of the sleeve *e* to reduce the friction and permit the nut 10 to turn freely in rotating the stem *f*.

I claim as my invention—

1. In a clamping device, the combination with an encircling band, of a body portion having an inclined end to which one end of the band is secured, a longitudinally-movable part upon the body portion to which the other end of the band may be secured, and means for moving the one part in relation to the other to draw upon and strain the band tangentially to the circumferential outline thereof and apply pressure in use, substantially as specified.

2. In a clamping device, the combination with an encircling band of metal, of a tubular body having a jaw at one end and to which one end of the band is secured, a sleeve surrounding the tubular body and means connected therewith to which the other or free end of the band may be connected, a screw-stem engaging the tubular body and acting against the movable part when rotated to effect a longitudinal movement thereof in straining the band, substantially as specified.

3. In a clamping device and in combination, a tubular body of metal having an interior screw-thread at one end and a jaw at the other end, an encircling band of metal secured at one end to said jaw, a sleeve surrounding the tubular body and spaced-apart pins 7 connected in line therewith, a screw-stem passing into the tubular body and through an aperture in one end of the sleeve, a nut upon the screw-stem within the sleeve, and a hand-wheel for rotating the screw-stem outside of the sleeve, substantially as set forth.

4. In a clamping device and in combination, a tubular body of metal having an interior screw-thread at one end, a jaw at the other end, fingers 3 formed as continuations of the jaw and providing a central aperture, a roller extending between the fingers across the aperture and above the surface of the jaw, screws passing through the fingers and projections on the surface of the jaw, a sleeve surrounding the tubular body, a line of equal spaced-apart pins 7 in the sleeve, a screw-stem passing into the tubular body and engaging the interior threads thereof, a nut upon the stem within the sleeve, a hand-wheel on the end of the stem outside of the sleeve, an encircling band of metal bent around the end of the jaw and secured thereto and having in its free end a line of perforations agreeing with the pins 7 of the sleeve and engaging the same, substantially as and for the purposes set forth.

5. In a clamping device and in combination, a tubular body of metal having an interior screw-thread at one end, a jaw at the other end and a longitudinal surface groove, an encircling band of metal secured at one end to said jaw, devices for engaging wood connected with the jaw, a sleeve surrounding the tubular body and having a longitudinal internal rib fitting the groove of the tubular body, and spaced-apart pins 7 connected in line therewith and passing through the body at the increased thickness provided by the rib, a screw-stem passing into the tubular body and through an aperture in one end of the sleeve, a nut upon the screw-stem within the sleeve, and a hand-wheel for rotating the screw-stem outside of the sleeve, substantially as set forth.

Signed by me this 1st day of March, 1902.

EDUARD C. KARL.

Witnesses:

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