

(No Model.)

5 Sheets—Sheet 1.

A. KLEINSTIVER.
BAND CUTTER AND FEEDER.

No. 584,042.

Patented June 8, 1897.

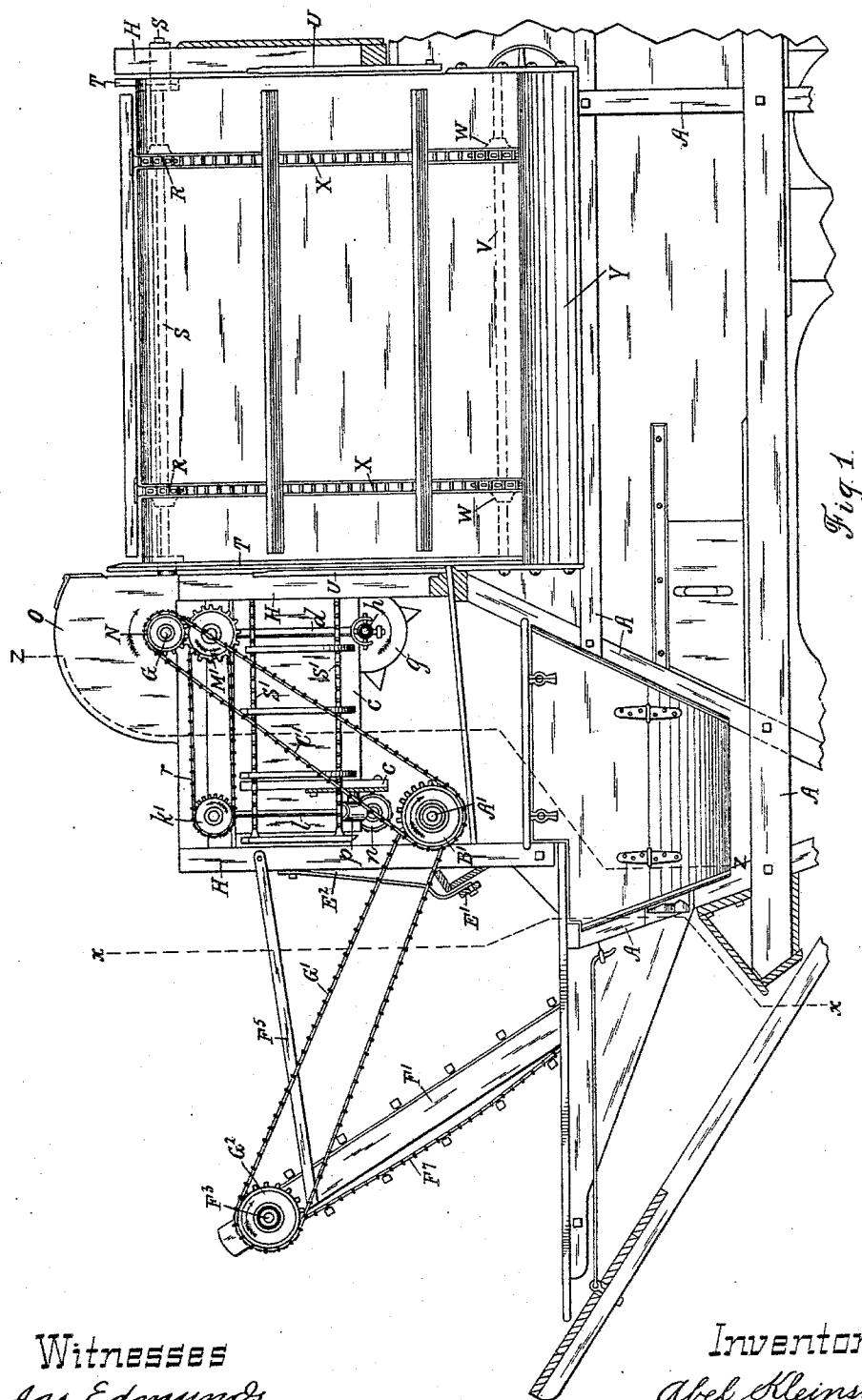


Fig. 1.

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Attorney.

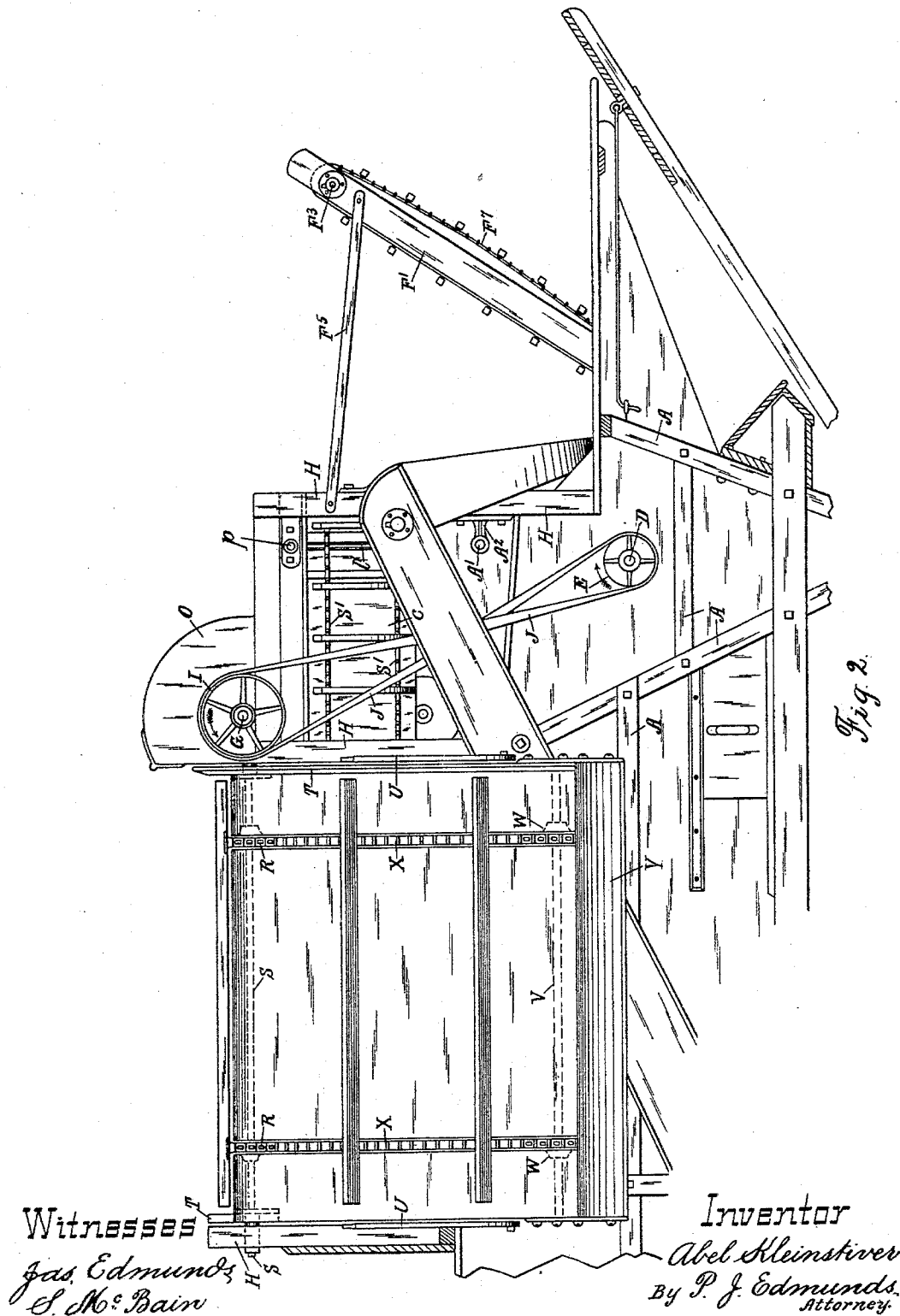
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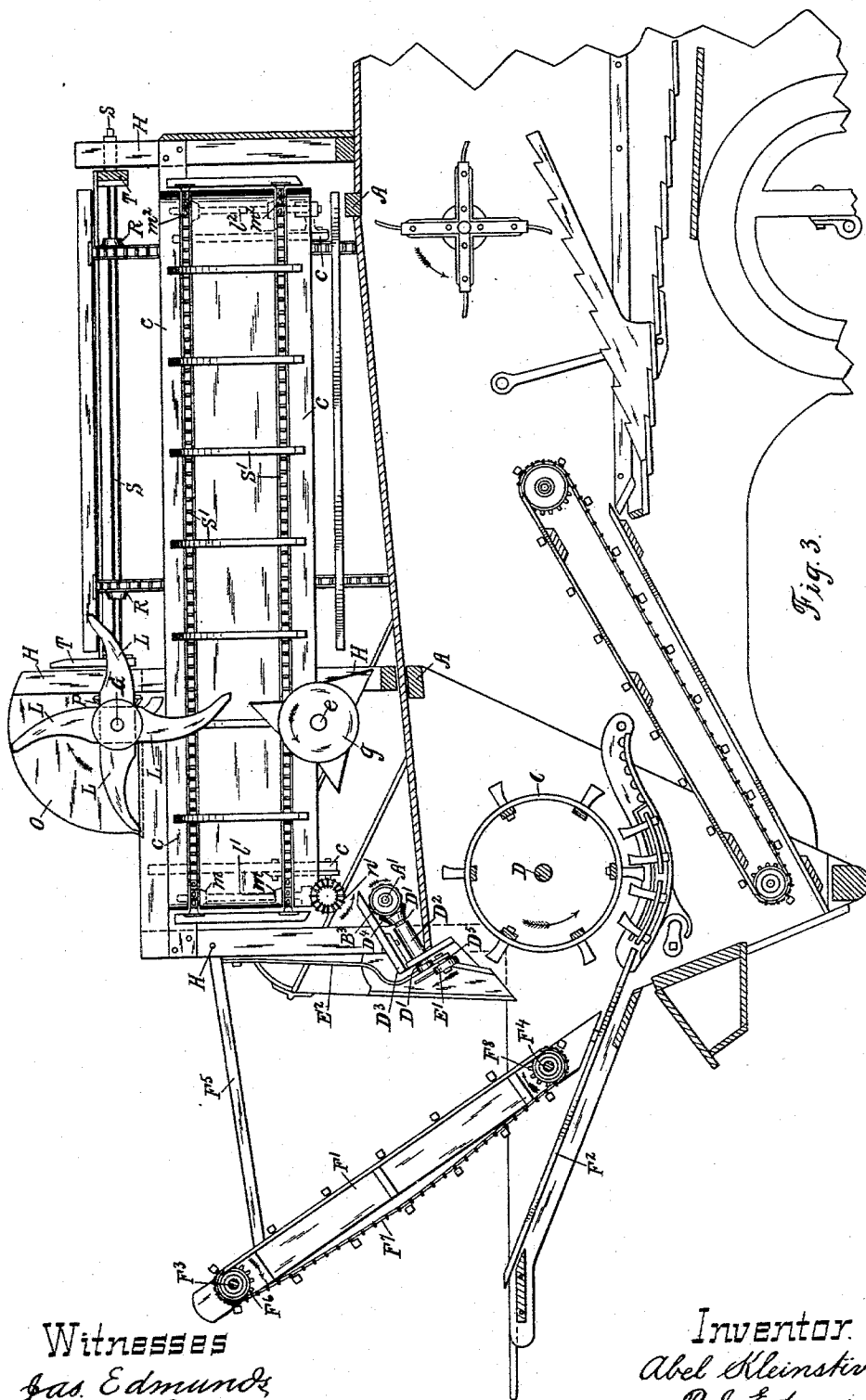
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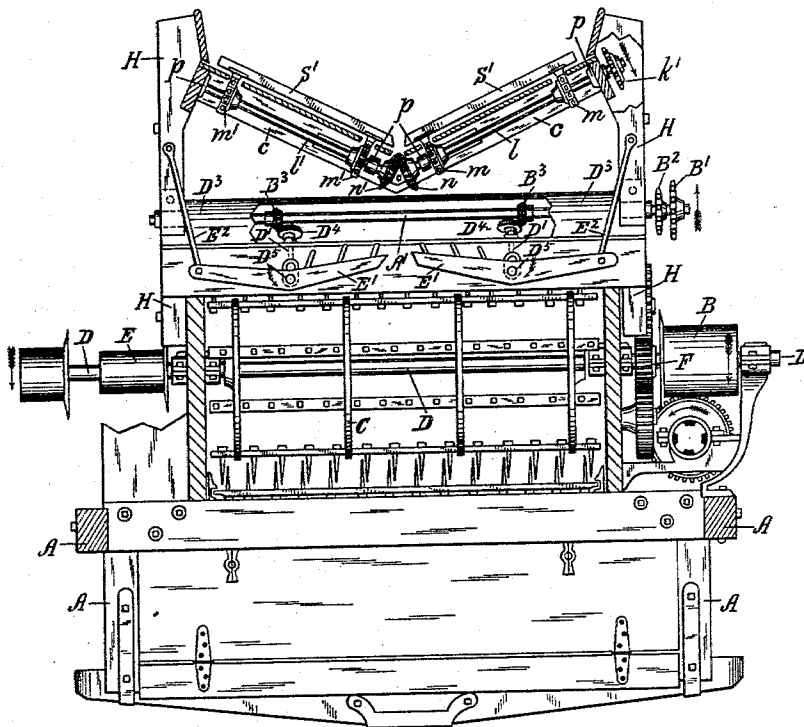


Fig. 4.

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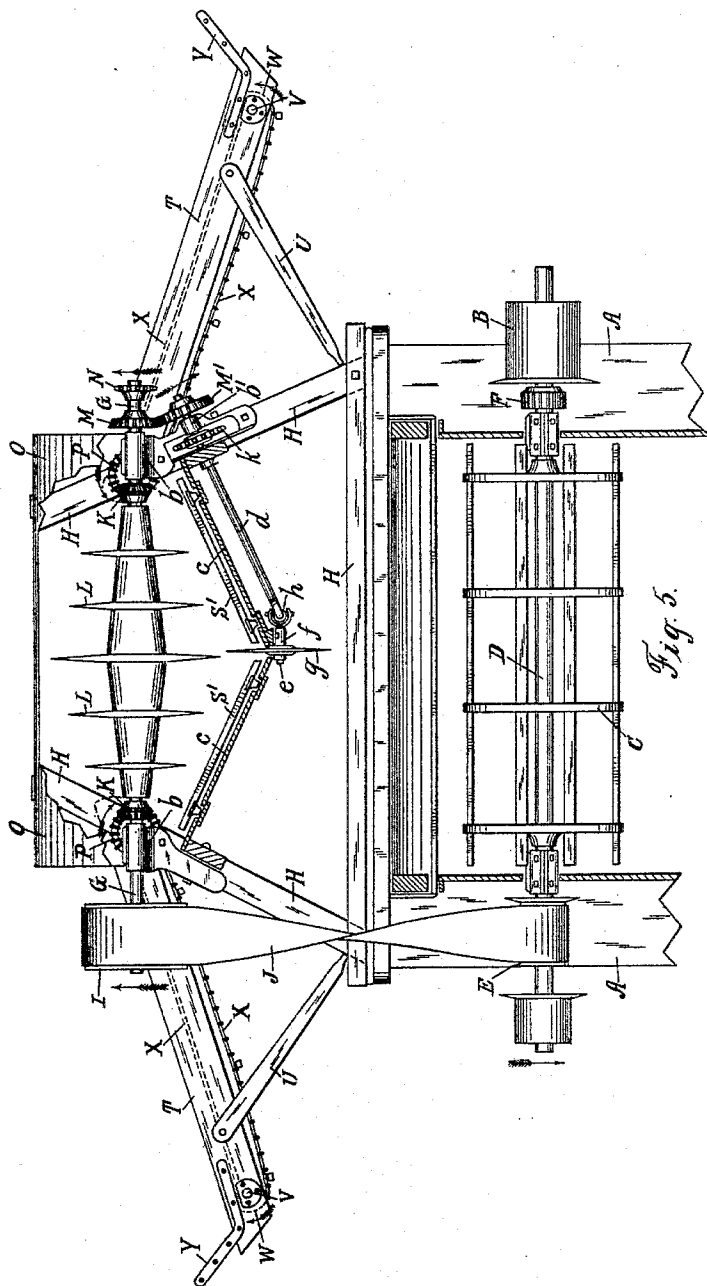
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Witnesses
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UNITED STATES PATENT OFFICE.

ABEL KLEINSTIVER, OF PETROLEA, CANADA, ASSIGNOR OF ONE-HALF TO
BENJAMIN S. VAN TUYL, OF SAME PLACE.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 584,042, dated June 8, 1897.

Application filed April 4, 1895. Serial No. 545,027. (No model.)

To all whom it may concern:

Be it known that I, ABEL KLEINSTIVER, a subject of the Queen of Great Britain, and a resident of Petrolea, in the Province of Ontario, Canada, have invented a new and useful Self-Feeder and Band-Cutter for Threshing-Machines, of which the following is a specification.

This invention relates to an attachment to a threshing-machine to cut the bands of the sheaves as the latter are carried from the stack or mow to the spreader and cylinder; and it consists in the arrangement and combination of parts which will be more fully described hereinafter.

In order that my improvements may be better understood, I have illustrated in the accompanying drawings a self-feeder and band-cutter attachment constructed according to my invention and have also shown its position in relation to a threshing-machine, in which—

Figure 1 is a side view of the front portion of a threshing-machine, showing a side view of my self-feeder and band-cutter attachment and its position on said machine. Fig. 2 is an opposite side view of same. Fig. 3 is a central longitudinal section view of Fig. 1. Fig. 4 is a cross-sectional view on the line xx of Fig. 1. Fig. 5 is another cross-sectional view on the line zz of Fig. 1.

A designates the frame, F^2 the feed-board, C the cylinder, and D the cylinder-shaft, of a threshing-machine. On this cylinder-shaft D the pulleys B and E and toothed pinion F are keyed or otherwise rigidly secured. A belt from the engine passing around pulley B communicates motion to said cylinder-shaft D, but motion may be communicated to this shaft by gearing and coupling-rods or in any other manner or by any means desired.

G designates the band-cutter shaft, supported to revolve perfectly free in bearings b , secured to the band-cutter frame H, all shown particularly in Fig. 5, and I a pulley rigidly secured to the shaft G, and J a belt passing over the pulleys E and I, by which motion is communicated from the cylinder-shaft D to the band-cutter shaft G.

KK designate beveled pinions; L L, upper cutters or cutting-knives; M, a toothed

wheel, and N a sprocket-wheel rigidly secured to the band-cutter shaft G, all shown particularly in Fig. 5.

O designates a shield or cover for the protection of the cutters or knives L and also to avoid and completely prevent all danger to the operators from said cutters.

P designates a beveled gear-wheel, and R R sprocket-wheels rigidly secured to the shaft S, and one of each of said shafts S and attachments are supported to revolve perfectly free in suitable bearings secured to the band-cutter frame H at each side of the machine, and motion is communicated from the shaft G to the shaft S by the engagement of the beveled pinions K with the beveled gear-wheels P.

T designates pivotal frames, one of which is pivotally secured at its inner end on the shaft S at each side of the machine, and this frame T is made pivotally adjustable for the purpose of placing it over on or adjacent to the sheaves of grain which have been stacked ready for threshing.

U designates an adjustable support, the outer end of which is pivotally secured to the pivotal frame T near its outer end, and the other end of this support engages with the frame H to hold the pivotal frames T at any incline desired or to permit them to be adjusted parallel with the side of the machine when moving and when not in use.

V designates shafts, one of which is supported to revolve perfectly free in suitable bearings secured to and near the outer end of each of the pivotal frames T, and on this shaft V sprocket-wheels W W are supported, and X X are endless slatted carriers which engage with and are operated by the sprocket-wheels R R and W W to travel from the side inward and upward toward the center of the machine.

Y designates a stop-board or chute secured to the frame T or other suitable support, which chute conducts the sheaf onto the frame T and in proper position to the endless carriers X. This chute also prevents said sheaf from falling off the outer end of said carriers X or frame T.

c designates a V-shaped frame which extends lengthwise of and above the threshing-machine, said frame being inclined or curved

from each side toward the center of the machine for the purpose of invariably conducting the sheaf lengthwise to the center of machines of different widths, and thereby in line with the cutting-knives and centrally of the spreaders and cylinder, so as to avoid and completely prevent the sheaf from being delivered sidewise to the cylinder, and thereby adapting the one size of this self-feeder and band-cutter attachment to all sizes and styles of threshing-machines. This V-shaped frame *c* is rigidly supported by and secured to the band-cutter frame *H*.

d designates a shaft to which the toothed wheel *M* and the sprocket-wheel *k* are rigidly secured, which shaft is supported by and secured to revolve perfectly free in the bearings *b'*, (shown particularly in Fig. 5,) and motion is communicated from the shaft *G* to the shaft *d* by means of the toothed wheels *M* *M'*.

e designates a shaft supported by and revolving perfectly free in a bearing *f*, the latter being rigidly secured to the frame *c*.

g designates an under cutting-knife rigidly secured to the shaft *e* for the purpose of cutting the band of the lower sheaf if two or more sheaves should pass onto the V-shaped frame and be carried forward on one another at the same time, and motion is communicated from the shaft *d* to the shaft *e* by means of a ball-coupling *h*. (Shown particularly in Figs. 1 and 5.)

l designates an inclined shaft, to which are rigidly secured the sprocket-wheels *k'* and *m* and beveled gear-wheel *n*, and *l'* is another inclined shaft, to which are rigidly secured the beveled gear-wheel *n'* and sprocket-wheels *m'*, and these shafts *l* *l'* are supported by and revolve perfectly free in bearings *p*, rigidly secured to and near the forward end of the frame *c*, motion being communicated from the shaft *d* to the shaft *l* by means of the chain belt *r*, passing over the sprocket-wheels *k* and *k'*, and from the shaft *l* to the shaft *l'* by means of the beveled gear-wheels *n* and *n'*.

*l*² designates inclined shafts, two of which are supported by and revolve perfectly free in suitable bearings rigidly secured to and near the rear end of the frame *c*, and *m*² are sprocket-wheels, two of which are rigidly secured to each of said shafts *l*², and these inclined shafts *l*², carrying two sprocket-wheels *m*², are placed opposite to the inclined shafts *l* and *l'* and sprocket-wheels *m* and *m'*, and *S* *S'* designate endless slatted carriers, one of which engages with the sprocket-wheels *m* and *m*², as shown particularly in Fig. 3, and the other with the sprocket-wheels *m'* and *m*², and thereby communicate motion from the shafts *l* and *l'* to the shafts *l*², and at the same time cause the endless slatted carriers *S* *S'* to move toward the front of the machine.

The above-described mechanism of endless slatted carriers, sprocket-wheels, and shafts we have found by experiment to be the most suitable for carrying the sheaf; but rollers,

agitator-decks, or other suitable means of a similar V-shaped construction may be used to convey the sheaf forward.

A' designates a shaft supported to revolve perfectly free in bearings *A*², rigidly secured to the frame *H*, as shown in Figs. 2 and 4, and on this shaft *A'* the sprocket-wheels *B* and *B*² and two beveled gear-wheels *B*³ are rigidly secured, motion being communicated to said shaft *A'* by a chain belt *C'*, engaging with and passing over the sprocket-wheels *N* and *B'*.

D *D'* designate shafts supported to revolve perfectly free in bearings *D*³, rigidly secured to the chute *D*³ or other suitable support, to each of which shafts *D'* a beveled gear-wheel *D*⁴ and crank-arm *D*⁵ are rigidly secured, motion being communicated from the shaft *A* to the shaft *D'* by means of the beveled gear-wheels *B*³ and *D*⁴.

E *E'* designate toothed spreaders, one of which is pivotally supported on each of the crank-arms *D*⁵, and *E*² hangers, one of which is connected at one end to each of the spreaders *E'*, the other ends of said hangers *E*² being pivotally secured to the frame *H*, as shown particularly in Fig. 4, so that as the beveled gear-wheels *B*³ and *D*⁴ are operated the crank-arms *D*⁵ are also operated, but in opposite directions, and the spreaders *E'* being pivotally secured near their centers on the crank-arms *D*⁵ and their outer ends being pivotally connected to the hangers *E*² as these crank-arms revolve they cause the spreaders *E'* to oscillate from the center upward and outward, thereby spreading the sheaf evenly just before it passes to the cylinder.

F designates a frame connected to the feed-board *F*² of the threshing-machine and securely held in an inclined position by the arm *F*⁵, the latter being pivotally connected at one end to the frame *H* and at the other end to the frame *F'*, so that by the use of this arm *F* the frame *F'* and endless carrier *F*⁷ may be swung up on top of the machine in case of breakage to the cylinder or any part of the self-feeder and band-cutter mechanism. In the latter case by throwing off the belt *J* the self-feeder and band-cutter mechanism may be thrown out of operation and the machine fed by hand in the usual manner without loss of time in the operation of the machine.

*F*³ and *F*⁴ designate shafts supported to revolve perfectly free in suitable bearings secured to said frame *F'*, and secured to the shaft *F*³ are the sprocket-wheels *F*⁶ and *G*², and rigidly secured to said shaft *F*⁴ are the sprocket-wheels *F*⁸, and *F*⁷ is an endless slatted carrier which engages with and passes over said sprocket-wheels *F*⁶ and *F*⁸, and motion is communicated from the shaft *A'* to the shaft *F*³ by the chain belt *G'*, passing over the sprocket-wheels *B*² and *G*², and thus operating the endless slatted carrier *F*⁷ for the purpose of conducting the sheaf in proper position to the spreader and cylinder.

The operation is as follows: The sheaf is

placed on the inclined frame T at either side of the machine, where it is engaged with and conveyed upward by the endless slatted carriers X and delivered lengthwise of the machine on the endless slatted carrier S', which being inclined toward the center of the machine brings the sheaf in line to pass between the band-cutters or revolving cutting-knives L and g, at which point the bands which hold the sheaves together are cut, and after the band has been cut the carriers S' convey the sheaf to the front of the machine. As the sheaf passes off the carriers S' the head engages with the carrier F⁷, which conducts said sheaf in proper position to the cylinder C, and while said carrier F⁷ is placing said sheaf in proper position to the cylinder C said sheaf is being engaged with by the spreaders E' to be evenly distributed over a space equal to the width of the cylinder in order that the whole of the sheaf may be acted upon equally by the cylinder.

The construction herein shown and described I have found by experiment to attain the best results; but while I prefer the construction shown I do not limit myself to the details thereof, as they may be modified in various ways without departing from the spirit of my invention.

Having thus described my invention, I claim—

1. The cylinder, cylinder-shaft provided with a pulley at each end, and a belt J, extending from one of the said pulleys, combined with the cutter-shaft G, provided with the pulley I, the gears K, M, and the cutters L; the inclined shaft d, provided with the gear M' to mesh with the gear M, at one end and a universal joint h, at the other; and the cutter g, driven by said shaft d; the cutter g being located under the cutter L, substantially as shown.

2. In a band-cutter which is placed above

the threshing-machine and operated thereby, the pivoted frames T, journaled at their inner ends, the supports U, applied to their outer ends, the shafts S upon which the frames are pivoted, and which are provided with gears at their front ends; the shafts V, journaled in the outer ends of the frames T, and the endless carriers which are operated by the shafts S, V, combined with the V-shaped frame c, which extends lengthwise of the band-cutter, endless carriers extending around this frame, and means for operating them; the cutter-shaft carrying cutters and gears for operating the shaft S, the inclined shaft d, means for operating it; and the cutter g connected to the lower end of the shaft d and at the bottom of the front end of the V-shaped frame, substantially as described.

3. The cutter-shaft, provided with the cutters L, and the gears K, M, the inclined shaft d, provided at its upper end with wheels M' k, and at its inner end with the cutter g, and the V-shaped frame c; combined with the endless carriers which extend around the two parts of the frame, the shafts l', l'', which operate the carriers and which are geared together at their lower ends, and a sprocket-chain operated by the inclined shaft d, for operating the carriers, substantially as set forth.

4. The adjustable inclined frame, F', and means for conveying the sheaf to the cylinder, and the arm, F⁵, in combination with the V-shaped frame, c, the slatted carriers, S', the spreaders, E', and means for operating said slatted carriers and said spreaders, substantially as set forth.

In testimony whereof I have signed in the presence of the two undersigned witnesses.

ABEL KLEINSTIVER.

Witnesses:

P. J. EDMUNDS,
S. MCBAIN.