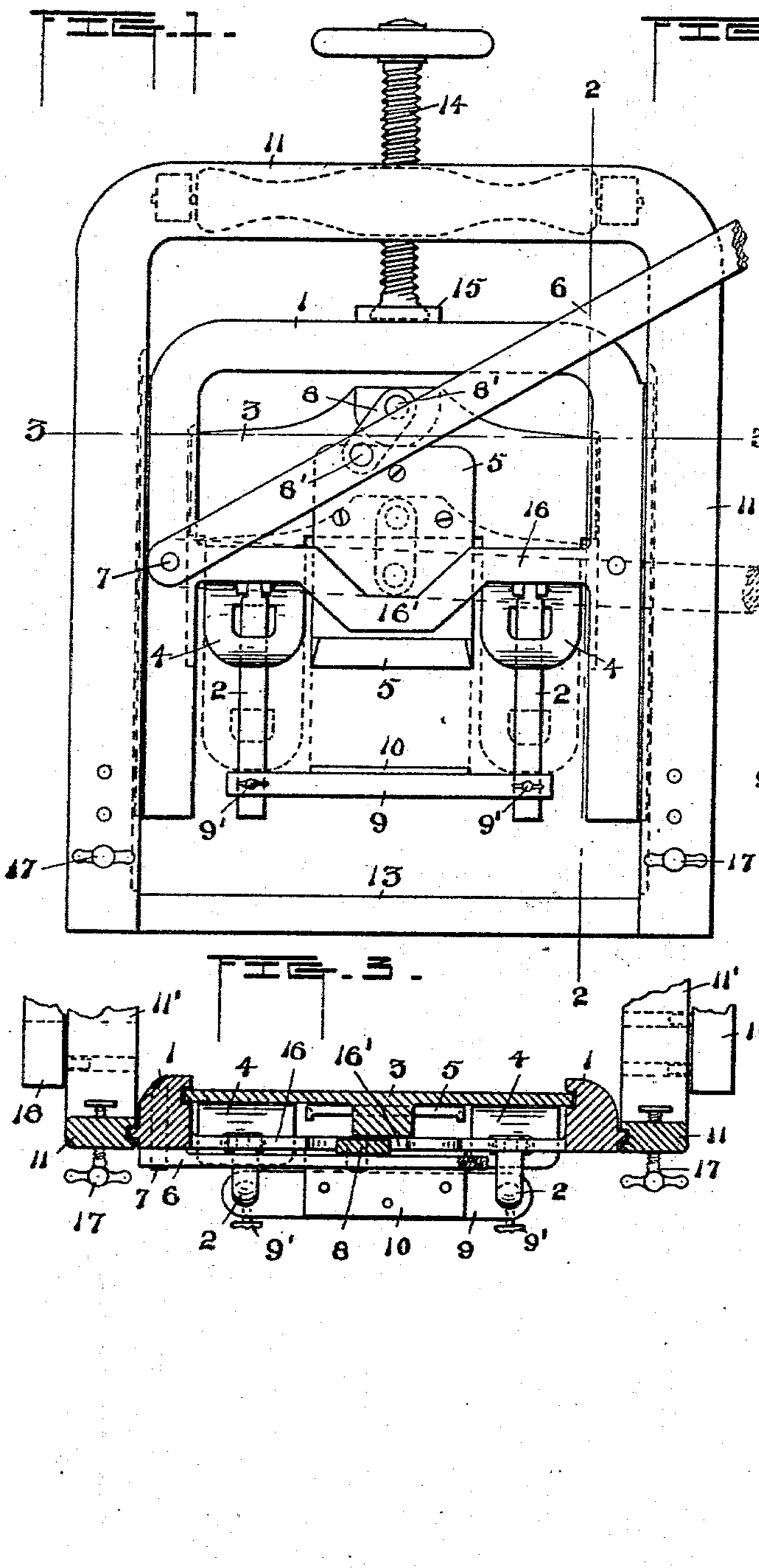
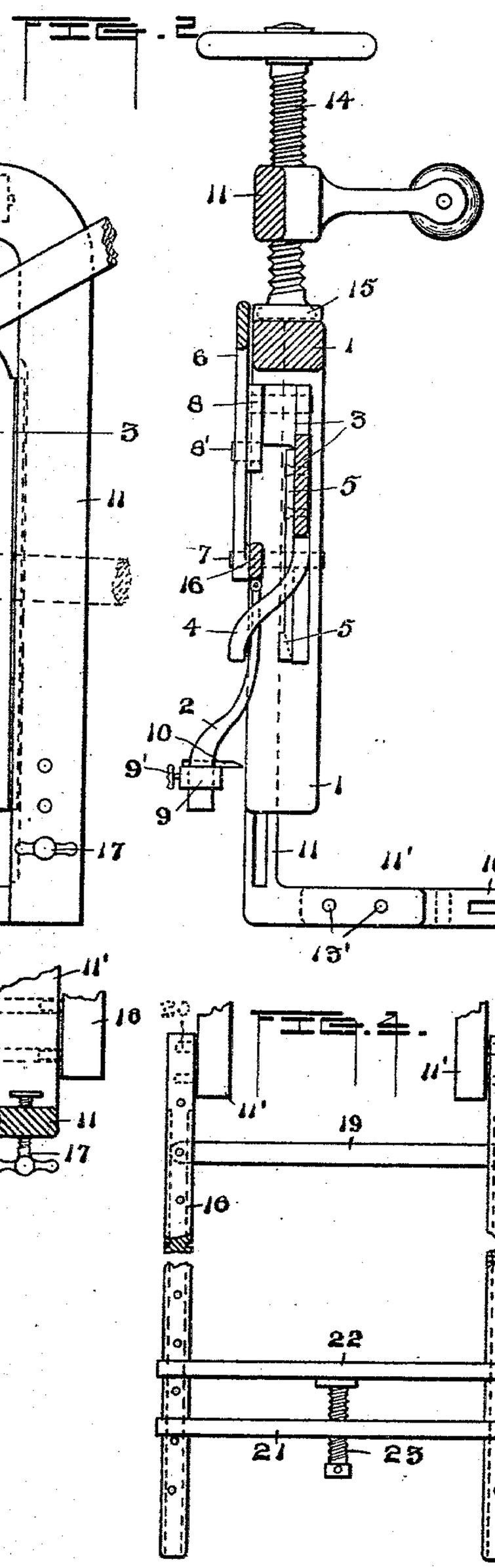
(No Model.)

R. J. LAIDLAW.

MACHINE FOR GAINING.

No. 515,912. Patented Mar. 6, 1894.





Witnesses
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UNITED STATES PATENT OFFICE.

ROBERT J. LAIDLAW, OF HAMILTON, CANADA.

MACHINE FOR GAINING.

SPECIFICATION forming part of Letters Patent No. 515,912, dated March 6, 1894.

Application filed May 26, 1893. Serial No. 475,606. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. LAIDLAW, a resident of Hamilton, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Machines for Gaining; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to machinery for cutting gains or recesses such as are used to receive the leaves of hinges and its object is to provide a simple and efficient mechanism capable of being operated by hand; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings Figure 1 is an elevation of the machine. Fig. 2 is a transverse section on line 2—2 of Fig. 1. Fig. 3 is a transverse section on line 3—3 of Fig. 1; and Fig. 4 is a partial plan showing a detail.

Numeral 1 denotes a U-shaped frame having a cross bar 16 and a tongue-and-groove or equivalent connection with a similarly shaped supporting frame 11.

14 indicates an adjusting screw having threaded connection with frame 11 and a swivel connection at 15 with frame 1 whereby the latter can be moved to adjust the stroke of a tool mediately supported therein.

3 denotes a cross head movable in ways in frame 1, and 4 are forwardly curved slotted guide arms or sleeves attached to the lower part of said head. To the lower side of cross bar 16 are hinged curved arms 2 which support a bar 9 that carries a blade 10. Set screws adapted to hold the bar on arms 2 are denoted by 9′.

5 indicates a chisel adapted to make the bottom and end cuts of a hinge recess or gain or the like and the blade 10 is designed to cut the rear side in case the gain does not extend entirely across the edge or face of the lumber. The chisel is in the present instance attached to cross head 3 by screws as indicated.

6 denotes a lever pivoted at 7 to frame 1 and connected to cross head 3 by a swinging link 8 having suitable pins 8′. By means of the lever 6 the chisel can be forced down behind the bar 16 until the foot of the link 8 strikes the bottom of the depression 16′ in said bar. This movement of the cross head forces down the sleeves 4 upon the curved pendent knife-bar supporting arms 2 with the effect to move the knife 10 at right angles to the path of the chisel and complete the cutting of the gain in the material suitably supported in the machine for the purpose.

The material to be cut can be placed on the supporting arms 11′ and its position thereon varied in a plane parallel to these supports by screws 17. The depth of the cutting of blades 5 and 10 can thus be regulated and the width of the cut transverse to the lumber can be regulated by suitably varying the initial distance between the lumber and the chisel and this can be effected by means of the screw 14 which may be used to move the chisel-frame 1 to or from the piece to be cut.

It is obvious that by suitably moving the lumber endwise a chisel can be used to cut a gain wider than itself by repeated operations.

13 denotes a cross bar joining arms 11′. 13′ are screw holes for connecting these arms to a bench or the like. In some cases it is proposed to use a frame to hold the lumber.

18 indicates the side bars and 19 a cross bar of such frame. The side bars may have short studs 20 adapted to be entered in suitable sockets by spreading or springing apart the bars 18.

21 denotes a cross bar adapted to engage the side bars 18 and to be moved along upon them and 22 is a bar made adjustable by a screw 23. The bar 21 is first adjusted to an approximately exact position and the bar 22 can be moved to more accurately determine the situation of the piece of material to be cut which in practice will lie against said bar 22. The bar 21 will be held in any desired position by pins inserted in suitable holes in the side bars or by equivalent devices. A board laid upon this frame will in practice be held between bar 22 and screws 17.

The supporting frame 11 can in some cases be dispensed with, frame 1 being suitably held by other means in proper relation to the material to be cut. If frame 18 is used it is not necessary to attach the machine to a bench. If lumber of considerable thickness is to be cut either before or after it is framed or in-

corporated in a structure the clamping or holding devices can be suitably enlarged or modified for the purpose.

When it is desired to cut a recess or mortise across the edge or face of a piece of lumber it is only necessary to support the piece in proper relation thereto and so that the chisel can be made to cut entirely across said edge or face. The blade 10 and its supporting bar 9 may be removed if they interfere with such operation. The bar holding said blade is made adjustable by means of its sliding connection with arms 2. Set screws for fixing the bar in any desired position are denoted by 9'.

Neither the particular shape of the chisel-supporting frame, nor the means of applying power to the cross head carrying the chisel, nor the particular form of connection between the lever and cross head, nor the devices for adjustably securing the various parts together nor those for holding the material to be cut, nor the sleeves 4 are considered essential to all the advantages of the improvement and these and such like details may be varied without departing from the invention if practically the same mechanical principles are utilized by substantially similar devices to secure like results.

Having thus fully described my invention, what I claim is—

1. The combination of a frame, a cross head carrying a chisel and moving in said frame, the guides 4 and a blade holding device adapted to be automatically moved through the medium of said guides at practically a right angle to the path of the chisel by the operation of said chisel whereby a gain or recess may be cut, substantially as set forth.

2. The combination of a frame, a cross head carrying a chisel and moving in said frame, the guides 4 and a blade holding device consisting of pendent swinging arms 2 adapted to be automatically moved through the medium of said guides at practically a right angle to the path of the chisel by the operation of said chisel whereby a gain or recess may be cut, substantially as set forth.

3. In combination a chisel holder, a knife holder, the knife and chisel being held and made movable in intersecting planes, and intermediate devices adapted to be simultaneously moved with the chisel holder whereby the movement of the chisel holder automatically moves the knife holder, substantially as set forth.

4. The combination of the U-shaped frame 1, the cross head movable therein and carrying a chisel, the lever pivoted in said frame and loosely connected by a link to said head, the bar 16 connected to the frame and arranged in the path of the link and between the lever and the chisel to limit the stroke of the chisel, substantially as set forth.

5. The combination of the U-shaped frame 1, the cross head movable therein and carrying a chisel, the lever pivoted in said frame and loosely connected by a link to said head, the bar 16 having a depression 16' and arms 4 hinged thereto on each side of the depression connected to the frame and arranged in the path of the link and between the lever and the chisel to limit the stroke of the chisel, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ROBERT J. LAIDLAW.

Witnesses:
BENJ. R. CATLIN,
ARCH. M. CATLIN.