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AUTOMATIC CLAMP FOR PIPE BENDING MACHINES

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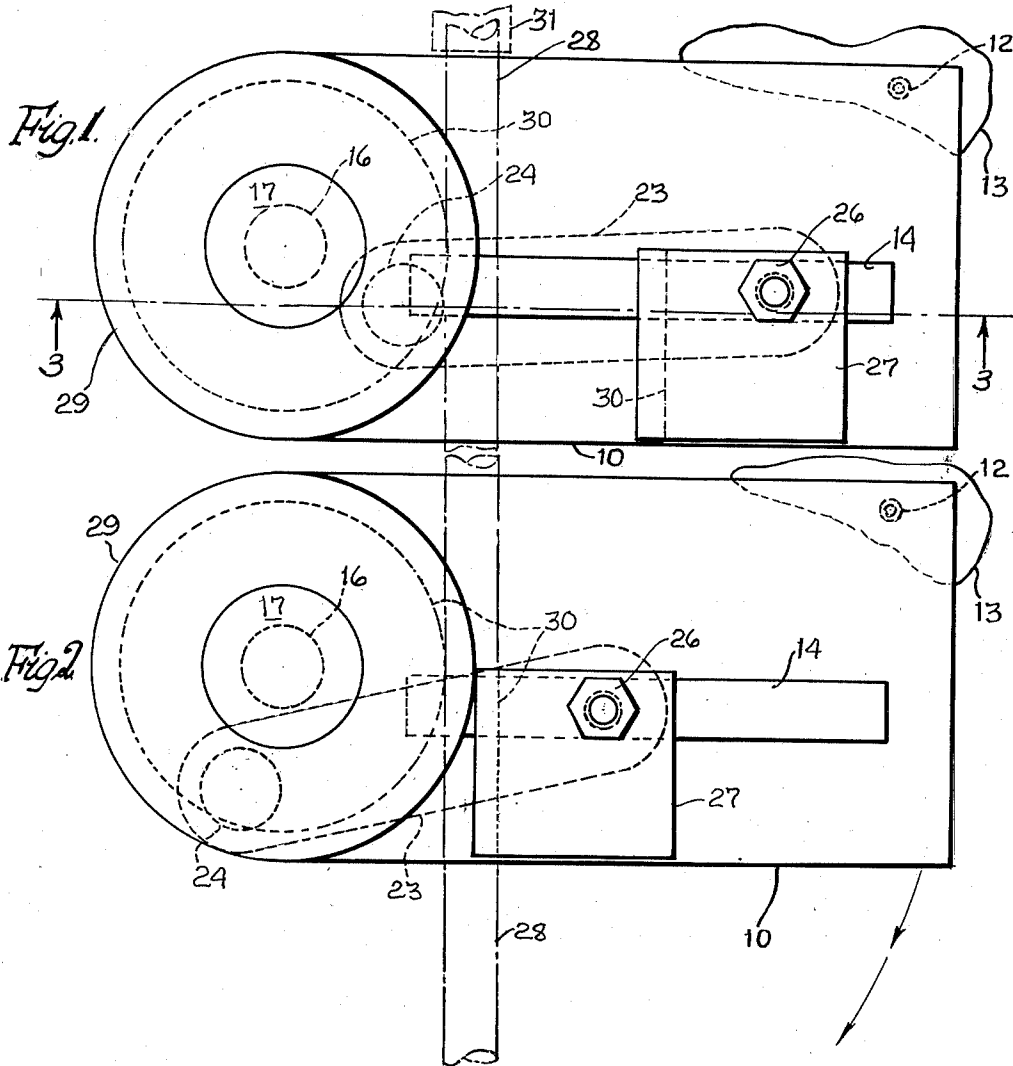
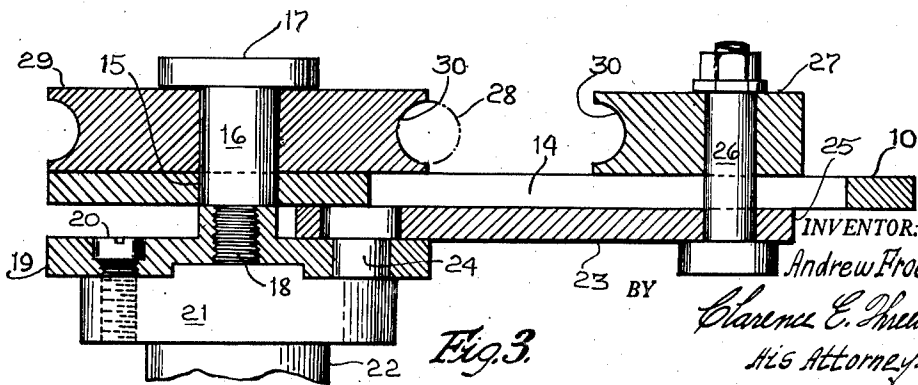


Fig. 3

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UNITED STATES PATENT OFFICE

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AUTOMATIC CLAMP FOR PIPE BENDING
MACHINES

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1 Claim. (Cl. 153—40)

1

This invention relates to certain new and useful improvement in an automatic clamp for a pipe bending machine. It has for its principal object the provision of an improved construction which will be highly efficient in use and economical in manufacture.

A feature of the invention is the provision of a slidable clamping jaw or shoe, movement of which into and from clamping position with respect to a pipe to be bent is effectuated by rotation of a shaft carrying a die wheel, whereby the movable clamping jaw or shoe will apply a maximum pressure against a pipe arranged between the die wheel and clamp shoe to securely hold the pipe in clamped position during the bending operation.

Another and equally important feature of this invention is the provision of a clamping jaw or shoe automatically movable into clamping relation with respect to a pipe disposed between such shoe and a die or forming wheel.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a plan view of the pipe clamp embodying my invention;

Fig. 2 is a top plan view of the same; and

Fig. 3 is a sectional detail view taken substantially on line 3—3 of Fig. 1.

Referring more particularly to the drawings, 10 indicates a substantially flat elongated plate which by means of a spring-held ball and slot connection 12 is releasably held in a predetermined position upon the bed plate 13 of the pipe bending machine. This plate 10 has formed therein an elongated slot 14. The plate 10 provides an opening 15 through which the shank 16 of a stud 17 projects. This stud 16 has a reduced thread bearing portion 18 which is threaded into an adapter plate 19 connected by means of a plurality of bolts 20 to the head 21 of a driving shaft 22.

Disposed beneath the plate 10 in parallel confronting relation with respect thereto is a connecting rod 23. One end of this rod 23 is connected to the adapter plate 19 by a connecting stud 24. The opposite end portion 25 of the rod 23 by means of a bolt 26 projecting through the slot 14, is connected to a movable jaw or shoe 27. This jaw 27 is adapted to be moved over the top surface of the plate 10 to clamp a

2

pipe 28 between such jaw and a die or forming wheel 29. This die wheel 29 is mounted upon the stud 17. The die wheel 29 and the jaw 27 provide confronting grooves 30 into which the pipe 28 to be bent is arranged. This pipe 28 is fed to the die wheel 29 in a manner well-known in the art through a guiding tube 31.

The arrangement is such that when the pipe 28 is properly projected with respect to the die wheel 29 the initial rotation of the shaft 22 will slide the jaw 27 toward the die wheel 29. During this movement of the jaw 30 the latch connection 12 between the plate 10 and the bed plate 13 is sufficiently strong to hold the plate 10 against rotation in a clock-wise direction as viewed in Fig. 2, until the jaw 27 is caused to bear against the pipe 28, at which time the latch connection between the plate 10 and the bed plate 13 will be disconnected so that the plate 10 may rotate to cause the jaw 27 to cooperate with the die wheel 29 to bend the pipe 28.

It is clear from the foregoing description that the maximum pressure of the jaw 27 against the die wheel 29 and the pipe clamped between the jaw and such wheel, is maintained during the rotation of the shaft 22. The arrangement prevents slippage of the pipe 28 between the jaw and die wheel. The construction provides an effective automatic clamp of the jaw 27 upon the pipe 28.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

An automatic clamp for a pipe bending machine comprising a shaft, a coaxially extending stud formed on said shaft at one end thereof, a plate having at one end portion an opening through which said stud projects, said plate having an elongated slot formed therein at one side of said opening with its long axis extending laterally of the long axis of said opening, a forming wheel carried by said stud in flat parallel relation to one surface of the plate and above the end of the shaft from which the stud projects, a clamp member mounted on the top side of the plate for movement relative to the

forming wheel and adapted to cooperate with the forming wheel to hold a pipe to be bent, a link beneath and in flat parallel relation to the bottom surface of the plate and having one end portion connected eccentrically to the shaft, a bolt extending upwardly through the slot and connecting the clamp member to the opposite end of the link, in combination with a stationary plate over which said first-named plate is adapted to be moved in parallel relation with respect thereto, and a releasable connection between the stationary plate and the first-named plate to delay movement of the first-named plate until the clamp member is in clamping engagement with a pipe to be bent.

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