No. 679,725. Patented Aug. 6, 1901.

J. N. COLE.

AUTOMATIC BAND CUTTER AND SELF FEEDER.

(Application filed Nov. 17, 1899.)

(No Model.) 3 Sheets—Sheet 1.

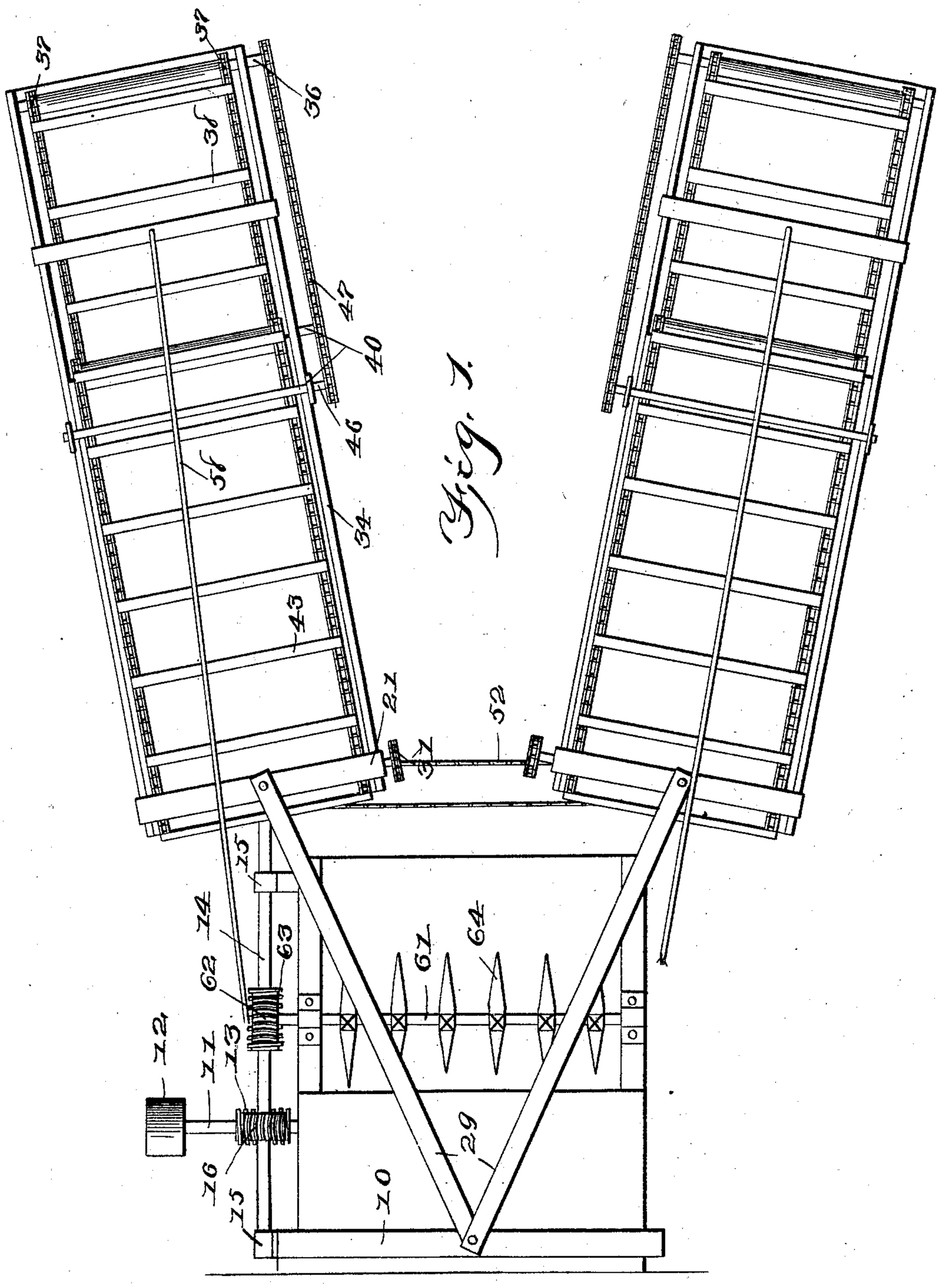

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

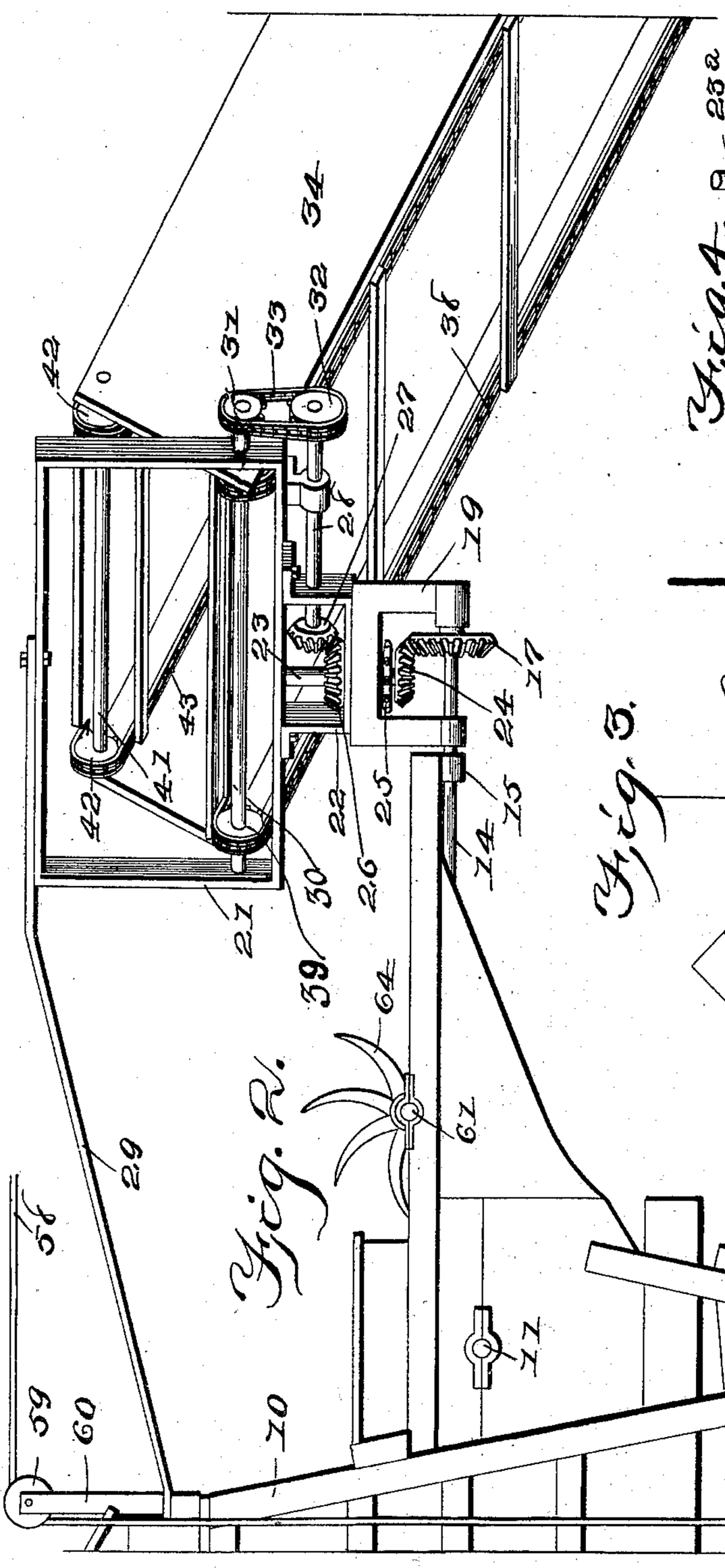


Fig. 4.

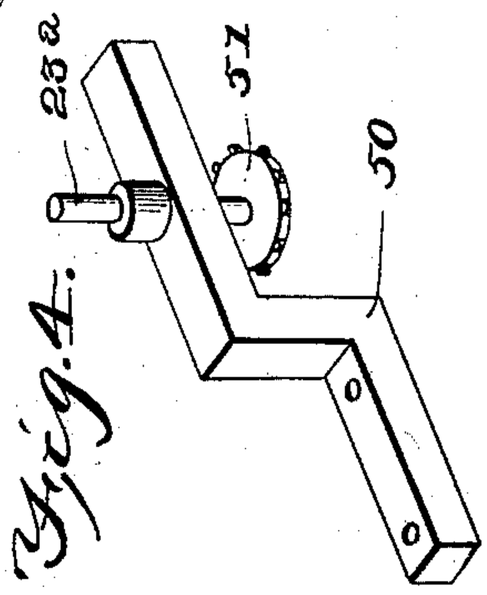
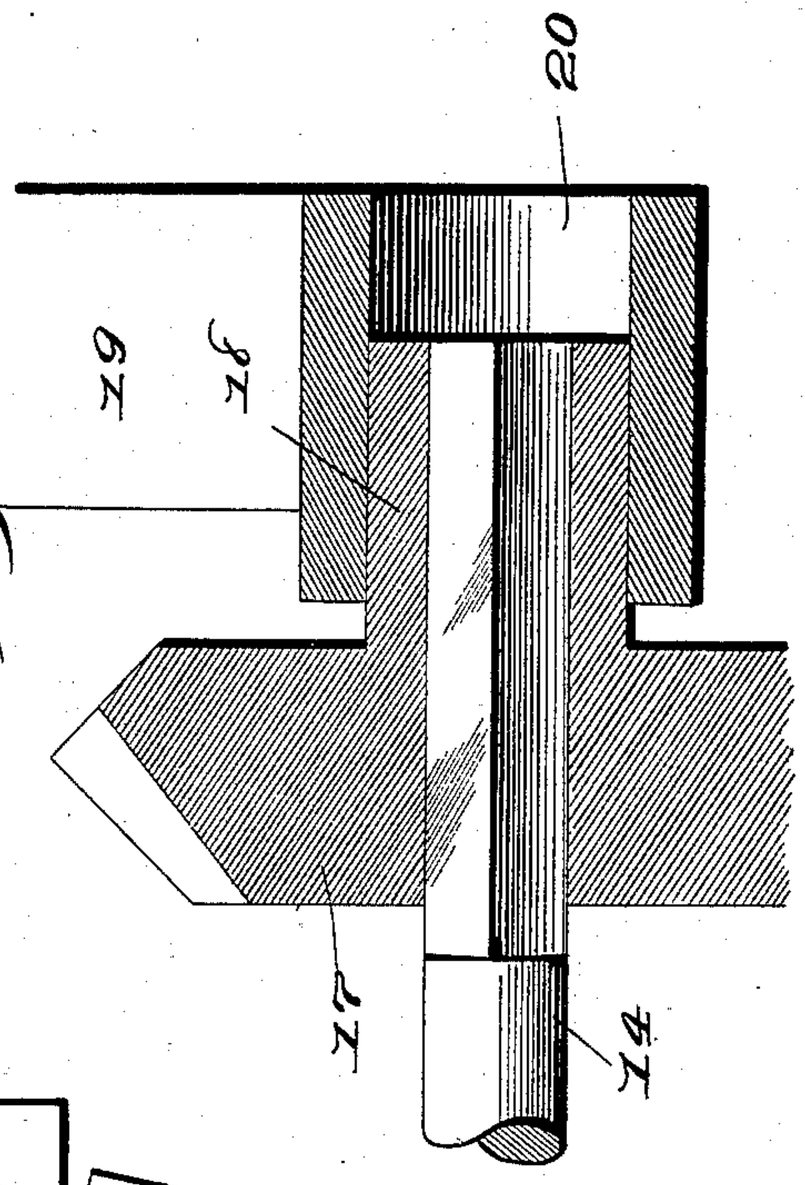


Fig. 5.



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AUTOMATIC BAND CUTTER AND SELF FEEDER.

(Application filed Nov. 17, 1899.)

(No Model.) 3 Sheets—Sheet 3.

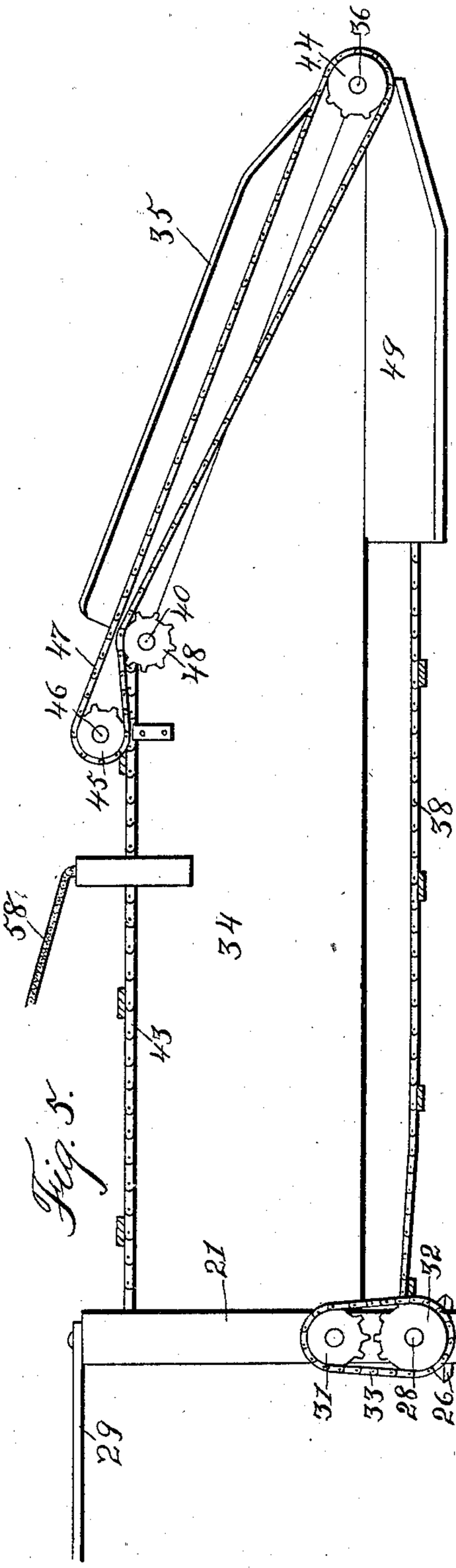

Fig. 5.

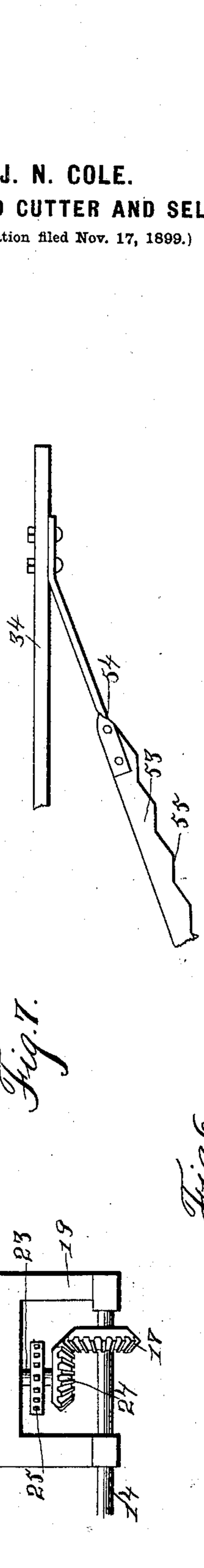

Fig. 7.

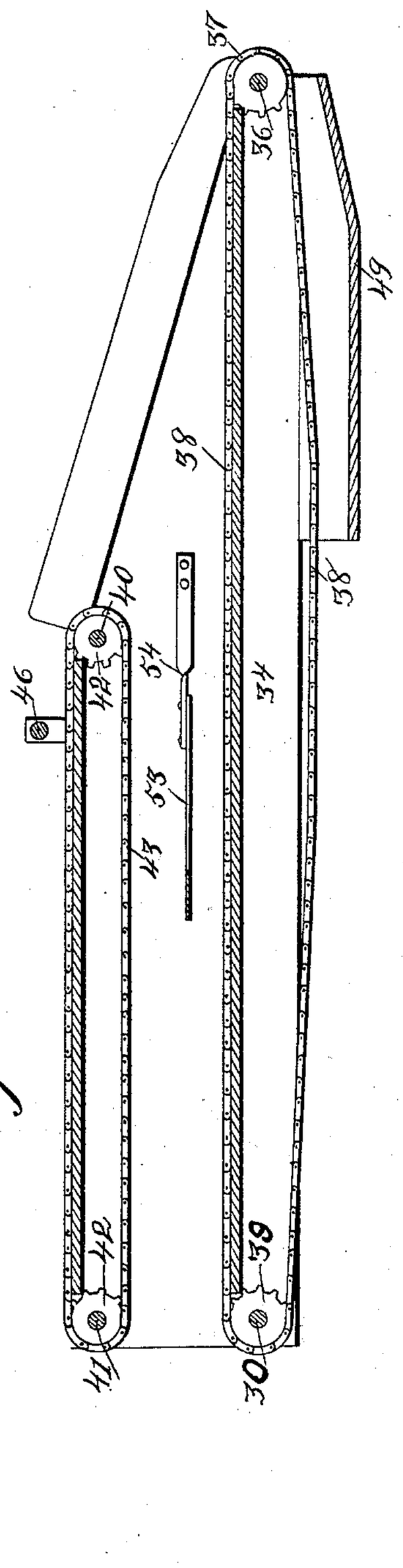

Fig. 6.

Witnesses
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Inventor John N. Cole
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UNITED STATES PATENT OFFICE.

JOHN N. COLE, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO W. W. KELLEY, OF SAME PLACE.

AUTOMATIC BAND-CUTTER AND SELF-FEEDER.

SPECIFICATION forming part of Letters Patent No. 679,725, dated August 6, 1901.

Application filed November 17, 1899. Serial No. 737,270. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. COLE, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Automatic Band-Cutters and Self-Feeders, of which the following is a specification.

One object of this invention is to provide means for feeding a threshing-machine and cutting the bands of the sheaves, in two separate and independent devices, each of which is capable of movement independently of the other and in a horizontal plane through an arc extending from a point at right angles to the thresher to a point in alinement with the thresher and each of which is also capable of independent movement in a vertical plane to thereby promote convenience and save time in feeding the threshing-machine, inasmuch as the band-cutters and self-feeders may be moved to positions where the sheaves may be placed therein with the greatest convenience—that is to say, a thresher remains stationary, while the operator moves either one or both of the band-cutters and feeders into proper position with relation to the stack of grain, and as the stack is lowered by feeding from its top the feeders are also lowered until their outer ends rest upon the ground-surface and they may be moved in a horizontal plane.

A further object is to provide a machine of this class that will feed the grain with the greatest possible degree of regularity and uniformity and which will be of simple, strong, durable, and inexpensive construction.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which—

Figure 1 shows a top or plan of the forward end of a thresher with both of my band-cutting and feeding devices connected therewith and geared together as in practical use. Fig. 2 shows the forward end of a thresher in side elevation having one of my improved band-cutters and self-feeders attached thereto and in gear therewith, the said portion of the band-cutter and feeder shown being in perspective. Fig. 3 shows an enlarged detail section illustrating the connection between the shaft leading from the threshing-cylinder and the arm for supporting the platform of the band-cutter and self-feeder. Fig. 4 is a detail perspective illustrating the bracket for supporting the band-cutter and feeder, which is driven by sprocket-gearing connected with the band-cutter and feeder that is geared direct to the thresher. Fig. 5 shows the side elevation of one of the band-cutters and self-feeders disconnected from the thresher. Fig. 6 shows a longitudinal section of one of the band-cutter and self-feeder frames with the conveyers therein. Fig. 7 shows a detail sectional view illustrating the band-cutting knife and its connection with the side of the band-cutter and feeder frame.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the portion shown of the threshing-machine, and 11 indicates the shaft of the threshing-cylinder, having thereon a pulley 12, by which it is driven, and also a worm-gear 13. On the side of the threshing-machine below the shaft 11 is a shaft 14, rotatably mounted in the bearings 15 and having a worm-gear 16 thereon to mesh with the gear 13 on the shaft 11, so that the shaft 14 is constantly rotated during the operation of the threshing-cylinder. On the end of the shaft 14 which projects beyond the machine is a beveled gear-wheel 17, having an extended hub 18, which is round on its exterior surface and square on its interior to receive the squared end of the shaft 14, thus providing a non-rotatable connection between the shaft and gear-wheel.

The reference-numeral 19 indicates a bracket having its one end provided with an opening through which the shaft 14 passes and having at its other end a cylindrical opening 20, designed to receive the cylindrical hub 18 of the gear-wheel 17. This hub 18 rotates freely within the part 20, and obviously the bracket 19 is supported upon the end of the shaft 14.

The reference-numeral 21 indicates a rectangular metal frame having the bracket 22

secured to its lower edge, which bracket is designed to rest upon the bracket 19 and be capable of turning in a horizontal plane thereupon. A vertical shaft 23 is supported in the frame 21 and bracket 22 and is provided with a bevel gear-wheel 24 on its lower end to mesh with the bevel gear-wheel 17. It is also provided with a sprocket 25 directly above the wheel 24 and with a bevel gear-wheel 26 on the top surface of the bracket 22. This beveled gear-wheel 26 is arranged with a like wheel 27 and fixed to a shaft 28, which shaft is rotatably supported in suitable brackets secured to the frame 21. The frame 21 is normally held in an upright position by means of a rod (indicated by the numeral 29) and pivotally connected with the top of the frame 21, also pivotally connected with the threshing-machine. This permits the frame 21 to swing freely in a horizontal plane, but prevents its movement in a vertical plane.

By means of the mechanism thus far described it is obvious that the frame 21 is supported in an upright position and capable of rotation in a horizontal plane, and it is also obvious that the shaft 28 and the shaft 23 are constantly rotated during the movement of the threshing-cylinder.

I have connected the frame of the band-cutter and feeder with the frame 21, as follows: The numeral 30 is used to indicate a shaft having its bearings near the lower end of the frame 21, and on this shaft is a sprocket-wheel 31, geared to a sprocket-wheel 32 on the end of the shaft 28 by means of the sprocket-chain 33. On this shaft 30 I have pivotally mounted the frame 34 of the band-cutter and feeder. This frame 34 is substantially rectangular in cross-section and is of such a size as to be capable of swinging vertically in the frame 21 to a sufficient degree to provide for the ordinary adjustment of the band-cutter and feeder frame in a vertical plane. At the opposite end of the band-cutter and feeder frame the top is removed for a short distance and the sides are inclined downwardly toward the bottom and outwardly-flared boards 35 provided for convenience in placing sheaves in the band-cutter and feeder. A shaft 36 is rotatably mounted in suitable bearings beneath the forward end of the band-cutter and feeder frame 34, and on this shaft are mounted two sprocket-wheels 37, over which the chains 38 of the endless conveyer are passed. These chains also pass over the sprocket-wheels 39 on the shaft 30, thus providing an endless conveyer, a portion of which passes over the bottom of the frame 34 in a direction toward the threshing-cylinder and returns beneath the bottom of the frame 34. I have also provided a conveyer to pass toward the threshing-machine directly under the top of the frame 34, so that sheaves of straw placed in the frame 34 will be impelled by conveyers both above and below toward the threshing-cylinder. This upper conveyer comprises two shafts 40 and 41, mounted beneath the top of the frame 34 and each having sprocket-wheels 42 thereon, over which the endless conveyer 43 passes. The said shaft 40 is driven by means of a sprocket-wheel 44 on the shaft 36 and a sprocket-wheel 45 on a shaft 46, supported in suitable bearings on top of the frame 34. A sprocket-chain 47 connects the wheels 44 and 45 and passes over a sprocket-wheel 48 on the shaft 40. On the under surface of the frame 34, near the outer end thereof, is a frame 49, designed to protect the lower conveyer, so that the frame 49 may rest upon a stack of grain or upon the ground-surface without interrupting the operation of the machine.

The construction and operation of the remaining band-cutter and feeder are identical with that of the one just described except as to the manner of imparting motion to its shaft corresponding to the shaft 23, and hence I shall only describe the portion of the other band-cutter and feeder corresponding to the bracket 19 and connected parts. In Fig. 4 I have illustrated a bracket (indicated by the numeral 50) having an opening therein designed to receive a shaft 23^a, and the other end of the bracket is designed to be bolted to a portion of the thresher-frame. On the lower end of this shaft 23^a, which corresponds to the shaft 23, is a sprocket-wheel 51, which sprocket-wheel is geared to the sprocket-wheel 25 by means of the chain 52. By this means it is obvious that the mechanism in both of the band-cutters and feeders will be operated simultaneously from the threshing-cylinder.

I have provided the following means for cutting the bands of the sheaves passing through the frame 34: The numeral 53 indicates a knife bolted to the side of the frame 34 and twisted at right angles at 54 and having a serrated sharp edge at 55. This knife is preferably made of spring-steel, so that the portion thereof between the bend 54 and the part that is bolted to the frame may readily yield and permit the knife to swing inwardly toward the side of the frame to which it is bolted. The interior of the frame 34 is only large enough to freely admit the largest sheaf of grain, and obviously every sheaf which passes through the frame 34 will be engaged by said knife and its band cut.

I have also provided means whereby the outer end portion of each of the frames 34 may be raised and lowered independently and supported in such position as follows: On the side of the thresher is a drum 56, having attached thereto a crank 57. A rope or cable 58 is wound upon this drum, then passed upwardly over a pulley 59 in the upright 60, and from thence the cable passes to the rear end of the frame 34, to which it is attached, and obviously a manipulation of the crank 57 will raise or lower the frame 34, and one of these hoisting devices is provided for each of the conveyer-frames 34.

I have also provided means for spreading and advancing the grain as it is deposited upon the platform of the thresher leading to cylinder as follows: The numeral 61 is used to indicate a shaft mounted in suitable bearings on the thresher-frame and extending transversely thereof. On one of its ends is a worm-gear 62, meshed with a mating worm-gear 63 on the shaft 14, and fixed to the shaft 61 is a series of curved arms 64, upon which arms the grain is discharged from the conveyers, and by them the grain is carried to the threshing-cylinder. The curvature of the arms obviously provides means whereby the grain may readily disengage from the arms when it has reached the cylinder.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

In a machine of the class described, a shaft mounted upon the frame of a thresher and geared to the shaft of the threshing-cylinder, said shaft being arranged at the side of the thresher and extending longitudinally thereof, a pair of band-cutters and feeders pivotally mounted upon the thresher and operative in both vertical and horizontal planes, said band-cutters and feeders being geared to operate in unison with the first-mentioned shaft, and a grain-spreader arranged transversely of the thresher and between the cylinder and the band-cutters and feeders, said spreader being geared to said first-mentioned shaft to operate in unison therewith.

JOHN N. COLE.

Witnesses:
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THOMAS G. ORWIG.