

No. 837,104.

PATENTED NOV. 27, 1906.

E. NORTON.
MILL FOR ROLLING SHEET METAL.
APPLICATION FILED APR. 8, 1905.

FIG. 1.

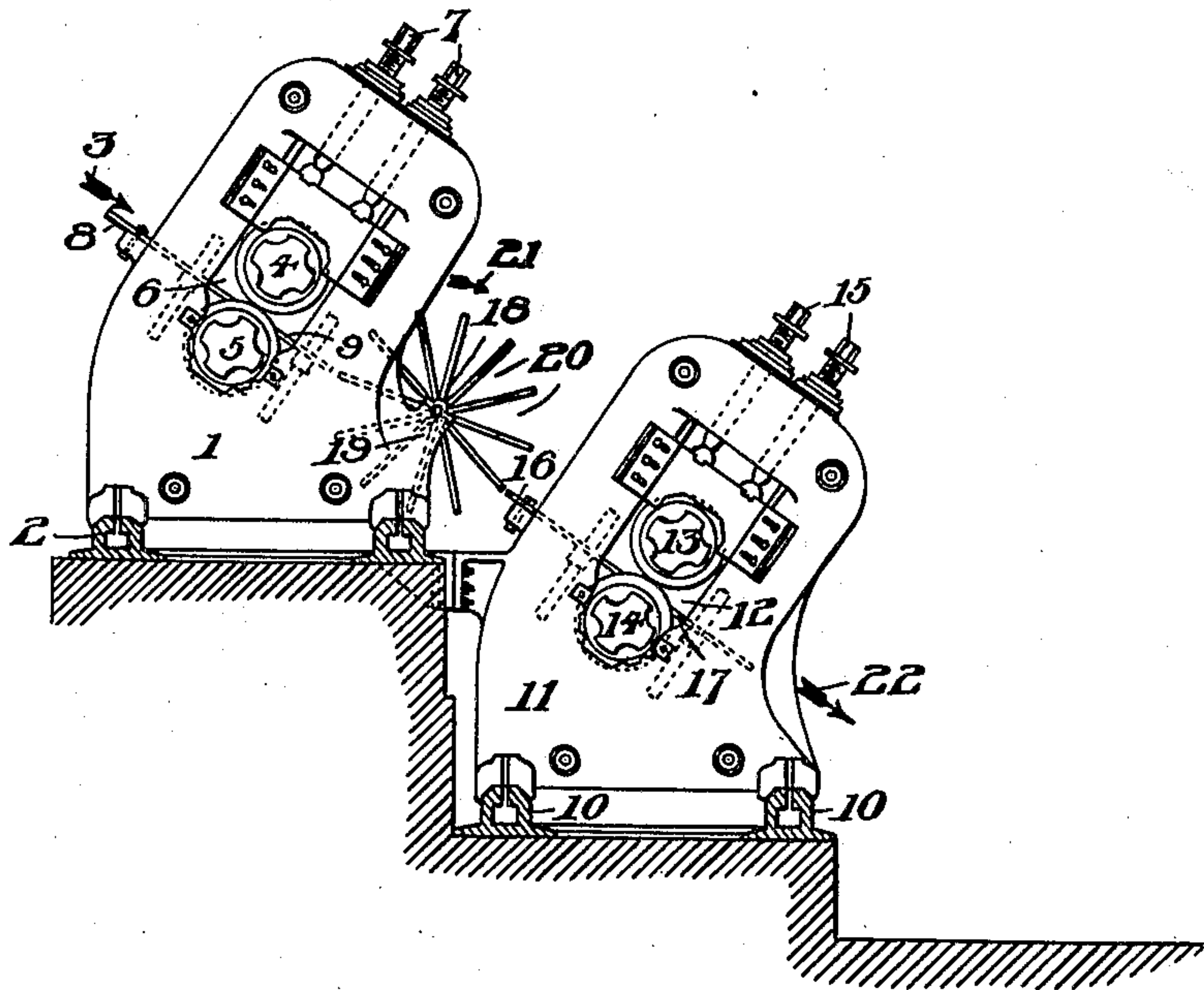
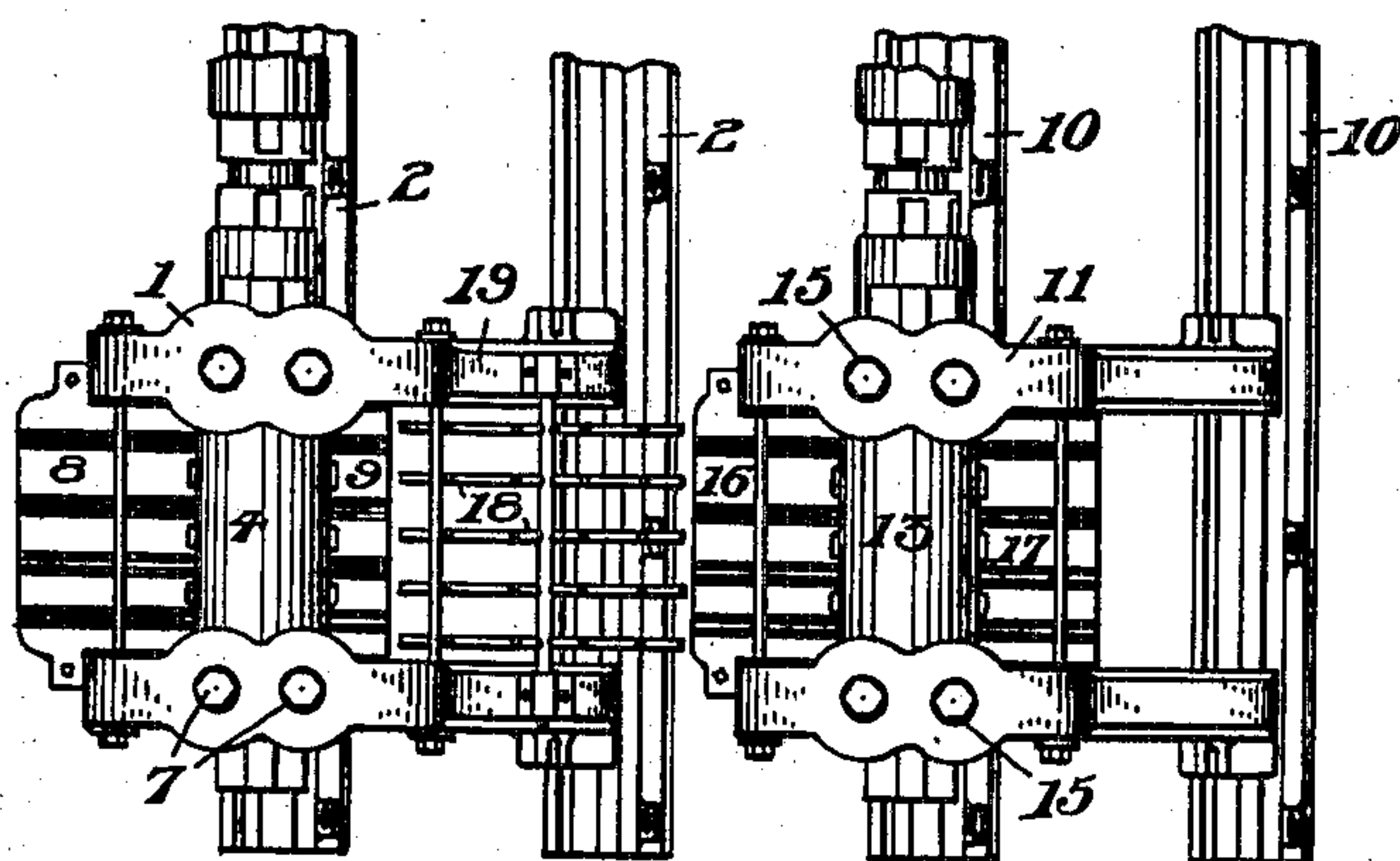


FIG. 2.



WITNESSES:

J. P. Appleman,
M. A. Bushman

INVENTOR,

Edmund Norton,
by
Prescoe Barber,
his ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWIN NORTON, OF NEW YORK, N. Y.

MILL FOR ROLLING SHEET METAL.

No. 837,104.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed April 8, 1905. Serial No. 254,616.

To all whom it may concern:

Be it known that I, EDWIN NORTON, of the city, county, and State of New York, have invented or discovered new and useful Improvements in Mills for Rolling Sheet Metal, of which the following is a specification.

My invention relates to mills for rolling sheet metal, and particularly to that class of mills where an inspection of the sheets is required as they are fed from one stand of rolls to another. Usually the inspection is made while the sheets are traveling flatwise just as they issue from the rolls, so that only one side of each sheet is inspected, or if both sides are to be inspected each sheet must be reversed by hand. This practice is manifestly inefficient.

In the cold rolling of sheets where they pass through several stands of rolls the same end foremost the molecules of the metal become strained or displaced, so as to produce iron of an inferior quality.

By my present invention the metal is cold rolled and reversed end for end between successive stands of rolls, permitting not only an inspection of the metal, but also securing a uniform and superior article.

I provide for the feeding of the metal into and through the rolls by gravity. This feature is valuable even where the reversing mechanism is omitted, as it saves feeding mechanism and the cost of repairs and operating the same.

My invention is designed with special reference to finishing metal plates preparatory to the pickling and tinning operations, though it is by no means to be confined to this purpose, as it may have use aside from a finishing-mill.

Referring to the drawings which accompany this specification and constitute a part thereof, Figure 1 is a side elevation of my inclined rolling-mill, and Fig. 2 is a view from above looking at right angles to the roll-passes.

In the drawings, 1 represents a pair of roll-housings slidable on the shoes 2 in the usual manner. The housings are inclined about forty-five degrees in the direction of the line of feed, which is indicated by the arrow 3; but the precise degree is not material.

The rolls 4 and 5 are mounted in inclined openings in the housing, one opening 6 being shown in Fig. 1. The upper roll 4 is ad-

justable by means of the screws 7 in a well-known manner.

8 and 9 represent tables or chutes on which the sheets are fed into and from the rolls 4 and 5.

Seated on the shoes 10 is a second pair of housings 11, inclined in the same direction as the housings 1. In the inclined openings 12 (one only being shown) in the housings 11 are the rolls 13 and 14, adjustable by means of the screws 15.

16 and 17 represent the tables or chutes on which the sheets are fed into and from the rolls 13 and 14.

The housings 11 are placed at a lower level than the housings 1 in order that the line of feed through the rolls 13 and 14 may be substantially in line with the line of feed of the rolls 4 and 5. The exact relation of the two sets of housings 1 and 11 is not necessarily as shown, as my invention is not to be limited to any definite difference between the levels of the rolls. Indeed in its broadest conception they may be on the same level.

Journaled between the two sets of housings 1 and 11 is the rotatable magazine or carrier 18, journaled in the projections 19 at the rear of the housings 1.

The carrier consists, preferably, of a shaft having spaced about its periphery a plurality of rows of fingers arranged like the spokes of several wheels in axial alinement. The openings or spaces between adjacent longitudinal rows of fingers or spokes constitute pockets 20, into which the sheets are fed from rolls 4 and 5. The carrier is rotated intermittently by any suitable mechanism readily devised by an ordinarily-skilled mechanic, so as to place one of the pockets 20 in position to receive a sheet as it issues from the rolls 4 and 5 and to rotate the same in the direction of the arrow 21 in time to bring the next lower pocket into position to receive the next sheet as it comes from the said rolls. The carrier conveys the sheets step by step, as described, until they have accomplished substantially a half-revolution, when they slide out of their pockets upon table 16 and into the pass of the rolls 13 and 14. The arrow 22 indicates the direction the sheets take after leaving the last-named rolls.

An inspector has his position at the end of the carrier and examines one surface of the sheet as it lies on the entering side of the car-

rier and the opposite surface as it lies on the discharge side thereof. As shown on Fig. 1, the inspector would have before him seven sheets, some having one surface exposed, 5 some having the opposite surface exposed, and still others having both surfaces within his view.

The importance of my invention will be apparent when it is remembered that within 10 but little more than twice the length of the longest sheets which the carrier can transfer I am enabled to keep in motion from one stand of rolls to another possibly not over five or six feet therefrom a large number of 15 sheets, and this as fast as the rolls can feed them. The sheets are fed automatically by gravity from the table 8 through both sets of rolls and over the carrier, leaving the inspector to devote his whole time to the in- 20 spection and the withdrawal or reversal of defective sheets.

If the roll-passes were at the same level, the sheets would have to be fed to and from the rolls and to and from the magazine or 25 carrier by hand or some mechanical devices. This feature of my invention has utility alone where it is desired to feed metal in any form from one stand of rolls to another, as is evident.

My invention is susceptible of many modifications, and I do not desire the same to be

restricted to the details or the combinations shown unless the claims or the state of the art permit no broader interpretation thereof.

Of course the elements of my invention 35 may be added indefinitely, so that sheets may pass successively from any stand of rolls to another and be reversed between each successive pair of stands.

Having described my invention, I claim— 40

1. The combination of two sets of rolls, one at a higher level than the other, and a rotary carrier between the said sets of rolls at an intermediate level, the levels being such that the higher set of rolls feeds the work by 45 gravity into said carrier and said carrier feeds the work by gravity to the rolls of the lower set.

2. The combination of two sets of rolls, and a rotary carrier therebetween, having 50 about its periphery a series of radial pockets.

3. The combination of two sets of rolls, and a rotary carrier therebetween, having about its periphery a series of radial open- 55 sided pockets.

Signed at New York city this 1st day of February, 1905.

EDWIN NORTON.

Witnesses:

J. GALLWITZ,
WM. L. PIERCE.