(No Model.) 2 Sheets—Sheet 1.

J. A. POTTER.

ROLLING MILL FEED TABLE.

No. 546,623. Patented Sept. 17, 1895.

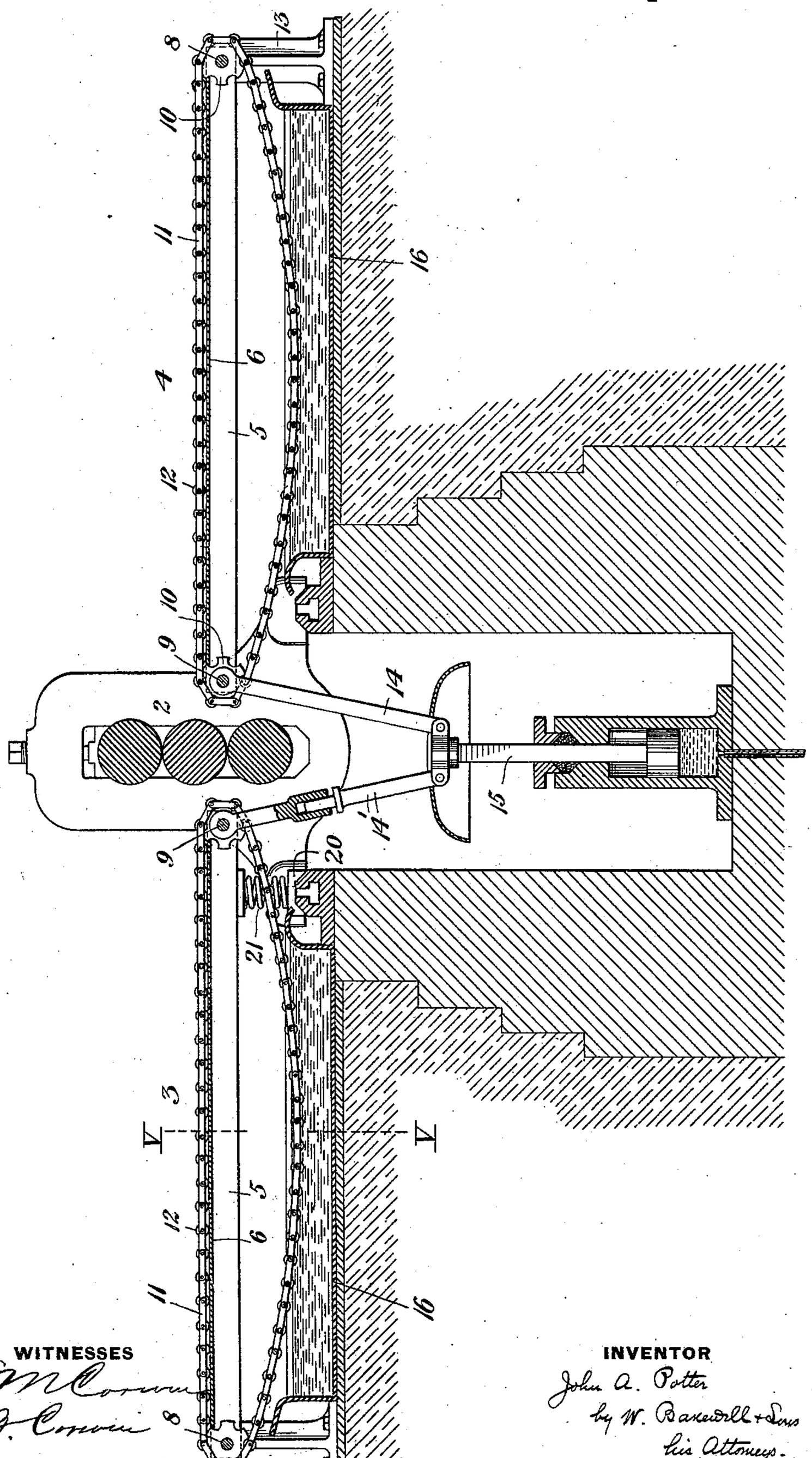

Fig. 1.

WITNESSES

D. F. McConnell

W. B. Conwell

INVENTOR

John A. Potter

by W. Baxewell & Sons

his Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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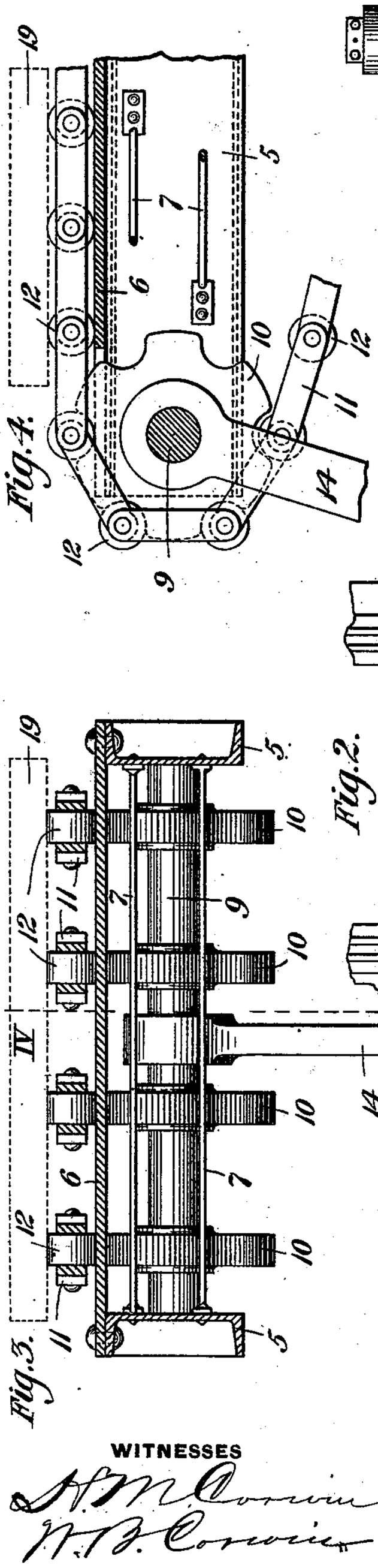

Fig. 4.

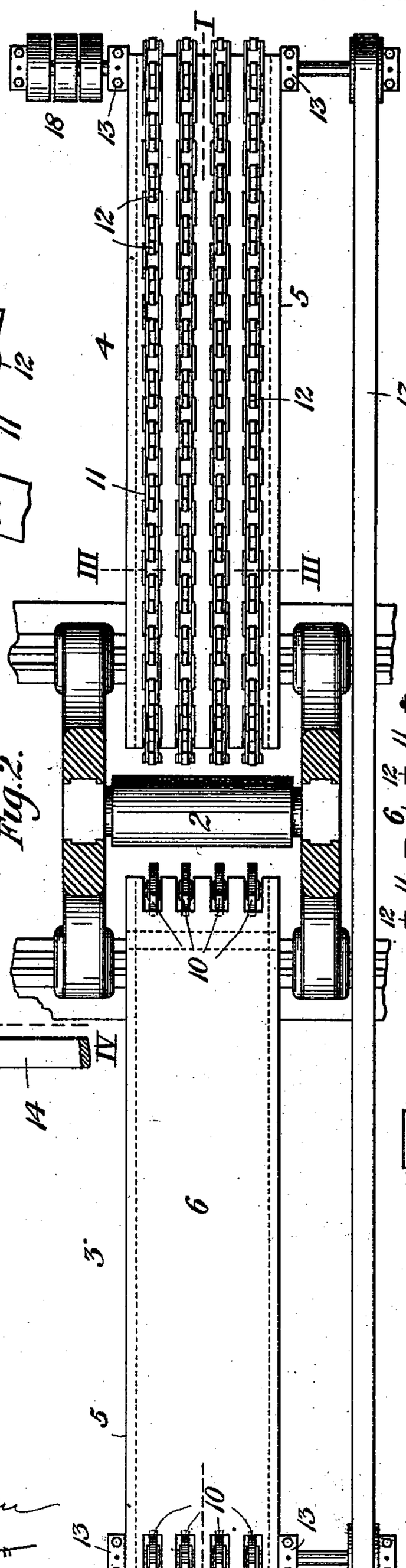

Fig. 2.

Fig. 3.

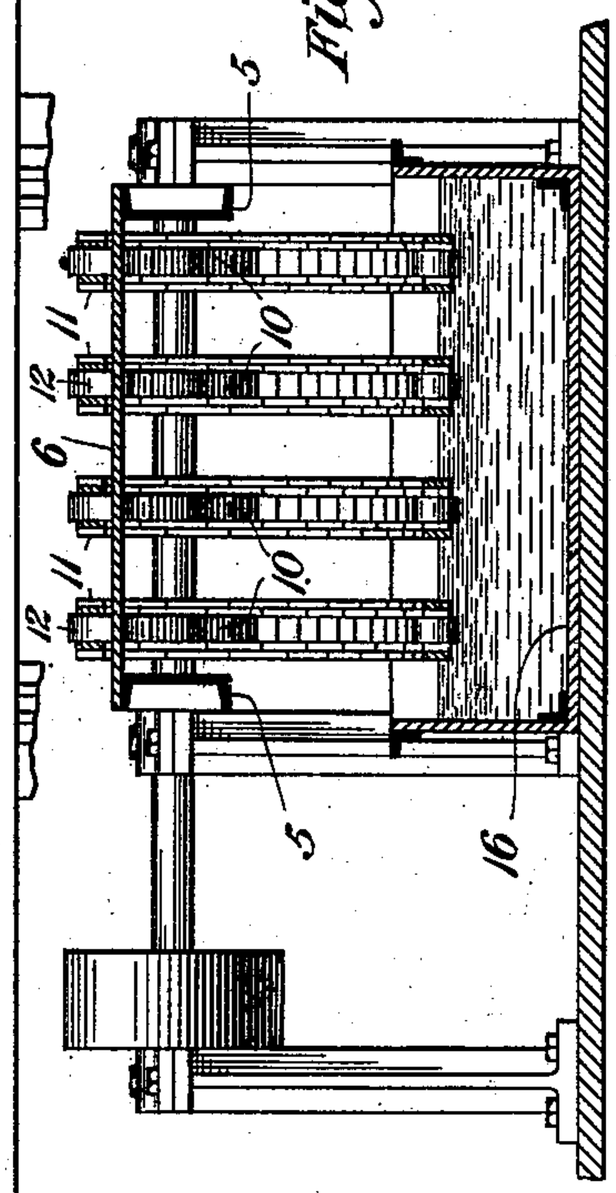

Fig. 5.

WITNESSES

N. B. Comwell

N. B. Comwell

INVENTOR

John A. Potter

by his Attorneys

W. Baxendell & Sons.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

JOHN A. POTTER, OF CLEVELAND, OHIO.

ROLLING-MILL FEED-TABLE.

SPECIFICATION forming part of Letters Patent No. 546,623, dated September 17, 1895.

Application filed January 9, 1895. Serial No. 534,308. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. POTTER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Rolling-Mill Feed-Tables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows my improved feed-tables applied to a rolling-mill, the apparatus being in vertical longitudinal section on the line I I of Fig. 2. Fig. 2 is a plan view, partly in horizontal section, of the same. Fig. 3 is a vertical cross-section on the line III III of Fig. 2. Fig. 4 is a detail view in side elevation, partly in vertical section; and Fig. 5 is a vertical cross-section on the line V V of Fig. 1.

In the drawings, 2 represents a set of rolls and their housings, in connection with which my improved feed-tables are used.

3 and 4 are the feed-tables, set in line with each other on opposite sides of the rolls, each being constructed as follows: The table is made up of side beams 5 and a horizontal top plate 6, which may be fixed together, as shown in Fig. 3, and suitably braced by tie-rods 7. At each end of the table is a cross-shaft 8 9, carrying a suitable number of sprocket-wheels 10, around which pass endless chains 11, extending lengthwise of the table. At the joints between the links of each chain are journaled rollers 12, which travel upon the top plate 6. These rollers are of small diameter, preferably about one inch, more or less, and not more than about four inches, and, as shown in the drawings, the rollers of each transverse line are separate from each other at their ends. In order that the tables may be vertically movable where vertical movement is required, I pivot the rear end of each table on the axis of its shaft 8 in supports or standards 13, and I connect the front end of the table by a link 14 or otherwise with a lifting-ram 15, set in vertical position beneath the rolls and between the tables, and by vertical motion of this ram the tables may be moved together from the lower to the upper pass of the rolls, or vice versa. Beneath each table I prefer to place a pan 16 containing water, so that whether the table is in lowered or in raised position the chains resting in the water are cooled thereby and are washed from scale, &c. The sprocket-chains are driven by means of suitable connecting mechanism, it may be by a belt 17 and pulleys 18, from a main driving engine. As shown in the drawings, this mechanism is constructed so that the chains may be driven in either direction, and so that by their reversal the metal may be passed back and forth between the rolls.

In using the tables to deliver metal to the rolls or to carry it therefrom the sprocket-chains are driven, and thereby cause the rollers to travel over the surface of the plate 6. The metal piece 19 is placed upon the rollers, and as the latter, by reason of their rotation upon the plate, have a greater surface speed than the chains the metal piece is moved along the table at such greater speed toward or from the rolls accordingly as the chains are driven in one direction or the other. Rapid travel of the metal can thus be had with a slow travel of the sprocket-chains, and this is obviously an important advantage in the operation of the apparatus. The metal piece can thus be delivered to the rolls and passed back and forth between them, and by means of the lifting mechanism below described, and which is employed when the tables are used with three high rolls, it can be made to pass alternately through the upper and lower passes in the usual manner.

As shown in Fig. 1, both tables 3 4 are connected by the arms 14 14′ to the same lifting-ram 15, so that both are raised simultaneously. It is desirable that one of the tables 3 should not have such long motion as the other table 4, so that when the tables are in their lowest position the delivering-table 3 shall be a little higher than the receiving-table 4, and that when they are in elevated position the then receiving-table 3 shall be a little lower than the then delivering-table 4. To effect this I make the arm 14′ in two parts telescoped together or otherwise arranged so as to be capable of some loose longitudinal motion, said arm being also somewhat shorter than the other arm 14, and at the desired limit of down motion of the table 3 I place a supporting block or stop 20 and a cushioning-spring 21. When the table reaches this stop it rests

thereon, and the lifting-ram, by reason of its loose joint, continues to descend, so as to carry the table 4 down into a lower position.

The advantages of the invention will be appreciated by those skilled in the art.

The apparatus is simple in construction, it is cheap and very efficient in its operation, and is otherwise more satisfactory for many classes of work than the feed-tables heretofore in common use. The plate 6, on which the rollers travel, keeps currents of air from striking and chilling the hot metal piece, and the rollers being of small diameter, and consequently of small mass, do not deprive the metal of heat by conduction to the same extent as do the rollers of the feed-tables now commonly employed. The tables are therefore of great utility, especially when applied to the rolling of metal plates or sheets whose rapid loss of heat is ordinarily a troublesome factor in rolling operations.

I claim—

1. A rolling-mill feed-table comprising a series of parallel chains each equipped with sets of rollers, and means for moving the chains, whereby the rollers are caused to travel lengthwise of the table and to move the metal pieces placed upon their surfaces; substantially as described.

2. A rolling mill feed table comprising a series of parallel chains each equipped with sets of rollers, and means for moving the chains in both directions, whereby the rollers are caused to travel lengthwise of the table and to move the metal pieces placed upon their surfaces, said table having a plate surface underlying the rollers and by which air currents are excluded from striking the metal from below; substantially as described.

3. A rolling-mill feed-table comprising a table-frame provided with endless chains bearing rollers, and having a surface on which said rollers travel and rotate, and means for moving the table vertically; substantially as described.

4. Rolling-mill feeding apparatus comprising feed-tables set on the opposite sides of the rolls, and having common lifting mechanism, one of the tables being connected therewith by a loose connection to permit unequal motion of the tables and having a stop-cushion; substantially as described.

5. Rolling-mill feeding apparatus comprising feed-tables set on the opposite sides of the rolls, and having common lifting mechanism, one of the tables being connected therewith by a loose connection to permit unequal motion of the tables; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN A. POTTER.

Witnesses:
T. W. BAKEWELL,
F. B. CARPENTER.