Nov. 11, 1947. F. FRANCONA 2,430,605

AUTOMATIC FEEDER AND TRANSFER MECHANISM

Filed March 30, 1946 3 Sheets-Sheet 1

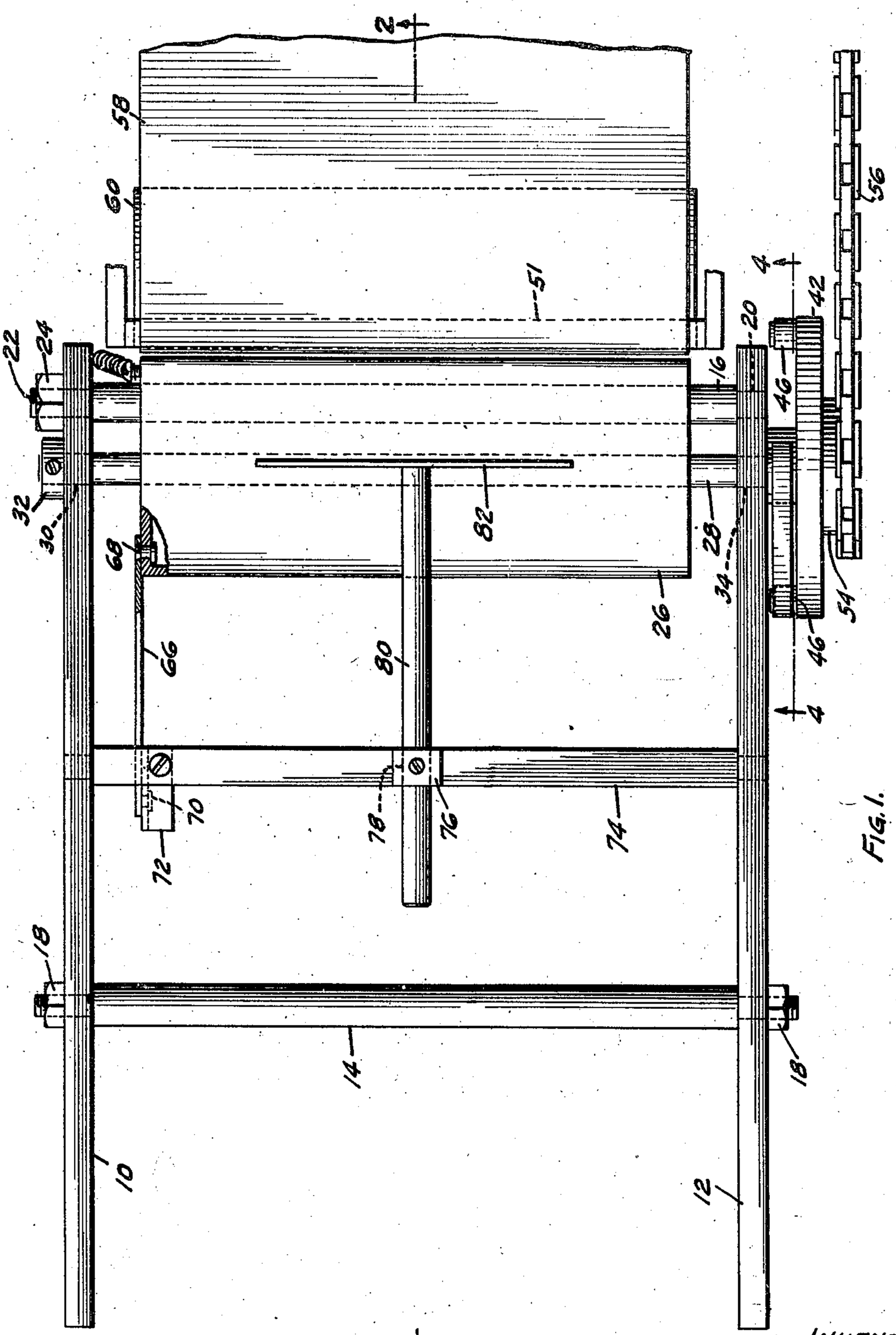

FIG. 1.

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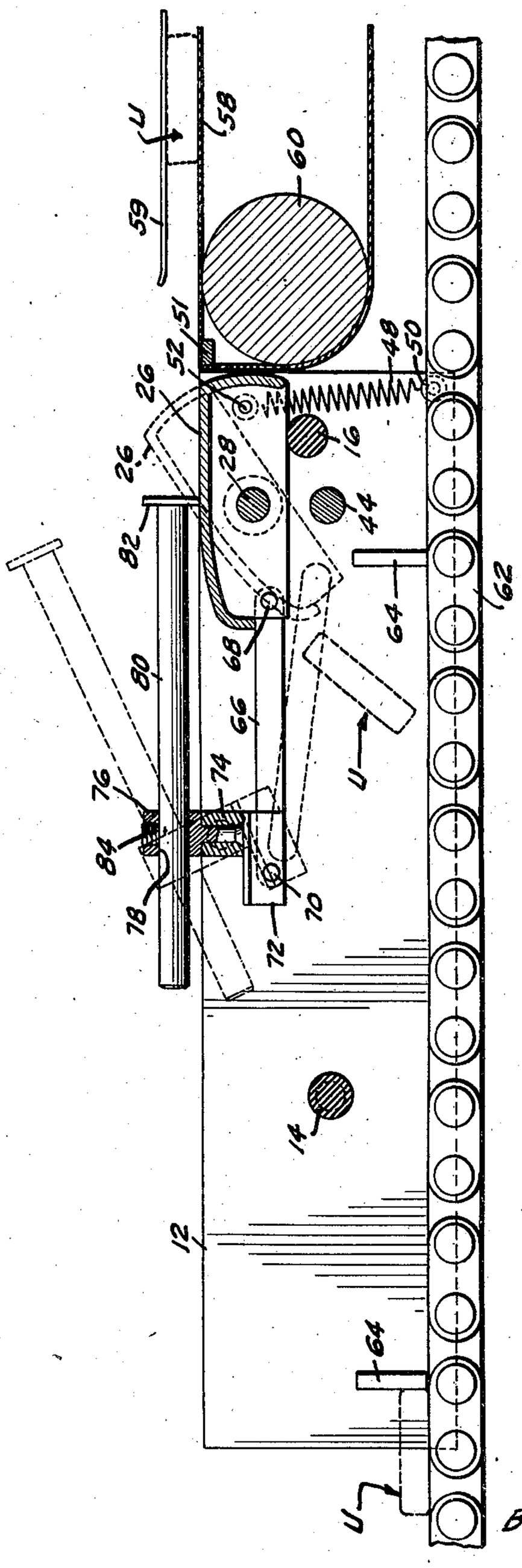

FIG. 2.

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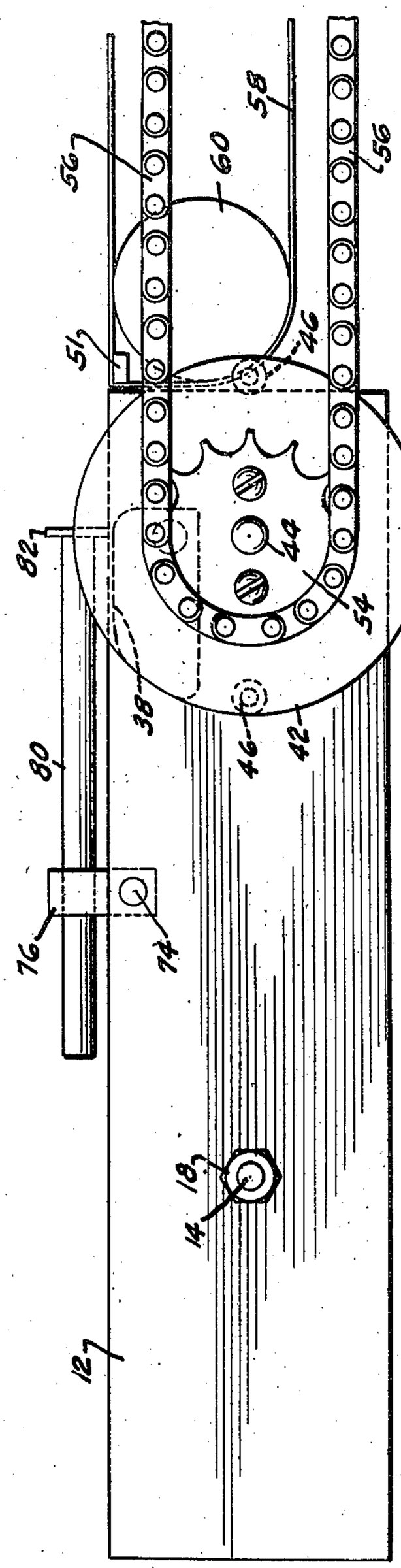

FIG. 3.

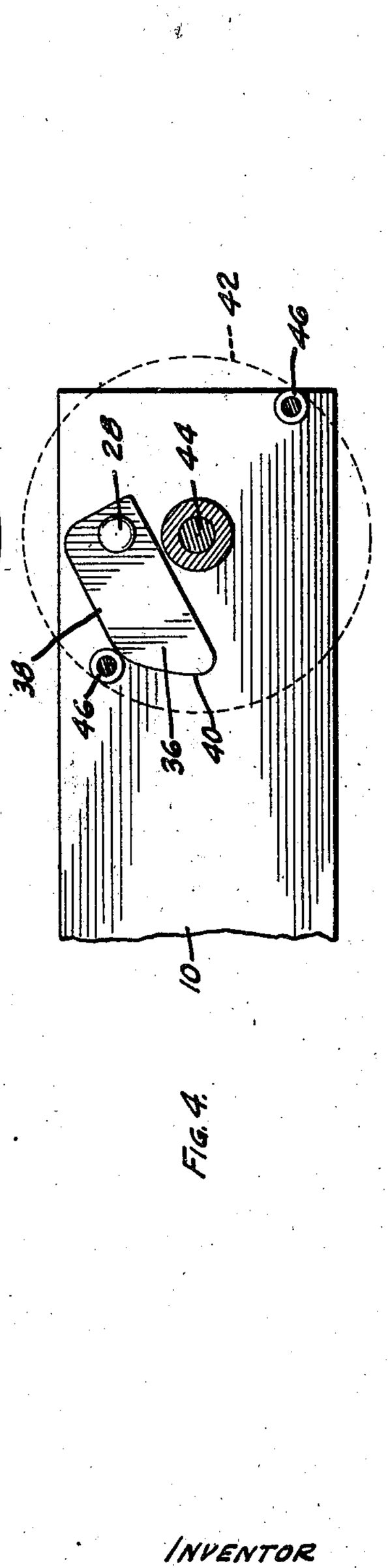

FIG. 4.

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UNITED STATES PATENT OFFICE

2,430,605

AUTOMATIC FEEDER AND TRANSFER MECHANISM

Frank Francona, Melrose Park, Ill., assignor of one-half to Thomas A. Horne, Thomas B. Horne, John A. Horne, and Mary C. Horne, copartners, doing business as John Horne Candy Mfg. Co., Chicago, Ill., a corporation of Illinois

Application March 30, 1946, Serial No. 658,466

5 Claims. (Cl. 198—26)

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My invention relates to improvements in automatic feeders and similar devices.

My invention relates more particularly to automatic feeders of the type capable of transferring rectangularly shaped bars or units from a feed belt to the conveyor of a packaging machine in such order so that the packaging machine will receive a continuous supply of the units that are to be wrapped or packaged.

The principal object of the present invention is to provide a mechanism for automatically feeding units generally rectangularly shaped to the conveyor of a packaging machine.

A further object of the invention is to provide a mechanism of the type described that is adjustable as to timing and size of unit to be packaged. Said adjustments will be capable of being made easily and quickly, so that the feeder can be changed from feeding one type of material to feeding another in a remarkably short period of time.

A further object of the invention is to provide a mechanism of the type described that is easily and simply operated and one which will not become out of order or broken, even though subjected to continuous use over comparatively long periods of time.

Other objects and advantages will be more apparent from the following description, wherein reference is had to the accompanying three sheets of drawings upon which:

Fig. 1 is a plan view of my improved automatic feeder;

Fig. 2 is a cross sectional view thereof taken generally on the line 2—2 of Fig. 1;

Fig. 3 is a side elevational view; and

Fig. 4 is a fragmentary sectional view taken generally on the line 4—4 of Fig. 1.

In the embodiment of the invention, which I have chosen to illustrate in the drawings, the same may comprise a pair of side frame members 10 and 12 generally rectangular in shape and spaced apart a desired width depending upon the type of material to be handled thereby. For spacing the same apart I have provided a pair of rod members 14 and 16, the rod member 14 having a reduced threaded shoulder at each end extending through openings in the side frame members and fastened thereto by the nut members 18. The rod member 16 may also be provided with the reduced shoulder 20 and a reduced threaded portion 22, so that it can be fastened to the frame members and properly space them by means of nut member 24.

I provide a transfer plate 26 secured to a rod

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28 that passes through an opening 30 in the frame member 10 and has a collar 32 secured outside the frame member. The opposite end of rod 28 extends through a suitable opening 34 in the frame member 12 and carries a cam 36 provided with a generally flat upper face 38 and an arcuately shaped cam face 40.

A disc 42 mounted on the shaft 44 carries a pair of rollers 46 which, as the plate 42 is rotated, actuate the cam 36 through a portion of its travel to tip the transfer plate 26 to the dotted line position shown in Fig. 2. A coiled spring member 48 secured at its lower end to a screw member 50 in the plate 12 has its upper end secured to the transfer plate by a screw member 52, so that after the roller 46 has left the peak of the cam portion 40 the transfer plate will be swung back to its normal position shown in Fig. 2.

The disc 42 may be suitably connected to a sprocket wheel 54 mounted on the shaft 44, the shaft 44 being suitably journalled in the frame members 10 and 12. The sprocket wheel 54 is driven from any suitable source by means of the chain 56, it being understood, however, that the drive will be synchronized with that of a conveyor which feeds the units to the automatic feeder and the conveyor of a wrapping machine with which this mechanism is associated. Thus, as shown in Fig. 2, the timing of the drive for the transfer plate is synchronized with that of a conveyor belt 58, which carries the units U over a roller 60 and bar 51 and on to the surface of the transfer plates 26, and also synchronized with the speed of the packaging machine conveyor 62 which carries certain links having the upright lugs 64 for moving the units U into the packaging machine. A thin strip member 59 normally rests on the units U to feed them forward in proper spaced relation.

As the transfer plate is tilted it operates through linkage, which will be hereinafter described, to raise the stop against which the units abut when they come on the transfer plate. This linkage includes the link 66 which is connected to the side wall of the transfer plate by a pin 68. The link 66 is connected by a pin 70 to an angle member 72 fastened to the bottom of a cross bar 74 pivotally mounted at its ends in the frame members 10 and 12. The cross rod 74 carries a block 76 that has a bore 78 therein. An adjustable stop member 80 is slidably mounted in the bore 78. The stop member has a horizontally disposed plate 82 normally positioned on the transfer plate 26. As the transfer plate is tilted by means of the linkage described, the stop plate is raised

to the positions shown in dotted lines in Fig. 2 and the unit to be packaged is permitted to be dropped to the packaging machine conveyor 62. The rod 80 and stop plate 82 are adjustable in the bore 78 being fastened in place by the screw member 84.

From the above and foregoing description, it will be apparent to those skilled in the art that I have provided an automatic feeder which is capable of receiving rectangularly shaped units and transferring them or feeding them to the conveyor of a packaging machine. The stop member is adjustable back and forth to compensate for the width of the unit to be packed and, as seen in the plan view, a wide range of lengths of units may be transferred. I contemplate that changes and modifications may be made in the exact details shown and I do not wish to be limited in any particular; rather what I desire to secure and protect by Letters Patent of the United States is:

1. An automatic feeder for use in feeding candy bars to packaging machines comprising a pair of side frame members, rods therebetween for spacing the same, a drive shaft, a sprocket mounted on said drive shaft, a disc connected to said sprocket, a roller on said disc, a second shaft above said first-named shaft, a transfer plate secured thereto, a cam connected to said second named shaft, a stop member having a horizontal plate on said transfer plate, said cam adapted to be actuated by said roller to tilt said plate on each revolution of said disc, and means for moving said stop member upwardly on each movement of said transfer plate, said means including a pivotal mounting for said stop member and a linkage between said mounting and said transfer plate.

2. An automatic feeder for use in feeding candy bars from a continuous conveyor at one elevation to the conveyor of a packaging machine at a lower elevation comprising a pair of side frame members, rods therebetween for spacing the same, a drive shaft, a sprocket mounted on said drive shaft, a drive therefor synchronized with the drive of the conveyor of said packaging machine, a disc connected to said sprocket, a roller on said disc, a second shaft above said first-named shaft, a transfer plate secured thereto and positioned between said side frames, a cam connected to said shaft and a pivotally mounted stop member having a horizontal plate normally resting on said transfer plate, said cam being actuated by said roller to tilt said plate during each revolution of said disc and swing said horizontal plate upwardly from said transfer plate.

3. An automatic feeder for use in feeding candy bars from a continuous conveyor at one elevation to the conveyor of a packaging machine at a lower elevation comprising a pair of side frame members, rods therebetween for spacing the same, a drive shaft, a sprocket mounted on said drive shaft, a drive therefor synchronized with the drive of the conveyor of said packaging machine,

a disc connected to said sprocket, a roller on said disc, a second shaft above said first-named shaft, a transfer plate secured thereto and positioned between said side frames, a cam connected to said second shaft, a stop member having a horizontal plate on said transfer plate, said cam being actuated by said roller to tilt said plate during each revolution of said disc, and means connected between said transfer plate and said stop member for raising the same during each tilting operation of said transfer plate.

4. An automatic feeder for use in feeding candy bars from a continuous conveyor at one elevation to the conveyor of a packaging machine at a lower elevation comprising a pair of side frame members, rods therebetween for spacing the same, a drive shaft, a sprocket mounted on said drive shaft, a drive therefor synchronized with the drive of the conveyor of said packaging machine, a disc connected to said sprocket, a roller on said disc, a second shaft above said first-named shaft, a transfer plate secured thereto and positioned between said side frames, a cam connected to said second shaft, a stop member having a horizontal plate on said transfer plate, said cam being actuated by said roller to tilt said plate during each revolution of said disc, and means connected between said transfer plate and said stop member for raising the same during each tilting operation of said transfer plate, said means comprising a pivotal mounting for said stop member and a linkage between said mounting and one side of said transfer plate.

5. An automatic feeder for use in feeding candy bars from a continuous conveyor at one elevation to the conveyor of a packaging machine at a lower elevation comprising a pair of side frame members, rods therebetween for spacing the same, a drive shaft, a sprocket mounted on said drive shaft, a drive therefor synchronized with the drive of the conveyor of said packaging machine, a disc connected to said sprocket, a roller on said disc, a second shaft above said first-named shaft, a transfer plate secured thereto and positioned between said side frames, a cam connected to said second shaft, and a pivotally mounted stop member having a horizontal plate normally resting on said transfer plate, said cam actuated by said roller to tilt said transfer plate during each revolution of said disc, thereby raising said stop member to permit a candy bar to drop from said transfer plate when it is tilted.

FRANK FRANCONA.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
562,534	Hollingsworth	June 23, 1896
1,957,321	Criner et al.	May 1, 1934