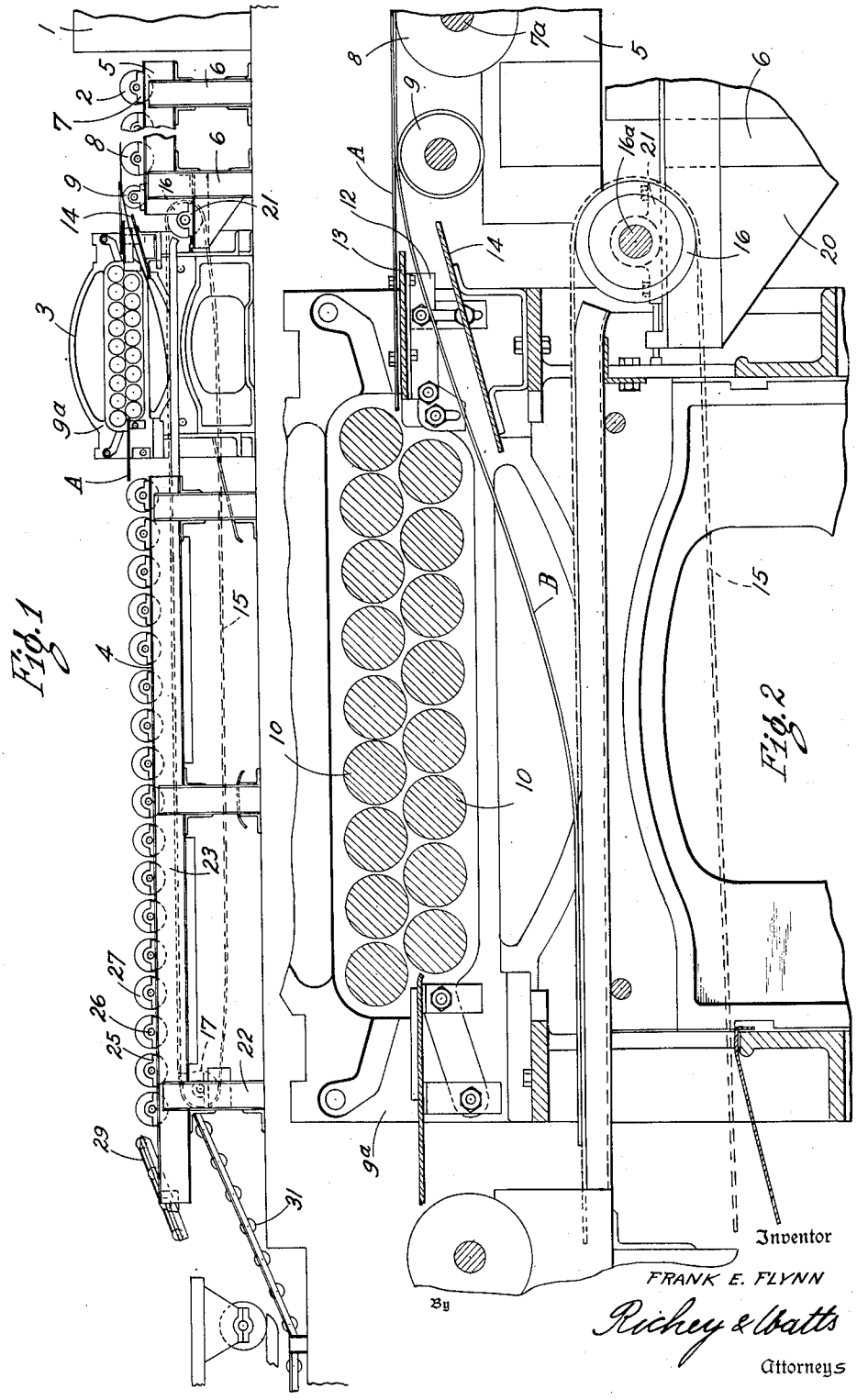
Nov. 27, 1934. F. E. FLYNN 1,982,607

STRIPPER AND CONVEYER FOR CARRIER SHEETS

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STRIPPER AND CONVEYER FOR CARRIER SHEETS

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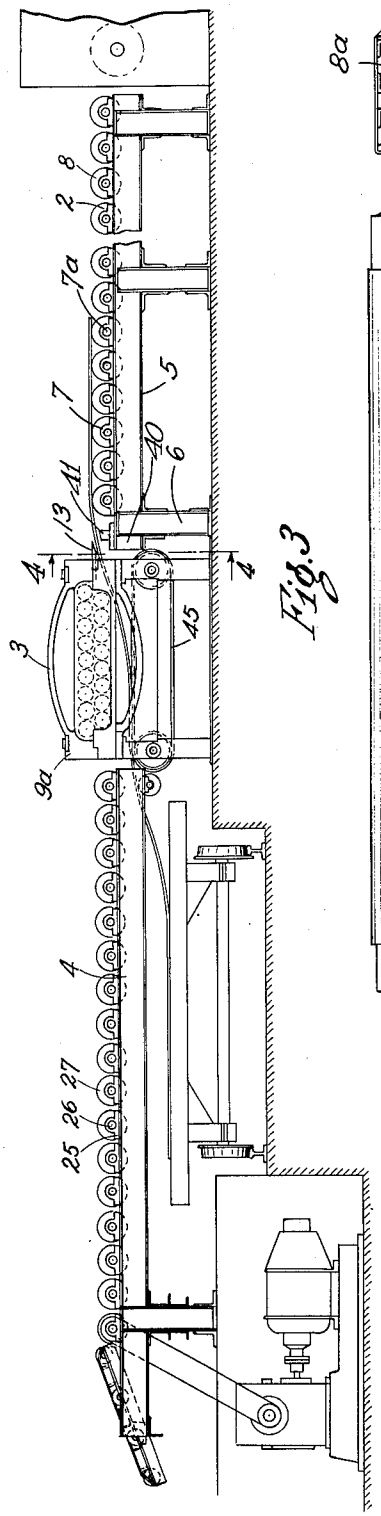


Fig. 3

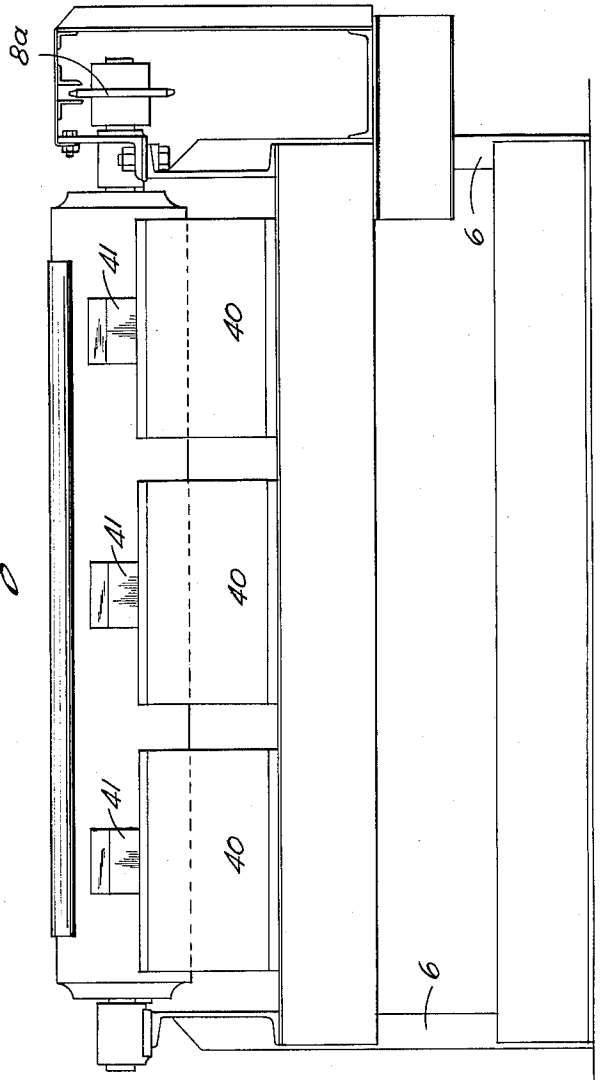


Fig. 4

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STRIPPER AND CONVEYER FOR CARRIER SHEETS

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Application December 27, 1932, Serial No. 648,934

10 Claims. (Cl. 198—41)

This invention relates to apparatus for handling metal sheets.

In prior practices of handling sheet material as the same is discharged from a normalizing furnace the carrier sheets as well as the prime sheets disposed thereon were conveyed in stacked relation through the roller leveler. Due to the fact that the carrier sheets were not always in perfect condition, presenting a surface having indentations and extraneous matter which in effect had become cemented thereon, close association of these carrier sheets with the prime sheets while passing through the roller leveler at times caused marks in the prime stock which would make the same unsatisfactory for commercial use. For this reason I have provided a stripper associated with the roller leveler so that the carrier sheet will be separated from the prime stock and be directed onto a conveyer belt, which transfers the same to a suitable place of disposal. My invention permits the prime stock alone to proceed through the roller leveler without interruption in its travel, thereby accomplishing a better job of flattening and providing a sheet free from undesirable surface defects.

The exclusion of the scaly carrier sheets from the roller leveler prevents the rolls of the leveler from becoming marked and pitted which if not prevented would of itself preclude the leveler from turning out a perfect sheet.

The illustrated embodiment of my invention includes a run-out or conveyer disposed at the discharge end of a normalizing furnace. This run-out conveys the carrier sheets along with the prime stock disposed thereon to the entrance of the roller leveler. Suitable magnetic means having a knife edge associated therewith is adapted to strip the carrier sheet from the prime stock and deflect the same onto a conveyer belt below the leveler which in turn deposits the carrier sheet on to a truck or transfers it to a suitable place of disposal permitting the prime stock to pass between the rolls of the roller leveler from which it is discharged onto a second run-out or conveyer table.

Various advantageous features of my invention will become more apparent as this description continues considered in conjunction with the accompanying drawings wherein similar characters or reference designate corresponding parts and wherein:

Figure 1 is a side elevation partly broken away of a run-out and roller leveler associated with the discharge end of a heating furnace and embodying my invention;

Figure 2 is an enlarged view partly in section of the roller leveler and associated equipment embodying my invention;

Figure 3 is a side elevation view of the run-out and roller leveler having associated therewith a modified form of my invention;

Figure 4 is an elevational view taken on the line 4—4 of Figure 3.

Referring now to Figure 1 of the drawings there is diagrammatically illustrated the discharge end of a normalizing furnace 1, having associated therewith a run-out or conveyer table 2, a roller leveler 3, and a second run-out 4, all disposed in tandem and adapted to receive sheet material as the same is discharged from the furnace. The run-out 2 is of the usual construction and comprises a pair of spaced horizontal beams 5 which are supported from a suitable foundation or base by leg members 6. Carried by the horizontal beams 5 are a plurality of spaced bearing blocks 7 in which are journalled the opposite ends of the shafts 7a upon which are mounted the conveyer rolls 8. These rolls are rotatably driven by any suitable means or through sprocket wheels 8a as shown in Figure 4. The roll 9 of this run-out, which is most remote from the discharge end of the normalizing furnace, is preferably of smaller diameter than the remaining rolls of the run-out and is of the magnetic type. This magnetic roll is independently driven and its purpose and functions will become more apparent as this description progresses.

The roller leveler 3 is of the usual conventional type including a housing 9a which supports a plurality of opposed straightening rolls 10 which engage opposite faces of the sheet material as the same passes therebetween. Secured to the housing 9a adjacent the entrance to the roll pass is a pair of adjustable bracket members 12, secured to the inner side of the housing on opposite sides of the entrance to the leveler. The brackets 12 support a knife edge 13 in such position as to assist in separating the prime sheets A from the carrier sheets B the former being introduced between the rolls 10 of the roller leveler, while the latter is discharged on to the conveyer 15 and carried to a suitable place of storage. Directly below the knife edge 13 and supported by the housing of the leveler is a guide plate 14. This plate 14 receives the carrier sheets as they are deflected thereon by the magnetic roller 9 and directs the same on to the conveyer 15. The con-

veyer belt 15 is disposed below the roller leveler 3 and extends throughout the extent thereof as well as the run-out 4. This conveyer belt is supported and driven through sprocket wheels 16 and 17. The sprocket wheel 16 is carried on a driven shaft 16a journalled in bearings 21 mounted on suitable bracket secured to the endmost leg member 6 of the run-out 2. The sprocket 17 is supported in a like manner from the end leg member 22 of the run-out 4. The run-out 4 which receives the prime sheets as they are discharged from the leveler is similar in construction to the run-out 2 and comprises a pair of spaced horizontal beams 23 supported on a plurality of leg members 22. The beams 23 carry a plurality of spaced bearing blocks 25 in which the opposing ends of the shafts 26 are journalled. The conventional conveyer rolls 27 are mounted on the shafts 26. At the end of the conveyer 4 is provided a tilting table 29 which facilitates the removal of the sheet material from the conveyer 4.

Conveyer belt 15 transports the carrier sheets B to a gravity table 31 which directs the sheets on to a buggy or to a suitable place of storage remote from the run-out where they are stacked and permitted to cool until such time as they are again used to convey the prime sheets through the normalizing furnace.

In operation, the carrier sheets B with the prime sheets A disposed thereon are conveyed through the furnace 1 and discharged therefrom on to the run-out or conveyer table 2. The sheets travel along this table until the carrier sheet comes into contact with the magnetic roll 9 which travels at a greater peripheral speed than the remaining rolls of the run-out 2. The speed of the magnetic roll 9 in addition to the magnetic attraction of the roll for the carrier sheet is effective in directing the forward end of the carrier sheet downwardly. The magnetic attraction of this roll on the conveyer sheet B is sufficient only to direct the same below the knife edge 13 and has substantially no effective attraction for the prime sheet A which continues in its horizontal travel passing over the face of the knife edge 13 and between the rolls 10 of the leveler. From the roller leveler 3 the prime sheets are discharged on to the run-out table 4. The conveyer sheet B after it has been stripped from the prime sheet A through the medium of the knife edge 13 and magnetic roller 9 is directed downwardly on to the conveyer 15 by the guide 14. The conveyer 15 is adapted to transport the carrier sheet B to any suitable place of disposal or storage.

With reference to Figures 3 and 4 I have shown a modified form of my invention wherein in place of the magnetic roller 9 illustrated in Figures 1 and 2 I have provided a plurality of solenoids 40 having cores 41. The cores 41 extend upwardly from the solenoid and are spaced in close proximity to the carrier sheet as the same passes along the conveyer table 2. The solenoids are energized from any suitable source of current (not shown). The magnetic attraction of the solenoid for the carrier sheets B as in the case of the roller 9 is sufficient to deflect the sheet below the knife edge 13. In the apparatus shown in Figure 3 as the carrier sheet is deflected below the rolls of the roller leveler the conveyer 45 upon which it is directed is substantially of less extent than the conveyer shown in Figure 1. This construction allows the positioning of the buggy below the conveyer table or run-out 4 for the reception of the carrier sheets.

While I have described the illustrated embodiment of my invention in some particularity, obviously many modifications and variations will readily occur to those skilled in the art and I do not, therefore, limit myself to the precise details shown and described, but claim as my invention all the embodiments thereof coming within the scope of the appended claims.

I claim:

1. In an apparatus of the class described, a run-out adapted to convey a carrier sheet having a prime sheet disposed thereon, a conveyer belt disposed below the plane of said run-out, and magnetic means associated with said run-out and positioned in such a manner as to act upon the carrier sheet for separating said sheets and deflecting the carrier sheet into a plane below said run-out onto said conveyer.

2. The combination with a conveyer adapted to convey flat prime sheets from a furnace to a roller leveler, said conveyer including a carrier sheet on which the prime sheet may be supported to prevent marring, of magnetic means adapted to separate the carrier sheet from the prime sheet and deflect the same below the plane of the conveyer to a suitable place of storage.

3. The combination with a conveyer adapted to convey flat prime sheets from a furnace to a roller leveler, said conveyer including a carrier sheet on which the prime sheet may be supported to prevent marring, of a conveyer belt adjacent the discharge end of said conveyer for receiving the carrier sheet, and magnetic means adapted to separate the carrier sheet from the prime sheet and deflect the same from the course of travel of the prime sheet on to said conveyer belt.

4. The combination with a conveyer adapted to convey flat prime sheets from a furnace to a roller leveler, said conveyer including a carrier sheet on which the prime sheet may be supported to prevent marring, of a conveyer belt disposed in a plane below and adjacent the discharge end of said conveyer for receiving the carrier sheet, and magnetic means positioned in such a manner as to act upon the carrier sheet and separate same from said prime sheet, and means for directing the prime sheet into the roller leveler and for deflecting the carrier sheet from the course of the prime sheet and on to said conveyer belt.

5. The combination with a conveyer adapted to convey flat prime sheets from a furnace to a roller leveler, said conveyer including a carrier sheet on which the prime sheet may be supported to prevent marring, of magnetic means adapted to separate the carrier sheet from the prime sheet and deflect the same below the plane of the conveyer to a suitable place of storage, and means for directing the prime sheet into the roller leveler.

6. Apparatus for conveying prime sheets and carrier sheets disposed in stacked relation from a furnace to a roller leveler comprising a conveyer and magnetic means associated with the conveyer positioned in such a manner as to act upon the carrier sheet and deflect the same below the plane of travel of the prime sheet.

7. Apparatus for conveying prime sheets and carrier sheets disposed in stacked relation from a furnace to a roller leveler comprising a conveyer for receiving the sheets as they are discharged from the furnace, a second conveyer disposed in a plane below the plane of the first conveyer and magnetic means positioned in such a manner as to act upon the carrier sheets for deflecting the same from the first conveyer and onto the second conveyer.

8. Apparatus for conveying prime sheets and carrier sheets disposed in stacked relation from a furnace to a roller leveler comprising a conveyer for receiving the sheets as they are discharged from the furnace, magnetic means disposed adjacent one end of the conveyer and adapted to deflect the carrier sheet below the plane of travel of the prime sheet and means for guiding the prime sheet into a roller leveler.

9. Apparatus for separating a carrier sheet of magnetic material from a prime sheet disposed thereon comprising a conveyer and magnetic means disposed in position to attract magnetically the carrier sheet and deflect it out of the plane of travel of the prime sheet.

10. Apparatus for separating a carrier sheet of magnetic material from the prime sheet disposed thereon comprising a conveyer and a magnetic roller associated with the conveyer and disposed to contact the carrier sheet and deflect the same out of the plane of travel of the prime sheet.

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