To all whom it may concern:

Be it known that I, CHARLES WILBUR BENNETT, a citizen of the United States, residing at Elwood, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Automatic Catchers for Sheet or Tin-Plate Mills, of which the following is a specification.

In the production of rolled plates either for tin-plate or other purposes where thin sheets of metal are required, it is necessary that a man stand behind the rolls in position to catch the plates in a pair of tongs as said plates issue from the rolls, and as the rear end of the plate issues from between the rolls the catcher swings said end upward on top of the top roll and shoves the same back, where it may be caught by the roller. When the sheet nears completion, the catcher holds the plate with its rear end resting upon the top roll while the roller tests the length thereof with a gage, and if the sheet is of sufficient length the catcher withdraws the plate and places the same upon a suitable off-bearing table. Considerable skill is required on the part of the catcher to properly manipulate the plates, and such labor is comparatively expensive.

The object of my present invention is to produce an automatic mechanism the operation of which may at all times be under complete control of the roller from a point where he ordinarily stands to introduce sheets to the mill and of such character that it will automatically receive the plates as they pass from the rolls, return said plates over the top of the top roll to a position where their rear ends may be caught by the roller to hold said plates, if desired, in a position where they may be easily gaged by the roller, and to transfer a completed plate to a suitable off-bearing table or chute.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation with the parts in receiving position and the face-plate removed. Fig. 2 is a similar view with the parts in position enabling the roller to regain possession of the sheet. Fig. 3 is a similar view showing the parts in full lines in final delivering position and in dotted lines showing the parts in gaging position. Fig. 4 is a plan. Fig. 5 is a side elevation detail of a convenient form of automatic clutch.

In the drawings, 10 indicates the usual mill frame, in which is mounted a bottom roll 11 and a cooperating top roll 12, and lying adjacent said rolls at the rear is a cross-bar 13. The pack of plates as it issues from the rolls passes upon a receiving-platform 14, which is preferably composed of a plurality of separated bars or fingers, as shown in Fig. 4, the forward end of each of the fingers being provided with an extension 15, which is pivoted at 16, the arrangement being such that the part 15 may yield in order to allow of the return of the platform to initial position. The platform 14 is supported at its rear end upon the shaft 17, carried between the upper ends of a pair of levers 18, pivoted at their lower ends upon a shaft 19. Extending between levers 18 at an intermediate point is an axle 20, upon which is pivoted a cam-lever 21, which lever is connected to the platform 14 by a link 22. Cam-lever 21 rests at its forward end upon a cam 23, carried by a shaft 24, mounted in suitable bearings on frame 25. Shaft 24 carries a head 26, provided with a wrist-pin 27, to which is connected one end of a pitman 28, said pitman being connected at its opposite end to the swinging-platform support composed of the levers 18. Mounted upon shaft 24 are two clutch members 29 and 30, member 29 being keyed to shaft 24, while member 30 is revolvably mounted thereon and provided with a driving-sprocket 31. Sprocket 31 may be driven by any suitable means, such as a chain 32, passing over a sprocket 33, carried by the shaft of the upper roll 12. Clutch member 29 is provided with any suitable means for automatically withdrawing it from the member 30 upon the completion of one revolution of the shaft 24, said means consisting of a weighted lever 34, pivoted at 35 and carrying a pin 36, which normally projects into groove 39 of the clutch member 29. A cam 39 is formed in groove 39 and engages pin 36 to shift the cam member axially against the action of a spring 37. A second pin 38 is connected to pin 36 and operates as a...
catch to hold member 29 out of engagement with member 30. The construction of this automatic clutch is standard and forms no part of my present invention. Lever 34 is connected by a link or chain 39 with a suitable foot-lever 40, arranged in front of the rolls within convenient reach of the roller. Pivoted mounted upon shaft 19 is a catch 41, the arm 42 of which is connected by a link 43 with the cam-lever 31. Catch 41 is preferably provided with a tail 44, carrying an adjustable weight 45, which serves to partially counterbalance the weight of platform 14 and cam-lever 21. Extending between levers 18 and carried thereby is a shaft 46, which carries a stop-arm 47, adapted to be thrown down into position to be engaged by the catch 41. Secured to shaft 46 is a lever 48, to one end of which is connected a cable or other suitable connection 49, which is extended to a point in front of the rolls and there connected to a suitable foot-lever 50.

The operation is as follows: With the parts in the position shown in Fig. 1 clutch member 29 is out of engagement with clutch member 30. The rolls and sprocket 31 are rotated in the directions indicated by the arrows. Platform 14 has its forward portion 15 immediately adjacent the cross-bar 13 and in such position that a plate or pack issuing from between the rolls will pass upon said platform. Shaft 24 is rotated through catch 41 and link 43, partially supports the weight of the cam-lever 21, link 22, and the platform 14, and stop-arm 47 lies out of the path of the movement of catch 41. After the roller has inserted a pack of sheets between the rolls and said pack has been forced through between the rolls it passes out upon the platform 14. The roller thereupon steps upon lever 40, so as to pull the weighted lever 44, and thus allow clutch member 29 to pass into engagement with the clutch member 30, whereupon shaft 24 is rotated in the direction indicated by the arrow in Fig. 1, pitman 28 serving to swing levers 18 about shaft 19, so as to thus pull platform 14 away from the rolls, and cam 23 acting, through cam-lever 21 and link 22, to raise the free end of said platform, so that as levers 18 are again drawn to the front by pitman 28 the free end of the platform will be projected to the position shown in Fig. 2 above the upper roll and in such position as to present the rear end of the pack at a point where the roller may grasp the same with ease. As the parts pass through this position, Fig. 2, the roller grasps the pack and draws the same over the top roll, the parts continuing until the complete rotation of the shaft 24 has been accomplished, cam 23 allowing cam-lever 21 to drop suddenly, so that platform 14 may return to its initial position, Fig. 1, the forward end 15 of said platform swinging upon its pivot 16 and dragging for a short space upon the upper roll and then falling to the position shown in Fig. 1. It will of course be readily understood that cam 23 and the other parts might be so proportioned that the return movement would be such as to cause the free end of platform 14 to clear roll 12 without departing from my invention.

If the roller desires to gage the length of the sheet, he steps upon lever 50, so as to swing the stop-arm 47 down in the rear of catch 41, said cam and the cam-lever 21 into the position shown in Fig. 2. Thereupon the catch-arm serves to retain catch 41 in its rear position, and this operates, through link 43, to hold the cam-lever 80, link 22, and platform 14 in the position shown in Fig. 2 with relation to the levers 18, so that as shaft 24 continues to rotate until the complete revolution of the shaft has been accomplished and wrist-pin 27 returned to its initial position (see dotted lines, Fig. 3) the platform 14 will be held up in the position shown in dotted lines in Fig. 3, where the pack is supported in position to be easily gaged by the roller, who may, as has heretofore been the custom, use the usual gauge by passing the same over the top of the roll 12.

If the stack is of the proper size, the roller again steps upon lever 40, so as to throw the clutch 29 30 into operation, and shaft 24 is given another rotation, the initial movement causing the parts to pass to the position shown in full lines in Fig. 3, where the platform 14 is carried to such an inclination that the pack will slide off from the platform onto a carrying-off table or chute 65. As the shaft 24 continues to rotate after the finished pack has slid from the platform 14, the parts are returned to such position that the cam-plate 21 will contact with the cam 23, whereupon stop-arm 47 will pass from in front of the catch 41 and allow the parts to return to initial position. By this mechanism the services of the catcher are entirely dispensed with, and the plates are automatically handled and returned to the roller by mechanism which is completely under his control.

I claim as my invention:

1. The combination, with rolls for producing sheet metal, of a receiving-platform arranged back of said rolls to receive the product from between the rolls, means for projecting said platform above and over the upper roll within reach of the roller and for returning said platform to receiving position, and means for automatically inclining said platform to a position where the finished plate may slide therefrom.

2. The combination, with rolls for producing sheet metal; of a receiving-platform, arranged back of said rolls in position to receive the product from between the rolls, a swinging support supporting one end of said platform, means for projecting said platform above and over the upper roll within reach of the roller and for returning said platform to receiving position, and means for inclining said platform upon its support so as to discharge material from the rear end thereof.
3. The combination, with rolls for producing sheet metal, of a swinging support, a platform pivotally connected to said support at one end and having its other end extended toward the rolls, a shaft, and intermediate connections between said shaft, support and platform whereby the rotation of the shaft will cause the withdrawal of the platform from receiving position, project the same above and over the upper roll and return same to receiving position, for the purpose set forth.

4. The combination, with rolls for producing sheet metal, of a swinging support, a receiving-platform pivoted at one end to said support and having its free end extended toward the rolls, a shaft, a crank-and-pitman connection between said shaft and support, a cam carried by said shaft, and connections between said cam and platform for swinging the platform upon its support and for swinging the support, whereby the free end of the platform is projected above and over the upper roll.

5. The combination, with rolls for producing sheet metal, of a swinging support, a receiving-platform pivoted at one end to said support and having its free end extended toward the rolls, a shaft, a crank-and-pitman connection between said shaft and support, a cam carried by said shaft, a cam-lever carried by the support and engaging the cam, and a link connecting said cam-lever and platform.

6. The combination, with rolls for producing sheet metal, of a receiving-platform arranged to receive the product from between the rolls, a lever pivotally supporting said platform at its forward end, a shaft, intermediate connections between said shaft and lever for swinging said lever upon its fulcrum, and intermediate connections between said shaft and platform for swinging said platform upon its pivotal support, whereby a rotation of the shaft will withdraw the free end of said receiving-platform from receiving position, project said end over the upper roll and return said end to receiving position, substantially as and for the purpose set forth.

7. The combination, with rolls for producing sheet metal, of a receiving-platform arranged to receive the product from between the rolls, a lever pivotally supporting said platform at its forward end, a shaft, intermediate connections between said shaft and lever for swinging said lever upon its fulcrum, intermediate connections between said shaft and platform for swinging said platform upon its pivotal support, whereby a rotation of the shaft will withdraw the free end of said receiving-platform from receiving position, project said end over the upper roll and return said end to receiving position, and means for holding said platform in its elevated position with relation to its supporting-lever, whereby upon a second operation of the shaft the receiving-platform may be tilted so as to discharge the metal sheets by gravity from the forward end thereof.

8. The combination, with rolls for producing sheet metal, of a swinging support, a platform pivoted thereon and projecting toward the rolls, a shaft, a crank-and-pitman connection between said shaft and swinging support, a cam carried by the shaft, a cam-lever carried by the support, connections between said cam-lever and platform, a catch connected to said cam-lever, a stop-arm carried by the support, and means for throwing said stop-arm into position to be engaged by the catch, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal, at Elwood, Indiana, this 5th day of August, A. D. 1902.

CHARLES WILBUR BENNETT. [L.S.]

Witnesses:
C. HUNTER,
CHARLES MORRISON.