ABSTRACT

A reel drum is rotatable in a predetermined direction to form thereon a plurality of juxtaposed coils from respective strips, pressure roll means are engageable with said coils to force the final convolutions of each coil against the latter. A plurality of dispensers are provided, each of which is engageable with one of said coils behind said pressure roll means when said drum rotates in said direction and adapted to dispense adhesive tape so as to tie said coil as it receives the trailing end portion of said strip.

6 Claims, 3 Drawing Figures
This invention relates to an upcoiler for slit strips, which upcoiler comprises a pressure roll for forcing the final convolutions of each coil against the latter.

Longitudinal slitting plants are used in the processing of sheet metal to slit wide strip. In such plants, the coils formed by the slit strips on the upcoiler must be provisionally tied by hand before they can be moved from the expanding drum of the upcoiler. For this tying operation, the plant must be shut down for some time so that its operating time is reduced. For this reason, the slit strip coils are sometimes tied only after they have been removed and when they lie on the coil car or are suspended from the spider arm. A removal of slit strip coils which have not been tied from the reel may result in considerable difficulties because the outermost convolutions may become loose so that the coils cannot be tied thereafter since the outer and inner convolutions of the coil are no longer in firm engagement with each other.

It is an object of the invention to enable a temporary tying of each slit strip coil on the upcoiler virtually without a shutdown of the running plant. To accomplish this object, the upcoiler for slit strip according to the invention, which upcoiler comprises a pressure roll for forcing the final convolutions of each coil against the latter, is characterized in that the upcoiler is succeeded by dispensers, which are engageable with each slit strip coil and dispense adhesive tapes for a preliminary tying of the coils during the final phase of the upcoiling operation. The pressure roll is mounted on a secondary pivoted lever, which is pivoted to the end of a primary pivoted lever, which carries a succeeding second pressure roll. The adhesive tape dispensers are disposed between said two pressure rolls and are laterally adjustable. An actuator is pivoted to the secondary pivoted lever and operable to move the latter between positions in which the pressure rolls are engaged from and engaged with the coil, respectively.

Specifically, a spring-loaded pin capable of a limited displacement is pivoted to the secondary pivoted lever on the side where the second pressure roll is disposed and holds the second pressure roll in engagement with the coil when the same is engaged by the first pressure roll. Each dispenser is mounted on a pivoted lever, which is pivoted before the first pressure roll and extends over the same and is movable to its engaging position by an actuator.

Further details of an upcoiler according to the invention are shown in the drawings and will be described hereinafter. In the drawings,

FIG. 1 is a fragmentary side elevation showing an upcoiler with the pressure rolls and dispensers disengaged.

FIG. 2 is a fragmentary side elevation showing the upcoiler according to FIG. 1 with the pressure rolls engaged whereas the dispensers are disengaged.

FIG. 3 is a side elevation showing the upcoiler of FIGS. 1 and 2 with the pressure rolls and dispensers engaged.

As is apparent from FIG. 1 of the drawings, the upcoiler 1 comprises a reel drum 2, which carries a coil 3 receiving a strip 4. A carrying arm 5 has a primary pivoted lever 6 pivoted thereto. The lever 6 is pivotally movable in the direction A by an actuator 7. A secondary pivoted lever 9 is pivoted at 8 to the end of the primary pivoted lever 6. A first pressure roll 10 and a succeeding second pressure roll 11 are mounted on the secondary pivoted lever 9. When the primary pivoted lever has been moved to cause the first pressure roll 10 to engage the coil, as is apparent from FIG. 2, the secondary pivoted lever 9 is also held in engaging position by a spring-loaded pin 12, which is pivoted to the secondary pivoted lever 9 adjacent to the secondary pressure roll 11. The pin 12 is capable of a limited displacement.

Each of the coils 3a-x formed by the incoming slit strips 4a-x has associated with it a dispenser 13 for dispensing adhesive tape from a roll 14. Each of these dispensers is mounted at the end of an associated pivoted lever 15, which is pivoted at 16 before the first pressure roll 10 and extends over the latter and by an actuator 17 is movable in direction B to its engaging position, shown in FIG. 3.

Each dispenser 13 is slidable on a shaft 16 to register with one of the coils 3a-x. The adhesive tape 18 is withdrawn from the roll 14 and with its free end moves between a feed roll 19 and a tape pressure roll 20 so that the tape is adhered to the trailing end portion of the respective strip 4 when the dispenser is engaged with the coil. When the dispenser 13 is swung off the coil, the adhesive tape 18 moves over a knife 21 and is severed thereby so that the tape is then available for being adhered to the next trailing end of a slit strip 4a-x. As soon as such trailing end of a slit strip 4a-x arrives, the preceding sensor 22 operates to move the dispenser 13 provided with the adhesive tape 18 into engagement with the coil. This is apparent from FIGS. 2 and 3.

What is claimed is:

1. A winding device for coiling a strip comprising a rotatable drum for receiving said strap, a first pressure roller engageable with said strap to force the final convolution of coiled strip against the drum, a dispenser of adhesive tape engageable with said strap and disposed behind said first pressure roller to dispense adhesive tape onto the coiled strip, a second pressure roller engageable with said strap and disposed behind said dispenser for applying pressure to the coiled strip, a primary pivoted lever disposed in relative position to said drum and movable to positions to and away from said drum, an actuating cylinder for moving said primary pivoted lever, a secondary pivoted lever connected pivotally to the free end of said primary pivoted lever and adapted to carry said first pressure roller and said second pressure roller.

2. A winding device as claimed in claim 1, comprising an associated pivoted lever connected to the free end of said secondary pivoted lever and adapted to carry said dispenser, and an actuating member acting between said secondary pivoted member and said associated pivoted lever for moving said dispenser into and out of position with respect to the coil of the drum.

3. A winding device as claimed in claim 1, comprising spring-loaded bolt means disposed between an intermediate portion of said primary pivoted lever and the free end of the secondary lever for maintaining a pressure on the pressure rollers when in engagement with the coil.

4. A winding device as claimed in claim 2, wherein the dispenser is adapted to hold a roll of tape, said dispenser comprising a tape pressure roller and a feed roller to allow application of tape to the coil when the dispenser is in engagement with said coil.
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5. A winding device as claimed in claim 4, wherein said dispenser comprising a knife disposed on said secondary pivoted member and adapted to sever the tape when the dispenser is moved out of engagement with said coil.

6. A winding device as claimed in claim 2, comprising a sensor element disposed ahead of said first pressure roller for activating said dispenser actuating member in response to the position of an end of a length of strap being coiled.

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