

[54] CHAMFER CUTTER

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[52] U.S. Cl. 90/38, 90/24 F

[51] Int. Cl. B23d 1/08

[58] Field of Search. 90/38, 24 A, 24 F

[56] References Cited

UNITED STATES PATENTS

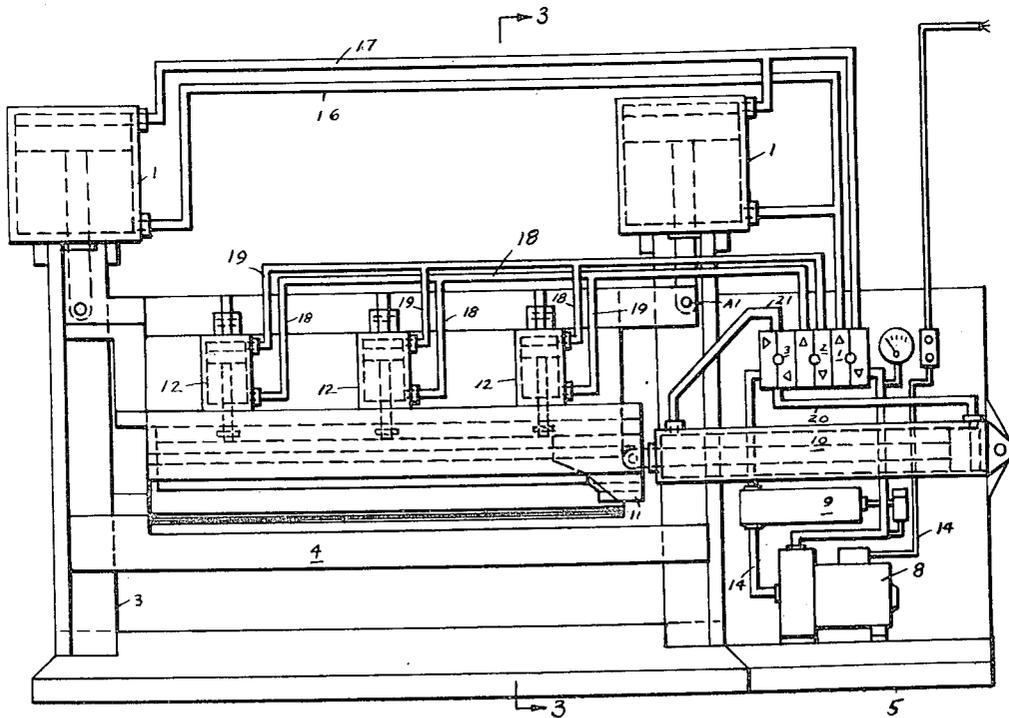
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[57] ABSTRACT

A machine for cutting chamfers on the edges of elongated workpieces such as plates, structural members, and the like. The machine is made up of a support, with a means for supporting the workpiece, a track support for carrying a cutter, and a cutter carried on the track. The cutter has one generally flat side which will cut burs off along the edge of a plate and an inclined cutting surface which will cut the chamfer, thus eliminating burning losses and the expense of burning chamfers.

6 Claims, 8 Drawing Figures



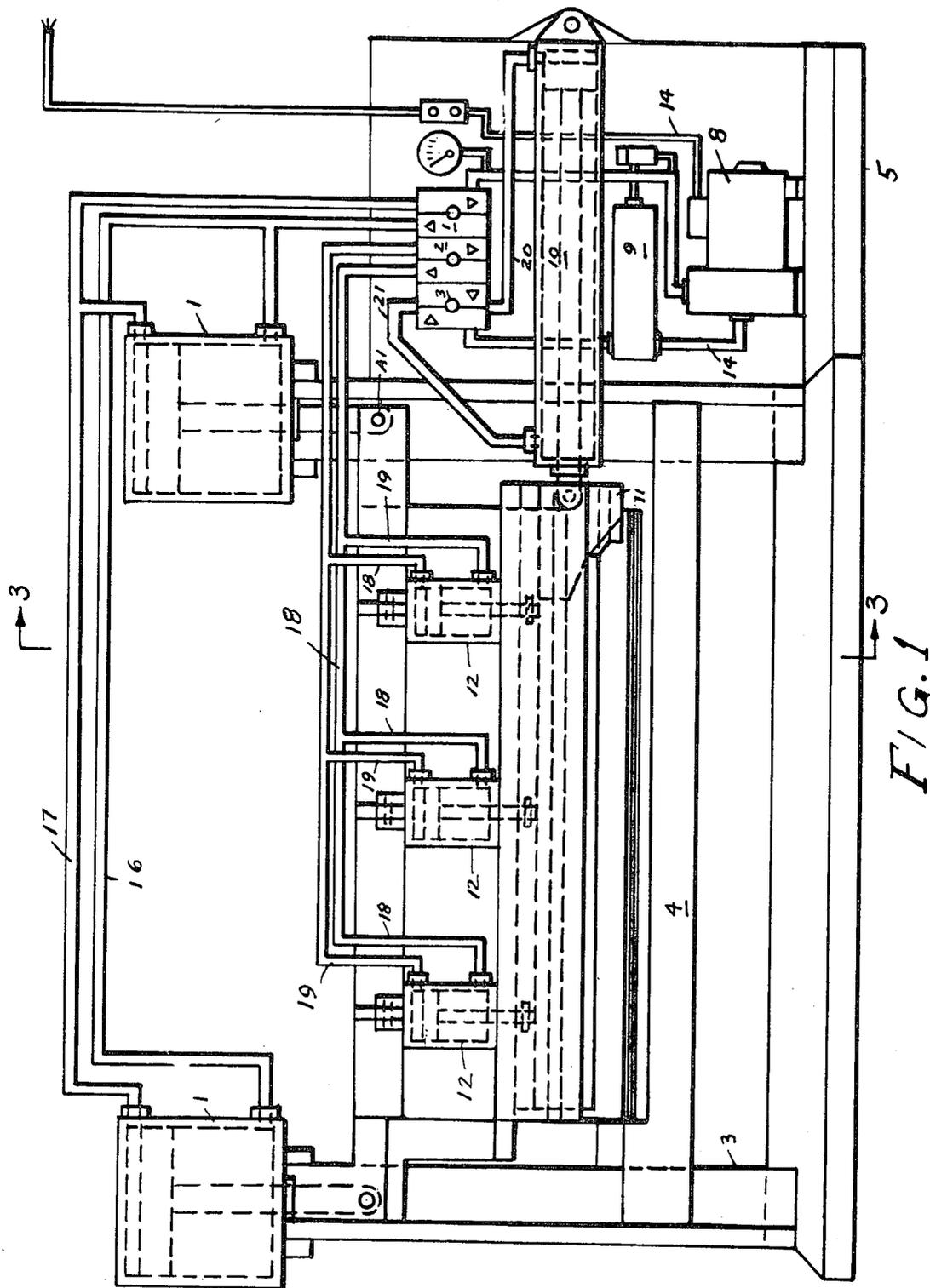


FIG. 1

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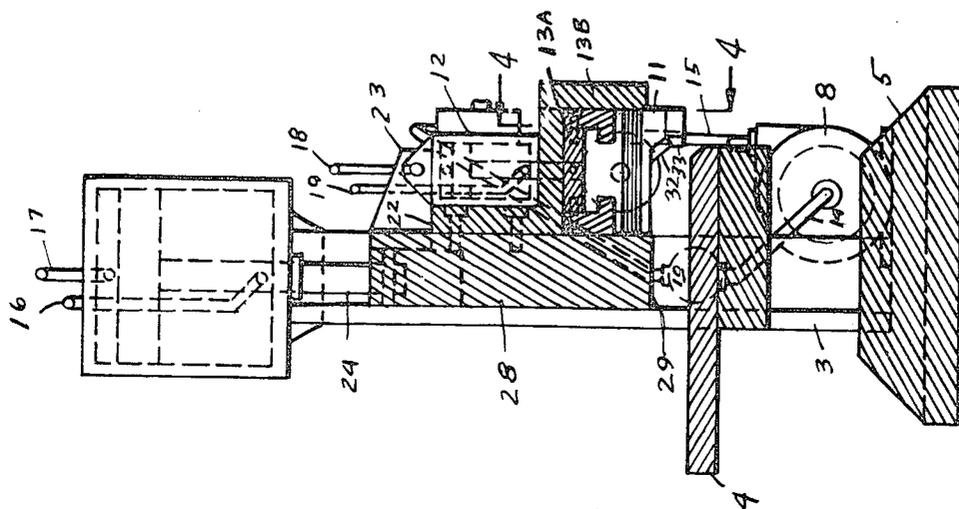


FIG. 3

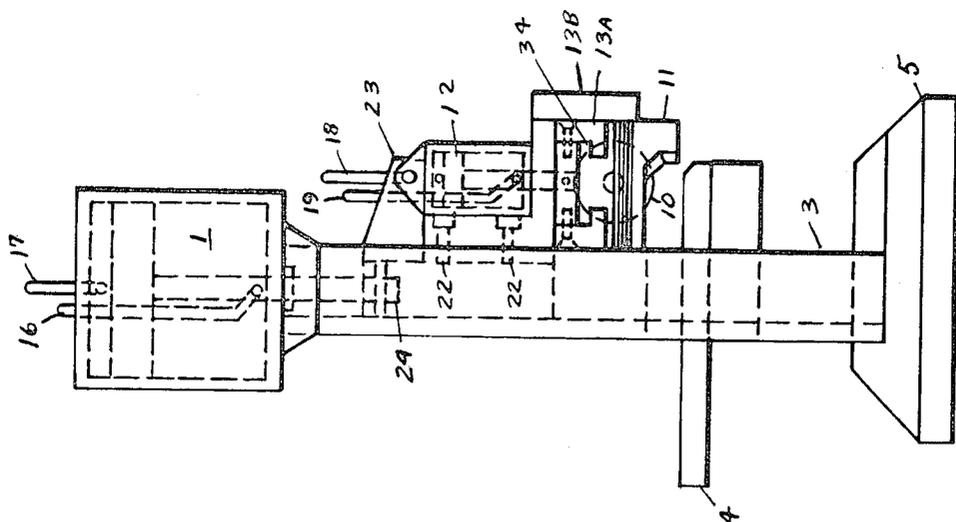


FIG. 2

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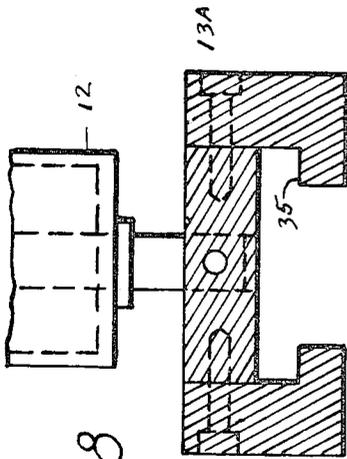


FIG. 8

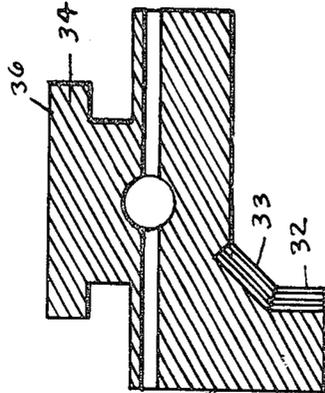


FIG. 6

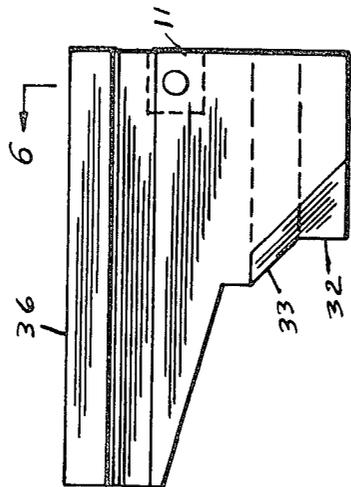


FIG. 4

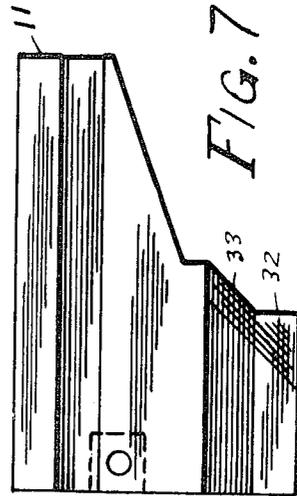


FIG. 7

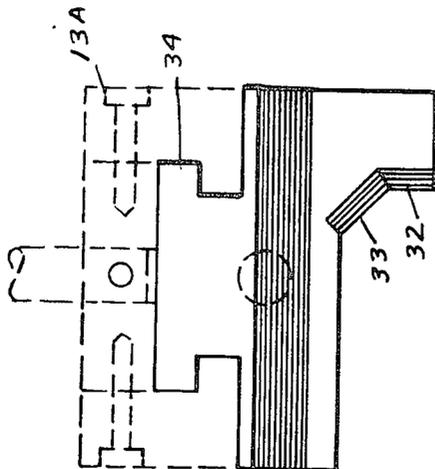


FIG. 5

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CHAMFER CUTTER

This invention relates to machine tools and, more particularly, to machines for chamfering plates, structural members and the like.

OBJECTS OF THE INVENTION

It is an object of the invention to provide an improved chamfering machine.

Another object of the invention is to provide a chamfering machine which is simple in construction, economical to manufacture, and simple and efficient to use.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of the machine according to the invention.

FIG. 2 is an end view of the machine according to the invention.

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 1.

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 3.

FIG. 5 is an end view of the cutter shown in FIG. 4.

FIG. 6 is a cross-sectional view taken on line 6—6 of FIG. 4.

FIG. 7 is a side view taken from the opposite side from which FIG. 4 is taken.

FIG. 8 is an enlarged cross-sectional view of a part shown in FIG. 3.

DETAILED DESCRIPTION OF THE DRAWINGS

Now with more particular reference to the drawings, the machine is supported on a base 5. The base has side supports 3 attached to it. These side supports 3 carry a baseplate or table 4 on which a workpiece to be chamfered is supported. A hold down head 28 is provided to hold the workpiece to be chamfered to the table 4. A stationary cutting bit guide 13B is fixed to the supports 3 by means of studs 22 and a secondary guide 13A slides up and down in the stationary cutting bit guide 13B.

The adjusting cylinders 12 are supported on a bracket 23 which is fixed to the main supports 3. The brackets 23 are carried by the piston rods 24 of the main hold down cylinders 1. The piston rods 24 are attached to the clamping supports 28. Thus the entire assembly, made up of the clamping supports 28, secondary cutting bit guide 13A, and stationary cutting bit guide 13B, along with the clamping arrangement including the hydraulic cylinders 12, are moved up and down by the cylinders 1.

The lower end 29 of the members 28 will engage a platelike workpiece resting on the table 4. The cutting bit 11 may then be moved up or down to adjust the cutting surfaces 32 and 33. Fluid is supplied to the adjusting clamp cylinders 12 through the hydraulic lines 18 and 19. Hydraulic fluid is supplied to the hydraulic hold down cylinders 1 through lines 16 and 17.

The cutting bit 11 is moved laterally by the hydraulic cutting head cylinder 10. A reservoir for hydraulic oil and filter is indicated at 9 and it is driven by an electric driven hydraulic pump 8. The hydraulic fluid returns to the reservoir through hydraulic return line 15 and goes to the pump through hydraulic pressure line 14.

It will be seen that, in operation, the electric motor driving

the pump 8 is turned on, then a platelike workpiece may be laid on table 4. The clamping assembly 28 may be lowered onto the plate and clamp it in place, then the cutting bit 11 may be moved to the proper position to cut the desired chamfer by means of the hydraulic fluid connected to lines 18 and 19.

The cutting bit 11 has a T-shaped member 34 which engages a T-shaped slot 35 in the secondary cutting bit guide 13A. The elongated bar 36 on the upper part of the cutting bit guides the cutting bit laterally across the plate and prevents it from chattering.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A machine for chamfering elongated workpieces having an edge requiring chamfering comprising, a frame having an elongated support for said workpieces, clamping means for clamping said workpieces to said frame, an elongated platen, said platen overlying said elongated support, said elongated platen having a guideway thereon, said guideway extending generally parallel to said work when said work is clamped to said frame, a cutting tool, guide means on said cutting tool engaging said guideway on said platen for guiding said cutting tool along the top of said workpiece, first hydraulic piston means for raising and lowering said platen relative to said clamping means, and second hydraulic piston means on said platen for adjusting the height of said guideway relative to said clamping means, and third hydraulic piston means for moving said cutter along said guideway whereby said cutter cuts a chamfer along a top edge of said workpiece.
2. The machine recited in claim 1 wherein said cutter has a vertically disposed cutting edge and a cutting edge inclined approximately 45° to the vertical.
3. The machine recited in claim 2 wherein said guide means has a T-shaped slot therein and said cutter member has a top T-shaped in cross section slidably received in said T-shaped slot.
4. The machine recited in claim 1 wherein said first hydraulic piston means comprises two spaced hydraulic cylinders fixed to said frame, said hydraulic pistons having piston rods attached to said clamping supports.
5. The machine recited in claim 4 wherein said spaced second hydraulic piston means comprises second hydraulic cylinders fixed to said clamping supports with piston rods fixed to said guideway whereby said guideway can be adjusted up and down relative to said support for said workpiece.
6. The machine recited in claim 5 wherein said support for said workpiece comprises a table having a generally horizontal surface.

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