April 21, 1959 W. I. MacCURDY 2,883,031

ARTICLE TRANSFER MECHANISM

Filed June 6, 1955 2 Sheets-Sheet 1

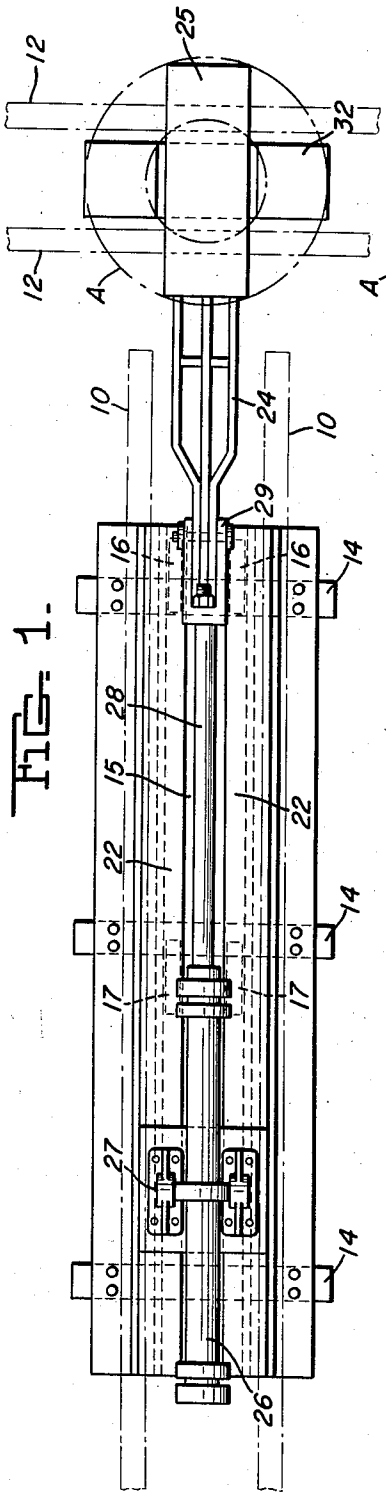


FIG. 1.

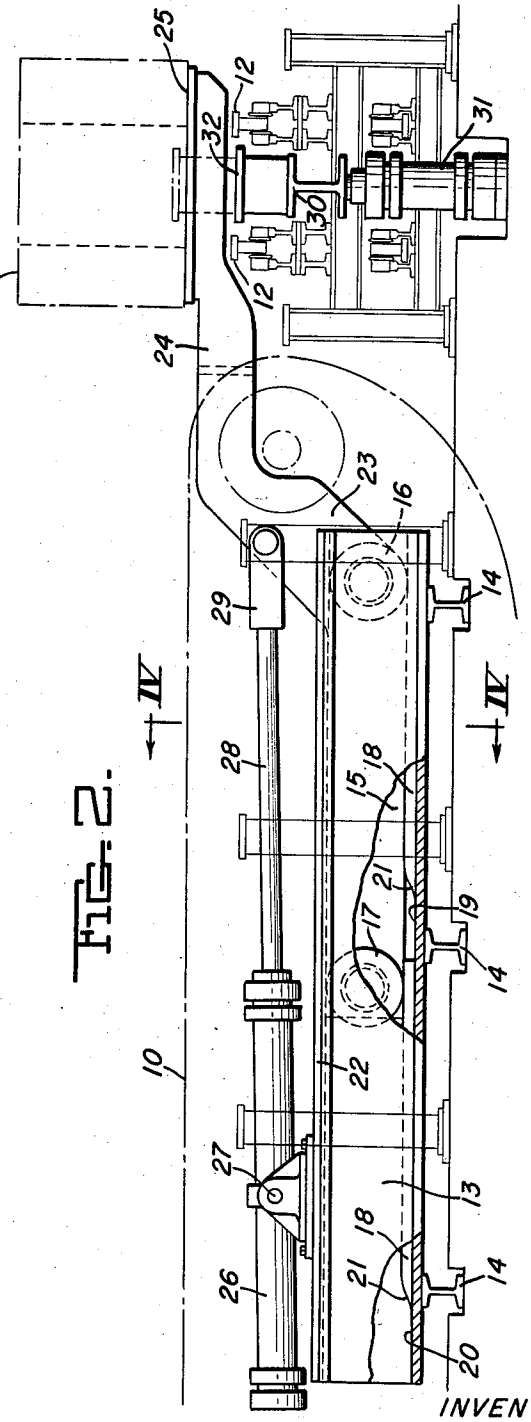


FIG. 2.

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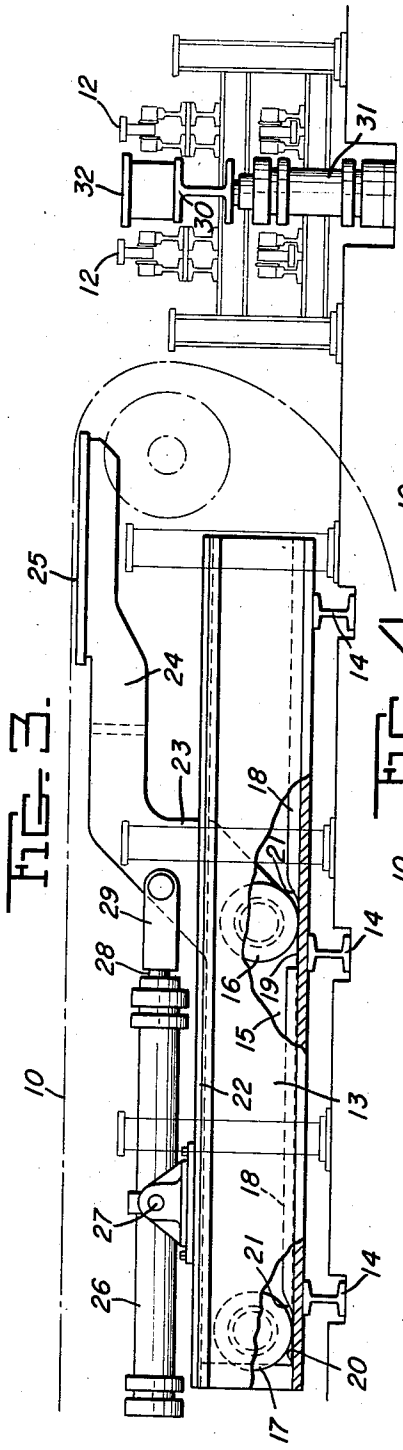


FIG. 3.

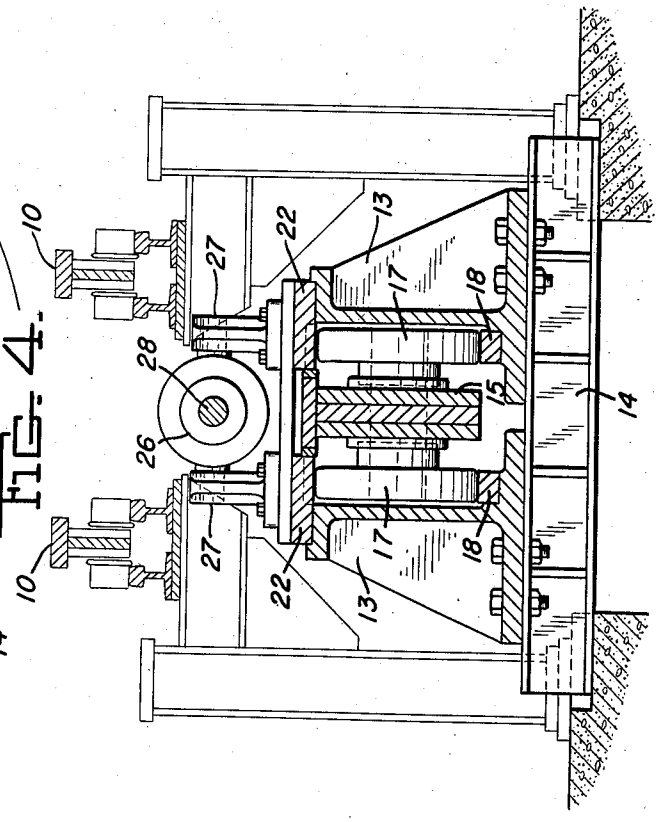


FIG. 4.

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2,883,031

ARTICLE TRANSFER MECHANISM

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Application June 6, 1955, Serial No. 513,301

3 Claims. (Cl. 198—20)

This invention relates to an improved device for transferring articles from a first conveyor to a second traveling at a right angle to the first.

An object of the invention is to provide an improved transferring device which with a single motion lifts an article off a first conveyor and positions it above a second conveyor for deposition on the latter.

A further object is to provide an improved transferring device which has a single carriage mounted for limited vertical and horizontal movements to lift an article and transfer it between conveyors, and a single motivating means for effecting these movements.

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 top plan view of a pair of conveyors equipped with a transferring device constructed in accordance with my invention;

Figure 2 is a side elevational view with the carriage projected;

Figure 3 is a side elevational view with the carriage retracted; and

Figure 4 is a vertical section on line IV—IV of Figure 2.

The drawings show somewhat schematically first and second endless conveyors **10** and **12** extending at right angles to each other and each formed of transversely spaced apart strands. Articles A, for example coils of steel strip, arrive on the upper flight of the first conveyor and are to be transferred to the second. To facilitate such transfer the upper or carrying flight of the second conveyor is a few inches lower than that of the first.

The transferring device of my invention comprises a pair of transversely spaced apart track members **13** which are of modified I-beam cross section and are supported below the carrying flight of conveyor **10** on cross ties **14** (Figure 4). A carriage **15** is mounted on pairs of front and back wheels **16** and **17** which ride within said track members. An important feature of my invention is that the opposed lower flanges of the two track members carry rails **18** which have front and back notches **19** and **20** longitudinally spaced apart the same distance as the spacing between the wheels **16** and **17** (Figure 2). Preferably the portions of the rail on each side of the front notch **19** are formed as separately replaceable sections. The notches have upwardly sloping front surfaces **21** which lead to the main body portion of each rail. The upper flange of each track member **13** carries a wear strip **22** which acts as a stabilizing plate and against which the upper edges of the wheels **16** and **17** can ride.

The carriage **15** has a section **23** sloping upwardly from that to which the wheels are journaled and a section **24** extending horizontally from section **23**. The upper face of section **24** carries a narrow horizontal platform **25** adapted to be retracted between the strands of conveyor **10** and below the carrying flight thereof, as shown in Figure 3, or to project over conveyor **12**, as shown in Figure 2. The carriage is motivated by a double-acting fluid pressure cylinder **26**, which is mounted on trunnions **27** on the upper faces of the track members **13**. The cylinder contains a reciprocable piston and piston rod **28** which is joined to section **23** of the carriage by a clevis **29**.

The carriage **15** normally occupies a retracted position in which its wheels **16** and **17** lie within the notches **19** and **20** and its platform **25** is spaced slightly below the carrying flight of conveyor **10** (Figure 3). When this conveyor brings an article A to a position over the platform, cylinder **26** is actuated to project the carriage. The wheels **16** and **17** first ride up the sloping surfaces **21** to elevate the carriage and platform and thus lift the article off the conveyor **10**. Continued motion of the carriage projects the platform and article horizontally over the conveyor **12** (Figure 2). It is seen that both movements needed both to lift the article and carry it from conveyor **10** to a position overlying conveyor **12** are effected with a single motion produced by a single motivating means.

An elevator **30** is mounted between the strands of conveyor **12** and includes a double-acting fluid pressure cylinder **31**. The elevator has a bifurcated head **32** which is adapted to receive the projected platform **25** within its bifurcation. The portions of the head on each side of the bifurcation are adapted to pick up the article A from the platform and lift it slightly so that carriage **15** can be retracted. Lowering the elevator after the carriage is retracted deposits the article on conveyor **12**.

From the foregoing description it is seen that my invention affords an especially simple device for transferring articles between conveyors all in a single motion. The device has the further advantage that it can be installed on existing conveyors without otherwise altering their 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. The combination, with a first conveyor and a second conveyor adapted to travel at right angles to each other, of a device for transferring an article from said first conveyor to a position overlying said second conveyor comprising at track fixed beneath the carrying flight of said first conveyor and providing opposed upper and lower bearing surfaces, a carriage having front and back wheels riding between said surfaces and movably supporting the carriage, said track defining a horizontal path of movement for said carriage a short portion only of which has a vertical component, a single motivating means for effecting both horizontal and vertical movements of said carriage, said carriage having a section located beneath the carrying flight of said first conveyor and to which said wheels are journaled and an overhang extending upwardly and outwardly from said section, and a platform on said overhang, said carriage having a retracted position in which said overhang and said platform lie beneath the carrying flight of said first conveyor and a projected position in which said overhang extends beyond the end of said first conveyor and said platform overlies said second conveyor, and an elevator mounted under the carrying flight of said second conveyor for picking up an article from said platform when said carriage is projected and depositing it on said second conveyor after said carriage is retracted.

2. A combination as defined in claim 1 wherein the lower bearing surface has notches for receiving said wheels when said carriage is retracted, upwardly sloping sections which extend from said notches and along

which said wheels ride to produce a vertical component in movement of said carriage, and horizontal sections extending from said sloping sections.

3. A combination as defined in claim 1 wherein said carriage has an upwardly sloping section connecting said first named section and said overhang, and said motive means includes a double-acting fluid pressure cylinder pivoted to said track, a piston and piston rod mounted in said cylinder for reciprocable movement, and means pivotally connecting said piston rod to said sloping section.

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