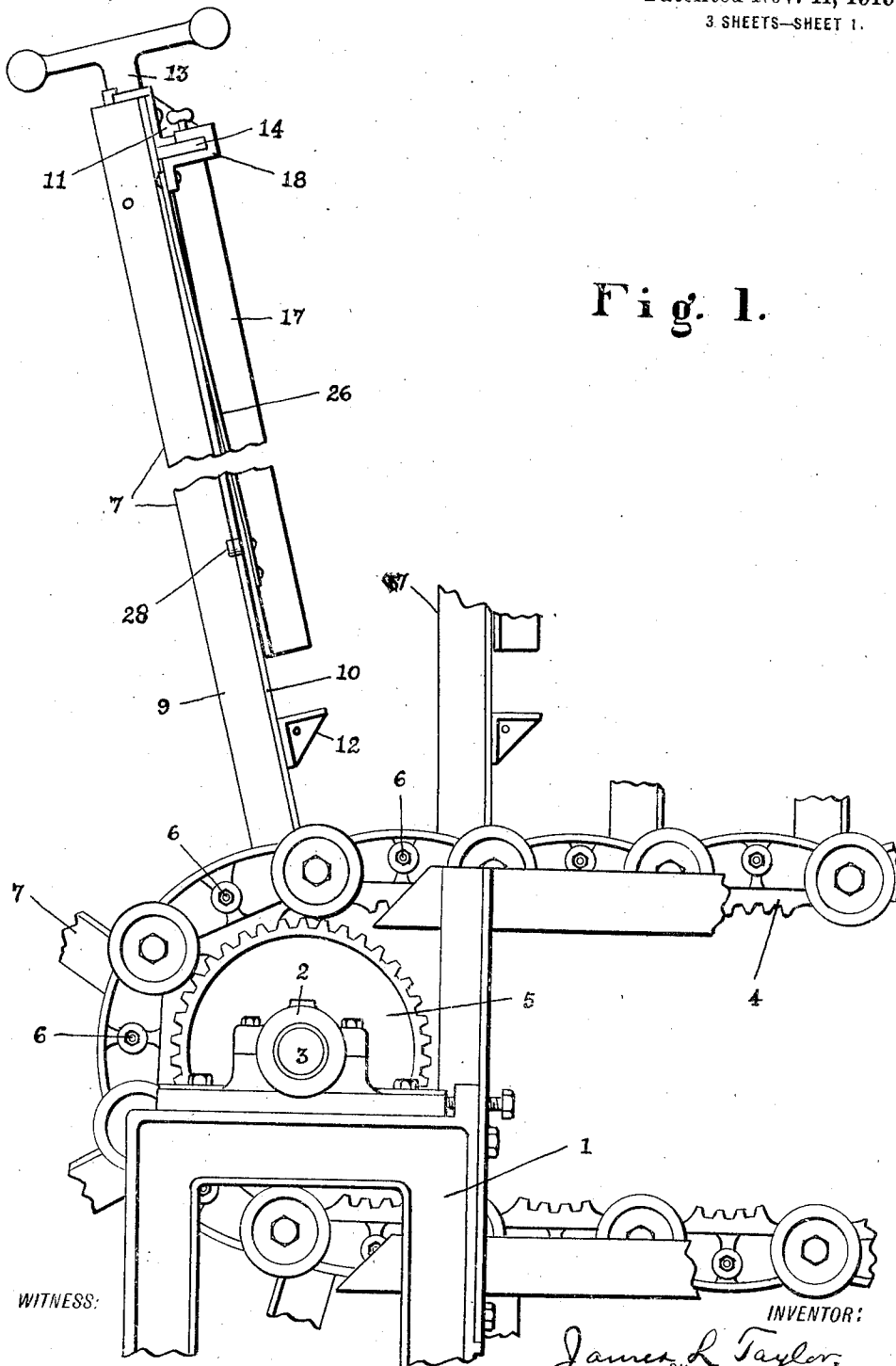


J. L. TAYLOR.
SQUARING ATTACHMENT FOR CLAMP MACHINES.
APPLICATION FILED APR. 1, 1918,

1,321,572.

Patented Nov. 11, 1919.
3 SHEETS—SHEET 1.

Fig. 1.



WITNESS:

Howard P. King

INVENTOR:

James L. Taylor,
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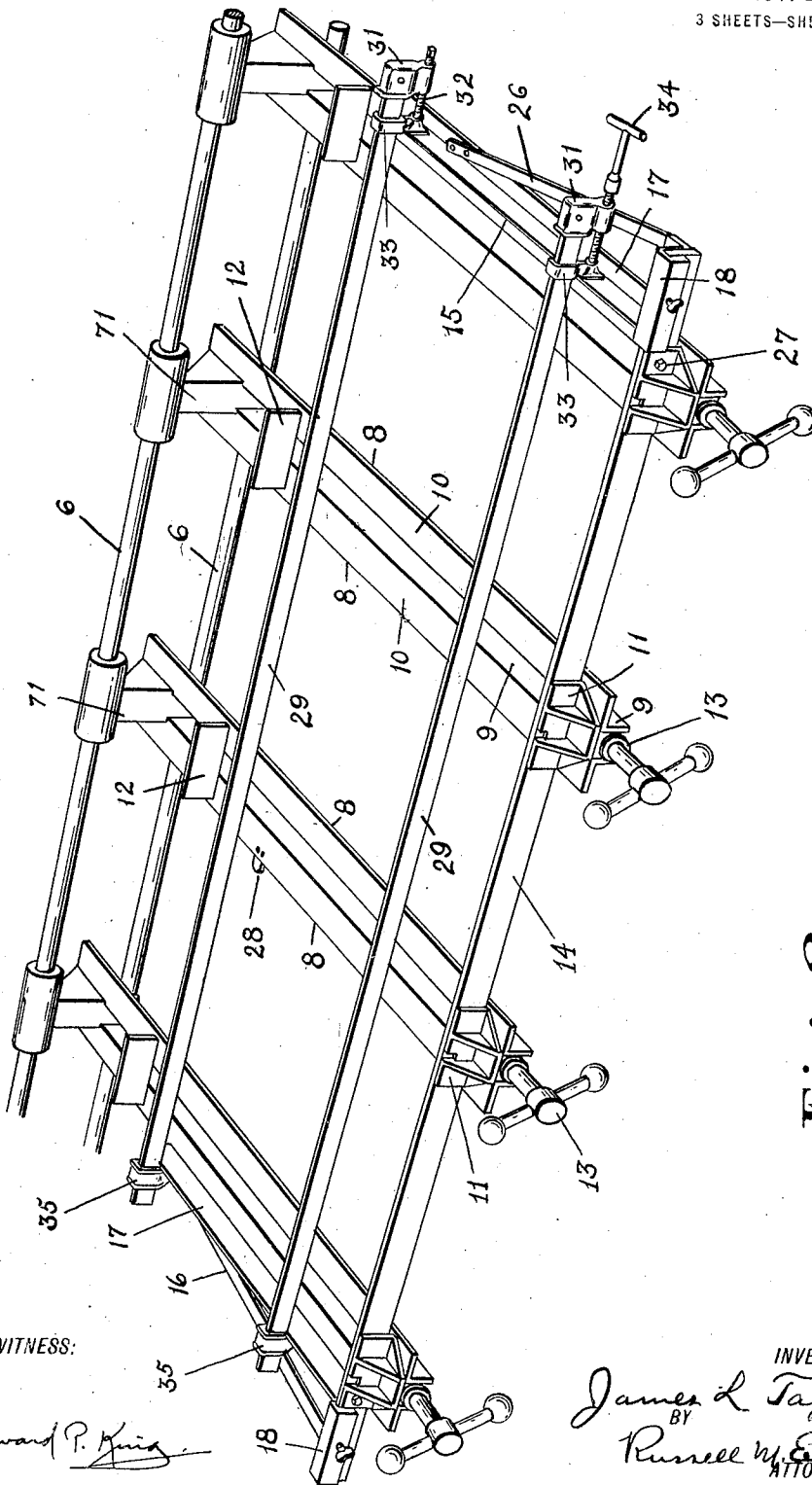


Fig. 2.

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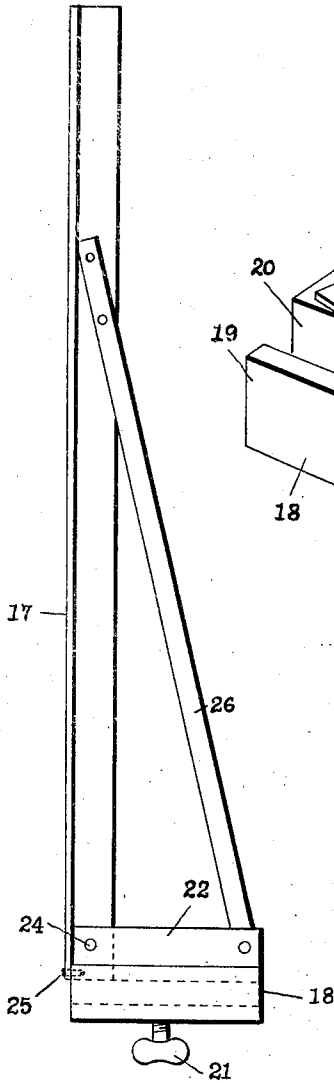


Fig. 3.

WITNESS:

Howard P. King.

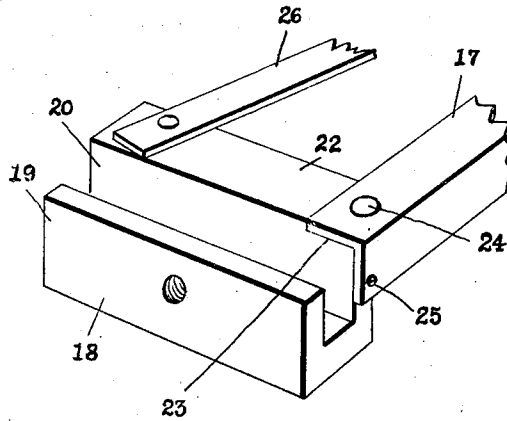


Fig. 6.

Fig. 5.

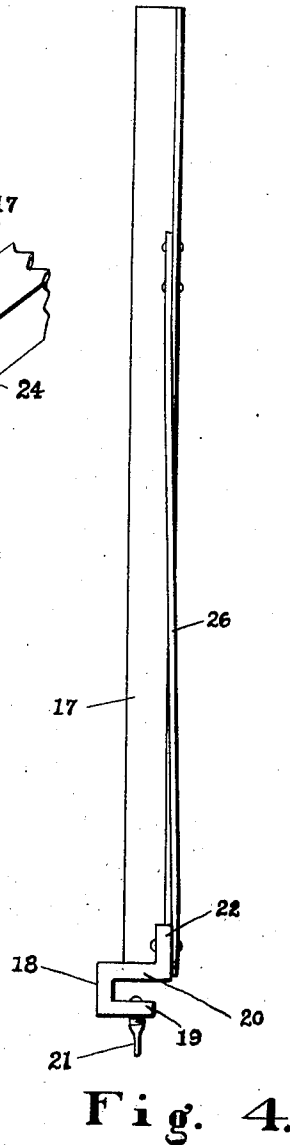
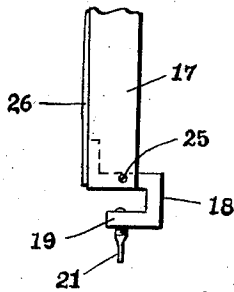


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SQUARING ATTACHMENT FOR CLAMP-MACHINES.

1,321,572.

Specification of Letters Patent.

Patented Nov. 11, 1919.

Application filed April 1, 1918. Serial No. 226,015.

To all whom it may concern:

Be it known that I, JAMES L. TAYLOR, a citizen of the United States, and a resident of Poughkeepsie, in the county of Dutchess and State of New York, have invented new and useful Improvements in Squaring Attachments for Clamp-Machines, of which the following is a specification.

This invention relates to clamp carriers or machines in which a traveling series of radially disposed series of clamps are provided for receiving cabinet work or the like to be glued together, each individual series of clamps being adapted to engage the opposite edges of a piece or pieces of work lying in substantially the same plane.

The objects of the present improvements are to provide an attachment for such a clamp carrier by means of which a piece of work can be clamped at all four of its edges when desired and accurately squared or its adjacent sides brought into desired angular relation to each other; to utilize the clamps of the carrier machine for clamping the work in one direction; to provide removable clamps for clamping the work in the other direction; to provide removable members against which the work may be squared or given its desired shape; to maintain said members in the desired angular relation; to make the parts adjustable to various sizes of work and at the same time accurate; to provide a squaring device which shall be removable from the clamp machine so that the machine can be used either with or without the squaring device as desired; to secure simplicity of construction and operation, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views.

Figure 1 is a side elevation of a portion of a clamping machine showing my invention applied thereto;

Fig. 2 is a perspective view of one transverse series of clamps as carried by the machine, my invention being shown in connection therewith;

Fig. 3 is a plan of one of the removable clamping members;

Fig. 4 is a side view of the same looking at the right hand side of Fig. 3;

Fig. 5 is a view looking at the opposite side of the member from Fig. 4, and

Fig. 6 is a perspective view of one end of the member inverted, the other end being broken away.

In carrying out my invention, I prefer to utilize in connection therewith the transverse series of radially disposed clamps forming part of a clamping machine such as shown in my prior application Serial No. 89,541 filed April 7, 1916, which as shown in Fig. 1 herein, provides a supporting standard 1 having a bearing 2 at its top for a shaft 3. It will be understood that there are a pair of such standards at each end of the machine, the standards of each pair being spaced and providing a passageway between themselves as more fully described and illustrated in my said copending application. Endless carrier chains 4 pass around the shafts 3 provided in the standards at the front and rear ends of the machine, wheels or drums 5 being mounted on the shafts for supporting said chains, and preferably from the middle of each link of one chain to the middle of an opposite link of the other chain extends a cross rod 6, see Figs. 1 and 2, all of said rods remaining parallel as they are carried along by the chains. Upon these rods of the successive links are mounted the series of clamps 7 above mentioned.

While said clamps may be of any suitable construction, I prefer to employ clamps such as illustrated in my said prior application, to which reference may be had for a detail description. In general, each of said clamps comprises a spanner foot or base casting 71 adapted to be supported by adjacent cross rods 6, and to said foot, intermediate its ends, is bolted a pair of angle bars 8, 8 so that two flanges 9, 9 lie flatwise against said base casting in parallel spaced relation to each other and the other flanges 10, 10 project outwardly apart in substantially the same plane and form a supporting surface to receive the work to be

clamped, as shown in Fig. 2. These angle bars project perpendicularly from the spanner foot, radially away from the carrier, and at their outer ends are fixed heads or clamp jaws 11, the jaws of a transverse series of clamps being all substantially in a common plane. An adjustable jaw 12 is provided between the fixed jaw and spanner foot of each clamp, adapted, by means of a handled clamping nut 13, to be drawn toward the fixed jaw and clamp a piece of work.

As many clamps 7 as desired may be arranged in a transverse row across the endless carrier, although I have shown for illustration four. Furthermore, the clamps are slidably adjustable longitudinally of the cross-rods 6, so as to accommodate them to pieces of work of various sizes. It will be seen that the clamps 7 will clamp the work in one direction, and for squaring or angularly positioning the work and clamping it in the other direction in accordance with the present invention, the means next to be described are employed.

Members 14, 15, 16 having the desired angular relation for three edges of the work, are arranged upon the clamps 7 so as to engage the edges of the work as it rests upon said clamps with its fourth edge against the adjustable heads 12 of said clamps. As shown in Fig. 2, one of these members is a strip or bar 14 mounted transversely of the several clamps 7 of a series and in engagement with the fixed jaws 11 thereof. The other two members are mounted upon this strip or member 14, providing each an arm 17 of angle iron or the like having a work-engaging surface at the desired angular relation to the strip 14. Obviously any angle desired may be provided between the work-engaging surfaces of the members, but as shown in the drawings the members are arranged to take rectangular work, the arms 17 of the members 15 and 16 extending longitudinally of the angle bars 9 of the clamps 7.

For mounting the members 15, 16 upon the strip 14, I provide for each of said members a bracket 18 (see Figs. 3-6) having spaced parallel flanges 19, 20 adapted to take over the strip and be rigidly secured thereto as by a set screw 21 in one of the flanges 19 operating against the strip to draw the other flange 20 toward the strip. This bracket projects from the arm 17 away from the work, said arm being secured to the bracket at one end thereof, preferably with the aid of a foot 22 projecting from the free edge of the flange 20, which clamps against the strip 14, away from said strip. This foot is recessed or cut away at its under face, as at 23, to receive the horizontal flange of the angle iron arm 17, a rivet

24 or the like securing said flange and foot together, and the other or work-engaging flange of the arm is secured against the end of the bracket as by a screw 25, see Figs. 5 and 6. A suitable brace 26 extends from the opposite end of the foot 22 to an outer part of the arm 17 for holding the same rigid, and as shown this brace is secured upon the same face of the foot as the horizontal flange of the arm, that is, the lower face, and is secured at its opposite end upon the upper face of said flange of the arm, see Figs. 3 and 4, although these details of construction might be varied.

For holding it in place when idle, the strip 14 is secured, as by a bolt 27, to the fixed jaw of one or both of the end clamps, see Fig. 2, preferably at least to the clamp at the right of the operator as he stands at the front of the machine. Suitable rests 28 may be secured to the sides of the clamps, see Fig. 2, to project therefrom so as to underlie the arms 17 of the members 15, 16 when brought close to the side of the clamps.

In use, the member 15 at the right hand of the operator preferably remains adjacent the right-hand end clamp and the opposite member 16 is moved into engagement with the work. This left-hand member may remain adjacent the clamp at the extreme left of the series, or on work small enough may be placed upon the strip 14 adjacent one of the other clamps, it being understood that the said clamps are slid upon their supporting rods 6, 6 so as to bring the member 16 against the work and at the same time support the member by one of the clamp rests 28 above described. The edge of the work nearest the operator lies against the member or strip 14, it will be understood, while the arms 17 of the members 15 and 16 are slid against its right and left-hand edges, and the adjustable jaws 12 of the clamp 7 are adapted to be brought against the far edge of the work or edge away from the operator.

Means are provided for clamping the opposite members 15, 16 toward each other and thus cooperate with the clamps 7 to not only compress the work from all sides but to obtain the proper angular relations as determined by the angular relations of the members 14, 15 and 16. Such means I have shown in the present disclosure as a pair of bar clamps 29 each extending across the several clamps of the machine and having on one end a fixed head 31 operatively receiving a screw 32 extending longitudinally of the bar and by means of which a movable jaw 33 on the bar may be slid for final clamping purposes. The outer end of this screw is preferably angular to receive a removable wrench 34. An adjustable jaw 35

is also mounted upon the bar opposite the screw-actuated jaw 33, and it is by means of this adjustable jaw that work varying greatly in size may be accommodated, the screw 32 being operated for final clamping. It will be understood that these clamps 29 are put in place above the work after it has been placed in the machine, with the jaws 33, 35 of the clamps taking over the vertical or work-engaging flanges of the arms 17. One of the members 15, 16 carrying said arms, preferably the left-hand one 15 as stated, having been left slidable on the member or strip 14, obviously tightening of the clamps 29 will draw the work together in that direction while tightening of the clamps 7 of the machine will draw the work together in the other direction.

Obviously irregular work such as mirror frames and so forth can be clamped together by fitting forms against its opposite edges which shall themselves present outer straight parallel edges, and the invention can be used for clamping up panel work as well as frames and the like. In fact it can be employed for clamping any work upon which it is desired to exert pressure along intersecting lines. In case of clamping work where pressure is needed in only one direction, the members 14, 15 and 16 of my improved device can be quickly and easily removed and the machine used without the present invention.

Various detail modifications and changes may be made in manufacturing my improved squaring device, without departing from the spirit and scope of the invention, and I do not wish to be understood as restricting myself except as required by the following claims when construed in the light of the prior art.

Having thus described the invention, what I claim is,

1. An attachment for clamp machines, comprising a strip member adapted to lie against the similar jaws of a series of clamps of said machine, arms projecting from said strip member toward the other jaws of said series of said clamps and slidable one with respect to the other, and means for clamping said arms toward each other.

2. An attachment for clamp machines, comprising a strip member adapted to lie against the similar jaws of a series of clamps of said machine, arms projecting from said strip member toward the other jaws of said series of clamps, said arms being in predetermined angular relation to said strip member and one slidable with respect thereto, and means for clamping said arms toward each other.

3. An attachment for clamp machines, comprising a strip member adapted to lie against the similar jaws of a series of clamps

of said machine, means for securing said strip member to said jaws, arms projecting from said strip member toward the other jaws of said series of said clamps and slidable one with respect to the other, and means for clamping said arms toward each other.

4. An attachment for clamp machines, comprising a strip member adapted to lie against the similar jaws of a series of clamps of said machine, arms projecting from said strip member toward the other jaws of said series of said clamps and slidable one with respect to the other, means on said series of clamps for supporting said arms, and means for clamping said arms toward each other.

5. An attachment for clamp machines, comprising a strip member adapted to lie against the similar jaws of a series of clamps of said machine, other members projecting from said strip member toward the other jaws of said series of clamps, all said members adapted to engage the edges of a piece of work, and means for clamping said members projecting from the strip member slidably toward each other.

6. The combination with a clamp machine providing a series of clamps held permanently in the same plane and adapted to engage the opposite edges of a piece of work, of members mounted on said clamps for engaging the other edges of the piece of work, and detached clamps for clamping said members against the work.

7. An attachment for clamp machines, comprising a member adapted to lie against the similar jaws of a series of clamps of said machine, other members projecting from said first-mentioned member toward the other jaws of said series of clamps and being detachably connected to said first-mentioned member so as to project therefrom at a predetermined angle, and means for clamping said projecting members toward each other.

8. An attachment for clamp machines, comprising a member adapted to be clamped between one edge of the work and the jaws of the clamps, a slidable arm projecting from said member toward the other jaws of the clamp, and means for clamping said arm against the edge of the work.

9. An attachment for clamp machines, comprising a member adapted to be clamped between one edge of the work and the jaws of the clamps, an arm slidably mounted on said member and projecting toward the other jaws of the clamps in predetermined angular relation to said member, and means for clamping said arm against the edge of the work.

10. In an attachment for clamp machines, the combination with a strip member adapted to lie against the jaws of a series of clamps of said machine, of a slidable bracket

on said strip member, an angle iron arm projecting from one end of said bracket toward the other clamps of the machine with one of its flanges secured transversely to one end of the bracket and adapted to engage the edge of the work, and a brace extending from the other flange to the other end of the bracket.

11. The combination with a clamp ma-

chine providing a series of bar clamps held permanently in the same plane and adapted to engage the opposite edges of a piece of work, of a member mounted on said clamps for engaging one of the other edges of the piece of work, and a detached bar clamp for clamping said member against the work.

JAMES L. TAYLOR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."