

April 12, 1927.

H. C. MAISE

1,624,609

JIG

Filed Feb. 11, 1924

4 Sheets-Sheet 1

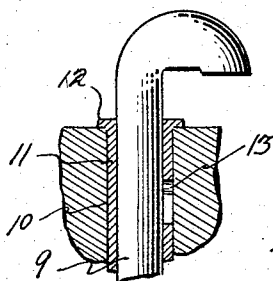
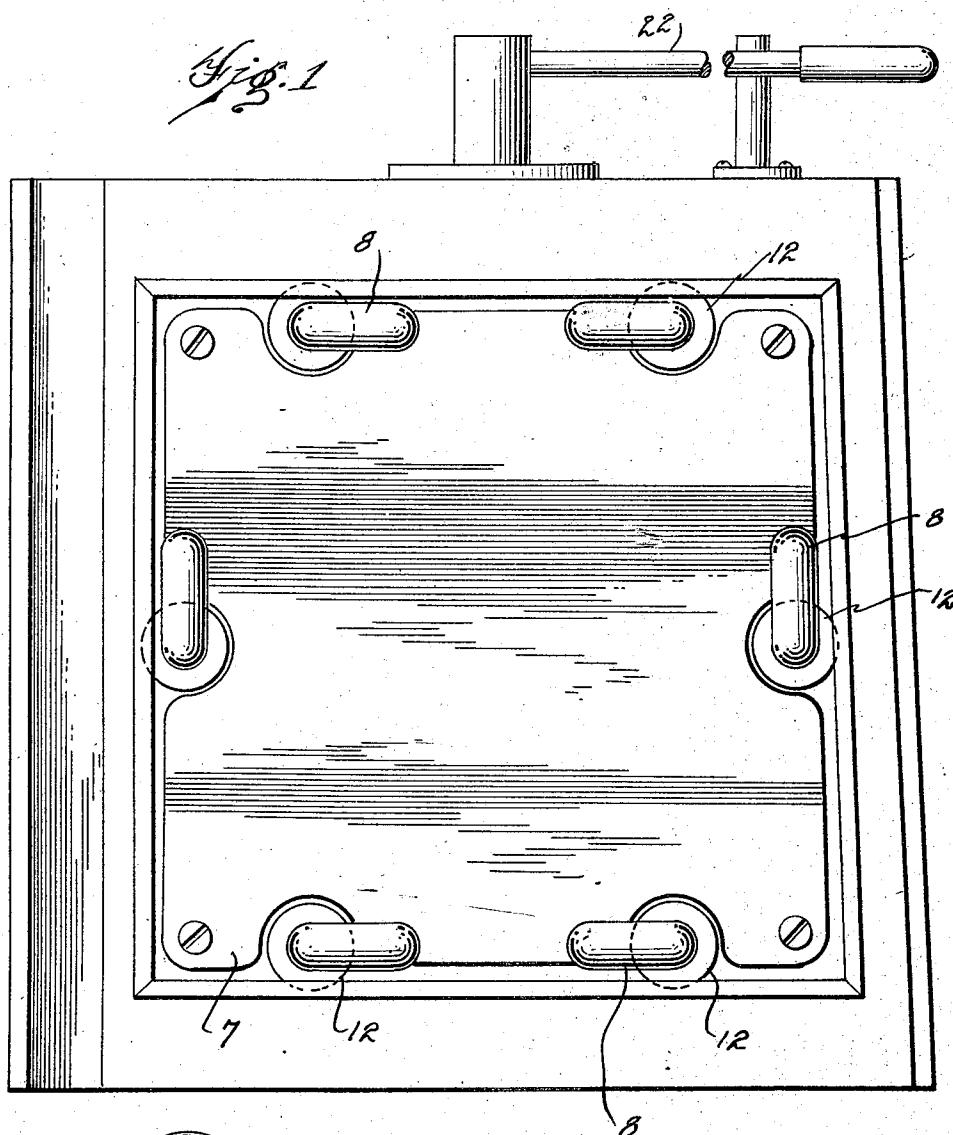


Fig. 6

INVENTOR.

Herman C. Maise

BY

William A. Maise & William A. Maise

ATTORNEY.

April 12, 1927.

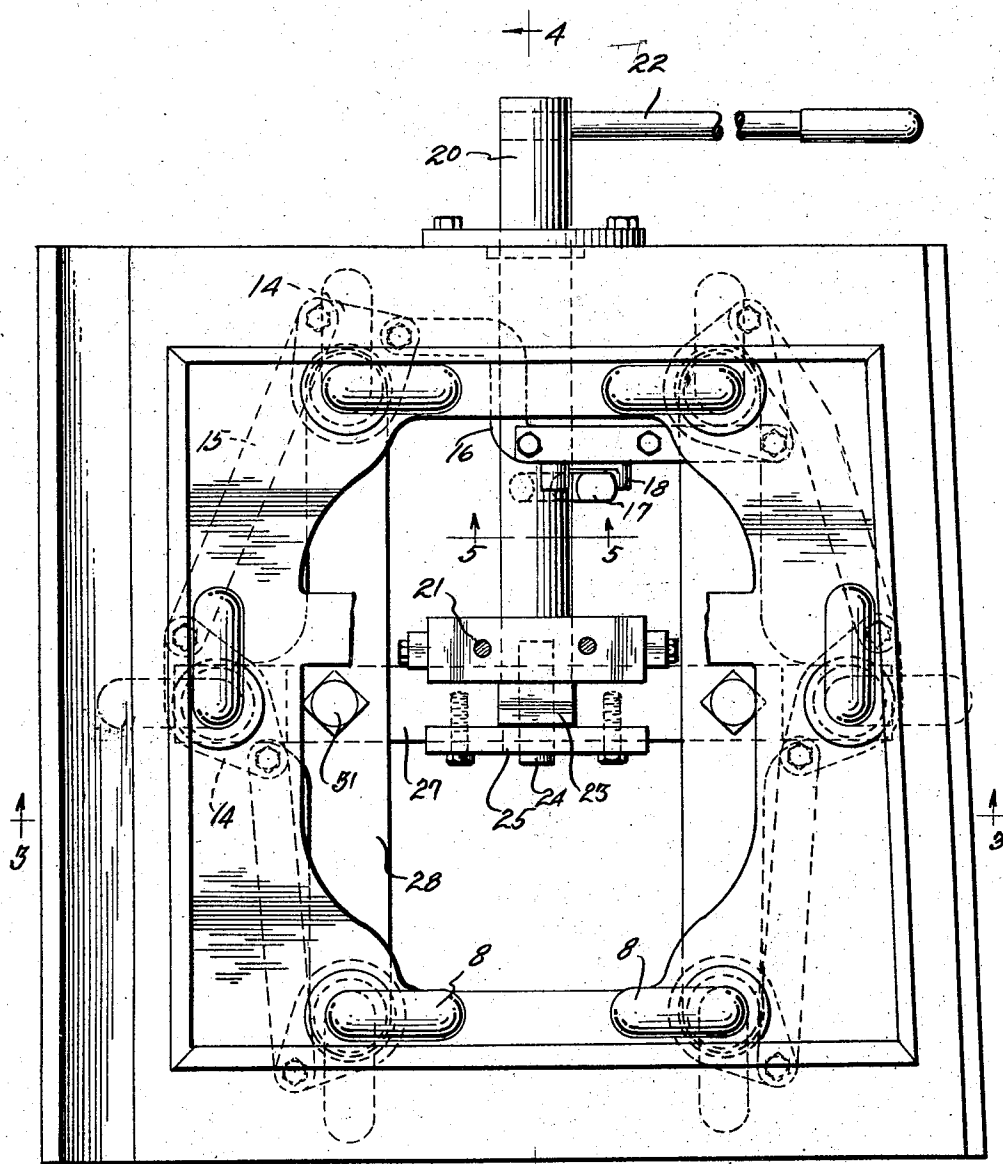
H. C. MAISE

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INVENTOR.

Herman C. Maise

BY

William H. Maise

ATTORNEY.

April 12, 1927.

H. C. MAISE

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4 Sheets-Sheet 3

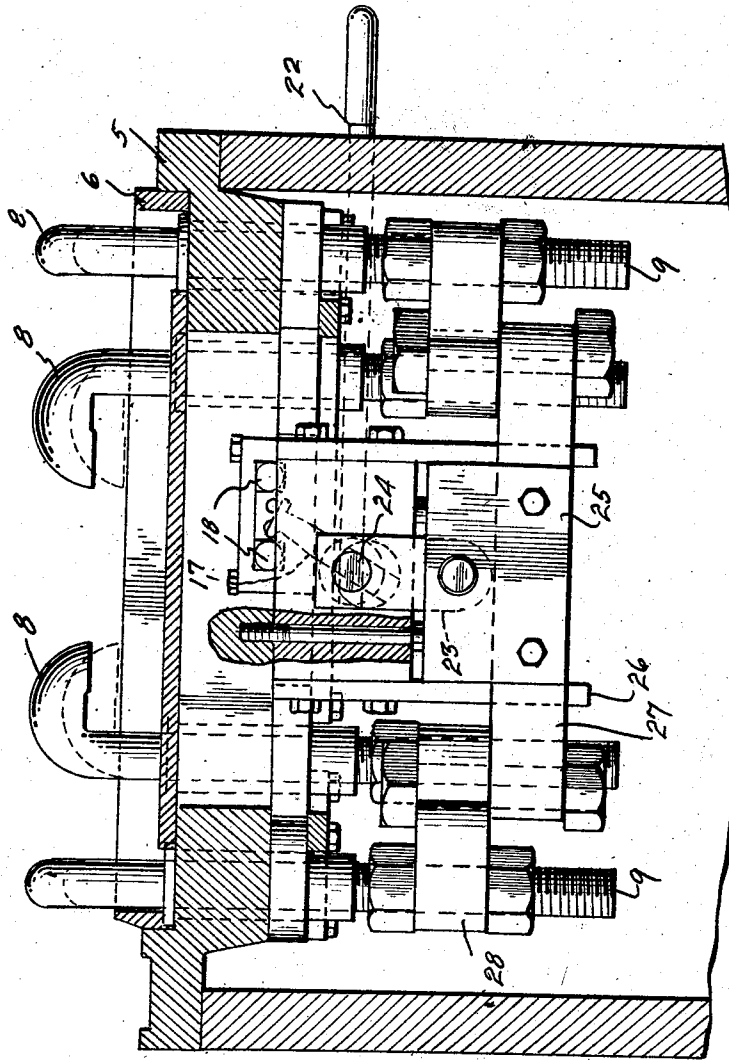


Fig. 3

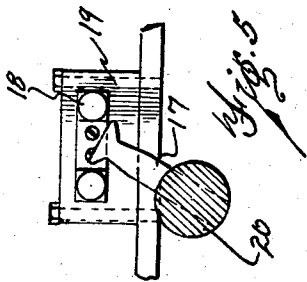


Fig. 5

INVENTOR.

Herman C. Maise

BY

William A. Whitman & Co.

ATTORNEY.

April 12, 1927.

H. C. MAISE

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4 Sheets-Sheet 4

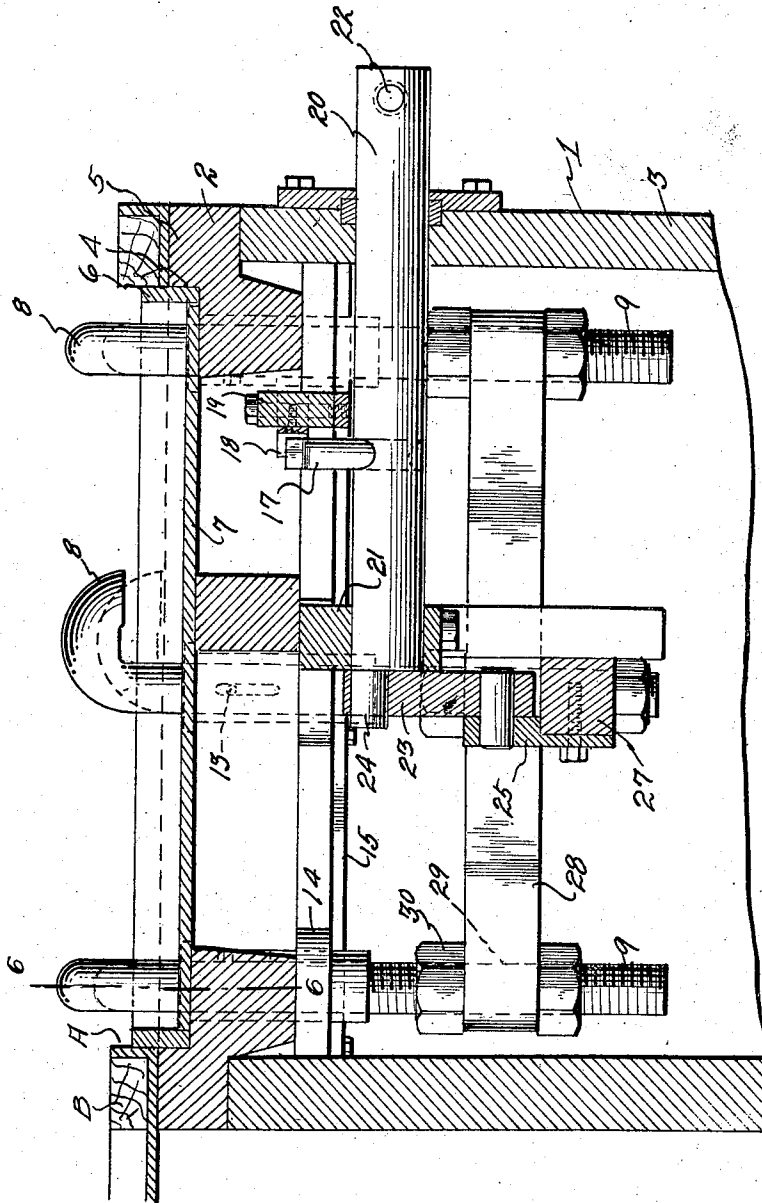


Fig. 4

INVENTOR.

Herman C. Maise

BY

Whitman A. Maise

ATTORNEY.

UNITED STATES PATENT OFFICE.

HERMAN C. MAISE, OF DETROIT, MICHIGAN, ASSIGNOR TO BRIGGS MANUFACTURING COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

JIG.

Application filed February 11, 1924. Serial No. 692,138.

This invention relates to work holders.

An object of the invention is to provide a jig having a plurality of hooks for holding a frame in engagement with a panel while the nails or other fasteners are being applied to secure the same together.

Another object is to provide a jig having means for moving all of the hooks simultaneously to clamp the frame and panel together.

Another object is to provide means for holding the hooks in clamping position.

Another object is to provide means for adjusting the hooks relative to the work support for clamping work of variable thickness.

With the above and other objects in view, the invention consists in certain novel features of construction, combinations and arrangements of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:—

Figure 1 is a top plan view of the jig embodying my invention;

Figure 2 is a top plan view of the jig with the pan removed and showing the dotted position of the hooks and linkage;

Figure 3 is a sectional view taken on line 3—3 of Figure 2;

Figure 4 is a sectional view taken on line 4—4 of Figure 2;

Figure 5 is a sectional view taken on line 5—5 of Figure 2;

Figure 6 is a sectional view taken on line 6—6 of Figure 4.

Referring now to the drawings in which like characters of reference designate corresponding parts throughout the several views, the numeral 1 designates a table having a top 2 and supporting side walls 3. The top is preferably a casting having a centrally recessed portion 4 and marginal bearing portions 5. A frame 6 is preferably secured to the sides of the recessed portion of the top and is adapted to locate a panel A and frame B on the bearing portions 5, said panel and frame having large rectangular openings into which the frame 6 fits loosely. A suitable pan 7 is preferably secured to the depressed portion 4 of the top inside of the frame 6 for receiving the securing elements such as nails, screws, etc.

For holding the frame B and panel A in position on the top 2 so that they may be readily secured together, I preferably provide a plurality of hooks 8 having shanks 9 extending through vertical openings 10 in the depressed portion of the top. These hooks are preferably located adjacent to the frame 6 and are normally disposed in the position shown in Figure 1 so that the panel A and frame B may be readily assembled on the bearing portions 5 of the top.

For actuating all of the hooks simultaneously, I preferably provide each of the shanks 9 with a sleeve 11 having a flange 12 at the upper end thereof engaging the upper face of the depressed portion 4 of the top. These sleeves are rotatably mounted in the openings 10 and are non-rotatively connected to the shanks 9 by pins 13 that engage longitudinally extending grooves 14 in the shanks 9. Rigidly secured to the sleeves 11 below the top 2 are arms 14 which are adapted to be actuated by connecting links 15. One of the links, preferably one at one side of the table, is offset as shown at 16, the arrangement being such that when this link is moved in one direction it will pull the arm 14 connected to one end thereof and will push the arm connected to the other end thereof, the movement of the arms and linkage being reversed when the link is moved in the opposite direction. Thus, all of the hooks will be swung simultaneously either outwardly or inwardly according to the direction of movement of the offset link 16.

For reciprocating the offset link 16, I preferably provide a shifter finger 17 that is adapted to alternately engage a pair of parallel arms 18 projecting laterally from one side of a block 19 mounted on the link 16. The finger 17 is preferably secured to and actuated by a shaft 20 that is journaled in a side wall of the table and in a bearing block 21 that is attached to the top 2 of the table. This shaft is preferably manually operated and for this purpose there is an operating lever 22 rigidly secured to the shaft at the outer end thereof. Thus, rotation of the shaft in one direction will cause the finger 17 to engage one of the arms 18 and move the link 16 longitudinally in one direction. This will cause the linkage connected thereto to swing the hooks outwardly.

Rotation of the shaft 20 in the opposite direction will then cause the finger 17 to engage the other arm 18 and return the parts just referred to back to normal position.

For lowering the hooks in the sleeves 11 to clamp the frame and panel upon the top of the table, I preferably provide a link 23 that is swingingly mounted at its upper end on an eccentric 24 at the inner end of the shaft 20 and that is preferably pivotally connected at its lower end to a plate 25. This plate is adapted to be moved vertically by the link 23 between parallel guides 26 secured to the bearing block 21 and is detachably secured to a horizontal lifter bar 27 supporting a pair of substantially T-shaped bars 28 which have vertical openings 29 for receiving the shanks 9 of the hooks. The bars 28 are preferably adjustably connected to the shanks of the hooks by means of nuts 30 that threadedly engage the shanks 9 above and below the bars 28 and are preferably loosely bolted, as shown at 31, intermediate their ends to the bar 27 so as to form equalizers. Thus, with this construction the hooks may be raised and lowered by the eccentrics 24 and the work engaging faces of the hooks may be adjusted vertically relative to the top of the table for the purpose of engaging work of variable thickness. Moreover, the weight of the bars 27 and 28 is preferably such that the hooks will be held in clamping engagement with the work after the same have been lowered by the eccentrics.

In use, the panel A is placed first on the bearing surfaces 5 of the top whereupon the frame B is positioned on top of the panel. The operating lever is then moved a short distance in one direction to cause the finger 17 to engage one of the arms 18 and actuate the link 16 for swinging the hooks 8 outwardly over the frame. Further movement of the lever 22 in the same direction will then cause the finger 17 to become disengaged entirely from the arm 18 and will cause the eccentric 24 to lower the lifter bar 27 and T-shaped bars 28 so that the hooks will clamp the frame and panel together on the top of the table. The securing elements in the pan 7 may then be used to secure the panel A and frame B together.

To release the hooks 8 from the work the lever 22 may be moved in the opposite direction to cause the eccentric 24 to raise the bars 27, 28 and hooks and substantially cause the finger 17 to engage the other arm 18 and actuate the linkage for swinging the hooks back to normal position.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself to what is herein

shown and described and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What I claim as my invention is:—

1. A work holder including a table top having opposite work seating portions and formed with a depression between said portions, a frame for positioning the work arranged in said depression between said marginal seats and projecting above said seats, and clamping members extending above said frame and engageable with the work to secure it upon said seats.

2. A work holder comprising a table top having opposite portions forming seats for the work, and formed with a depression between said portions, a frame for positioning the work disposed between said work seats in said depression and comprising opposite members extending parallel and adjacent to said seats, and clamping members extending above said frame and engageable with the work to secure it upon said seats.

3. A work holder comprising a table top having a raised marginal portion for seating the work, and formed with a substantially rectangular depression within said marginal portion, a substantially rectangular frame fitting within said depression and projecting above said marginal portion for positioning the work, and means for clamping the work upon said marginal portion.

4. A work holder comprising a table top having a rectangular seat for the work, a rectangular frame embraced by said rectangular seat and projecting above said seat and positioning the work, a plurality of clamping members upwardly projecting within said rectangular frame and having hooked upper ends for engaging the work, and a common actuating means for said clamping members.

5. In a work holder, the combination with a support for the work, of a plurality of hooks having shanks swingingly mounted in the support, lever arms connected to said shanks for rocking the shanks, link bars establishing a swinging actuating connection between said arms, means adapted to actuate one of said link bars lengthwise to cause the arms to swing the hooks over the work, and means adapted to be actuated by the means aforesaid to move the hooks into clamping engagement with the work.

6. In a work holder, the combination with a support for the work, of a plurality of hooks having shanks swingingly mounted in the support, lever members connected to the shanks for rocking said shanks, swinging links connecting said members for actuating said members from each other, an arm carried by one of said links, and means adapted to engage said arm to actuate said links and cause said hooks to be swung over the work on the support.

7. In a work holder, the combination with a support for the work, of a plurality of hooks having shanks swingingly mounted in the support, lever members connected to the shanks for rocking the shanks, swinging links connecting said members for actuating said members one from another, an arm carried by one of said links, and a swingingly mounted member adapted to engage said arm to actuate all of said links through the link carrying said arm and cause said hooks to be swung over the work on the support.

8. In a work holder, the combination with a support for the work, of a plurality of sleeves rotatably mounted in said support, hooks having shanks extending slidably through said sleeves and non-rotatively connected thereto, members rigidly secured to said sleeves for rocking the sleeves, swinging links connecting said members for actuating the sleeves one from another, an arm carried by one of said links, means engageable with said arm for swinging said hooks over the work, and means connected to said shanks for sliding the shanks in said sleeves to clamp the hooks upon the work.

9. In a work holder, the combination with a support for the work, of a plurality of longitudinally movable hooks having shanks swingingly mounted in the support, members connected to the shanks adapted to swing the hooks over the work, links connecting said members, an arm carried by one link, a rotatable shaft, means carried by the shaft adapted to engage the arm to actuate said links and cause the member to swing the hooks over the work, bars connected to said shanks, an eccentric carried by said shaft, and means connected to said bars and adapted to be actuated by said eccentric to move said hooks longitudinally into clamping engagement with the work.

10. In a work holder, the combination with a support for the work, of a plurality of longitudinally movable hooks having shanks swingingly mounted in the support, members connected to the shanks adapted to swing the hooks over the work, links connecting said members, an arm carried by one link, a rotatable shaft, means carried by the shaft adapted to engage the arm to actuate said links and cause the member to swing the hooks over the work, bars connected to said shanks, an eccentric carried by said shaft, a link mounted on said eccentric, a plate carried by said link, a bar secured to said plate, and equalizer bars loosely con-

nected to the bar aforesaid and adjustably connected to said shanks.

11. In a work holder, the combination with a support for the work, of a plurality of rotative, work engaging hooks mounted upon said support, and means for rotating said hooks simultaneously comprising swinging links connected to the hooks at points spaced from the axes of rotation of the hooks, and transmitting the rotational effort from one to another of said hooks.

12. In a work holder, the combination with a plurality of rotative work-engaging hooks, of swinging links connecting said hooks and establishing a uniformity of their rotational movement, and means engaging one of said links for actuating all of said hooks rotatively.

13. In a work holder, the combination with a plurality of work engaging rotative hooks, of a plurality of swinging links connecting said hooks and establishing a uniformity of their rotational movement, a rotative actuating member for said hooks, and means establishing an actuating connection between said member and one of said links.

14. In a work holder, the combination with a support for the work, of a plurality of longitudinal movable hooks having shanks swingingly mounted in said support, members connected to the shanks adapted to swing the hooks over the work, links connecting said members, an arm carried by one link, a rotatable shaft, means carried by the shaft adapted to engage the arm to actuate said links and cause the members to swing the hooks over the work, bars connected to said shanks, and means carried by said shaft for raising and lowering said bars responsive to rocking of the shaft.

15. In a work holder, the combination with a support for the work, of a plurality of longitudinal movable hooks having shanks swingingly mounted in the support, members connected to the shanks adapted to swing the hooks over the work, links connecting said members, an arm carried by one link, a rotatable shaft, means carried by the shaft adapted to engage the arm to actuate said links and cause the members to swing the hooks over the work, and means actuable by said shaft for raising or lowering the hooks following said swinging actuation of the hooks.

In testimony whereof I affix my signature.

HERMAN C. MAISE.