Oct. 29, 1929. J. E. MYERS 1,733,199

EDGE TURNING MACHINE

Filed April 19, 1928 2 Sheets-Sheet 1

Fig 1

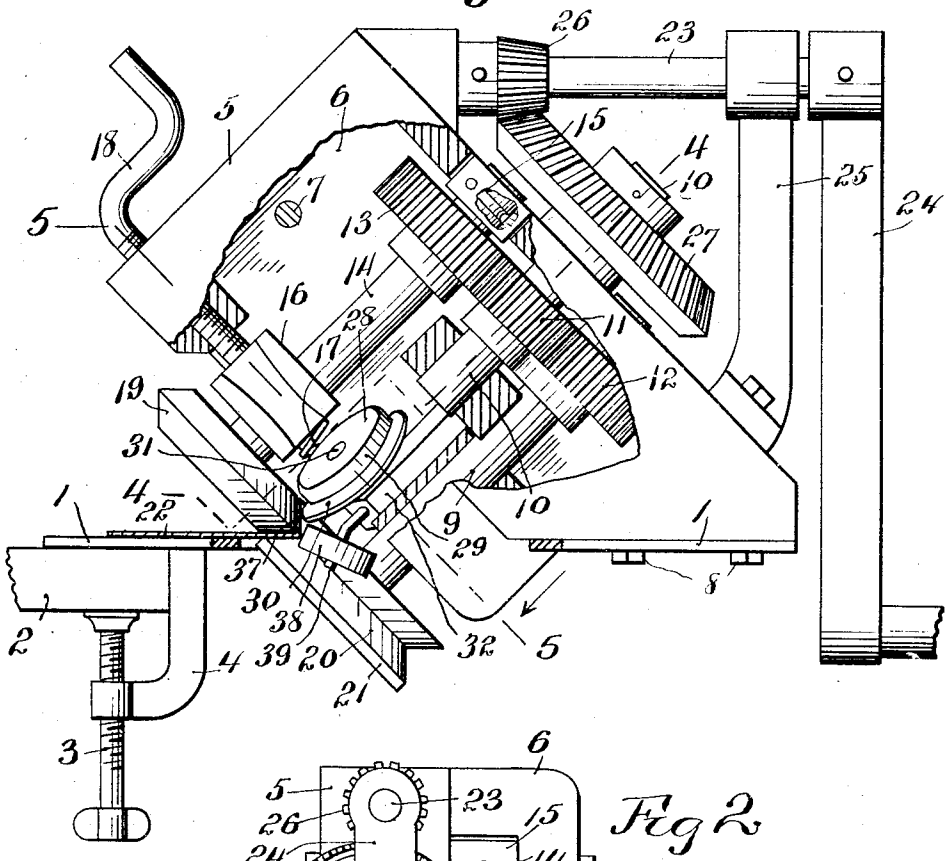
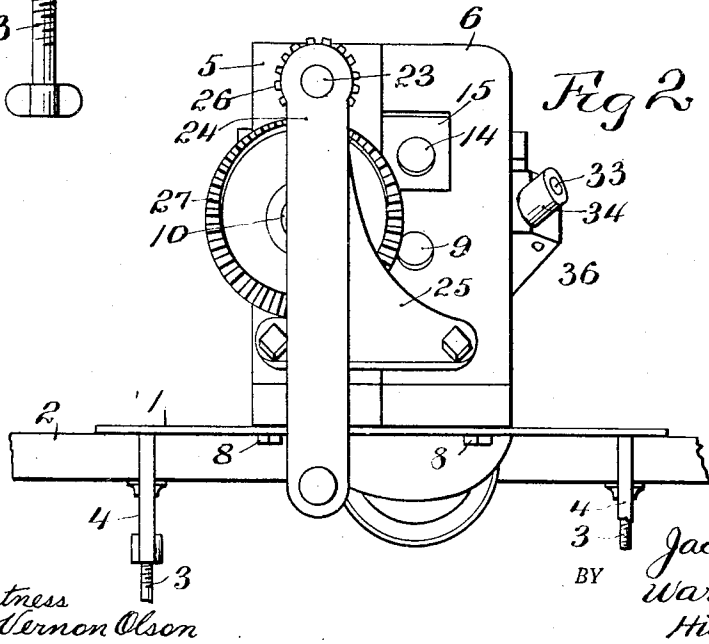


Fig 2



Witness
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Fig 3

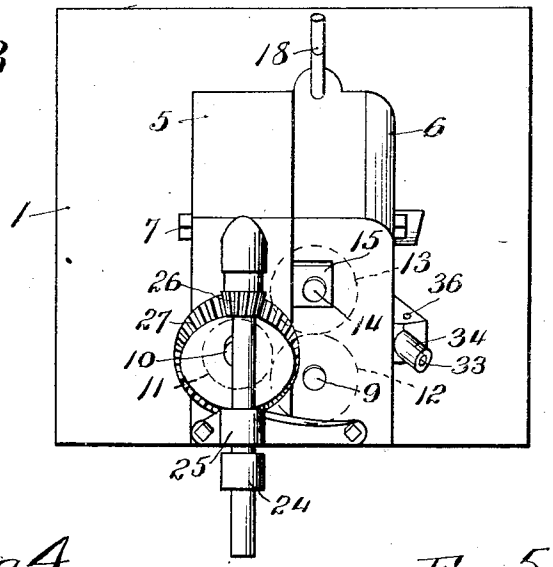


Fig 4

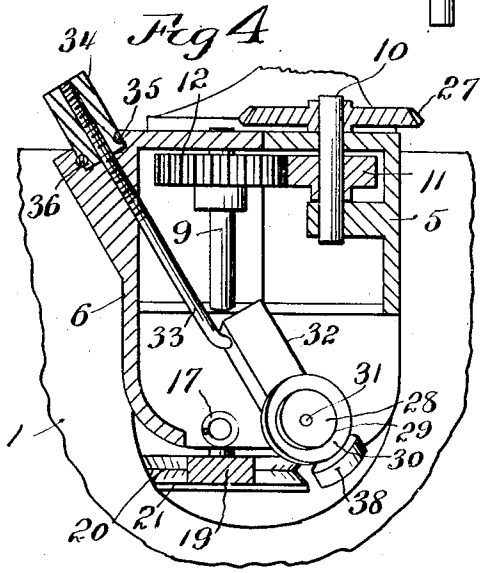
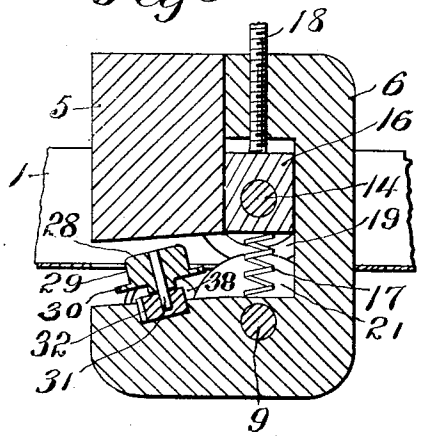


Fig 5



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Patented Oct. 29, 1929 1,733,199

UNITED STATES PATENT OFFICE

JACOB E. MYERS, OF KANSAS CITY, MISSOURI

EDGE-TURNING MACHINE

Application filed April 19, 1928. Serial No. 271,128.

My invention relates to improvements in edge turning machines, of the type used for turning flanges on sheet metal plates.

One of the objects of my invention is to provide a novel edge turning machine which can be used to turn a flange along a straight or curved edge of a sheet metal plate, without crimping the plate.

A further object of my invention is to provide a novel machine of the kind described, which is simple, strong, durable, not likely to get out of order, which is easily operated, and which is efficient in its operation.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings, which illustrate the preferred embodiment of my invention,

Fig. 1 is a side elevation, partly broken away of my improved edge turning machine, shown mounted in operative position on a bench a portion of which is shown.

Fig. 2 is a front elevation of the same.

Fig. 3 is a top view of my improved machine.

Fig. 4 is a reduced section on the line 4—4 of Fig. 1.

Fig. 5 is a reduced sectional view on the plane of the line 5—5 of Fig. 1.

Similar reference characters designate similar parts in the different views.

1 designates a horizontal flat supporting plate, which is adapted to be clamped releasably to the top of a bench top 2 by means of two thumb screws 3 respectively mounted in brackets 4 fastened to the under side of the plate 1, the screws bearing against the under side of the bench top 2.

5 and 6 designate two hollow members mounted on the plate 1 and fastened together releasably by a bolt 7 and fastened to the plate 1 by screws 8. The members 5 and 6 form a housing.

9 designates a shaft rotatably mounted in the member 6 and which is parallel to a shaft 10 mounted in the member 5 and which has mounted on it a spur gear wheel 11 which meshes with a spur gear wheel 12 mounted on the shaft 9. The gear wheels 11 and 12 are disposed in the housing, and the gear 12 meshes also with a spur gear wheel 13 mounted in the housing on a shaft 14 one end of which is rotatable in a boxing 15, which is pivoted in the member 6 on an axis at right angles to the shaft 9, so that the shaft 14 can swing toward and from the shaft 9.

The other end portion of the shaft 14 is rotatably mounted in a boxing 16, which is forced from the shaft 9 by a coil spring 17 the lower end of which bears on the member 6, Fig. 5.

A crank screw 18 is fitted in the member 6 and bears at its lower end on the top of the boxing 16. By the crank screw 18 the boxing 16 is forced toward the shaft 9.

Mounted on and rotatable with the shaft 14, outside the housing, is an edge forming wheel 19, which has a right angled bevelled periphery adapted to enter a V shaped groove 20 in the periphery of an edge forming wheel 21 mounted on and rotatable with the shaft 9. One side of the V shaped groove 20 is in the plane of the upper side of the plate 1, which is adapted to support thereon a sheet metal plate 22, the edge of which is to be flanged by the wheels 19 and 21.

A rotary crank shaft 23, having fastened to it a crank 24, is rotatable in the member 5 and in a bracket 25 mounted on the front of the member 5. Fastened on the crank shaft 23 is a bevel gear wheel 26 which meshes with a larger bevel gear wheel 27 fastened to the shaft 10 outside the housing.

When the crank 24 is turned, the shafts 9 and 14 will, by means of the connecting gearing described, be rotated simultaneously in opposite directions.

For supporting and giving an initial bend to the edge of the plate 22 prior to the latter entering between the forming wheels 19 and 21, there is provided a gage wheel 28 having an annular gage surface 29 against which the adjacent edge of the plate 22 strikes, and which surface determines the width of the flange to be made.

The gage wheel 28 has below the annular gage surface 29 an annular peripheral flange 30, which is disposed above the level of the top of the plate 1 and which is intermediate of the wheels 19 and 21, and which is dis-

posed forward of the place of engagement of said forming wheels 19 and 21 with the plate 22.

The gage wheel 28 is rotatable on a stud 31 which extends upwardly from the upper side of a slide bar 32, which is slidable in a groove in the member 6, Fig. 5. A screw 33 has one end fastened to and movable with the slide bar 32, and has a threaded end portion mounted in and projecting outside the member 6. Fitted on the outer end of the screw 33 is a nut 34, the inner end of which is rotatable in a recess provided therefor in the outer side of the member 6. The nut 34 in the member 6 has an annular groove 35 in which is mounted a pin 36, also mounted in the member 6, and which holds the nut from endwise movement, but which permits it to turn on the screw 33.

By turning the nut 34 in opposite directions on the screw 33, the latter is moved back and forth longitudinally, thus reciprocating the slide bar 32, so as to move the gage wheel 28 back and forth with respect to the plane of the forming wheels 19 and 21. By this adjustment of the gage wheel 28, the width of the flange 37 of the sheet metal plate 22 may be made the width desired.

To further support the plate 22 during the flanging operation, there is provided in front of the grooved wheel 21, a roller 38, which is rotatable on a pin 39 mounted in the adjacent end of the slide bar 32, Figs. 1 and 4. The periphery of the roller 38 is adapted to strike the plate 22 at the angle thereof.

In the operation of the machine, a slight initial starting bend may be made by hand to the advance side edge of the plate 22, and the bent portion is mounted on the flange 30, the nut 34 having first been adjusted to determine the width of the flange 37 to be turned. The crank 24 is then turned in a direction such that the operating portions of the wheels 19 and 21 will move rearwardly, thus, after the wheel 19 has been depressed to the position shown in Fig. 1, by means of the crank screw 18, causing the wheels 19 and 21 to feed rearwardly the plate 22, and thereby causing the said forming wheels to turn the right angled flange 37 on the plate 22.

By employing the gage wheel 38, a flange may be turned at the curved edge of a plate, as well as along a straight edge, and the plate will not be crimped in making the flange.

What I claim is:—

1. In an edge turning machine, the combination with two rotary edge forming wheels one having an annular peripheral groove and the other adapted to have its periphery enter said groove and cooperate therewith in turning an edge flange on a plate, and supporting means for said wheels by which they may be simultaneously rotated in opposite directions and one moved toward and from the other, of a gage member having a plate supporting surface intermediate of said wheels forward of the place of engagement of said wheels with said plate and disposed so as to guide said plate into operative engagement with said wheels.

2. In an edge turning machine, the combination with two rotary edge forming wheels one having an annular peripheral groove and the other adapted to have its periphery enter said groove and cooperate therewith in turning an edge flange on a plate, and supporting means for said wheels by which they may be simultaneously rotated in opposite directions and one moved toward and from the other, of a gage member having a curved gage surface and a plate supporting surface intermediate of said wheels forward of the place of engagement of said wheels with said plate and disposed so as to guide the plate into oprative engagement with said wheels.

3. In an edge turning machine, the combination with two rotary edge forming wheels one having an annular peripheral groove and the other adapted to have its periphery enter said groove and cooperate therewith in turning an edge flange on a plate, and supporting means for said wheels by which they may be simultaneously rotated in opposite directions, of a rotary gage wheel having an annular peripheral plate supporting flange forward of the place of engagement of said wheels with said plate and disposed intermediate of said wheels and adapted to support and guide said plate into operative engagement with said forming wheels.

4. In an edge turning machine, the combination with a support having a plate supporting surface, and two rotary edge forming wheels one having an annular V shaped groove one side of which is in the plane of said surface, the periphery of the other wheel being adapted to enter and cooperate with said groove in turning an edge flange on a plate supported by said surface, of a gage member on said support having a surface intermediate of said wheels and forward of the place of engagement of said wheels with said plate and above said supporting surface and adapted to support and guide said plate into operative engagement with said wheels.

5. In an edge turning machine, the combination with a support having a plate supporting surface, two rotary edge forming wheels one having an annular V shaped groove one side of which is in the plane of said supporting surface, the periphery of the other wheel being adapted to enter and cooperate with said groove in turning an edge flange on a plate adapted to be supported on said supporting surface, and means for simultaneously rotating said wheels in opposite directions, of a gage member on said support having a surface intermediate of said wheels and forward of the place of engagement of said wheels with said plate and adapted to

support and guide said plate into operative engagement with said wheels.

6. In an edge turning machine, the combination with a support having a plate supporting surface, and two rotary edge forming wheels one having an annular V shaped groove one side of which is in the plane of said supporting surface, the periphery of the other wheel being adapted to enter and cooperate with said groove in turning an edge flange on a plate adapted to be supported on said supporting surface, of a gage wheel rotatable on said support and having an annular flange forward of the place of engagement of said wheels with said plate and intermediate of said wheels and adapted to support and guide said plate into operative engagement with said forming wheels.

7. In an edge turning machine, the combination with a support, and two rotary edge forming wheels rotatable thereon one having an annular V-shaped groove and the periphery of the other being adapted to enter and cooperate with said groove in turning an edge flange on a plate, of a gage wheel having an annular flange intermediate of said wheels and forward of the place of engagement of said wheels with said plate and adapted to support and guide said plate into operative engagement with said wheels, and supporting means for said gage wheel on which the latter is rotatable and which is movable back and forth with respect to the plane of said wheels.

8. In an edge turning machine, the combination with a support having a plate supporting surface, two rotary edge forming wheels one having a V shaped annular groove one side of which is in the plane of said supporting surface, the other wheel having a beveled periphery adapted to enter said groove and to cooperate therewith in turning an edge flange on a plate adapted to be supported by said supporting surface, and means on said support by which said wheels may be simultaneously rotated in opposite directions, of a gage wheel having an annular flange intermediate of said wheels forward of the place of engagement of said wheels with said plate and adapted to support and guide said plate into operative engagement with said forming wheels, means on which said gage wheel is rotatable adjustably movable transversely to the plane of said forming wheels, and means for so adjustably moving said adjustably movable means.

In testimony whereof I have signed my name to this specification.

JACOB E. MYERS.