Aug. 29, 1950 A. OTT ET AL 2,520,165

ROLL-SHAPER SUPPORTING BRACKET

Filed March 27, 1946 2 Sheets-Sheet 1

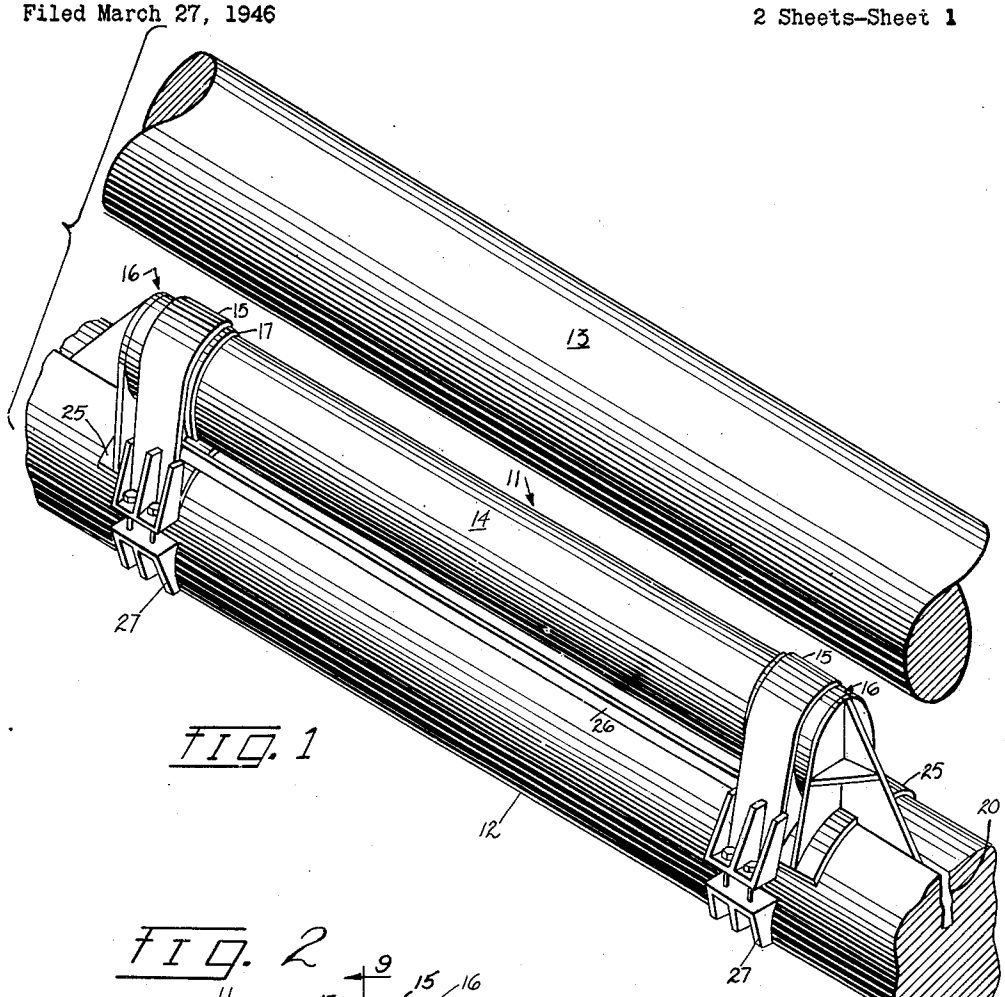
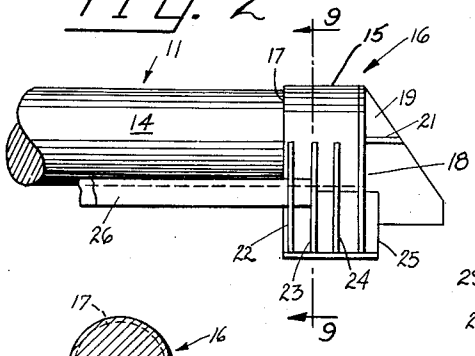


FIG. 1

FIG. 2



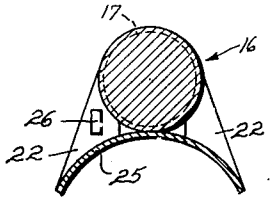


FIG. 9

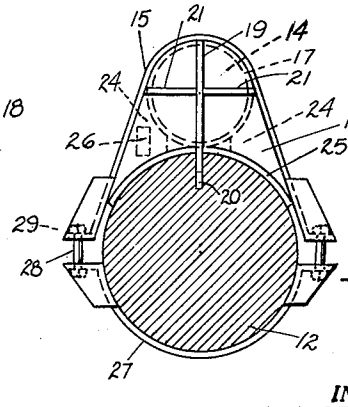


FIG. 3

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Aug. 29, 1950 A. OTT ET AL 2,520,165

ROLL-SHAPER SUPPORTING BRACKET

Filed March 27, 1946 2 Sheets-Sheet 2

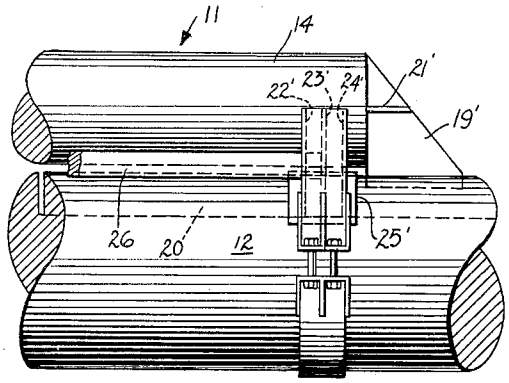

FIG. 4

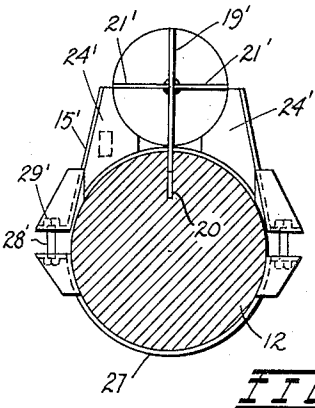

FIG. 5

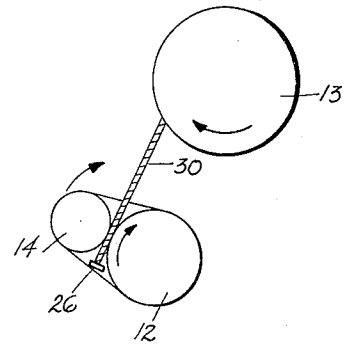

FIG. 6

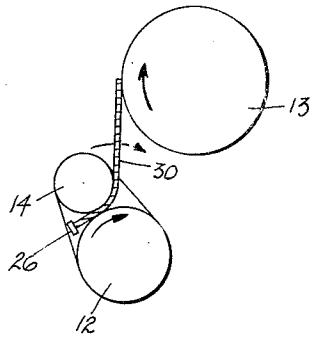

FIG. 7

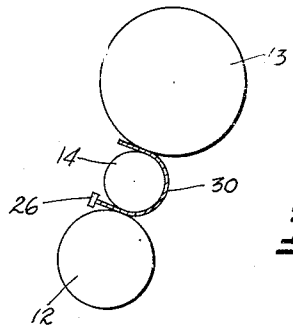

FIG. 8

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ROLL-SHAPER SUPPORTING BRACKET

Albert Ott and Charles Ott, Ardsley, Pa.

Application March 27, 1946, Serial No. 657,463

2 Claims. (Cl. 153—39)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

1

This invention relates to a rolling fixture and more particularly pertains to a shaper supporting bracket for attachment to a driving roll of a plate-roll machine to impart an arcuate or U-shape to a flat plate.

One of the present methods of manufacturing U-shaped plates is by means of a bending machine employed to press a series of longitudinal bends to form a 180 degree turn of the plate. The number of bends and the location of each has to be marked on the plate to be formed. These bends vary for the different size plates to be formed. This practice, which has been found to be cumbersome, expensive, and protracted, forms a U-shaped plate having a plurality of such bends. The present invention permits dispensing with the bending machine by the use of a rolling fixture that forms a smooth-round U-shaped plate. Use of the subject device is inexpensive and substantially time saving as compared with the present practice.

It is an object of this invention to provide a fixture for attachment to a driving roll of a plate-roll machine to impart a U shape to a flat plate.

Another object is to provide a fixture attachment of this character adapted to form a U-shaped plate having a smooth surface and free of any bends thereon.

A still further object is to provide a fixture attachment of this character adapted to form semi-circular shaped plates or plates having a partially arcuate shape.

Further objects and advantages of this invention, as well as its construction, arrangement and operation, will be apparent from the following description and claims in connection with the accompanying drawings, in which

Fig. 1 is a fragmentary isometric view showing a fixture embodying this invention in position on a plate-roll machine;

Fig. 2 is a fragmentary elevation on a reduced scale of a portion of the structure shown in Fig. 1 with the strap removed;

Fig. 3 is an end view of a portion of the structure shown in Fig. 1;

Fig. 4 is a fragmentary side elevation showing a modified form of the invention in position on a plate-roll machine;

Fig. 5 is an end view of a portion of the structure shown in Fig. 4;

Fig. 6 is a schematic diagram showing a fixture embodying this invention in position on a plate-roll machine and showing the plate to be formed in its initial position;

Fig. 7 is a schematic diagram showing the

2

plate to be formed in its intermediate position;

Fig. 8 is a schematic diagram showing the plate to be formed in its final position; and

Fig. 9 is a vertical transverse section taken on the line 9—9 of Fig. 2.

Bending fixture 11 is shown in Fig. 1 in position relative to the driving roll or former 12 and loose roll 13 of a standard rolling machine. The bending fixture 11, including a solid roll 14, is secured rigidly to the driving roll 12 at each end by means of hold-down straps 15 secured on end-fittings 16.

Solid roll 14 has an end-fitting 16 on each end. Each end-fitting 16 comprises a cylindrical cap 17 open at the inner end and an integrally formed bracket-plate 18 having an arcuate bottom edge on the outer end. A triangular bracket 19 secured to the end-fitting 16 has its base inserted in the slot 20 of the driving roll 12. Reinforcing webs 21 are secured to bracket 19 of end-fitting 16. Brackets 22, 23, and 24, having arcuate bottom and top edges, are secured to cylindrical cap 17. An arcuately shaped plate 25, forming the support for the roll 14, rests on the driving roll 12 and is secured to the integrally formed bracket 18 of the cylindrical cap 17 and the brackets 22, 23, and 24. Rectangular bar-stop 26 rests in a slot cut in brackets 22 and is prevented from shifting laterally by brackets 23. Hold-down strap 15 is a U-shaped member having flanged ends and reinforcing brackets, as shown in Figs. 2 and 3. Strap 27, a similarly constructed member, is bolted to strap 15 by means of bolts 28 and nuts 29.

A modified form of the invention is shown in Figs. 4 and 5. Solid roll 14 has a triangular bracket 19' secured on each end portion as by welding. The base of each triangular bracket 19' fits into slot 20 of the driving roll 12. Reinforcing webs 21' are secured to bracket 19' and the ends of solid roll 14. Brackets 22', 23', and 24', having arcuate bottom and top edges, are secured to the solid roll 14. An arcuate plate 25', forming the support for the roll 14, rests on the driving roll 12 and is secured to the brackets 22', 23', and 24'. Rectangular bar-stop 26 rests in a slot cut in brackets 22' and extends to brackets 23'. The bar-stop 26 is secured to brackets 23'. Strap 15', a rectangular plate having flanged ends and reinforcing brackets, as shown in Figs. 4 and 5, is secured to brackets 22', 23' and 24'. Strap 27, a U-shaped member having flanged ends and reinforcing brackets, is bolted to strap 15' by means of bolts 28' and nuts 29'.

In the operation of the fixture, the end-fittings

16 are placed on the driving roll 12 of a standard plate-roll machine. The slot 20 of the driving roll 12 forms a guide for the end-fittings by means of brackets 19 engaged slidably therein. The bar-stop 26 is inserted in the slot in brackets 22 and the solid roll 14 inserted in the cylindrical caps 17 of the end-fittings 16. The end-fittings are then brought to bear against the ends of the solid roll 14. The straps 15 and 27 are placed in position as shown on the drawings and the fixture 11 is secured rigidly to the driving roll 12 by means of bolts 28 and nuts 29.

A flat plate 30 to be formed into a U-shaped plate is inserted between the bending fixture 11 and the driving roll 12 and is prevented from sliding therethrough by bar-stop 26, as shown in Fig. 6. The fixture and rolls move in the direction indicated by the arrows. At an intermediate position, flat plate 30 has a partial roll as shown in Fig. 7. At the final position shown in Fig. 8 the plate has the desired U-shaped form and the rolling is completed. This rolling process produces the desired form free of any bends on its surface.

In the modified form the fixture 11 is placed on the driving roll 12 as a unit and the end brackets 19' are guided in the slot 20. The strap 27 is placed in position and the fixture is secured rigidly to the driving roll 12 by means of bolts 28' and nuts 29'. The bending process for this modified form of the invention is the same as described above.

It is to be understood that various modifications and changes may be made in this invention without departing from the spirit and scope thereof as set forth in the claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

We claim:

1. A pivoted bending machine comprising a driving roll, a loose roll spaced from said driving roll, brackets having cylindrical cups clamped to the end portions of said driving roll, a solid roll having its ends mounted in said cylindrical cups, said solid roll being held in spaced relation to said driving roll, said driving roll having a longitudinal slot, and said brackets having a portion extending into said slot.

2. A plate-bending attachment for the slotted driving roll of a rolling machine comprising a solid roll, a pair of brackets having cylindrical cups engaging the ends of said solid roll, said brackets having an arcuate lower surface adapted to be positioned adjacent the upper portions of said driving roll and having a portion adapted to be seated in such slot, a stop-bar extending between said brackets, an elongated strap engaging each of said brackets, arcuate straps engaging the bottom portion of said driving roll, and means for clamping together the ends of paired elongated and arcuate straps.

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