April 7, 1959 R. D. HUFFINGTON 2,880,889

KICKOUT DEVICE FOR COILS

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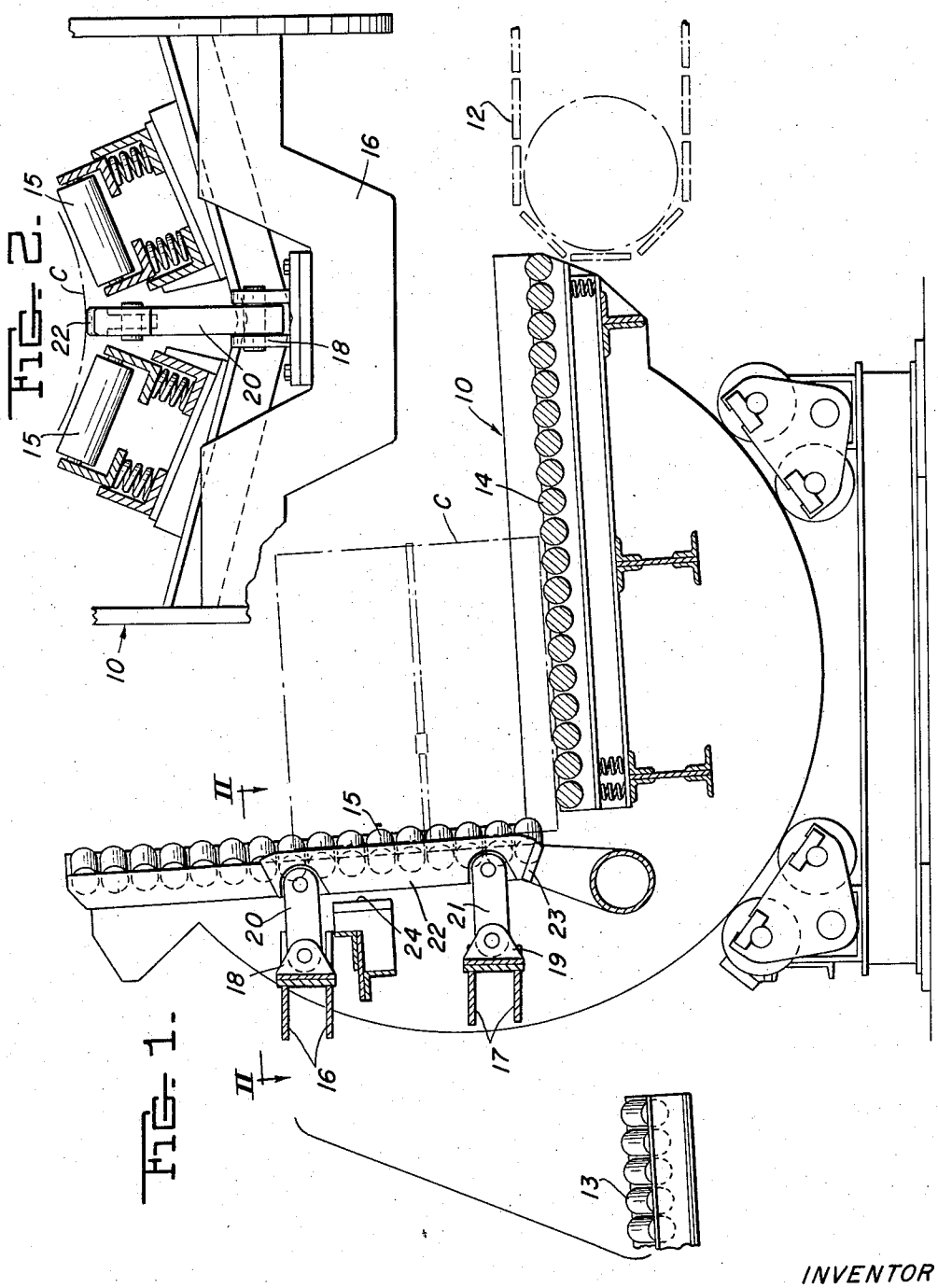

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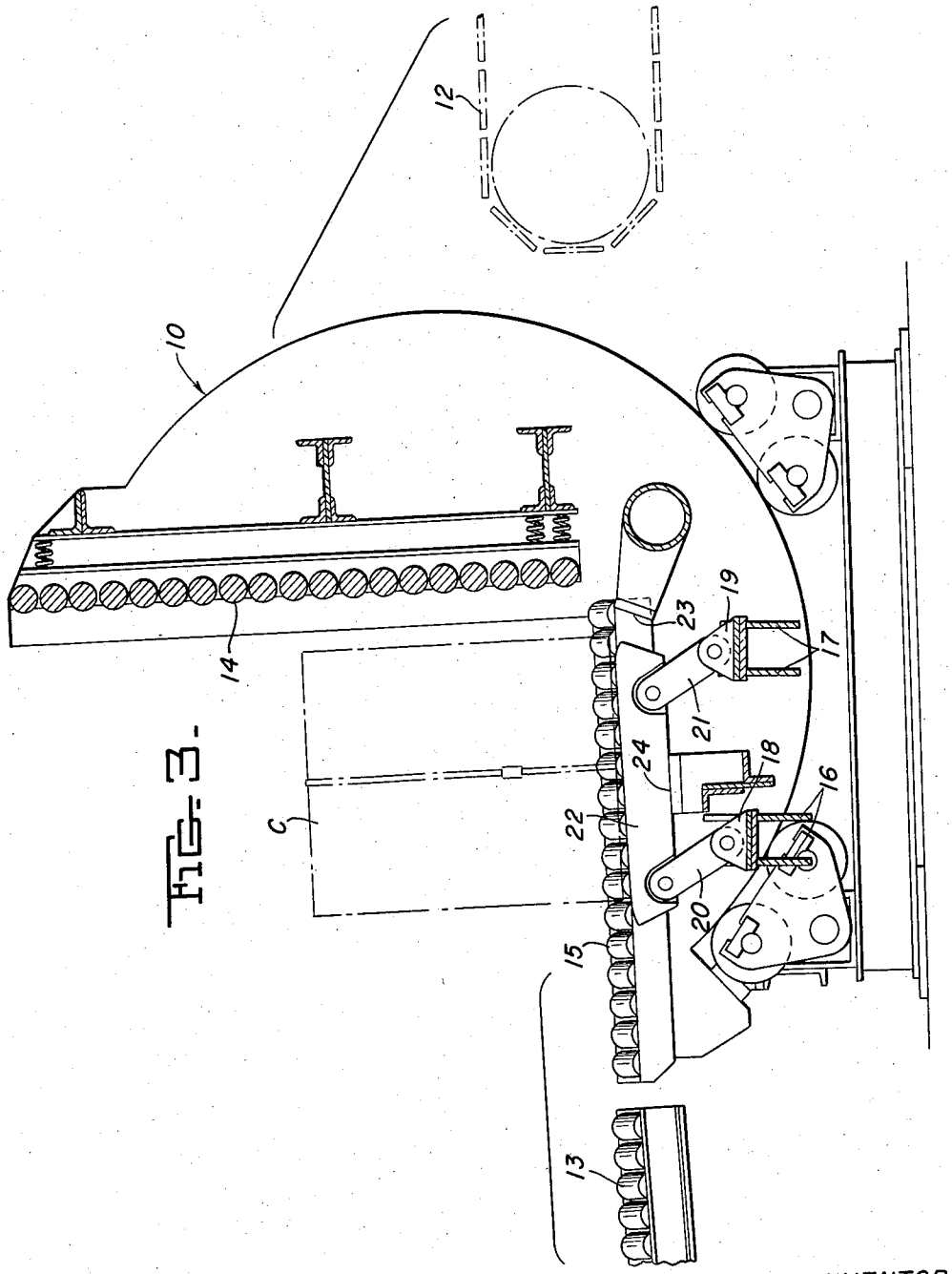

FIG. 3.

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United States Patent Office 2,880,889 Patented Apr. 7, 1959

2,880,889

KICKOUT DEVICE FOR COILS

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Application August 2, 1957, Serial No. 675,924

3 Claims. (Cl. 214—1)

The invention relates to a kickout device for a coil downtilter.

Coils of metal strip usually are stored with their central axes vertical, but are processed with their central axes horizontal. When a coil is conveyed from a storage area to an uncoiling mandrel for processing, a downtilter reorients the coil in this respect. A conventional downtilter includes an L-shaped frame journaled on a horizontal axis and is located between two conveyors which travel either at right angles to each other or in the same direction. One arm of the L receives a coil from the first conveyor, the L turns 90° about its axis, and the other arm delivers the coil to the second conveyor. A typical downtilter of this sort is shown in Stewart Patent No. 2,426,569.

One difficulty encountered in operating a conventional downtilter is that coils may catch on the delivery arm of the L and not move readily to the second conveyor. An object of the present invention is to provide a kickout device which positively ejects a coil from a downtilter so that the coil is delivered immediately to the second conveyor.

A further object is to provide, in combination with a downtilter, a gravity operated kickout device which automatically assumes a cocked position as the downtilter moves to its coil-receiving position and subsequently automatically ejects the coil.

A more specific object is to provide, in combination with a downtilter, a gravity operated kickout device which includes a walking beam and parallel links connecting said beam to the delivery arm of the L, enabling the beam to swing automatically to a cocked position while the downtilter receives a coil and subsequently to eject the coil.

In accomplishing these and other objects of the invention, I have provided improved details of structure, a preferred form of which is shown in the accompanying drawings, in which:

Figure 1 is a vertical section of a downtilter equipped with my kickout device positioned to receive a coil;

Figure 2 is a horizontal section on line II—II of Figure 1; and

Figure 3 is a vertical section similar to Figure 1, but showing the downtilter positioned to deliver the coil.

Figures 1 and 3 show a conventional downtilter **10** which receives coils C of strip metal from a first conveyor **12** and delivers them to a second conveyor **13**, being motivated by any suitable drive not shown. The coil-receiving arm of the downtilter has a series of idler rollers **14** whose upper faces define a flat plane to support a coil with its central axis approximately vertical. When the downtilter is positioned to receive a coil from conveyor **12** (Figure 1), this plane slopes slightly away from the carrying surface of the conveyor and in effect forms a continuation thereof. The coil-delivering arm has two series of idler rollers **15** which form a shallow V when received in end elevation to support a coil with its central axis approximately horizontal. When the downtilter is

positioned to deliver a coil to the second conveyor **13** (Figure 3), this V slopes toward the carrying surface of the conveyor and in effect forms a continuation thereof. Conventionally the coil moves by gravity from the idler rollers **15** to the conveyor **13**, but sometimes the coil hangs and does not start as intended. This difficulty may result, for example, when the tie in the band or strapping around the coil catches on one of the rollers **15**.

The kickout device of my invention includes a pair of cross beams **16** and **17** which extend across the underside of the coil-delivering arm. The midportions of these beams are offset downwardly or outwardly as shown in Figure 2, and carry pivot ears **18** and **19**. Parallel links **20** and **21** are pivotally supported on the respective ears **18** and **19** and extend into the space between the two series of idler rollers **15**. At their outer ends the links are pivoted to a walking beam **22** which also lies in the space between the two series of rollers. A stop **23** is fixed to the downtilter adjacent its axis of turning and is adapted to be abutted by the inner end face of the walking beam. A second stop **24** is fixed to the downtilter between the beams **16** and **17** and is adapted to be abutted by the mid portion of the walking beam.

When the downtilter is in its coil-receiving position, the walking beam **22** drops by gravity into a cocked position in abutting relation with the stop **23**. The edge of the beam projects outwardly of the idler rollers **15** but the links **20** and **21** do not pass a dead center position. A coil C received on rollers **15** from the first conveyor **12** comes to rest with its upright surface in contact with this projecting edge and does not immediately contact the idler rollers **15**. As the downtilter pivots to its coil-delivering position, the coil and walking beam drop by gravity into engagement with the second stop **24**. In this position the entire beam lies below the rollers **15** and the coil contacts these rollers. This motion of the walking beam occurs just as the downtilter moves into position to deliver the coil and furnishes the impetus needed to eject the coil positively to the second conveyor **13**.

From the foregoing description it is seen that my invention affords a simple kickout device for assuring that coils do not hang or catch on the coil-delivering arm of a downtilter. The device is readily added to existing installations without otherwise altering the structure.

While I have shown and described only a single embodiment of my invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claims.

I claim:

1. In a downtilter which includes an L-shaped frame journaled on a horizontal axis for movement between coil-receiving and coil-delivering positions, one arm of said frame being adapted to receive a coil with its central axis approximately vertical, and two spaced apart series of rollers on the other arm to deliver a coil with its central axis approximately horizontal, the combination therewith of a kickout device comprising means automatically cocked when said frame moves to its coil-receiving position to be contacted by a coil received on said frame and preventing its contacting said rollers, and a movable mounting for said means for automatically dropping the coil into contact with said rollers as said frame moves to its coil-delivering position and thereby furnishing an impetus for ejecting the coil.

2. In a downtilter which includes an L-shaped frame journaled on a horizontal axis for movement between coil-receiving and coil-delivering positions, one arm of said frame being adapted to receive a coil with its central axis approximately vertical, and two spaced apart series of rollers journaled on the other arm to deliver a coil with its central axis approximately horizontal, the com-

bination therewith of a kickout device comprising a walking beam located between said series of rollers, a linkage pivotally mounting said walking beam on said frame, and stop means to limit movement of said walking beam when said frame moves to its coil-receiving position, said walking beam projecting beyond said series of rollers when said frame is in its coil-receiving position to contact the upright surface of the coil and dropping below these rollers as said frame moves to its coil-delivering position to eject the coil.

3. In a downtilter which includes an L-shaped frame journaled on a horizontal axis for movement between coil-receiving and coil-delivering positions, one arm of said frame being adapted to receive a coil with its central axis approximately vertical, and two spaced apart series of rollers journaled on the other arm to deliver a coil with its central axis approximately horizontal, the combination

therewith of a kickout device comprising a walking beam located between said series of rollers, parallel links pivotally mounting said walking beam on said frame, and a stop on said frame adapted to be abutted by the end of said beam when said frame moves to its coil-receiving position, said walking beam projecting beyond said series of rollers when said frame is in its coil-receiving position to contact the upright surface of the coil and dropping below these rollers as said frame moves to its coil-delivering position to eject the coil.

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