

No. 720,637.

PATENTED FEB. 17, 1903.

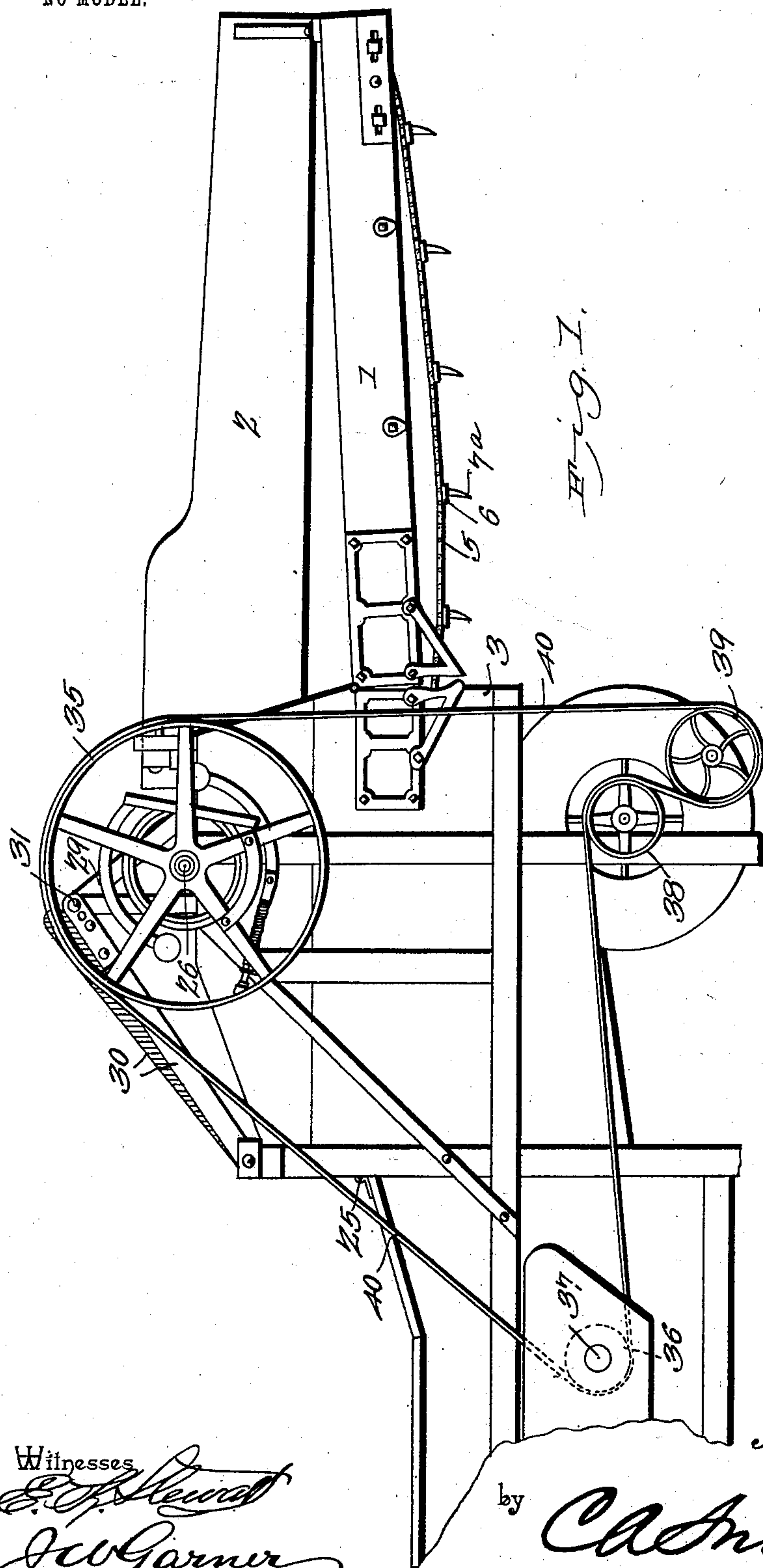
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BAND CUTTER AND FEEDER FOR THRESHING MACHINES.

APPLICATION FILED MAY 17, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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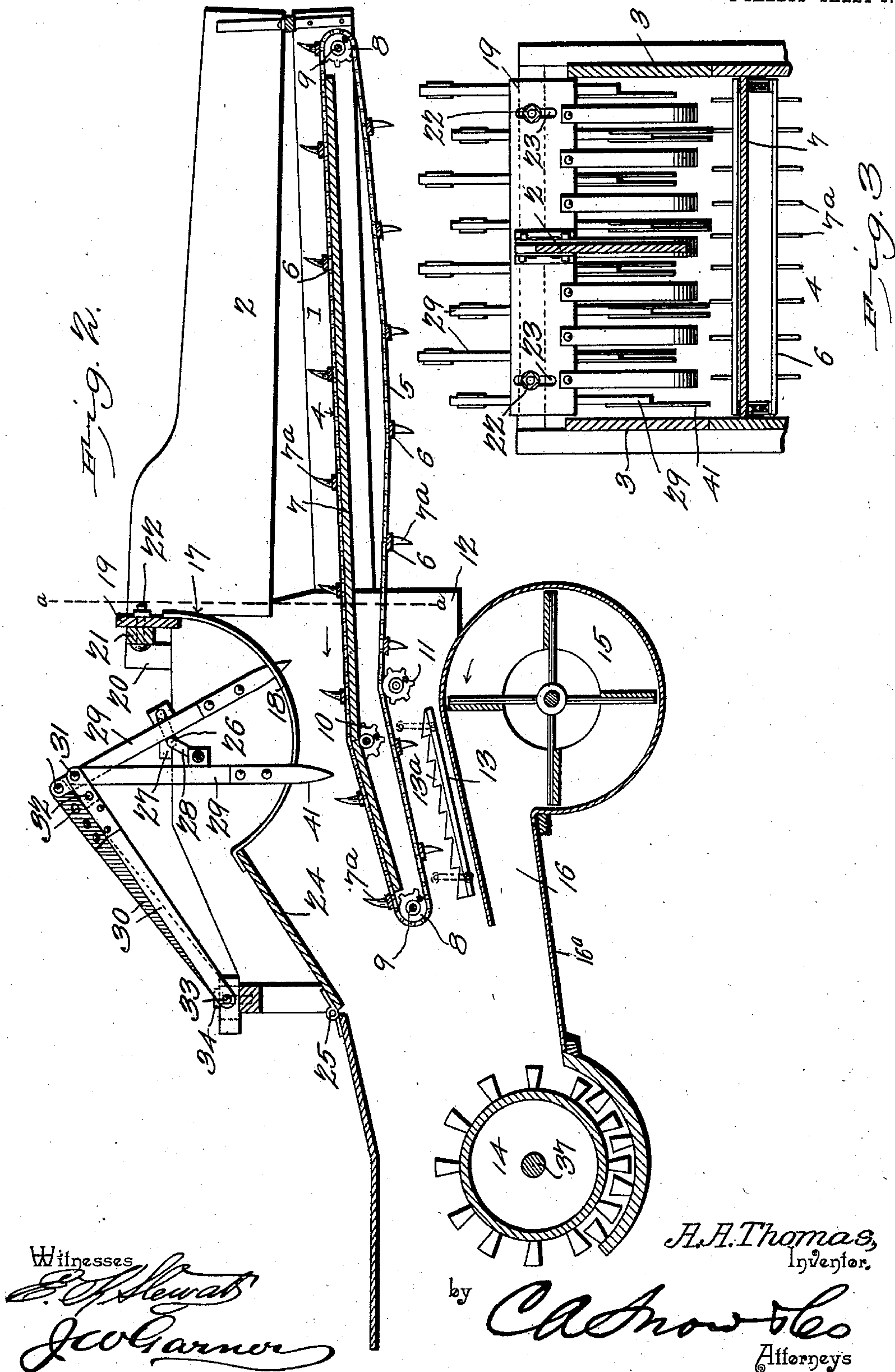
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UNITED STATES PATENT OFFICE.

ARTHUR A. THOMAS, OF PORTLAND, INDIANA.

BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 720,637, dated February 17, 1903.

Application filed May 17, 1902. Serial No. 107,842. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. THOMAS, a citizen of the United States, residing at Portland, in the county of Jay and State of Indiana, have invented a new and useful Band-Cutter and Feeder for Threshing-Machines, of which the following is a specification.

My invention is an improved band-cutter and feeder for threshing-machines; and it consists in the peculiar construction and combination of devices hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a band-cutter and feeder embodying my improvements, showing also a portion of a threshing-machine to which the band-cutter and feeder is attached. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view of the same, taken on a plane indicated by the line *a a* of Fig. 2.

The feed-trough 1 may be of the usual construction and is here shown as provided with a longitudinally-disposed centrally-located dividing-board 2. In Fig. 1 of the drawings the near side board of the feed-trough is omitted; but the side boards of the feed-trough are indicated at 3 in Fig. 3.

An endless traveling feed-carrier 4 comprises suitable endless sprocket-chains 5 and cross-bars 6, connecting them together. The upper lead of the said endless feed-carrier travels on the bottom board 7 in the feed-trough, and the cross-bars of the feed-carrier are provided with cutter-blades *a*, which project outwardly therefrom. Preferably the said cutter-blades are of the form shown in Fig. 2 of the drawings, and the same have sharpened edges both on their front and rear sides. The sprocket-chains of the feed-carrier engage and are supported by sprocket-wheels 8, which are on shafts 9, and one of the said shafts is driven by the means usually employed. I have not here shown the means for driving the said shaft, and hence driving the feed-carrier, as the same is well understood by those skilled in the art to which my invention relates and forms no part of my present improvements. The upper leads of the carrier-chains 5 also engage sprocket-wheels 10, and the lower leads thereof engage idler sprocket-wheels 11. The inner portion

of the feed-carrier, within the mouth 12 of the threshing-machine and grain-separator, is disposed above a vibratory pan 13. The said pan is inclined downwardly and rearwardly toward the threshing-cylinder 14. No means are here shown for vibrating the pan 13 and rotating the threshing-cylinder, as the same are well understood by those skilled in the art to which my invention relates and may be of any approved construction.

Under the vibrating pan 13 and at the front end of the threshing-machine casing is a revoluble fan or blower 15, the casing of which is provided with a rearwardly-extending discharge-spout 16, which is disposed under the vibrating pan 13 and which terminates opposite and at a suitable distance from the front side of the threshing-cylinder. It will be understood that the blast from the said fan will be discharged directly toward and against the front side of the threshing-cylinder.

Above the inner portion of the feed-carrier is a presser-grate 17, having longitudinally-disposed bars 18, appropriately spaced apart and which are preferably curved, as shown in Fig. 2. The said presser-grate extends transversely across the upper side of the mouth of the threshing-machine, and the front ends of the bars 18 thereof are secured to a cross-bar 19, which is supported above the mouth of the threshing-machine and is vertically adjustable to raise and lower the bars of the presser-grate as may be desired. Within the scope of my invention the said cross-bar and presser-grate may be supported and vertically adjusted by any suitable means, and I do not desire to limit myself in this particular. For the purpose of this specification the casing is shown as provided with uprights 20 on opposite sides of the feed-mouth thereof. A cross-bar 21 is shown as secured to and connecting the upper ends of the said uprights, and the adjusting cross-bar 19, which forms the part of the presser-grate, is shown as secured to the bar 21 by bolts 22, the said bar 19 having vertical slots 23, in which the said bolts are disposed. A deflector 24, which may be either of the form here shown or of any other approved construction, is disposed in rear of the presser-grate above the rear portion of the feed-carrier and above and somewhat in advance of the threshing-machine cylinder, and

the said deflector is here shown as being hinged at its rear side, as at 25, so that its front portion may be raised or lowered to dispose the said deflector at any desired inclination. A transversely-disposed crank-shaft 26 is located above the presser-grate and is journaled in suitable bearings 27. The crank-arms 28 of the said crank-shaft are disposed at suitable angles with reference to one another, and to each of the said crank-arms is connected a feeder-arm 29. The upper ends of the said feeder-arms are pivotally connected to the front portions of link-bars 30, as by pins or bolts 31, and the said link-bars are provided with series of adjusting-openings 32, in any of which the pins or bolts 31 may be inserted, so that the upper ends of the feeder-arms may be adjustably connected to the front portions of the link-bars. The rear ends of the latter are pivoted on a shaft 33, which is carried by longitudinally-adjustable supports 34. I have here shown a band-pulley 35 at one end of the crank-shaft 26, a band-pulley 36 at one end of the cylinder-shaft 37, a pulley 38 at one end of the blower-shaft, and an idler-pulley 39 below and somewhat in advance of the last-mentioned pulley. An endless belt 40 connects the pulleys 35, 36, 38, and 39. Hence the blower and the crank-shaft, which operates the feeder-arms, are rotated by power communicated thereto from the threshing-machine cylinder. I do not desire to limit myself to this means for operating the blower and the feeder-arms crank-shaft, as any suitable means may be employed for this purpose without departing from the spirit of my invention and within the scope of the appended claims. The feeder-arms operate downwardly and rearwardly below the bars of the presser-grate and in the spaces between the said bars and move forwardly and upwardly above the said bars of the presser-grate, as may be understood. To the lower end of each feeder-arm is secured a band-cutting knife 41. Preferably the same are of the construction shown in Figs. 2 and 3 and have sharpened cutting edges on their front and rear sides.

In the operation of my invention the sheaves, which are placed in the feed-trough, are carried by the feed-carrier under the presser-grate. The latter serves to prevent the sheaves from moving upwardly from the feed-carrier, and the operation of the feeder-arms causes their knives 41 to move downwardly into and rearwardly through the sheaves from the butts to the heads thereof, and in so doing to cut the bands of the sheaves, as will be understood, and this cutting of the bands is also facilitated by the action of the knives 7^a, which are carried by the feed-carrier, and which knives pass under the sheaves when the motion of the latter is temporarily arrested or retarded by the presser-grate. Not only do the knives 41 serve to cut the bands of the sheaves, but the same, owing to the motion of the feeder-bars 28, which carry them, serve to urge the

grain forwardly and to dispose the butts thereof upwardly, so that the grain slides forwardly and downwardly from the inner portion of the feed-carrier toward the threshing-machine cylinder, this movement of the grain being facilitated by the deflector 24 and the action of the feeder-arms being such as to toss the individual straws or stalks of the sheaves after the bands of the same have been cut to fall apart to facilitate the passage of the grain to the threshing-machine cylinder. The blast from the fan or blower catches the grain, tends further to loosen the same, and also forces the grain directly against the front side of the threshing-machine cylinder, so that the grain is caught thereby and subjected to the conjoint action of the cylinder and concave. Such loose grains as drop from the sheaves while they are on the carrier fall upon the vibrating pan 13 and are fed from the latter to the threshing-machine. On the upper side of the said vibrating pan are rearwardly-inclined toothed racks 13^a, which prevent any grain from being carried forwardly by the under lead of the feed-carrier.

In practice each of the outer feeder-arms will have a single knife 41 at its lower end, and each of the intermediate feeder-arms will have a pair of such knives disposed on opposite sides thereof, as shown in Fig. 3.

The board 16^a, which forms the lower side of the blast-spout, is removable to facilitate access to the threshing mechanism. This board forms an inclined plane disposed in the space between the fan or blower and the threshing mechanism below the discharge end of the carrier and above the concave of the threshing mechanism. The grain as it falls from the discharge end of the carrier is arrested by this inclined plane and caught by the blast from the fan, the initial motion of the grain rearwardly, caused by the action of the carrier, the downward and rearward inclination of the board 16^a, and the blast from the fan all contributing to feed the grain to the threshing mechanism.

Having thus described my invention, I claim—

1. The combination of an endless traveling feed-carrier having band-cutting knives, a relatively fixed substantially semicylindrical presser-grate disposed transversely above the same, with its convex side presented thereto, a revoluble crank-shaft, feeder-arms connected to the cranks of said shaft, adapted to operate in the spaces between the bars of the presser-grate and having band-cutting knives at their lower ends, and links connecting the upper ends of said feeder-arms to a relatively fixed point, the radius of the cranks of the crank-shaft being such that the lower ends of the feeder-arms are caused to move downwardly and rearwardly below the bars of the presser-grate and forwardly and upwardly above the same, substantially as described.

2. The combination of a feed-carrier, having band-cutting knives secured thereto, a

hinged downwardly-inclined deflector above
the discharge portion of the feed-carrier, a
relatively fixed substantially semicylindrical
presser-grate secured on the front side of the
5 said deflector and having its convex side pre-
sented to the feed-carrier, said presser-grate
being disposed transversely above the feed-
carrier, means to adjust the presser-grate and
deflector toward and from the feed-carrier, a
10 threshing mechanism in rear of the feed-car-
rier, and a feed mechanism including arms,

movable downwardly and rearwardly below
the bars of the presser-grate and through the
spaces between the said bars, substantially
as described.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

ARTHUR A. THOMAS.

Witnesses:

N. R. GRIFFITH,
E. E. THOMAS.