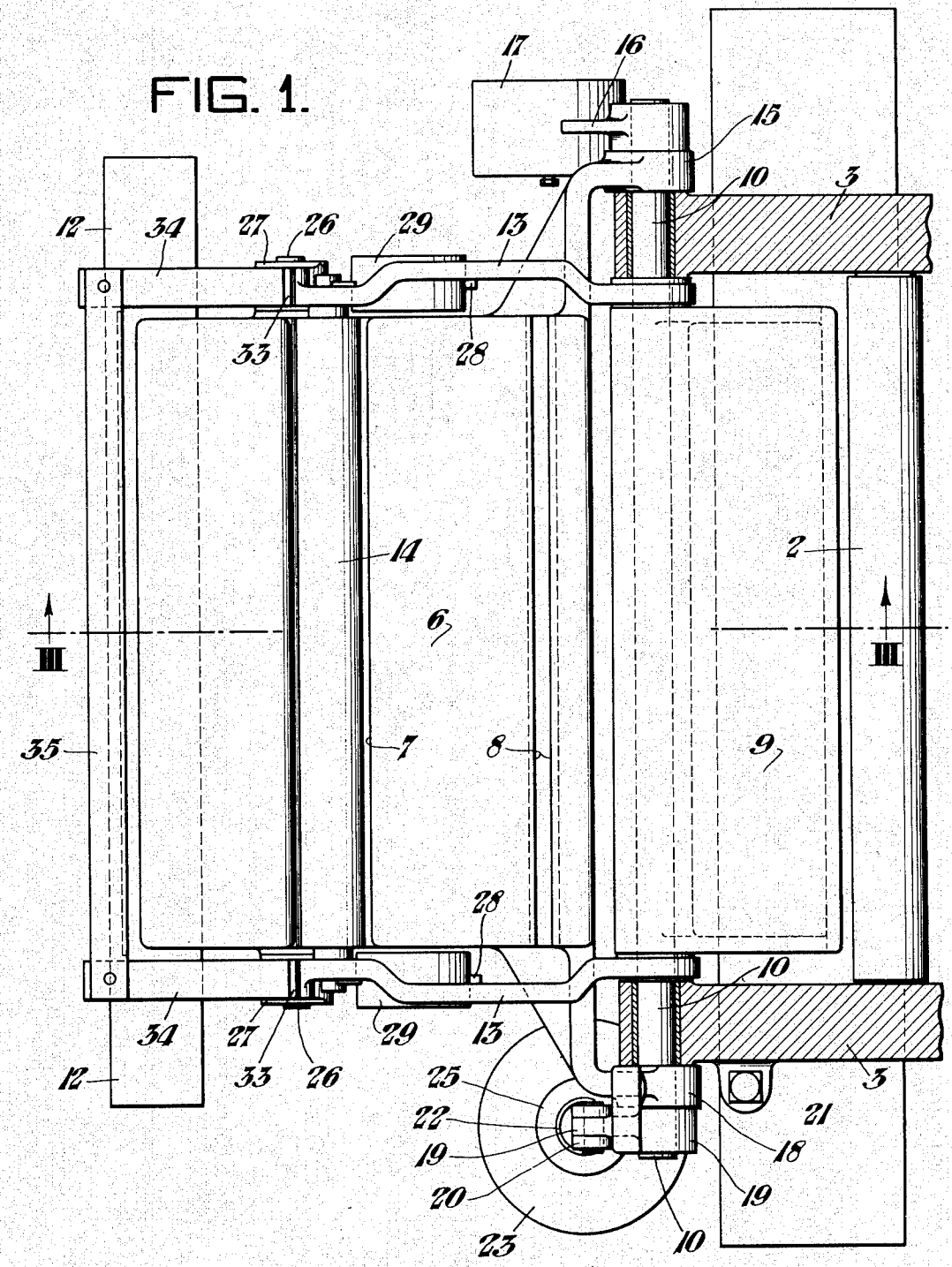
Nov. 12, 1940. H. LINN 2,221,354

STRIP COILING MACHINE

Filed June 10, 1938 3 Sheets-Sheet 1

FIG. 1.



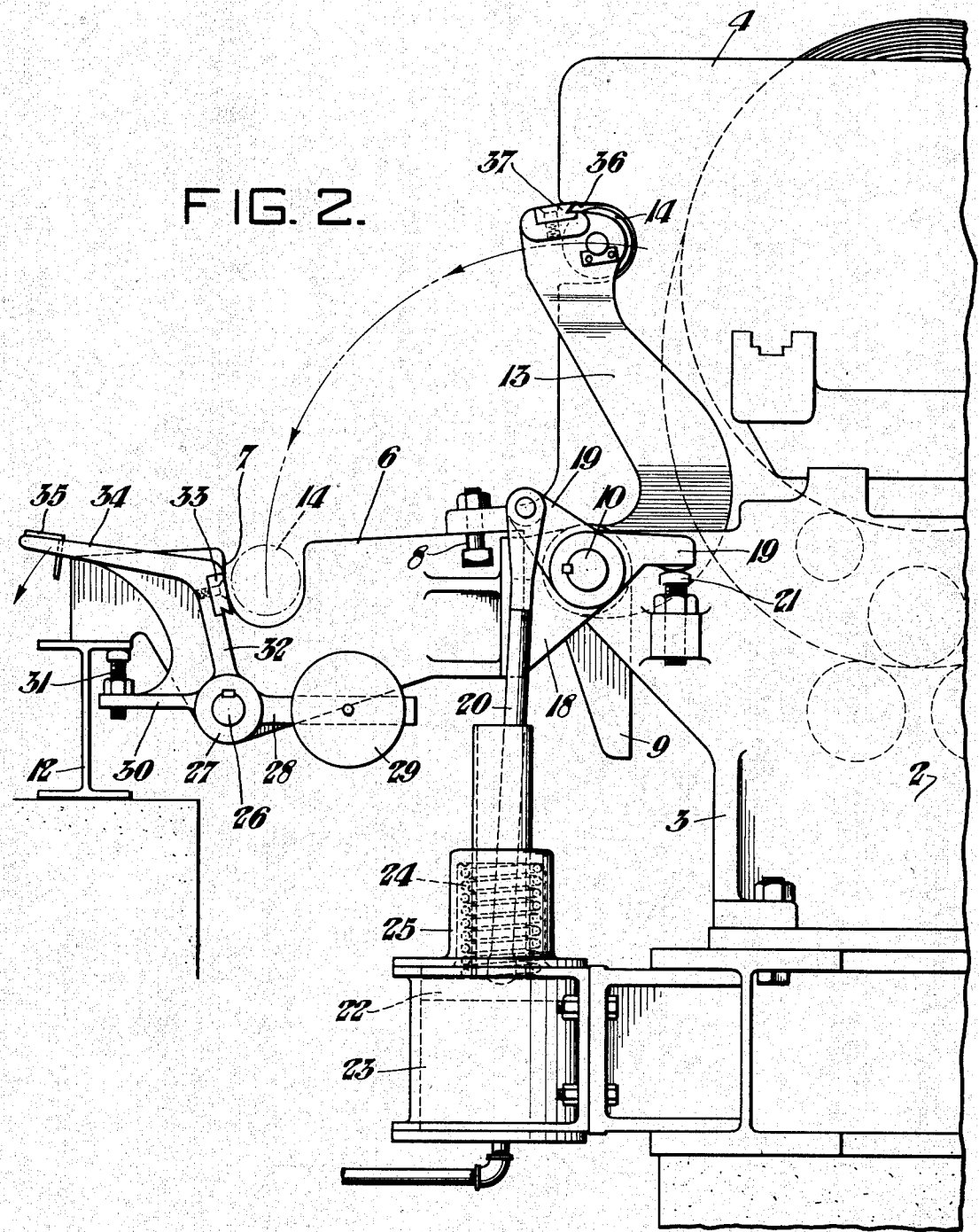
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STRIP COILING MACHINE

Filed June 10, 1938 3 Sheets-Sheet 2

FIG. 2.



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STRIP COILING MACHINE

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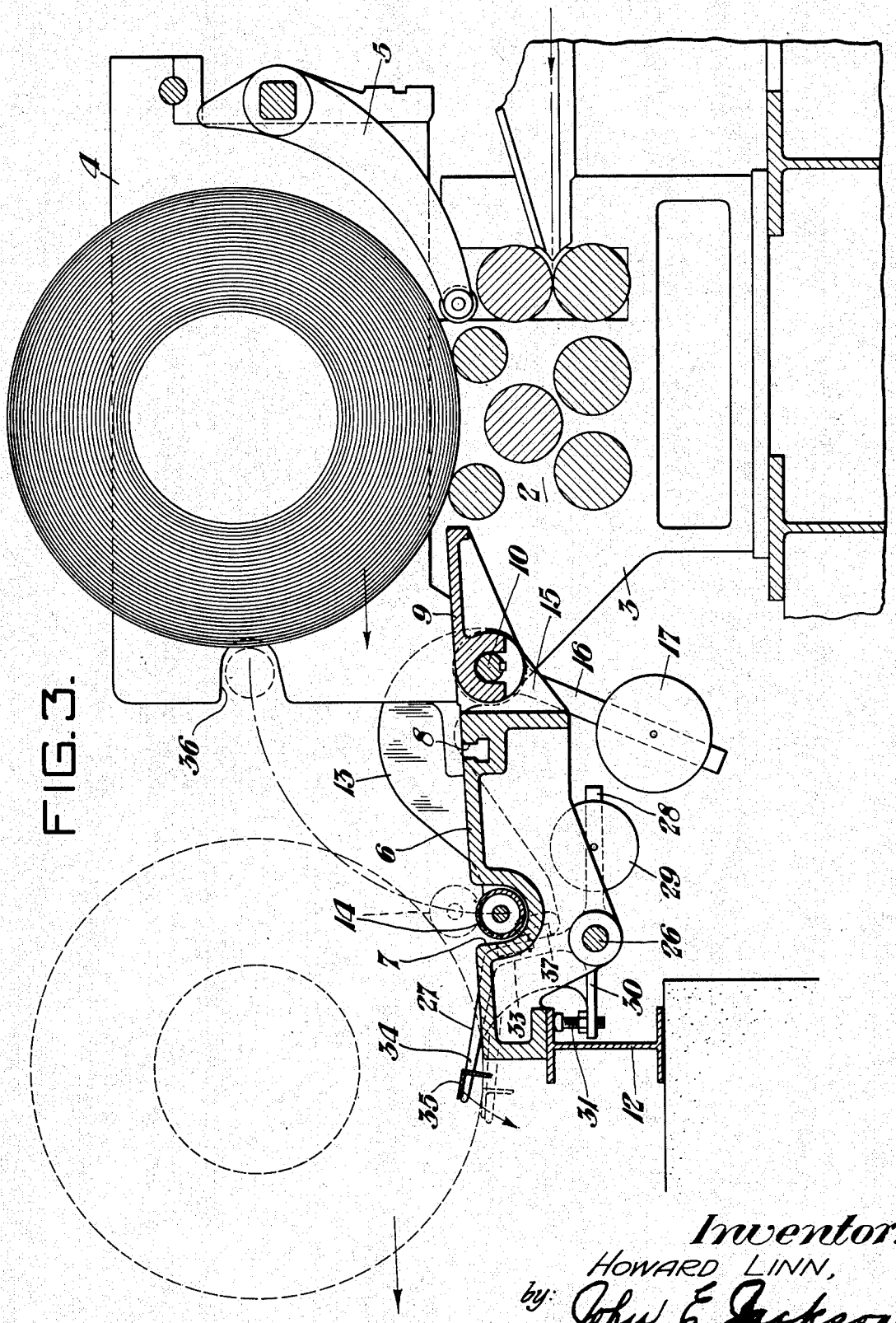


FIG. 3.

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2,221,354

STRIP COILING MACHINE

Howard Linn, Girard, Ohio

Application June 10, 1938, Serial No. 213,087

7 Claims. (Cl. 242—78)

This invention relates to strip metal coiling machines and, particularly, to an improved means for delivering the coils therefrom.

Coils of strip metal are very large and heavy and it is impractical, as well as dangerous, to remove these coils manually from the coiling machines. Consequently, various methods and devices have been used and suggested for removing the coils of metal from the coilers. Some of these have been satisfactory, but most of them have been unsafe in their use or too expensive and complicated to employ.

According to the present invention, the metal coils can be easily and quickly removed from the coiling machines with a minimum amount of danger.

It is one of the objects of the present invention to provide an improved means for safely removing strip coils of metal from the coiling machines.

It is another object of the invention to provide an improved device for removing coils from the coiling machines which will also aid in the coiling thereof.

It is a further object of the invention to provide an improved device for removing coils of metal from the coiling machine which has part of its mechanism controlled by the coil as it passes thereover, thereby making it semi-automatic in its operation.

Various other objects and advantages of this invention will be more apparent in the course of the following specification and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown, for the purpose of illustration, one embodiment which my invention may assume in practice.

In these drawings:

Figure 1 is a plan of the improved coil delivering device of my invention positioned on the delivery side of a coiling device with which it is incorporated;

Figure 2 is a side elevation thereof; and

Figure 3 is a section taken on line III—III of Figure 1.

Referring more particularly to the drawings, there is shown a coiling machine 2 with which my invention may be incorporated, having a pair of end housings 3, upwardly extending end walls 4, and a coiler push-out mechanism 5.

According to the present invention, there is positioned, on the delivery side of the coiling machine, an outwardly inclined stationary platform 6 having a longitudinally extending, circular-shaped slot or channel 7 arranged therein, the purpose of which will be described later in the specification, and a T-shaped slot 8 adjacent the front end thereof for the purpose of receiving bolts for the attachment of side coil guides which can be adjusted to the proper position on the platform relative to the width of the coil.

There is arranged, between the stationary platform 6 and the coiling mechanism or rolls of the coiling machine, a retractable platform extension 9 which is keyed or otherwise secured to a shaft 10 extending between the end housings 3 of the machine and pivotally supported thereby. The stationary platform 6 is supported at one side by the shaft 10 and at the other side preferably by an I-beam 12, but it will be understood that any suitable supporting means may be provided.

There is arranged on the shaft 10 and keyed thereto a pair of arms 13, one adjacent each end thereof, having a guiding means such as a roller 14 rotatably mounted therebetween. At one end of the machine, beyond a platform supporting arm 15, there is also positioned on the shaft 10 and keyed thereto, a lever arm 16 having a counterweight 17 arranged thereon, and at the other end of the shaft, beyond a platform supporting arm 18, there is positioned thereon and keyed thereto, a bell-crank 19, one arm of which is attached to a connecting-rod 20 and the other arm thereof adapted to contact an adjustable stop-screw 21 suitably positioned on the end housing of the machine. The connecting-rod 20 is attached to a piston 22 of an air-cylinder 23 suitably positioned below the platform 6. There is arranged in the air-cylinder 23 on the connecting-rod 20 a compression coil spring 24 which is adapted to act between the piston and a flanged portion of the air-cylinder extension 25.

There is positioned on the under side of the stationary platform 6, just beyond and below the slot 7, a shaft 26 which is pivotally mounted in the end walls thereof. There is arranged on each end of the shaft 26, and keyed thereto, a trigger crank 27 having one arm 28 on which there is positioned a counterweight 29, an oppositely disposed arm 30 having an adjustable stop-screw 31 arranged in the end thereof which is adapted to contact the under side of the beam 12 or some other portion of the platform 6, an upwardly extending arm 32 having a latch-catch 33 arranged thereon and having an outwardly and upwardly extending offset portion 34. There is arranged between the ends of the two offset portions 34 of the arms 32 an angle arm or bar 35.

This improved coil delivery device of my invention operates as follows:

It will be assumed that the strip has been coiled in the coiling machine and the metal coil is ready to be delivered therefrom. As the strip is being coiled, the retractable platform extension 9, together with the arms 13 and the roller 14, will assume the position as shown in Figure 2, with the roller 14 positioned in slots 36 arranged in the back of the end walls 4 of the coiling machine. In such a position, the platform extension is retracted and out of the path of the moving strip being coiled and the roller closes the open delivery side of the coiling chamber of the machine, thereby preventing the coil from accidentally getting out of control and leaving the machine. These parts are retained in this position by the air-cylinder 23; that is, the air is turned on, forcing the piston 22 upwardly, compressing the coil spring 24 to hold these parts in position through the action of the connecting-rod 20 and bell-crank 19. When the coil is ready to be delivered from the coiling machine, the air pressure in the air-cylinder 23 is released, thereby allowing the retractable platform extension 9, together with the arms 13 and roller 14, to assume the position as shown in Figure 3, with the roller 14 positioned below the top surface of the stationary platform 6 in the slot 7 and the platform extension raised to approximately the same slope or inclination as the stationary platform 6. These parts are moved to this position through the action of the coil spring 24 and the counterweight 17. As the arms 13 are moved to this position, latch-blocks 37, carried by the ends thereof, engage with the latch-catches 33 carried by the arm 32 of the trigger crank, thereby locking these arms and the associated mechanism in this position. The air pressure is then again turned on in the air-cylinder 23, tending to force the piston 22 upwardly.

The coil of metal is then ready to be released from the coiling machine and is forced thereout by means of the pushout mechanism 5, as shown, or any other suitable mechanism, onto the retractable platform extension 9. The coil then rolls over this extension onto the platform 6 and, as it rolls thereover, finally treads over the bar 35, forcing it downwardly, thereby rotating the shaft 26 in a counter-clockwise direction, disengaging the latch-catches 33 and latch-blocks 37 and permitting the arms 13 to be returned to their original position, as shown in Figure 2, ready for the next coiling operation. It will be seen that as the arms 13, together with the roller 14, are forcefully returned to position, due to the air pressure against the piston 22 in the air-cylinder, the roller 14 contacts the back under side of the coil, thereby giving it a forceful push to hasten its delivery therefrom, as indicated by the broken lines in Figure 3.

As a result of my invention, it will be seen that I have provided a simple and inexpensively constructed means for quickly and safely removing the coils of strip metal from the coiling machine.

While I have shown and described an embodiment of my invention, it will be understood that this embodiment is merely for the purpose of illustration and description and that various other forms may be devised within the scope of my invention, as defined in the appended claims.

I claim:

1. In combination with a coiling machine having a plurality of rollers for coiling strip material, a stationary delivery platform positioned on the delivery side of said machine, a retractable platform positioned between said delivery platform and the rollers of said machine, and a roller integrally connected to said retractable platform and spaced therefrom and being parallel thereto, said roller adapted in one position to aid in retaining the coil in said machine as it is being coiled and in another position to permit and aid in the removal of the coil from said machine.

2. In combination with a machine having a coiling mechanism for coiling strip material, a platform positioned on the delivery side of said machine, a retractable platform extension pivotally arranged between said platform and said mechanism, guide means integrally connected to said extension for retaining the coil in said machine while it is being coiled when the extension is in its retracted position, and means for actuating said extension together with said guide means connected thereto whereby said extension is positioned to aid in removing said coil and said guide means is positioned so as to permit removal thereof.

3. In combination with a machine having a coiling mechanism for coiling strip material, a platform positioned on the delivery side of said coiling machine, a retractable platform extension pivotally arranged between said platform and said mechanism, a pair of arms associated with said extension, one arm positioned adjacent each end thereof, a roller arranged between said arms, means adapted to move and hold said roller and said extension in one position whereby said roller is positioned so as to retain the coil in said machine while it is being coiled and the extension is in a retracted position, and means adapted to move and hold said roller and said extension in another position whereby said roller is positioned to permit removal of the coil from said machine and the extension is positioned adjacent the bottom of said coil to aid in the removal thereof.

4. In combination with a machine having a coiling mechanism for coiling strip material, a platform positioned on the delivery side of said machine, a retractable platform extension pivotally arranged between said platform and said mechanism, a pair of arms associated with said extension, one arm positioned adjacent each end thereof, a roller arranged between said arms, means adapted to move and hold said roller and said extension in one position whereby said roller is positioned so as to retain the coil in said machine while it is being coiled and the extension is in a retracted position, means adapted to move said roller and said extension to another position whereby said roller is positioned to permit removal of the coil from said machine and the extension is positioned adjacent the bottom of said coil to aid in the removal thereof, means for locking said roller and extension in its last named position, and means associated with said locking means and actuated by said coil whereby said locking means is released as the coil passes thereover to permit said roller and said extension to return to its first named position.

5. In combination with a machine having a coiling mechanism for coiling strip material, a stationary platform positioned on the delivery side of said machine, a retractable platform extension positioned between said stationary platform and said mechanism, and means carried by said retractable platform extension which is adapted to retain the coil in said machine while it is being coiled when said platform extension is in its retracted position, said retractable plat-

form extension together with the coil retaining means carried thereby being constructed and arranged so as to be moved to a position to aid in the removal of the coiled strip from said machine.

6. In combination with a coiling machine for coiling continuous strip material, a retractable platform arranged on the delivery side of said machine and means carried by said platform for aiding in guiding the strip during the coiling thereof, said platform in one position adapted to aid in delivering the completely coiled strip from the machine with the strip guiding means disposed in such a position as to permit removal of the coiled strip from the same and adapted to be disposed in another position so that the strip guiding means carried thereby will be positioned so as to aid in guiding the strip during the coiling thereof.

7. In combination with a coiling machine for coiling continuous strip material, a stationary platform positioned on the delivery side of said machine, a retractable platform positioned between said stationary platform and the coiling mechanism of said machine, and means carried by said retractable platform for aiding in guiding the strip during the coiling thereof, said retractable platform adapted to be disposed in one position so as to provide an extension for said stationary platform to aid in delivering the completely coiled strip from the machine with the strip guiding means carried thereby disposed in such a position so as to permit removal of the coiled strip from the same and adapted to be disposed in another position so that the strip guiding means carried thereby will aid in guiding the strip during the coiling thereof.

HOWARD LINN.