Aug. 12, 1930. J. HOOGERHYDE 1,772,514

FOUR-WAY BLOCKING CLAMP

Filed Sept. 19, 1928

Fig. 1.

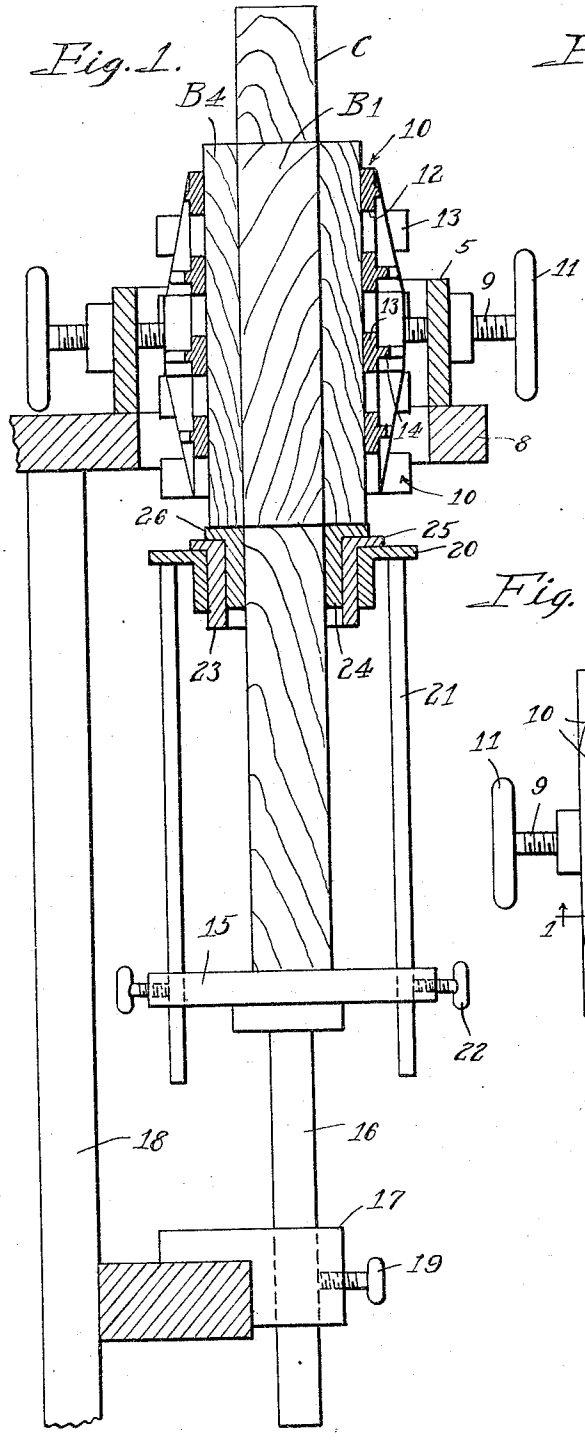


Fig. 3.

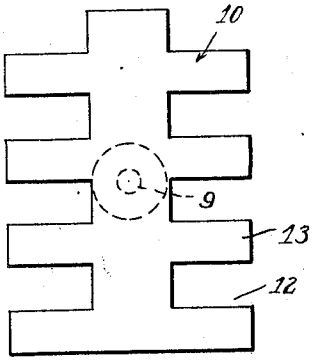
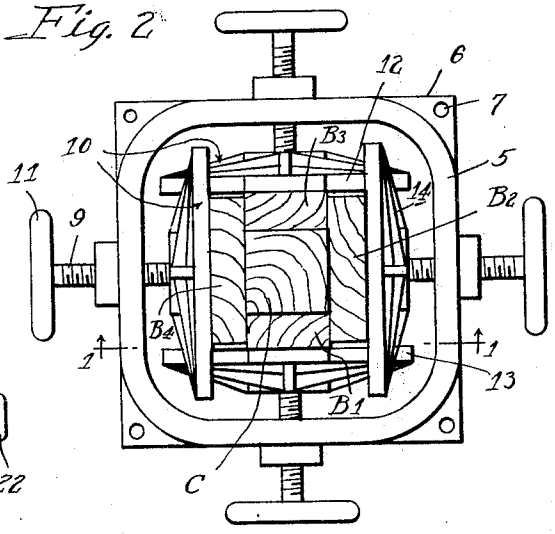


Fig. 2.



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Patented Aug. 12, 1930 1,772,514

UNITED STATES PATENT OFFICE

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FOUR-WAY BLOCKING CLAMP

Application filed September 19, 1928. Serial No. 306,896.

This invention relates to woodworkers' glue clamps and has more particular reference to a four-way or plural-way blocking clamp for applying blocks on turnings, such as table and buffet legs, pedestals, and similar pieces.

In the past it has generally been the practice in the blocking of work to apply two blocks at a time to the opposite sides of the core piece because of the inability to handle more than that number of pieces with the clamps available. This, of course, meant very slow work and proportionately high labor cost. It furthermore necessitated extra trimming operations in order to permit application of blocks to the other sides of the core piece, which can be avoided in the use of a four-way blocking clamp where each of the four blocks is not only clamped to the core piece but is also clamped against the neighboring blocks. It is therefore the principal object of my invention to provide a four-way blocking clamp of simple and practical construction, especially designed with a view to the speedy application of blocks to all sides of a turning at one and the same time.

Another object of my invention is to provide a clamp having improved means for supporting and centering the core piece with relation to the clamp at the proper elevation with respect thereto to facilitate the application of the blocks, the same including improved means serving as stops for the blocks so that they can be dropped into place in the clamp about the core piece with utmost facility and are bound to be properly located with respect to the core piece for application thereto.

The invention is illustrated in the accompanying drawing wherein—

Fig. 1 is a view in vertical section on the line 1—1 of Fig. 2 of a four-way blocking clamp and its appurtenant core and block rests;

Fig. 2 is a plan view of Fig. 1, and

Fig. 3 is an inside view of one of the clamping jaws.

The same reference numerals are applied to corresponding parts throughout the views.

The clamp comprises a cast-iron, hollow, square frame 5 having lugs 6 on the four corners with bolt holes 7 therein for the fastening of the frame onto a table or other suitable support represented at 8. A four-sided frame is illustrated, the present clamp being a four-way clamp, but it should be understood that the invention is not particularly limited to a four-way clamp but comprehends broadly any plural-way clamp. Clamping screws 9 are threaded through the four walls of the frame mid-way between the corners, as shown, and have clamping jaws 10 swiveled on the inner ends thereof and hand wheels 11 fastened on the outer ends thereof. The jaws 10 are suitably cast to provide slots 12 extending inwardly from the lateral edges thereof and defining laterally directed teeth 13, the inner faces of which are flat for abutment with the work to be clamped and the backs of which are provided with reinforcing ribs 14 suitably cast integral therewith. One pair of opposed jaws have the arrangement of teeth and slots shown in Fig. 3 and the other pair of opposed jaws have just the reverse arrangement, so that the teeth of each jaw fit in the slots of the two neighboring jaws. The fact that all of the jaws are of identical form and that it is only necessary to dispose two opposed jaws in reversed relation to the other two, end for end, makes it a simple matter in the production of the devices, the jaws being interchangeable one for another, and the cost of the device is proportionately lowered. Obviously, the interfitting of the jaws in the manner described enables the opening and closing of the clamp as the teeth of each jaw slide in and out in the slots of the neighboring jaws, and the jaws are thereby also held against turning with the clamping screws. The frame 5 is just large enough to allow the opening of the jaws to the fullest possible extent without permitting disengagement of the jaws from one another.

In operation, the jaws 10 are opened sufficiently to permit easy entry of a core piece, represented at C, and four blocks, represented at B_1, B_2, B_3, and B_4, as, for example, in the blocking of a table leg where turning is to be done, the blocks being in the nature

of "add-ons" or "build-ups", as is well known in the art of furniture manufacture. The blocks B_1 and B_3 it will be noted, are substantially of the same width as the core piece C, and the blocks B_2 and B_4 are of a width slightly less than that of the core piece plus the thickness of the two blocks B_1 and B_3, the object being that the four jaws when tightened will cause all four blocks to be pressed firmly against the core piece and the blocks B_2 and B_4 will also be pressed firmly against the edges of the blocks B_1 and B_3, so that neatly glued joints will be formed and the resulting turning will be correspondingly of a high grade and workmanlike character. In practice it will be evident that it is not necessary to back up more than two neighboring jaws of the four in order to remove the work from the clamp after the glue has taken a set, and, for that matter, the next core piece and its four blocks can be inserted into the clamp, and the blocks clamped into place, without necessitating the manipulation of more than the two screws on the two clamping jaws that were previously backed away from the work. Operating the clamp in this way speeds up production. The only time it is actually necessary to manipulate all four jaws is when the clamp is being set to take larger or smaller work. It should be apparent from this description that the blocking of a piece can be taken care of in less than half the time hitherto required, since all of the blocks are applied at one and the same time, instead of in two operations, and there is no necessity for the intermediate machining operation otherwise required, namely that of trimming off projecting portions of the blocks applied to opposite sides of the core piece so that two other blocks can be applied to the other two sides. In working with the present clamp each block is not only clamped tightly in place on the core piece but also against the neighboring blocks. The glued joints are hardly perceptible after the turning operation and not at all perceptible on the finished piece.

In the application of the blocks it is, of course, important that the same be located accurately, not only from the standpoint of meeting specifications but also from the standpoint of enabling the use of blocks barely longer than absolutely necessary for the turning to be made, allowing for fillets, so that there will not be too much waste. I have therefore provided means for supporting the core piece at the proper elevation with reference to the clamp and means for supporting the blocks in proper relation to the core piece, these means enabling the pieces to be dropped into place without a great amount of care, so that speedy production results, and the blocks are nevertheless very accurately positioned for application to the core piece. As stated before, the work shown is a table leg, the same being square and being arranged to be turned where the blocks B_1—B_4 have been applied thereto, such ornamentation being, of course, common. The core piece C is arranged to be supported on a platform 15, the elevation of which is set according to specifications for the piece being handled. A stem 16, depending from the platform and slidably received in a bracket 17 mounted on the frame 18, whereon the table 8 previously referred to is also supported, is arranged to be fastened in adjusted position by means of a set screw 19. A square collar 20 is adjustable in elevation with respect to the platform 15 on rods 21 slidably received in holes in the platform 15 and arranged to be fastened in adjusted position by means of set screws 22. Square telescoping collars 23 and 24 are removably received in the collar 20 with the flange 25 of the collar 23 resting on the collar 20 and the flange 26 of the collar 24 resting on the collar 23. The opening in the collar 26 takes the smallest standard sized table leg, the opening in the collar 23 the next size larger, and the opening in the collar 20 the largest size apt to be encountered, so that the device will accommodate the full range of sizes of work, or at least a certain stated range of sizes. Now, it will be seen that the core piece C when received in one of the collars is centered with respect to the clamp, besides being held at the proper elevation with respect thereto, and that shoulders are provided on all four sides thereof onto which the blocks B_1—B_4 can be dropped, it being assumed, of course, that care has been taken to adjust the elevation of the collar 20 so that the blocks will be held at the proper elevation with respect to the core piece. There is absolutely no guess-work involved in working with the device once the same has been set for a given job, and, of course, the work produced is bound to meet specifications and be absolutely uniform and of a truly workmanlike character.

It is believed the foregoing description conveys a clear understanding of my invention and of its various objects and advantages. While reference has been made to certain specific details of construction and arrangement, these are mostly for the purposes of illustration and are not intended to impose any restriction or limitation on the invention. The appended claims have accordingly been drawn to cover all legitimate modifications or adaptations.

I claim:

1. In a four-way clamp, a rectangular hollow frame, a clamping screw threading through each of the sides thereof at right angles to the others on adjoining sides of the frame and separately adjustable, and clamping jaws swivelled on the inner ends of said screws, said jaws having slots formed therein extending inwardly from the lateral edges

thereof and defining laterally directed teeth, the teeth of each jaw being arranged in register with the slots of two neighboring jaws whereby the jaws are guided on one another for sliding movement.

2. A clamp as set forth in claim 1 wherein the slots are uniformly spaced from top to bottom of each clamping jaw and are of uniform width, and the teeth are likewise uniformly spaced and of uniform width, approximately corresponding to the width of said slots, all of the four jaws being of identical form so as to be interchangeable, two opposed jaws of the four being disposed in reverse relation end for end with respect to the other two opposed jaws so that the slots in the former register with the teeth in the latter, and vice versa.

3. A blocking device, comprising in combination a plural-way clamp, a platform beneath the same arranged to serve as a support for a core piece entered through the clamp, means for adjusting the relationship between the platform and the clamp, whereby to adjust the elevation of the core piece with respect to the clamp, a support below the clamp but above the platform for blocks entered through the clamp about the core piece, means for adjusting the relationship between the support and the clamp and platform whereby to change the relationship of the blocks to the core piece, and means on the clamp for clamping the blocks to the core piece in the adjusted relationship.

4. In a device as set forth in claim 3 wherein the block support is disposed substantially concentric with the clamp, means on said support adaptable to different sizes of core pieces serving to hold the same centered approximately with respect to the clamp.

5. In a blocking clamp, the combination with a supporting frame of a clamp, a platform disposed beneath the clamp arranged to serve as a rest for a core piece entered through the clamp, means for supporting said platform on the frame permitting adjustment of the elevation of said platform relative to the clamp, a block support disposed over the platform and beneath the clamp arranged to have the core piece passed therethrough, said support being arranged to serve as a rest for the blocks entered through the clamp about the core piece, means for mounting said support on the platform permitting the adjustment of the same in elevation with respect to the platform, and means on the clamp for clamping the blocks on the core piece.

6. In a device as set forth in claim 5 wherein the block support is disposed substantially concentric with the clamp, means on said support through which the core piece is arranged to be passed adaptable to different sizes of core pieces serving to hold the same centered approximately with reference to the clamp.

7. In a device as set forth in claim 5 wherein the block support is disposed substantially concentric with the clamp, means on said support through which the core piece is arranged to be passed adaptable to different sizes of core pieces serving to hold the same centered approximately with reference to the clamp, said means comprising a plurality of telescoping collars having different sized openings to take different sized core pieces, all of said collars being provided with flanges on the upper ends thereof for supporting the same on one another and on the block support, the flange of the innermost collar providing shoulders on top of the same about the core piece entered through the collar for the seating thereon of the blocks to be applied to the core piece.

8. A device of the character described comprising in combination a blocking clamp on a clamp support, a block support below the clamp arranged to have a core piece extended therethrough from the clamp and arranged to serve as a rest for the blocks disposed in the clamp about the core piece, a core support below the block support, and means for adjusting the supports relative to one another whereby to accommodate core pieces of different lengths and clamp the blocks on the core piece at a desired point.

9. A device of the character described comprising in combination a blocking clamp on a clamp support, a block support in vertically spaced relation to the clamp and arranged to have a core piece passed therethrough from the clamp and to support blocks disposed in the clamp about the core piece, a core support disposed in vertically spaced relation to the other supports, and means for adjusting the supports with relation to one another whereby to accommodate core pieces of different lengths and clamp the blocks on the core piece at a desired point.

10. A device as set forth in claim 9 wherein the block support is disposed substantially concentric with the clamp and is arranged to receive the core pieces in such a way that the same is centered approximately with respect to the clamp.

11. In a device as set forth in claim 9 wherein the block support is disposed substantially concentric with the clamp, means on said support adapted to snugly receive different sizes of core pieces and to hold the same approximately centered with respect to the clamp.

12. A device of the character described comprising in combination a blocking clamp on a clamp support, a core support disposed below said clamp and arranged to have a core piece rest thereon and extend through the clamp, a block support disposed below the clamp having the core piece extending therethrough and arranged to support blocks disposed in the clamp about the core piece, and means for supporting the block support

from one of the other supports so that it is vertically adjustable with reference to the clamp whereby to permit clamping blocks onto a core piece at the desired point.

13. A device of the character described comprising in combination a blocking clamp on a clamp support, a core support disposed below said clamp and arranged to have a core piece rest thereon and extend through the clamp, the one support being vertically adjustable with respect to the other to accommodate different lengths of core pieces, a block support disposed below the clamp having the core piece extending therethrough and arranged to support blocks disposed in the clamp about the core piece, and means for supporting the block support from one of the other supports so that it is vertically adjustable with reference to the clamp whereby to permit clamping blocks onto a core piece at the desired point.

14. A device as set forth in claim 12 wherein the block support is disposed substantially concentric with the clamp and has means thereon through which different sized core pieces are arranged to be passed, the said means serving to hold the core pieces approximately centered with reference to the clamp.

15. The combination with a blocking clamp arranged to have a core piece passed therethrough and to have blocks disposed therein about the core piece, of a block support disposed below the clamp and substantially concentric therewith arranged to have the core piece passed therethrough, said support having a plurality of telescoping collars carried thereby provided with different sized concentric openings for the reception of different sized core pieces, all of said collars being provided with flanges on the upper ends thereof for supporting the same on one another and on the block support, the flange of the innermost collar providing shoulders on top of the same about the core piece entered through the collar for the resting thereon of the blocks arranged to be applied to the core piece.

16. The combination set forth in claim 15 including means for supporting the block support so that it is vertically adjustable with reference to the clamp whereby to permit application of blocks to a core piece at the desired point.

In witness of the foregoing I affix my signature.

JAMES HOOGERHYDE.