(No Model.)

# G. G. McMURTRY & L. G. STITT.

## ROLLING MILL.

No. 526,195. Patented Sept. 18, 1894.

FIG. 1.

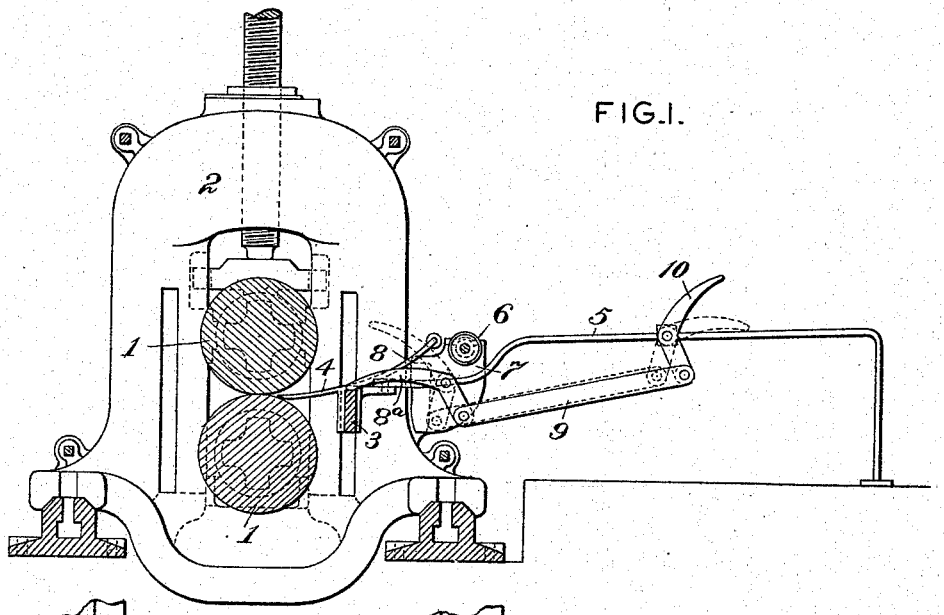
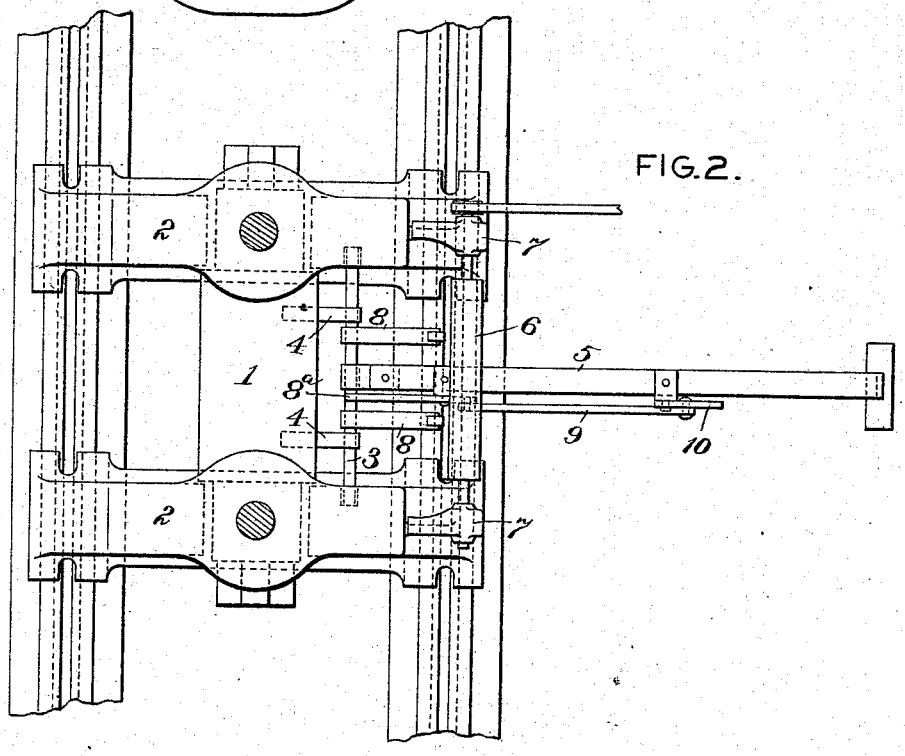



FIG. 2.




WITNESSES:

Damon S. Wolcott

Chas F. Miller

INVENTORS

George G. McMurtry.

Leigh G. Stitt

by George H. Christy

Att'y.

# UNITED STATES PATENT OFFICE.

GEORGE G. McMURTRY, OF ALLEGHENY, AND LEVI G. STITT, OF KISKIMINETAS, ASSIGNORS TO THE APOLLO IRON AND STEEL COMPANY, OF PITTSBURG, PENNSYLVANIA.

## ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 526,195, dated September 18, 1894.

Application filed May 2, 1894. Serial No. 509,797. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE G. McMURTRY, residing at Allegheny, in the county of Allegheny, and LEVI G. STITT, residing in Kiskiminetas township, in the county of Armstrong, State of Pennsylvania, citizens of the United States, have invented or discovered certain new and useful Improvements in Rolling-Mills, of which improvements the following is a specification.

The invention described herein relates to certain improvements in feed mechanism for sheet metal rolls, whereby the return of the sheets from the back to the front of the rolls is facilitated. In rolling long lengths of sheet metal the advancing end is grasped by the catcher as the sheet passes between the rolls, and as the opposite end passes from between the rollers, the catcher lowers his end sufficiently to raise the opposite end a little above the middle of the upper roll, the sheet being supported intermediate of its ends by a bearing bar, and then pushes the sheets over the top roll, such movement being facilitated by the rotation of the roll. No serious difficulty is encountered in thus returning comparatively thick, rigid sheets, but in rolling the smaller gages the sheets are so flexible that they will simply bend around the supporting bar, when the catcher lowers his end, without raising the opposite end sufficiently high to pass over the top roll.

The object of the present invention is to provide mechanism operated by the sheets being rolled to so raise the ends of the sheets last out of the rolls that the catcher can push the sheets over the top roll. In general terms, the invention consists in the construction and combination substantially as hereinafter more fully described and particularly claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a stand of rolls having my improvements applied thereto, and Fig. 2 is a top plan view of the same.

The rolls 1 are mounted in the usual or any suitable manner in the housing 2, and a bearing bar 3 is supported on the housing in the rear of the rolls, parallel or approximately parallel therewith. On the bar 3 are secured arms 4 extending nearly into the bite of the rolls and having their upper surfaces slightly below the line of contact of the rolls, so that sheets passing between the rolls will slide along the arms 4, and onto a plate 5 extending rearwardly from the bearing bar and having its rear end supported by a post or standard. The plate 5, for a greater part of its length, is in or approximately in a horizontal plane passing through the axis of the top roll as shown in Fig. 1, and the front portion of the plate is in or approximately in a horizontal plane passing between the rolls. A roller 6 preferably positively driven in such direction as to tend to move sheets resting thereon toward the rolls, is so mounted in bearing 7 on the housings that a sheet resting on the roller and the plate 5 will, if moved toward the rolls, strike the upper roll at a point above a horizontal plane passing through the axis of the upper roll. In order to guide sheets coming from the rolls, up over the roller 6, arms 8, preferably provided at their outer ends with friction rollers, have their inner ends secured to the bearing bar 3. The construction thus far described will be efficient for the return of sheets of such a thickness or rigidity that the ends of the sheets between the rolls and the roller 6 will not droop down, as the sheets when moved toward the rolls by the catcher and the action of the roller 6, will strike the top roll at such point that its end will be raised by the roll until it can pass over the latter. In order to elevate the ends of sheets of such small gages that the portions between the rolls and roller 6 will droop down, to a height a little above a horizontal plane passing through the axis of the top roll, I employ mechanism operated by the sheets being rolled to raise the drooping ends so that they will pass over the top roll. The lifting mechanism shown in the drawings consists of a finger $8^a$, pivotally mounted on the plate 5, in front of the roller 6 and having its lower end connected by a link 9, to the lower end of a trigger 10, which is pivoted to the plate 5, behind the roller 6. These parts are so arranged that normally the upper portion of the finger will lie down between the arms 8, so as not to interfere with the passage of sheets along said arms, while at the same time, the upper portion of the trigger 10 will project

above the plate 5, so that the rear portions of the sheets will bear upon the trigger. The weight of the sheets will tend to turn the trigger and thereby move the finger 8 up. Such movements will, however, be prevented by the sheets so long as any portions thereof are within the bite of the rolls. As soon, however, as the rear ends of the sheets pass out of the bite of the rolls, the lifting mechanism will be free to act and raise the rear ends of the sheets to such a height as shown in dotted lines in Fig. 1, that under the combined action of the catcher and the roller 6, the sheets will be shifted over the top roll to the front of the mill. As soon as the sheets have in their return movement passed off of the trigger, their weight upon the finger will return the lifting mechanism to normal position.

We claim herein as our invention—

1. A pair of rolls in combination with guides on the delivery side of the rolls for supporting the sheets, a roller stationary as against vertical movement and arranged so that a horizontal plane tangential to its upper surface will pass through or approximately through, the axis of the upper roll, and means for driving the roller in the same direction as the upper roll, substantially as set forth.

2. A pair of rollers in combination with guides for supporting sheets or other articles as they come from the rolls, and a roller, the guides and roller being stationary as against vertical movement and arranged to direct the sheets or other articles over the top roll in their return movement to the front of the mill, substantially as set forth.

3. A pair of rolls in combination with mechanism on the delivery side of the rolls for raising the rear ends of sheets or other articles so that they will pass over the top roll in the return pass, said mechanism being operated by the articles being rolled, substantially as set forth.

4. A pair of rolls in combination with guides on the delivery side of the rolls, a positively driven roller, stationary as against vertical movement, and lifting mechanism arranged between the roller and reducing rolls for raising the rear ends of the sheets to such a height that by the action of the roller the sheets will be shifted over the top roll toward the front of the mill, substantially as set forth.

5. A pair of rolls, in combination with guides, a pivoted finger adjacent to the rolls, a trigger connected to the finger and arranged to be shifted so as to turn the finger by contact with the article being rolled, substantially as set forth.

In testimony whereof we have hereunto set our hands.

GEORGE G. McMURTRY.
LEVI G. STITT.

Witnesses:
DARWIN S. WOLCOTT,
F. E. GAITHER.