No. 752,444. PATENTED FEB. 16, 1904.

E. ESSELIUS.

SHIFTING MECHANISM FOR CONVEYING TABLES.

APPLICATION FILED JULY 27, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

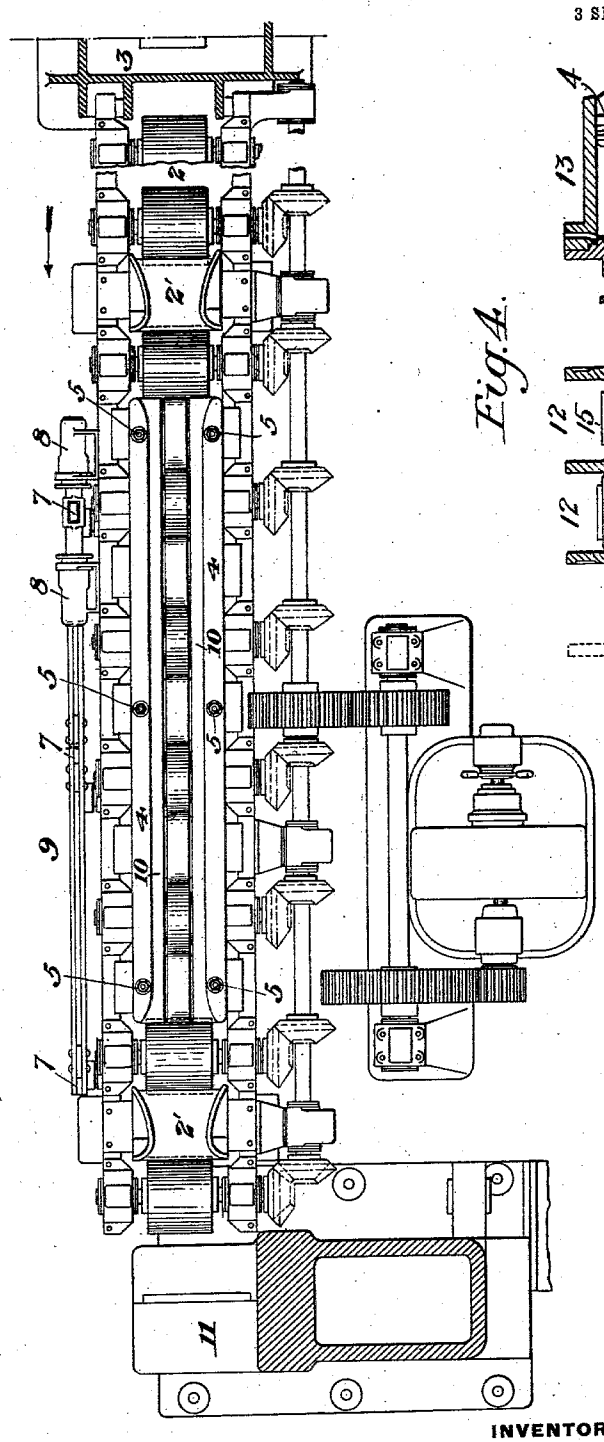
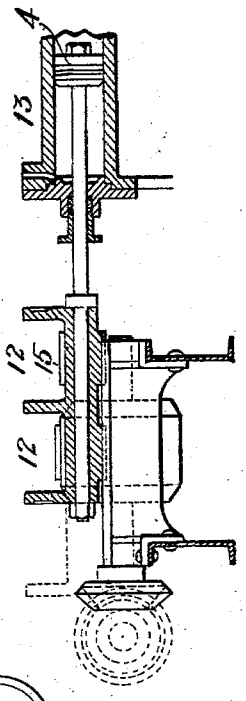


Fig. 4.



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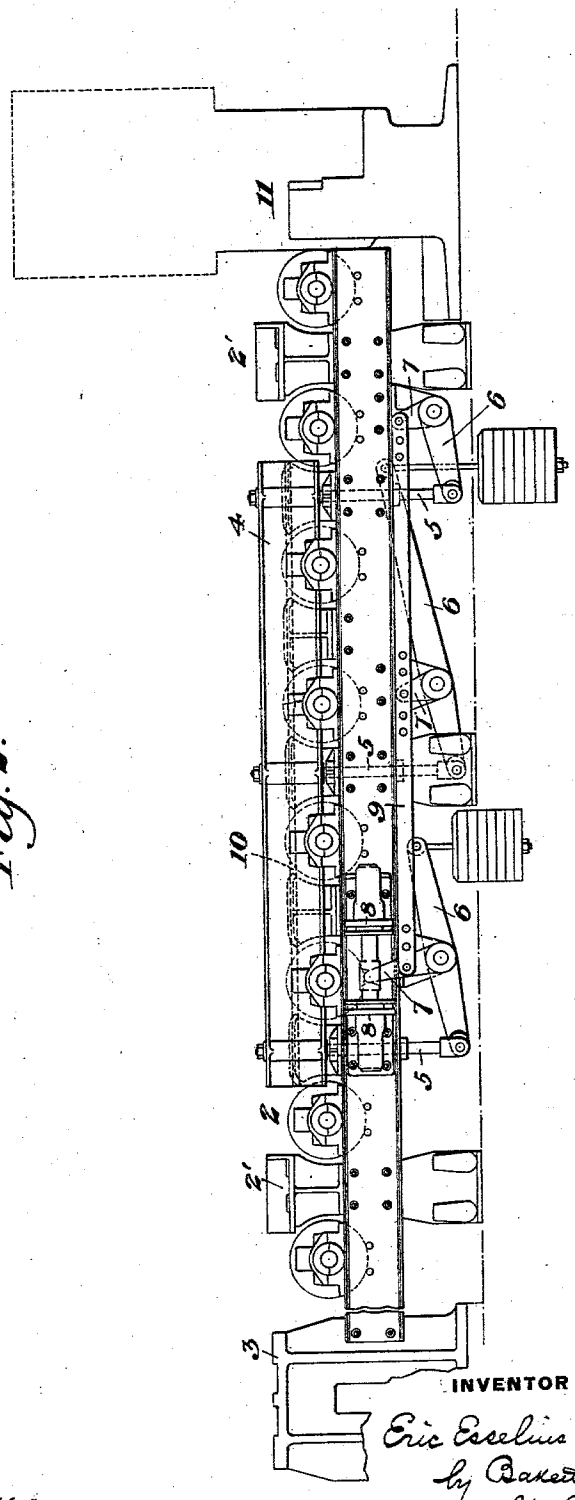
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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

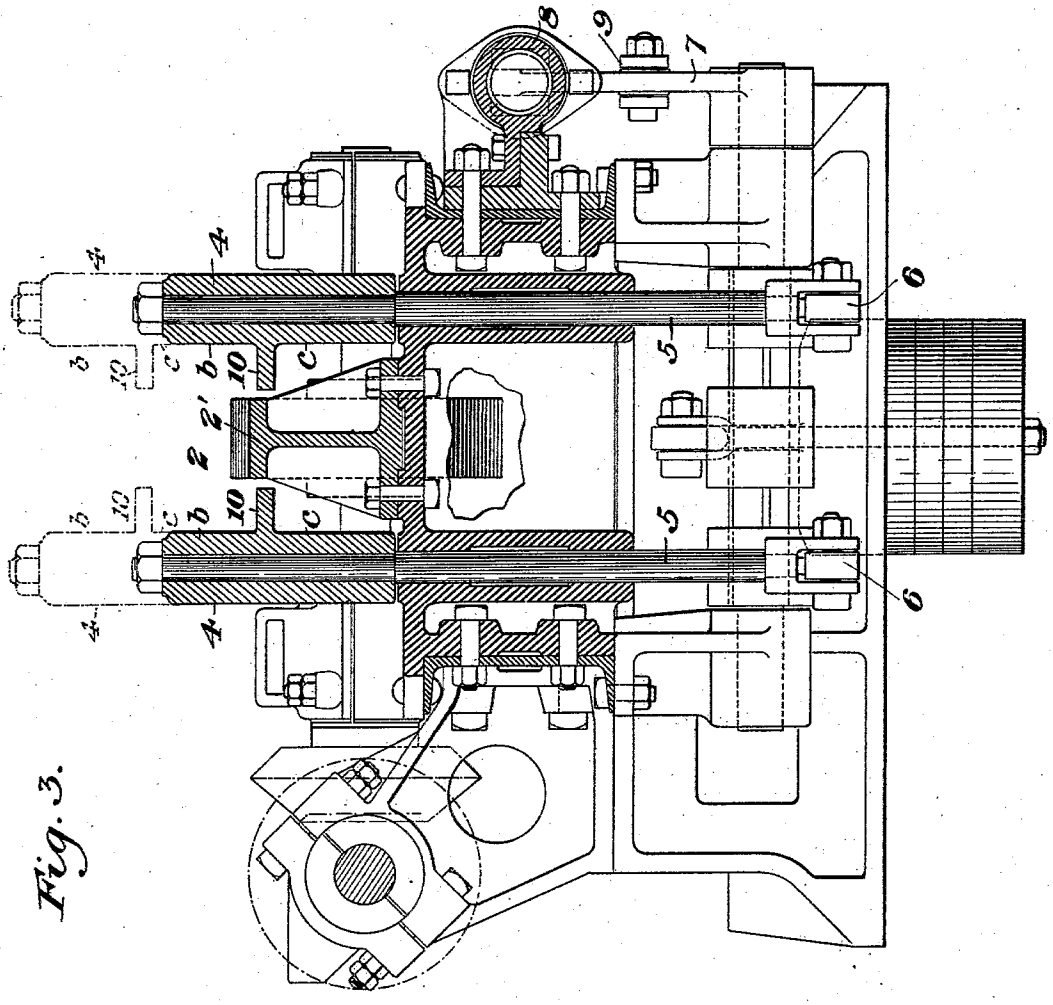


Fig. 3.

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UNITED STATES PATENT OFFICE.

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SHIFTING MECHANISM FOR CONVEYING-TABLES.

SPECIFICATION forming part of Letters Patent No. 752,444, dated February 16, 1904.

Application filed July 27, 1903. Serial No. 167,065. (No model.)

To all whom it may concern:

Be it known that I, ERIC ESSELIUS, of Steubenville, Jefferson county, Ohio, have invented a new and useful Shifting Mechanism for Conveying-Tables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is to provide in a conveying-table for metal-shears and the like a shifter which will temporarily remove from the path of feed any desired bloom or billet and mechanically return same to the feed-table at the pleasure of the operator.

In the accompanying drawings, Figure 1 is a plan view of my improved shifting mechanism, showing the conveying-table and the feed-rollers. Fig. 2 is a side elevation. Fig. 3 is a cross-section of the conveying-table, shown on a larger scale; and Fig. 4 is a cross-section of a shear-table, showing a modified form of shifter.

In some mills for rolling metal—for example, in rolling tin bars and billets—it is customary to roll a bloom of definite size, so as to yield a bar as nearly as possible of the desired length, which at the end of the rolling operation can be sheared into a definite number of uniform pieces; but where this practice is not followed and where the metal is rolled from an ingot which will yield blooms of uncertain dimensions the rolled piece will not be divisible into standard pieces of equal length, but when sheared into sections there will usually be at the front end a shorter section of sufficient length to utilize, but requiring its front end to be cropped or sheared before it is piled or otherwise removed from the shear-table. If such shorter section be cropped before the other sections of standard length in its rear have been removed from the shear-table, the time occupied in so doing will delay the entire line of metal pieces and will cause a stoppage of the entire operation. The delay thus occasioned restricts the production of the mill. My invention prevents such loss of time; and it consists in providing a conveying-table with a shifting-section by which the short advance piece needing cropping can be temporarily removed from the table out of the path of the other metal pieces, permitting the latter to be fed forward and removed without interruption, the shifting-section being then replaced, so that the short piece may be cropped and in turn delivered.

In the drawings, in which I show my apparatus in what I consider its preferred form, 2 represents a conveying-table composed of a series of driven feed-rollers with intermediate aprons 2′ set in line with a set of power-shears 3, to which the metal is delivered from the finishing-rolls of the mill. When the metal bar delivered from the rolls has been sheared into sections, as above described, the short piece in advance will lie on the feed-rollers on the delivery side of the final shears 3. For the purpose of removing it temporarily from the path of the other pieces in the rear I employ a shifter, which, as shown in the drawings, consists of a lifting-frame 4 4, supported by rods 5 and adapted to be raised and lowered by levers 6 and cranks 7, operated by a hydraulic cylinder 8 or other suitable motor, the several cranks being connected by a link 9. The frame 4 has supporting portions 10, which are adapted to support the metal and normally rest below the level of the feed-rollers 2, so as not to obstruct the rollers. When the advance piece of metal to be shifted has been delivered by the feed-rollers within the frame 4, the cylinders 8 are actuated to lift the frame, thus raising the metal above the level of the rollers and permitting the pieces in the rear to be carried forward under the elevated section. When these pieces have passed, the shifting-frame 4 is lowered, so as to deposit the metal again upon the rollers, whereupon it can be advanced so as to bring between the blades of the shears 11 the end to be cropped, and when cropped thereby it can be carried forward to the piling mechanism.

It will be seen by reference to the drawings that the frame 4 has side portions *b* above the supports 10 and similar portions *c* below the same. When the frame is in its lowest position, the upper surfaces *b* serve as the side guides for the table 2, and when the frame is

raised the lower surfaces *c* serve the same function. The supporting portions 10 are preferably continuous, or nearly so, extending longitudinally of the table, so that the advance piece of metal can be lifted while in motion without the delay which would be occasioned by first stopping it.

In the modification shown in Fig. 4 a double shifting-trough 12 12, capable of being laterally moved by a suitably-arranged hydraulic cylinder 13 and piston 14 or equivalent means, is adapted to carry the section to be delayed, as 15, to one side of the line of travel of the other sections at the same time to bring the other portion of the shifting-trough into the line of travel of the moving sections to serve as lateral guides for such moving sections.

By reversing the movement of the lateral shifter the length 15 is replaced upon the feed-rollers to be delivered to the cropping-shears.

Within the scope of my invention the apparatus may be modified in various ways, since

What I claim is—

1. In combination with a direct-feed table for metal bars, a shifter adapted to shift temporarily from the line of feed a section of the metal to permit the uninterrupted feed of the section or sections in the rear; substantially as described.

2. In combination with a continuous-feed-conveying table for metal bars, a shifter intermediate thereof adapted to shift temporarily a section of the metal to permit the uninterrupted feed of the section or sections in the rear to a set of shears in advance of said shifter; substantially as described.

3. In combination with a conveying-table for metal bars, a shifter, whose supporting portions are normally below the conveying mechanism of the table and are adapted to be raised vertically above the same; substantially as described.

4. In combination with a conveying-table for metal bars, a shifter whose supporting portions are normally below the conveying mechanism of the table and are adapted to be raised above the same, said shifter having guiding-surfaces at the sides of the table above and below the supporting portions for guiding the metal on the table in both positions of the shifter; substantially as described.

5. In combination with a conveying-table for metal bars, a shifter adapted to shift temporarily a section of the metal to permit the passage of the section or sections in the rear, said shifter having supporting portions extending longitudinally of the table; substantially as described.

6. In combination with a direct-feed table for metal bars, a shifting mechanism at an intermediate point thereof adapted to remove a section of metal out of the line of feed, whereby succeeding sections may follow the direct feed; substantially as described.

In testimony whereof I have hereunto set my hand.

ERIC ESSELIUS.

Witnesses:
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H. M. CORWIN.