

July 16, 1929.

H. M. NAUGLE ET AL

1,721,352

COIL BOX FOR ROLLING MILLS

Filed Dec. 12, 1924

3 Sheets-Sheet 1

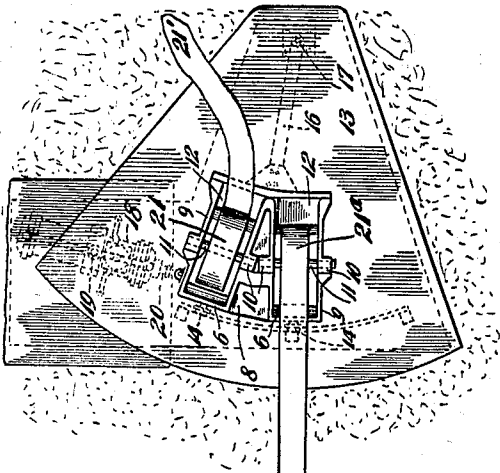


Fig. 1

C

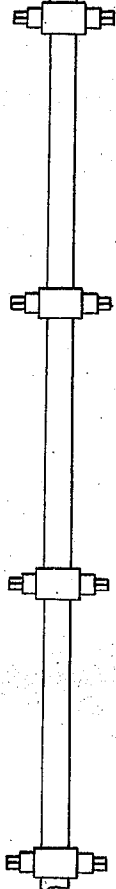
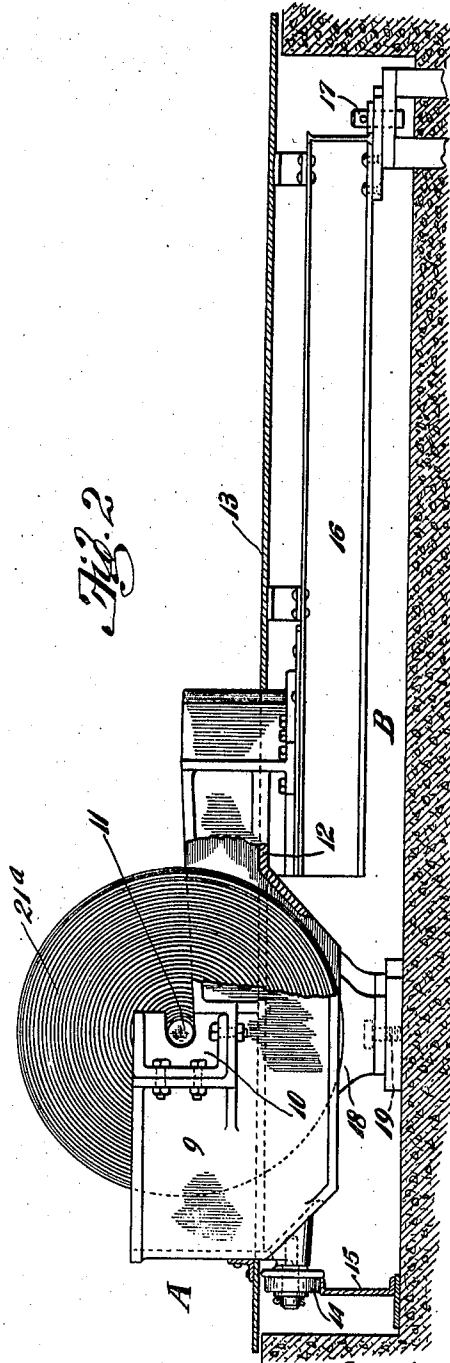


Fig. 2



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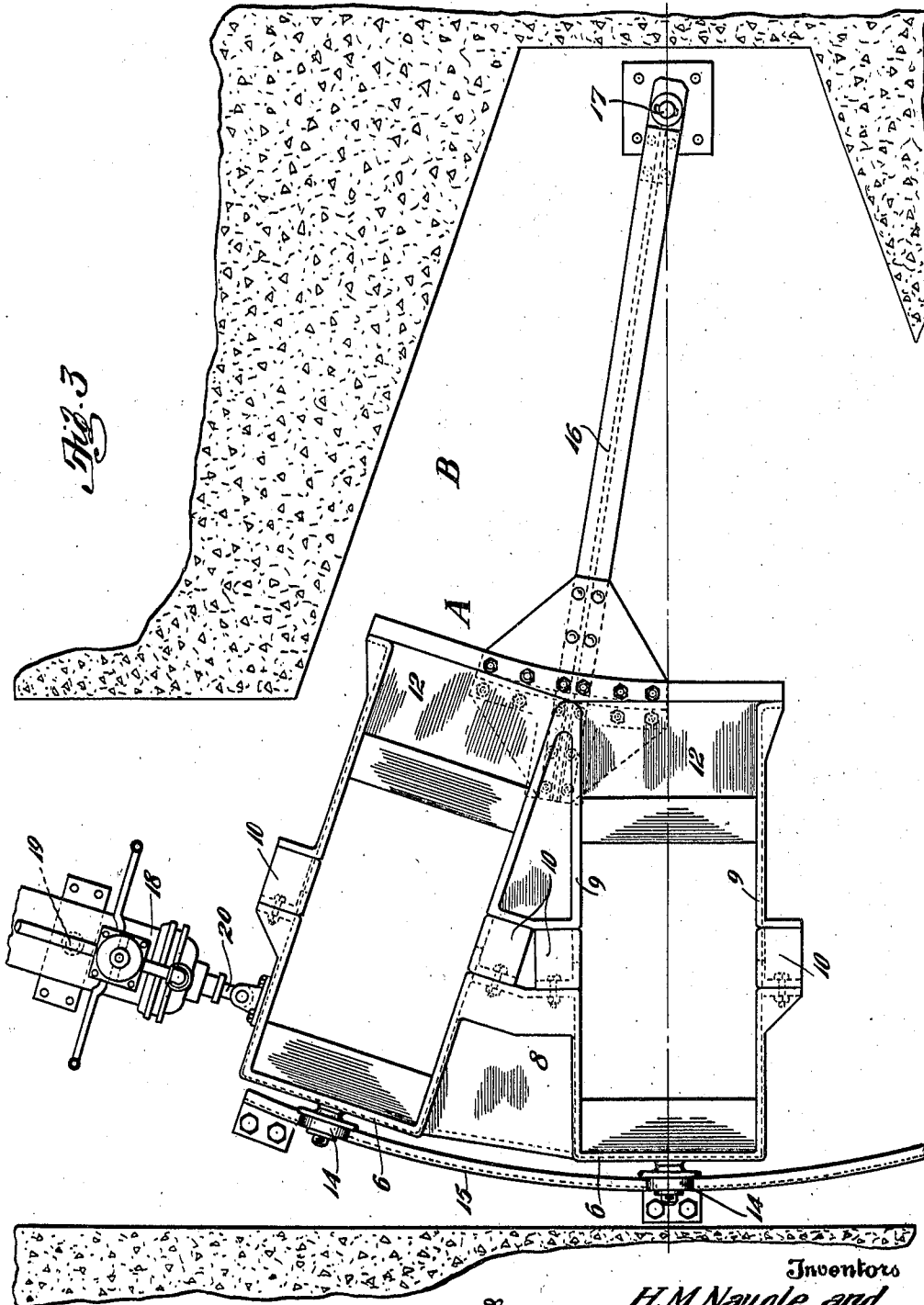
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3 Sheets-Sheet 3

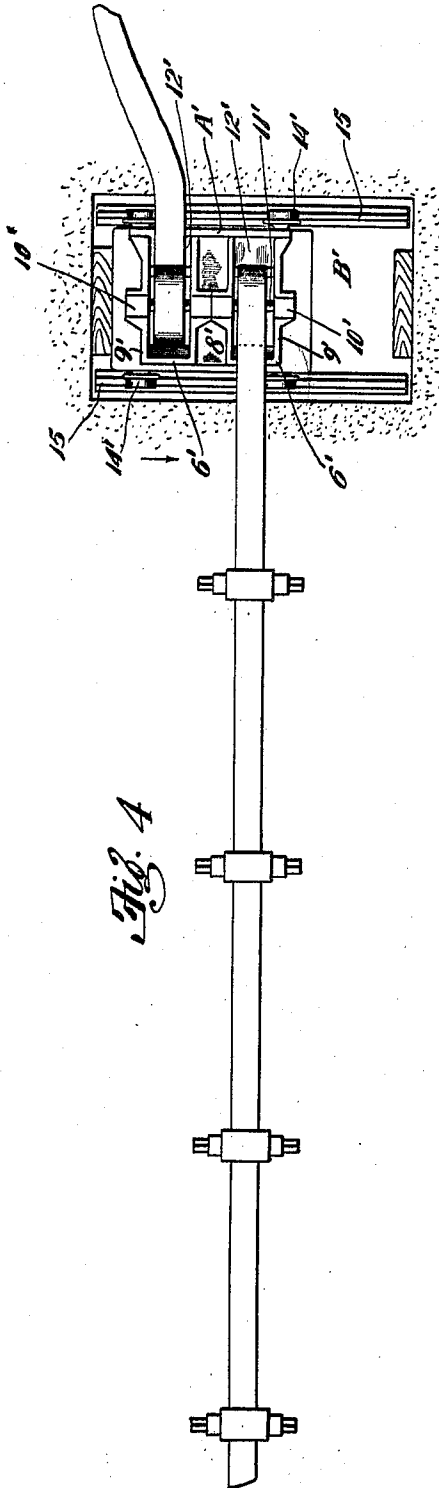


Fig. 4

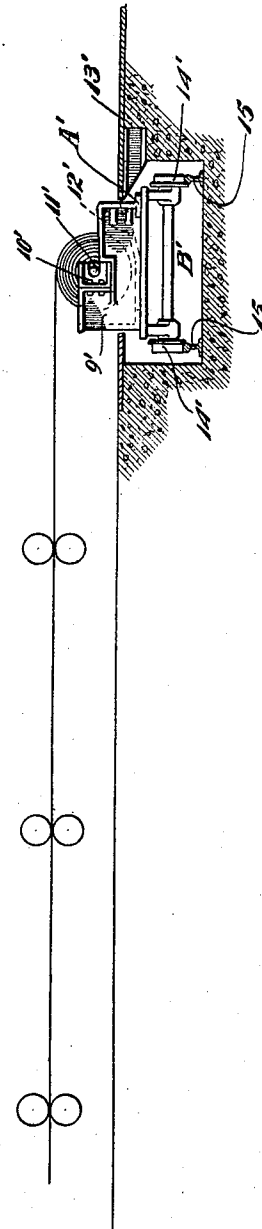


Fig. 5

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UNITED STATES PATENT OFFICE.

HARRY M. NAUGLE AND ARTHUR J. TOWNSEND, OF CANTON, OHIO, ASSIGNORS, BY
MESNE ASSIGNMENTS, TO THE AMERICAN ROLLING MILL COMPANY, OF MIDDLE-
TOWN, OHIO, A CORPORATION OF OHIO.

COIL BOX FOR ROLLING MILLS.

Application filed December 12, 1924. Serial No. 755,585.

The invention relates to racks or boxes in which a coil of strip steel or the like may be carried for unwinding, to pass continuously through a rolling mill, an annealing apparatus, or for other endwise operations on the strip; and the object of the improvement is to connect a plurality of coil carrying boxes together, and to mount the same so that either one of the boxes may be moved alternately into and out of alinement with the operating apparatus.

A coil of strip steel is very heavy and cumbersome to handle and to properly position by manual means, especially when the coiled strip has a length of a hundred feet or more and a width of some twenty inches, as in recent practice; and before proceeding with a continuous endwise operation upon the strip, the coil must be properly positioned in exact alinement with the operating apparatus, and it is frequently necessary to cut or trim or otherwise work upon the forward end of the strip before it can properly enter the apparatus.

Furthermore, a series of strips are frequently wound, one upon another, which makes a very heavy coil and when the successive strips are unwound for rolling it is frequently necessary to cut the fish-tail from the next coil before it can be processed.

For the purpose of facilitating the handling of such a coil, and for rapidly bringing it in proper position and exact condition for a continuous operation upon the strip, the present improvement consists in joining two or more individual boxes side by side to form a common carrier, and in mounting the same upon a track or bearing for alternately shifting either one of the boxes into proper position for unwinding a coil therein, and another box in proper position for receiving a fresh coil and preparing it for a continuous operation.

A preferred form of the invention and some modifications thereof are illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a plan view of the improved box carrier in conjunction with a train of rolls;

Fig. 2, a side elevation partly in section of the coil box carrier;

Fig. 3, a plan view of the same with the pit cover removed;

Fig. 4, a plan view of a modified arrangement of the box carrier; and

Fig. 5, a side elevation of the same.

Similar numerals refer to similar parts throughout the drawings.

The carrier A or A' may include two or more coil boxes 6 or 6' connected together by a suitable web or frame plate 8 or 8'; and the side walls 9 or 9' of the boxes may be provided with journal bearings 10 or 10' open on the rear for receiving a trunnion bar or spindle 11 or 11' located in the axis of the bundle.

The carrier is preferably mounted in a pit B or B' with the normal bottom 12 or 12' in the plane of the factory floor; and a cover plate 13 or 13' may be secured to the carrier as in Figs. 1 and 2 or to the floor as in Figs. 4 and 5 to close the opening of the pit; and in either case the cover plate forms a platform upon which a coil can be rolled for entering it into one of the boxes.

The bottom of each box may be formed as a hopper with an opening therein for freely receiving the coil when its trunnion bar is mounted in the bearings; and the side walls of the boxes are preferably inclined upward and rearward from the bearings, so as to form skids upon which the trunnions may bear and may be guided into the bearings when a coil is rolled into the box from the factory floor through the rear open end of the box.

As shown in Figures 1 and 2, the forward end of the carrier is provided with flanged wheels 14 riding on an arcuate track 15 and the rear end of the carrier is provided with a radial beam 16 pivoted to a pintle post 17 at the center of the arcuate rail, so that the carrier may ride to and fro upon the rail by turning on the pintle post.

Or as shown in Figures 4 and 5 the carrier may be provided at front and rear with parallel pairs of wheels 14' riding on a track formed by straight rails 15; upon which the carrier may ride laterally to and fro.

A cylinder 18 may be mounted for turning on a pivotal post 19 with a piston rod

20 pivotally connected to one side of the carrier for moving the same to and fro by compressed air, steam or the like in well known manner.

5 In the use of the carrier a strip coil 21 may be rolled from the rear into one of the boxes, while another coil 21^a is being unwound in a laterally adjacent box for rolling through a mill C, as shown in Fig. 1; 10 and the end 21' of the one coil can be cut or otherwise made ready while the other coil is being processed.

Furthermore, when a series of strips are wound on one coil, the carrier can be moved 15 laterally when one strip is unwound for preparing the next strip; and at the same time another coil in another box is brought into position for unwinding and rolling a strip therefrom.

20 We claim:

1. In a strip mill or the like, a carrier, a platform associated with the carrier, the carrier including a plurality of coil boxes mounted for movement to bring each box 25 alternately into operative alignment with the mill.

2. In a strip mill or the like, a carrier, a platform associated with the carrier, the carrier including a plurality of coil boxes 30 side by side mounted for lateral movement to bring each box alternately into operative alignment with the mill.

3. In a strip mill or the like, a carrier including a plurality of coil boxes, a platform associated with the carrier, and means 35 for moving the carrier to bring each box alternately into operative alignment with the mill.

4. In a strip mill or the like, a carrier 40 including a plurality of coil boxes side by side, a platform associated with the carrier, and means for moving the carrier laterally to bring each box alternately into operative alignment with the mill.

45 5. In a strip mill or the like, a carrier including a plurality of coil boxes, a platform associated with the carrier, wheels for the carrier, and a track for the wheels, the carrier being movable on the track for 50 bringing each box alternately into operative alignment with the mill.

6. In a strip mill or the like, a carrier

including a plurality of coil boxes, a platform associated with the carrier, wheels for 55 the carrier, an arcuate track for the wheels, a pintle post, a radial beam pivoted to the pintle post and connected to the carrier for permitting movement of the carrier to bring each box alternately into operative 60 alignment with the mill.

7. In a strip mill and the like, a carrier including a plurality of coil boxes, a platform associated with the carrier, wheels for the carrier, an arcuate track for the wheels, 65 a pintle post, a radial beam pivoted to the pintle post and connected to the carrier for permitting movement of the carrier to bring each box alternately into operative alignment with the mill, and means for piv- 70 otting the carrier about the pintle post.

8. In a strip mill or the like, a carrier, a platform associated with the carrier, the carrier including a plurality of coil boxes, wheels for the carrier, a track for the wheels, 75 and journal bearings in the coil boxes having horizontally opening bearing slots for receiving the spindle of a coil, the carrier being movable on the track for bringing each box alternately into operative alignment with 80 the mill.

9. In combination, a plurality of roll stands, and a laterally oscillatable carrier having horizontal bearing slots thereon for 85 jouralling therein a coil spindle.

10. In combination, a plurality of roll stands, a laterally oscillatable carrier, a platform associated with the carrier, a plurality of coil boxes in the carrier having horizontal bearing slots for jouralling 90 therein a plurality of coil spindles, the center line of the spindles being substantially normal to the median line of the roll stands.

11. In combination, a plurality of roll stands, a laterally oscillatable carrier, and a 95 platform associated with the carrier, hopper indentures in the carrier forming coil boxes, horizontal bearing slots in the side walls of the coil boxes for receiving coil spindles, the coil spindles being parallel 100 to the axes of the roll stands.

In testimony that we claim the above, we have hereunto subscribed our names.

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ARTHUR J. TOWNSEND.