(No Model.)

E. EINFELDT.

FLANGING MACHINE.

No. 592,767. Patented Nov. 2, 1897.

Fig. 1.

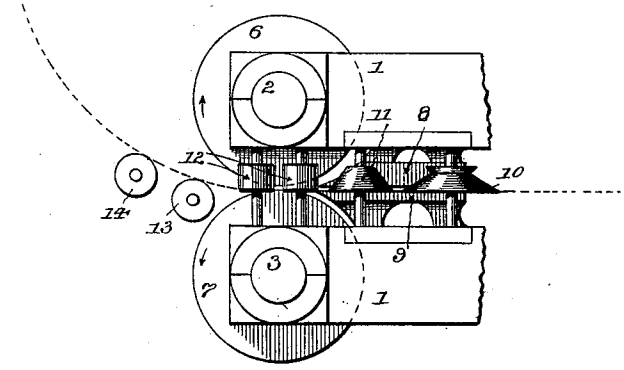


Fig. 2.

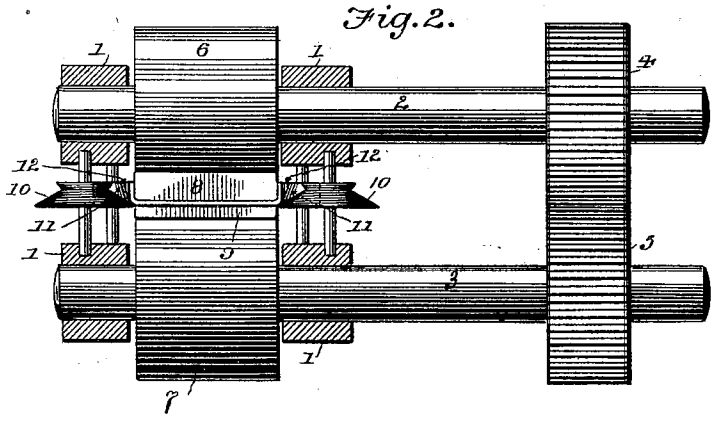


Fig. 3.

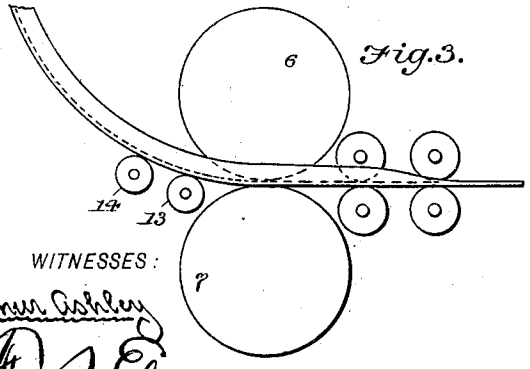
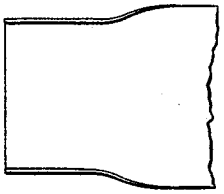


Fig. 4.



Fig. 5.



WITNESSES:

Arthur Ashley

F. L. Elmore

INVENTOR

Emil Einfeldt

BY

Phelps & Dodge

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EMIL EINFELDT, OF DAVENPORT, IOWA, ASSIGNOR TO THE BETTENDORF METAL WHEEL COMPANY, OF IOWA.

FLANGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 592,767, dated November 2, 1897.

Application filed April 17, 1897. Serial No. 632,581. (No model.)

To all whom it may concern:

Be it known that I, EMIL EINFELDT, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Improvement in Flanging-Machines, of which the following is a specification.

This invention has reference to an improved flanging-machine, and relates more particularly to a machine for forming right-angular flanges on strips or sheets to be employed for wheel-tires or for other purposes.

The invention consists of the peculiar combination and arrangement of driving and bending devices more particularly described hereinafter, and set forth in the claims.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a flanging-machine constructed in accordance with my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation of a modified form of the apparatus. Fig. 4 is an end view of a metal strip, showing the form of the flanges. Fig. 5 is a plan view of the same, having the flanges started at one end preparatory to being operated on by the flanging-machine.

Referring to the drawings, 1 represents a frame of any suitable form and material, adapted to give support to the operative parts of the machine. In this frame are journaled in suitable bearings two horizontal shafts 2 and 3, arranged one above the other and provided near one end with intermeshing pinions 4 and 5. Near their opposite ends the shafts have fixed to them driving-rolls 6 and 7, adapted to receive between them the sheet or strip to be flanged and arranged to draw the same as the rolls are revolved in the direction indicated by the arrow in Fig. 1 between the flanging devices hereinafter described. In front of the rolls are firmly fixed two guiding devices 8 and 9, one above the other, in such position that as the strip is fed by the driving-roll it will pass between the guiding devices and be prevented from buckling or bending while being acted on by the flanging devices. As shown at Fig. 1, the guiding devices are in the form of two plates spaced apart to correspond with the thickness of the metal sheet to be flanged, so that the latter will pass snugly between them. As shown at Fig. 3, the guiding devices may be in the form of horizontal guide-rolls spaced apart the proper distance to receive the sheet between them.

At each side of the guiding devices are journaled two vertical flanging-rollers 10 and 11, having inclined peripheral surfaces and adapted as the sheet is passed between them to gradually turn up its edges to form flanges thereon. These rolls differ as to the inclination of their surfaces from a vertical line, the surfaces of the rollers 10 being formed with a greater inclination than those of the other rollers. The purpose of this is to subject the edges of the sheet to a gradual bending action, so that after passing through the rolls 11 the flanges will be nearly vertical. At opposite sides of the driving-rolls I journal in the frame vertical cylindrical finishing-rollers 12, having their peripheral surfaces arranged vertically. These rollers in acting on the flanges formed by the inclined flanging-rollers will bend them to a truly vertical position and complete the flanging operation.

In proceeding to flange sheets by this apparatus I first start the flanges at one end of the strip by bending up its edges by any suitable means to a vertical position, as shown in Fig. 5. This bent end of the strip is then passed between the guiding devices and pushed between the driving-rollers to a position where they will secure a grip on the sheet. The latter being revolved by power applied, preferably, to one of the shafts, the strip will be drawn forward, its edges passing successively between the flanging-rollers 10 and 11 and between the finishing-rollers 12, by which the edges of the strip will be gradually turned upward from a horizontal to a vertical position, thereby forming vertical right-angular flanges thereon, as shown in Fig. 4. In cases where the flanged plate or strip is to be used for wheel-tires it may be bent into circular form by a separate operation and in any suitable manner; but to effect this I preferably combine with the flanging devices described bending devices to act on the flanged strip to bend it into a circular form. As shown in the drawings, these bend-

ing devices are in the form of two rollers 13 and 14, arranged one a slight distance above the other, according to the size of the tire, beyond the driving-rollers in such position that the flanged strip being pushed over these rollers will be bent or curved upward into substantially circular form.

Having thus described my invention, what I claim is—

1. In a flanging-machine, the combination with the frame, of a single pair of driving-rolls mounted therein and adapted to draw the sheet between them, upper and lower guides at the entrance of the rolls adapted to sustain the sheet throughout its width and expose its edges, flanged rollers mounted in the frame at the side of the guides on vertical axes, and finishing-rollers mounted in the frame at the side of the driving-rolls on vertical axes.

2. In a flanging-machine the combination with the frame, of a single pair of driving-rolls mounted therein and adapted to draw the sheet between them, upper and lower guides at the entrance of the rolls adapted to sustain the sheet throughout its width and expose its edges, flanging devices at the side of the guides, finishing devices at the sides of the rollers, and bending devices at the exit of the rolls by which the flanged sheet is bent into circular form.

3. In a flanging-machine the combination with the frame, of the two horizontal driving-rolls adapted to draw the sheet between them, upper and lower horizontal guiding devices at the entrance of the rolls adapted to sustain the sheet through its width and expose its edges, flanging-rollers mounted in the frame on opposite sides of the guiding devices on vertical axes, finishing-rollers mounted in the frame on opposite sides of the driving-rolls on vertical axes, and horizontal bending-rollers at the exit of the driving-rolls in position to be encountered by the flanged sheet as it issues from the rolls; whereby the flanged sheet will be bent by the bending-rollers into circular form.

In testimony whereof I hereunto set my hand, this 10th day of April, 1897, in the presence of two attesting witnesses.

EMIL EINFELDT.

Witnesses:

NATHL. FRENCH,

MAY L. DODGE.