June 17, 1930. W. R. MAGEE 1,763,797

GAUGE FOR SHEET METAL EDGE BENDING MACHINES

Original Filed March 16, 1929 2 Sheets-Sheet 1

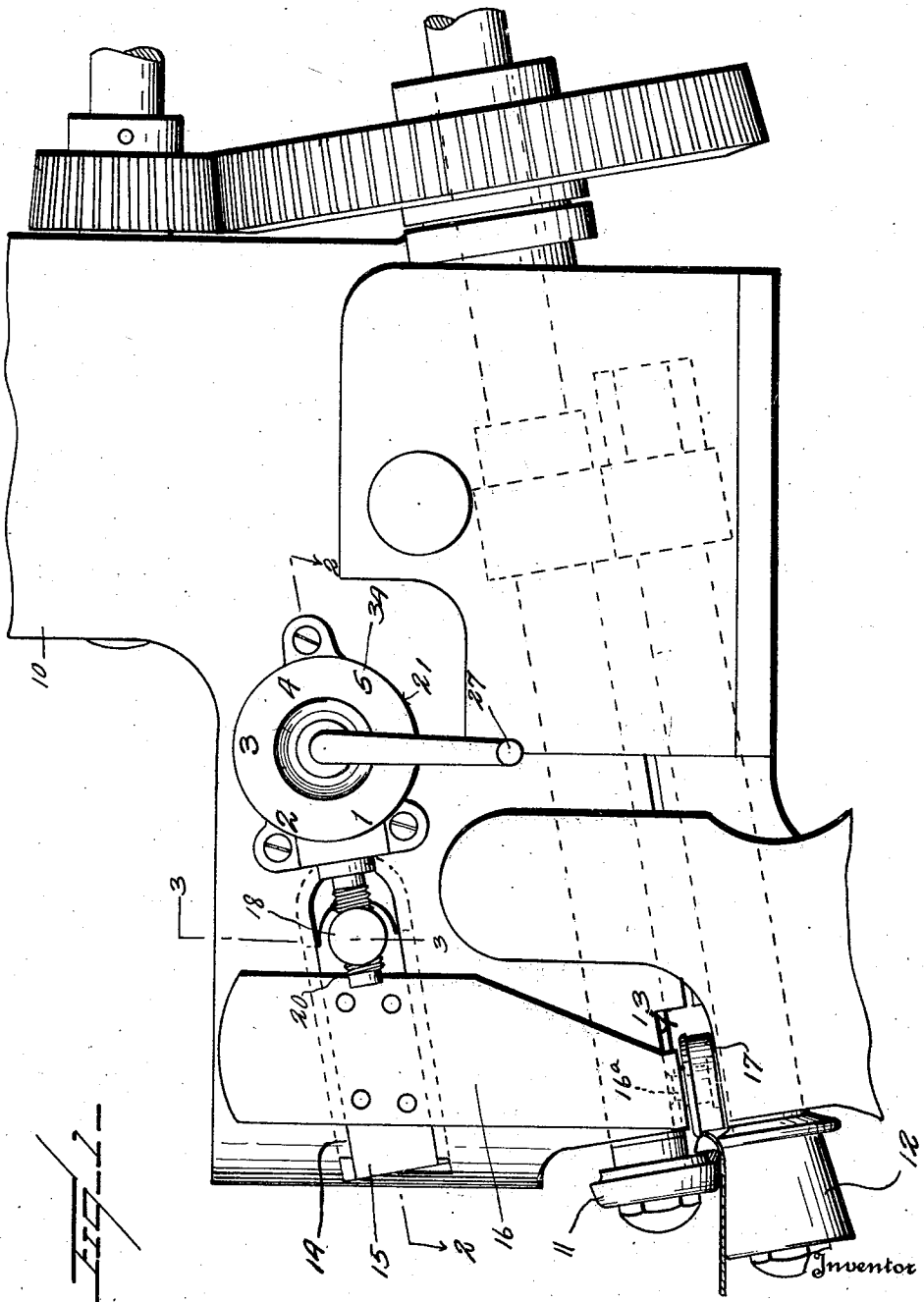


Fig. 1

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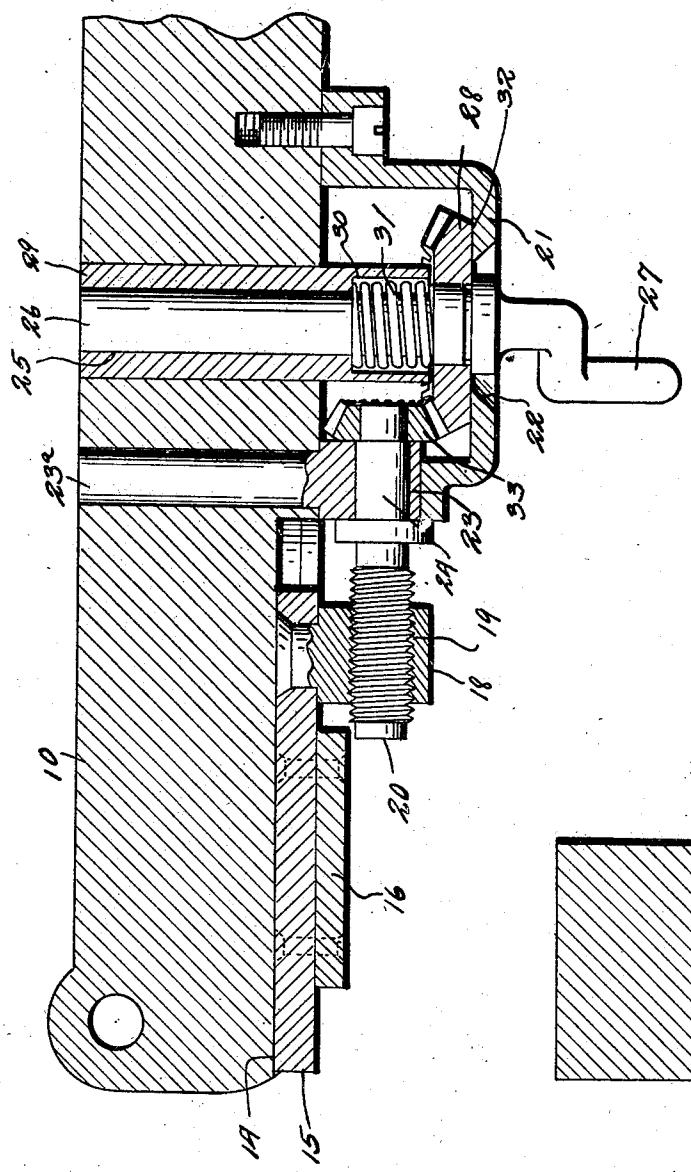


FIG. 2.

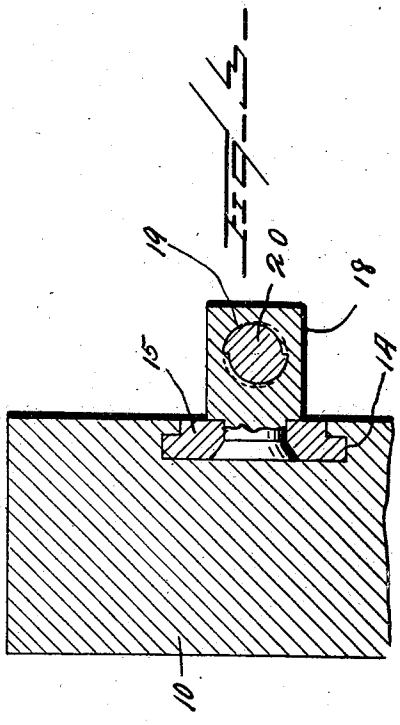


FIG. 3.

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UNITED STATES PATENT OFFICE

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GAUGE FOR SHEET-METAL-EDGE-BENDING MACHINES

Refiled for abandoned application Serial No. 347,705, filed March 16, 1929. This application filed April 15, 1930. Serial No. 444,530.

This invention relates to gauges for sheet-edge bending machines, and more particularly to an improvement of the adjusting mechanism illustrated in my prior application, No. 237,067, filed December 1, 1927, for gauges for sheet-edge bending machines, Patent No. 1,742,479, granted January 7, 1930, and is a substitute for and takes the place of my application Ser. No. 347,705, for gauges for sheet-edge bending machines, filed March 16, 1929, and allowed March 14, 1930 and now abandoned.

An important object of the invention is to provide an arrangement of this character shown in the patent above identified wherein the adjustment of the gauge may be more finely graduated and the gauge is more firmly locked in its adjusted positions.

A further and more specific object of the invention is to provide a construction such that all possibility of dislocation of the gauge due to the application of pressure thereto is avoided and at the same time a readily controllable mechanism provided.

A still further object of the invention is the provision of a device of this character wherein the gauge roller is supported from a slide and the slide is adjustable to regulate the position of this roller.

Another object of the invention is to provide a device of this character in which the control mechanism may be very readily lubricated and the lubrication maintained without constant attention of the operator and wherein a dust-proof construction is provided.

A further object of this invention is to provide an adjustment control of such character that the movement of the gauge roller in response to a given operation of the adjusting element thereof is constant without regard to the position of such adjusting element.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a side elevation of a sheet-edge bending machine embodying a gauge control constructed in accordance with my invention;

Figure 2 is a section on line 2—2 of Figure 1; and

Figure 3 is a section on line 3—3 of Figure 1.

Referring now more particularly to the drawings, the numeral 10 generally designates the body frame of a sheet metal edge bending machine and 11 and 12 are bending rollers supported thereby which may be of any usual or ordinary character. The machine body affords inwardly of the rollers a slot 13 lying between the axes of the rollers and extending transversely of the frame.

In the side of the body frame above this opening, I form a slide groove 14 in which operates a slide 15. The slide groove 14 parallels the groove 13 and the axes of the rollers 11 and 12, and the slide 15 has rigidly secured thereto a bracket 16, upon the lower end of which is mounted a pivot 16^a for rotatably carrying the gauge roller 17. The lower end of this bracket may be either bent inwardly, so that it extends into the slot 13, or outwardly, depending upon the position which the gauge is to occupy with relation to the bending rollers 11 and 12.

In practice, a number of slides 15 with their brackets 16 and gauge rollers 17 are provided, and may be readily substituted for one another, as will hereinafter be more fully described. The inner end of each slide has secured thereto an outstanding lug 18 which has a threaded opening 19 longitudinal to the slide for the reception of an adjusting screw 20.

Secured to the side face of the machine frame in opposition to the inner end of the slide groove 14 is a casing 21, the outer wall of which has a central opening 22 and the side wall of which has a bearing 23 mounted therein for the adjusting shaft 24 swiveled in this bearing. The bearing 23 is provided with a swiveled supporting member 23^a which is mounted in the body frame so as to readily aline the bearing 23 with the threaded lug 18. The bearing 23 is readily removable being removed by taking off the housing 21, the housing 21 holding the bearing against

longitudinal movement. In axial alinement with the opening 22 of the casing, the machine frame is provided with a bushed opening 25 for the reception of a shaft 26, the outer end of which is formed as an operating crank 27.

To this shaft inwardly of the crank, a bevel gear 28 is secured. The bushing 29 surrounding the shaft projects into the casing and has its internal diameter enlarged at its outer end, as indicated at 30, so that it combines with the gear and shaft to provide a housing for a spring 31 which constantly urges the gear 28 and the shaft 26 outwardly and brings the flat outer face of this gear into engagement with the inner face of the outer wall of the casing, as indicated at 32. This engagement of the gear serves to seal the opening 22 and furthermore serves to provide frictional engagement between the gear and casing which will prevent the gear from rotating under the vibration to which a machine of this character is subjected.

The inner end of the shaft 24 has secured thereto a bevel pinion 33 meshing with the gear 28, and it will be obvious that by rotating the shaft 26 through the crank 27, the adjusting screw 20 of the shaft 24 will cause longitudinal movement of the slide and thereby adjust the roller 17 toward and away from the general plane of the rollers 11 and 12. It will also be obvious that the slide will be locked in any of its longitudinally adjusted positions against movement in response to pressures applied to the roller 17 by the threaded engagement between the portion 20 of the shaft 24 and the nut formed by the lug 18 of the slide. By continuing rotation of the crank 27, the portion 20 can be threaded from this nut and the slide thus disengaged to permit its removal for repair or replacement.

As pointed out in my patent above identified, it is necessary to change the position of the roller 17 with respect to the rollers 11 and 12 whenever the radius of an edge of a sheet metal element upon which an operation is being performed is changed. Whenever it is necessary to change the position of the gauge roller 17 with relation to the rollers 11 and 12, this is accomplished by rotating the crank handle 27.

By observing the position of this crank handle with relation to indicia 34 carried by the outer wall of the casing, it will be obvious that after completion of the first operation upon one of a series of similar articles, the gauge sequence may be readily repeated without any particular operation on the part of the operator. For example, a worker operating upon such a series and after completing the first of the series, having found the successive gauge settings to provide an accurately and smoothly turned edge to be say 3—2—1—5—4 upon the dial, needs but to repeat these settings in connection with subsequent articles of the same kind.

As these changes can be made without checking the operation of the machine, it will be obvious that the operation thereof is materially speeded up and the cost of production accordingly reduced. The ordinals of the indicia do not necessarily refer to any particular position of the slide but are merely used for reference to determine the position of the operating mechanism when the slide is at a given position.

Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself thereto except as hereinafter claimed.

I claim:

1. In a sheet metal edge bending machine, bending rolls, a slide shiftable toward and away from the general plane of the rolls, a rotatable element, a shaft rotated by rotation of the element and having a screw-threaded portion, and a nut carried by the slide with which the screw-threaded portion of the shaft engages.

2. In a sheet metal edge bending machine, a body frame, bending rolls supported from the body frame, a slide groove formed in one side face of the body frame, a slide mounted therein, a rotatable gear mounted in the body frame and having a handle whereby it may be rotated, a shaft rotated by rotation of said gear and having a threaded portion, the slide having a nut in which said threaded portion engages, and a gauge roller supported from the slide in proximity to the rolls.

3. In a sheet metal edge bending machine, a body frame, bending rolls supported from the body frame, a slide groove formed in one side face of the body frame, a slide mounted therein, a rotatable gear mounted in the body frame and having a handle whereby it may be rotated, a shaft rotated by rotation of said gear and having a threaded portion, the slide having a nut in which said threaded portion engages, a gauge roller supported from the slide in proximity to the rolls, and a casing secured to the side face of the body frame provided with a bearing for said shaft, said casing combining with the body frame to produce a housing for said gear and having an opening for the passage of said handle.

4. In a sheet metal edge bending machine, a body frame, bending rolls supported from the body frame, a slide groove formed in one side face of the body frame, a slide mounted therein, a rotatable gear mounted in the body frame and having a handle whereby it may be rotated, a shaft rotated by rotation of said gear and having a threaded portion, the slide having a nut in which said threaded

portion engages, a gauge roller supported from the slide in proximity to the rolls, a casing secured to the side face of the body frame provided with a bearing for said shaft, said casing combining with the body frame to produce a housing for said gear and having an opening for the passage of said handle, and spring means constantly urging said gear outwardly to engage the wall of the casing and seal thereto about the edges of the opening.

5. In a sheet metal edge bending machine, a body frame, bending rolls supported from the body frame, a slide groove formed in the body frame, a slide shiftable in the groove toward and away from the general plane of the bending rolls, a gauge roller supported from the slide in proximity to the rolls, and means for shifting the slide in the groove and locking the slide against longitudinal movement when in adjusted positions.

In testimony whereof I hereunto affix my signature.

WILBER R. MAGEE.