(No Model.) 3 Sheets—Sheet 1.

E. P. KILLINGER.

BAND CUTTER AND FEEDER.

No. 386,017. Patented July 10, 1888.

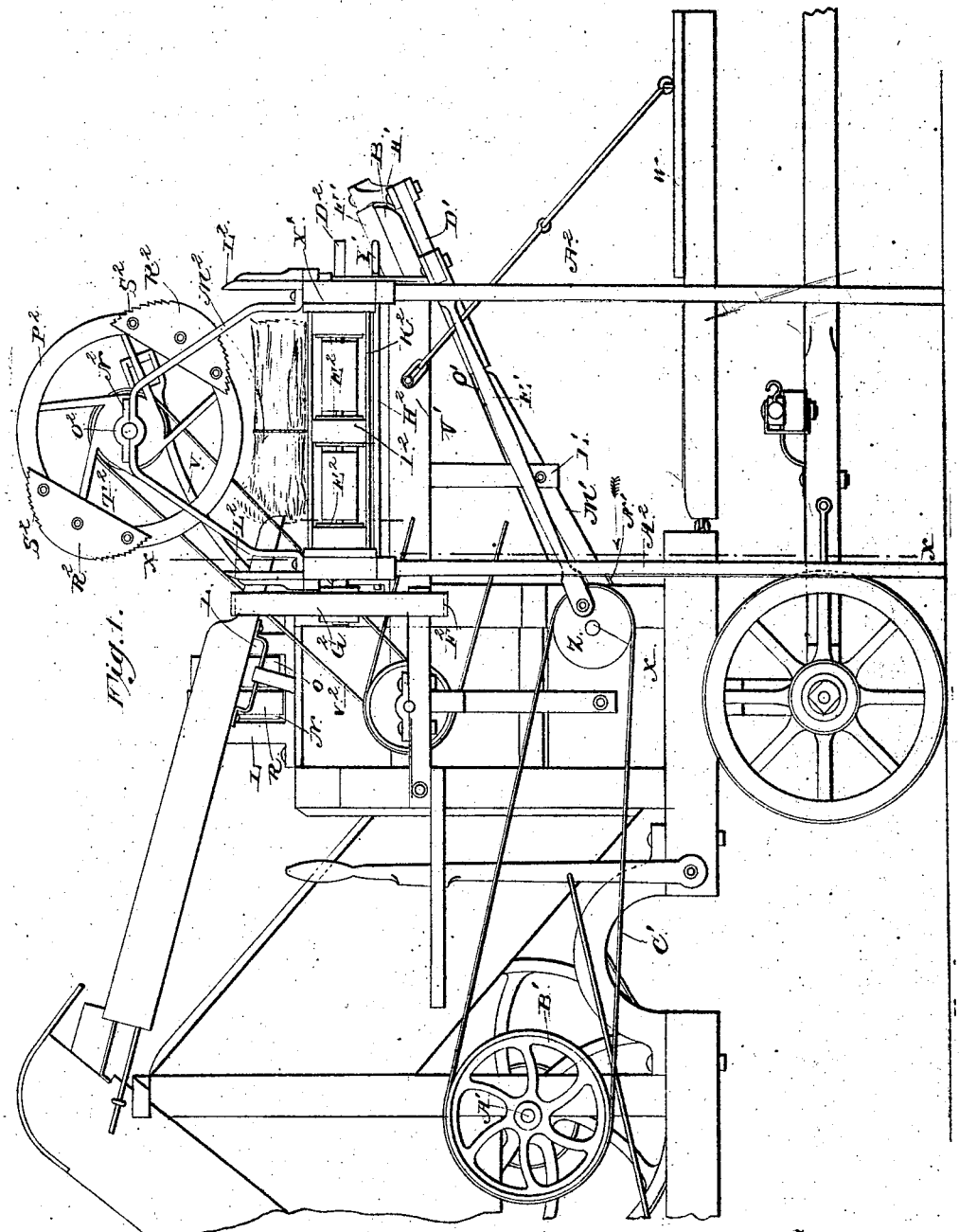

Fig. 1.

Witnesses.
M. E. Fowler.
J. W. Gonner

Inventor.
E. P. Killinger.
By his Attorneys.
C. A. Crowell & Co.

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Fig. 2.

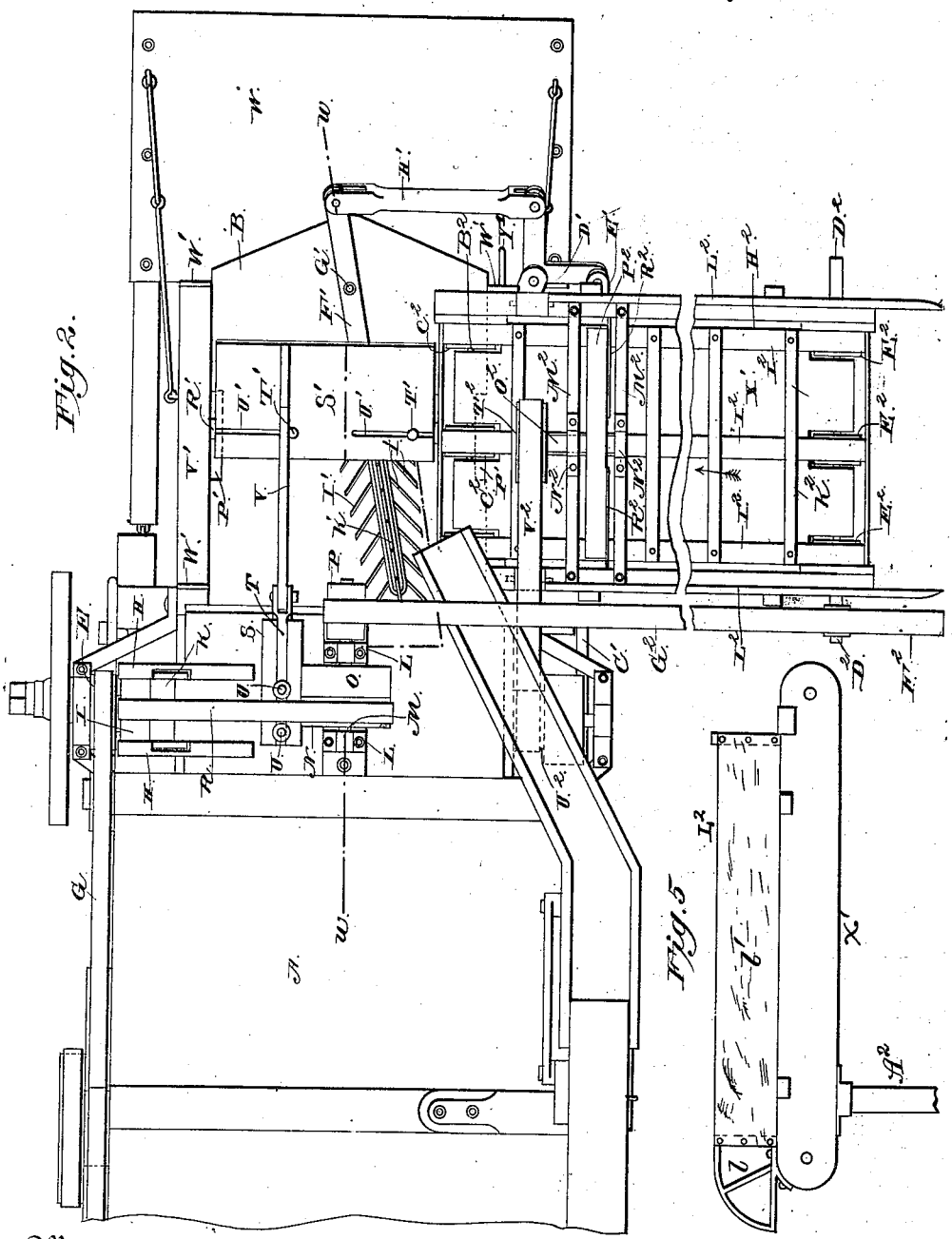

Fig. 5

Witnesses.
M. E. Fowler.
J. W. Garner

Inventor,
E. P. Killinger.
By his Attorneys
C. A. Snow & Co.

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E. P. KILLINGER.

BAND CUTTER AND FEEDER.

No. 386,017. Patented July 10, 1888.

Fig. 1.

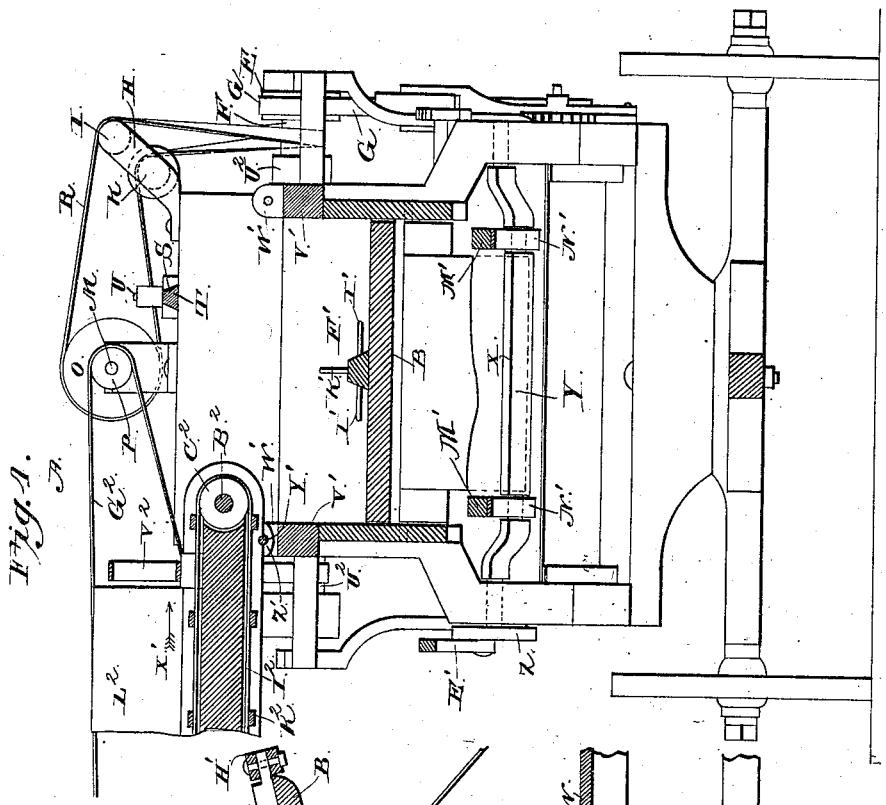
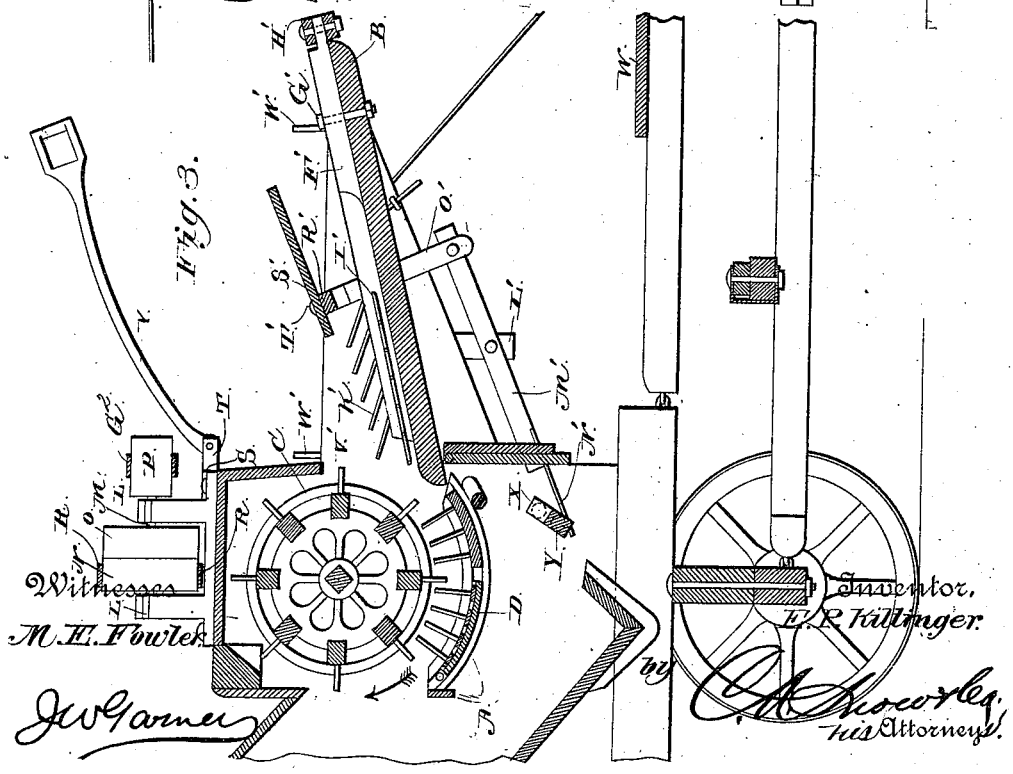


Fig. 3.



Witnesses
M. E. Fowler.
J. W. Garner

Inventor,
E. P. Killinger.
by
A. H. Grosvenor Esq.
his Attorney.

UNITED STATES PATENT OFFICE.

EDGAR P. KILLINGER, OF MARION, VIRGINIA.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 386,017, dated July 10, 1888.

Application filed August 6, 1887. Serial No. 246,314. (No model.)

To all whom it may concern:

Be it known that I, EDGAR P. KILLINGER, a citizen of the United States, residing at Marion, in the county of Smyth and State of Virginia, have invented a new and useful Improvement in Band-Cutters and Feeders, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in band-cutters and feeders for thrashing-machines; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the feed end of a thrashing-machine with my improved band-cutter and feeder attached thereto. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view taken on the line *w w* of Fig. 2. Fig. 4 is a transverse sectional view taken on the line *x x* of Fig. 1. Fig. 5 is a detail view of a portion of the feed-carrier.

A represents the frame-work of the feed end of a thrashing-machine of the usual construction, of which B is the inclined feed-board, C is the thrashing-cylinder, and D is the concave under the thrashing-cylinder.

On one end of the shaft of the thrashing-cylinder is secured a pulley, E, and on the inner side of the said pulley is a similar pulley, F. The pulley E is rotated by a belt, G, which connects it to a pulley on a counter-shaft, (not shown,) and thereby the thrashing-cylinder is caused to rotate in the direction indicated by the arrow in Fig. 3.

On the top of the inclosing case of the thrashing-machine, above the thrashing-cylinder and at one side of the case, is secured a pair of upward and outward projecting bracket arms, H, in which are journaled a roller, I, and a similar roller, K, as shown in Figs. 2 and 4.

L represents a pair of bearing-boxes secured on the upper side of the case at the center thereof, and in which is journaled a horizontal shaft, M. To the said shaft is attached a fast pulley, N, and a loose pulley, O. To the front end of this shaft is secured a small pulley, P. An endless belt, R, passes under the pulley F on the shaft of the thrashing-cylinder, around one side of the pulley N, and is guided on rollers I and K, and is adapted to impart the rotary motion of the thrashing-cylinder to the shaft M.

S represents a guideway, which is secured on the upper side of the case parallel with the shaft M. In this guideway is secured a longitudinally-movable belt-shifter, T, having vertical arms U, on which are journaled rollers which engage opposite edges of the belt R. To the front end of this belt-shifter is pivoted a link or handle, V, which is adapted to be grasped by an attendant stationed on the platform W, and thereby cause the belt to be shifted to either of the pulleys N O. This platform W is hinged to the front end of the thrashing-machine and is removable therefrom.

X represents a shaft which is journaled transversely in the case of the thrashing-machine at the front end thereof at a suitable distance below the thrashing-cylinder. This shaft is provided with a crank, Y, in its central portion, and to one end thereof is attached a band-wheel, Z.

A′ represents a counter-shaft, which is journaled in the case of the thrashing-cylinder, and is provided at one end with a pulley, B′, which is connected to the pulley Z by an endless belt, C′.

D′ represents a bell-crank lever, which is pivoted to one of the front corners of the feed-board B, and has one of its arms connected to a crank-pin on the pulley Z by means of a pitman, E′. The said pitman serves to convert the rotary motion of the pulley Z into oscillating motion of the bell-crank lever D′.

F′ represents a vibrating spreader, which is arranged on the upper side of the inclined feed-board B, extends longitudinally on the same, and is fulcrumed on a bolt, G′, which extends vertically through the center of the feed-board and through an opening in the spreader at a suitable distance from the outer ends thereof.

H′ represents a link, which connects the front end of the spreader with the forward extending arm of the bell-crank lever, and is thereby adapted to communicate the motion of the said bell-crank lever to the spreader and cause the same to vibrate transversely on the upper side of the inclined feed-board. The spreader is provided at its lower portion with

rearwardly-diverging spreading-teeth I', which project from its sides, and with similar teeth, K', which project from its upper side.

L' represents a pair of hangers, which depend from the sides of the feed-board, and to the inner side of which are pivoted levers M', the rear ends of which are provided with extended spring-arms N', that bear under the crank Y of the shaft X.

O' represents a pair of arms, which are rigidly attached to the outer ends of the levers M' at right angles thereto and extend upward through longitudinal openings P', made in the sides of the feed-board B. The upper ends of the said arms O' are connected by a cross-bar, R', which passes over the spreader, as shown in Figs. 2 and 3.

S' represents a board, which is secured on the said cross-bar R' by means of bolts T', which pass through longitudinal slots U' in the ends of the said board and enter the cross-bar. The length of the board is less than that of the cross-bar and the slots U', and bolts T' permit the board to be adjusted transversely on the said bar, so that it may be arranged over either side of the feed-board, for the purpose hereinafter explained. This board S' and the frame to which it is attached, together with the levers, constitute a feeder, and when the machine is in operation and the crank-shaft X rotates the feeder is caused to oscillate vertically over the spreader, as will be very readily understood.

It will be observed by reference to Fig. 3 that the board S' inclines downward over the feed-board B at a somewhat greater angle than the said board. From the upper edges of the sides V' of the feed-board, at the inner and outer corners thereof, project two pairs of vertical brackets, W'.

X' represents a feed-carrier, the inner end of which is adapted to be attached to either pair of brackets W' by means of a rod, Y', which extends through aligned openings made in bracket-plates Z', that depend from the inner end of the feed-carrier frame, and similar openings which are made in the brackets W'. The feed-carrier projects outward from one side of the thrashing-machine, as shown in Figs. 1, 2, and 4, and the outer end of the said feed-carrier is supported by means of a pair of vertical standards, A^2, which rest upon the ground, whereby the feed-carrier is maintained in a horizontal position.

At the inner end of the feed carrier frame is journaled a transverse shaft, B^2, provided with pulleys or rollers C^2 near its ends and at its center. In the outer end of the feed-carrier frame is journaled a similar shaft, D^2, which has similar pulleys or rollers E^2 near its ends and at its center. The ends of the said shaft D^2 project beyond both sides of the feed-carrier.

F^2 represents a large band wheel or pulley, which is adapted to be keyed to either of the projecting ends of shaft D^2, so that it will be on the side of the feed-carrier nearest the thrashing-machine no matter from which side of the thrasher the feed-carrier projects. An endless belt, G^2, connects this pulley to the pulley P on the shaft M and imparts the rotary motion of the said shaft M to the shaft D^2.

H^2 represents an endless apron, which comprises endless belts I^2, of suitable width, which connect the pulleys or rollers C^2 and E^2, and cross-slats K^2, which are attached to the said belts and connect the same at suitable and regular intervals.

From the foregoing description it will be understood that when the machine is in operation the endless apron will be caused to operate in the direction indicated by the arrows in Figs. 2 and 4, and thereby deliver sheaves of grain thereon to the vertically-oscillating feeder S'. The feed-carrier is provided with removable side-boards L^2, which serve to retain the sheaves of grain on the endless apron and guide them over the feed-carrier. At the inner end of the feed-carrier, on the upper side thereof, is secured a pair of arched standards, M^2, which are arranged transversely over the carrier and span the endless apron. To the upper sides of the said arched standards, at the center thereof, are secured bearing-boxes N^2, in which is journaled the shaft O^2. To this shaft, midway between the bearing-boxes, is secured a wheel, P^2, of suitable size, to which, at diametrically-opposite points, are attached a pair of segmental cutting plates, R^2, the outer edges of which project beyond the periphery of the wheel P^2 and are provided with cutting-teeth S^2 at their opposite ends, which teeth extend in opposite directions. The central portions of the cutting-plates between the teeth S^2 are plane. By this construction I am enabled to reverse the blades when one cutting-edge is worn out, so as to present the unused edge to the band. It will also be seen that that portion of the cutter which projects the greatest distance beyond the wheel P^2, and is consequently most likely to cut and injure the grain, has a plane edge, so as to prevent its acting on the grain. To the inner end of the shaft O^2 is attached a pulley, T^2.

U^2 represents pulleys, which are attached to the shaft of the thrashing-cylinder near the ends thereof, one of the said pulleys being on each side of the case of the thrashing-machine. An endless belt, V^2, connects one of these pulleys to the pulley T^2, and thereby causes the wheel P^2 to rotate when the machine is in operation.

The operation of my invention is as follows: The sheaves of grain are placed transversely on the endless apron with their heads arranged toward the inner side of the feed-carrier. As the endless apron moves on the feed-carrier frame, it conveys the sheaves successively to the wheel P^2, and as the latter rotates its cutters cut the bands of the sheaves and the loosened grain falls from the inner end of the feed-carrier onto the vertically-oscillating feeder, which serves to deliver the said grain onto the

inclined feed-board. The vibrating spreader, hereinbefore described, catches the grain as it falls upon it and distributes the same evenly over the feed-board B, and thereby causes the grain to be fed evenly to the thrashing-cylinder throughout the entire length thereof.

The inner end of the feed-carrier projects over the side of the feed-board, to which it is attached, and the board S′ is moved transversely to the opposite side of the said board, as shown in Fig. 2, so as to be out of the way of the inner end of the carrier.

From the foregoing description it will be readily understood that the feed-carrier may be attached to either side of the feed-board, and thereby caused to project beyond either side of the thrashing-machine.

In Fig. 5 I illustrate a modified form of the side-boards of the carrier frame, in which the sides L^2 of the feed carrier frame are each composed of a frame, *l*, covered with canvas, *l′*, thereby reducing the weight of the sides. The said sides may, however, be made of boards or any other suitable preferred material.

Having thus described my invention, I claim—

1. The combination, with the feed-boards of a thrashing-machine, of the rotating crank-shaft X, the levers oscillated thereby, and the feeder S′, connected to said levers and arranged over the feed-board, whereby the said feeder will be oscillated in a vertical direction, substantially as described.

2. The combination of the feed-board, the rotating shaft X, having the crank Y, the wheel Z on said shaft, the levers M′, the spring-arms N′, secured to said levers and engaging the crank Y, the arms O′, rigidly secured to the outer ends of said levers, the transverse bar R′, secured on the upper ends of the arms O′, the board S′, adjustably secured on said bar and arranged transversely over the feed-board, the vibrating spreader fulcrumed on the feed-board, the bell-crank lever, the link H′, and the pitman E′ between the bell-crank lever and the wheel Z, substantially as set forth.

3. The combination of the feed-board, the crank-shaft X below the feed-board, the levers M′, the spring-arms N′, adapted to engage the crank-shaft, the arms O′, and the feeder carried by said arms O′ and arranged transversely over the feed-board, substantially as specified.

4. The combination of the feed-board, the levers M′, the crank-shaft X, to actuate the same, the arms O′, secured to said levers, the transverse bar R′, secured to the upper ends of said arms, and the board S′, adjustably mounted on said bar R′, substantially as set forth.

5. The combination, with the feed-board, of the levers M′, the arms O′, secured to said levers, the crank-shaft X, to actuate said levers, the transverse bar R′, secured to the upper ends of the arms O′, the board S′, of less length than the bar R′ and having the longitudinal slots U′, and the bolts T′, passing through said slots and engaging the bar R′, as set forth.

6. The combination of the endless carrier, the rotating wheel P^2, arranged transversely over the same, and the cutting-plates R^2, detachably secured to the said wheel, having the serrated cutting-edges projecting beyond the periphery of the wheel and an intervening plane edge between said serrated edges, substantially as described.

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

EDGAR P. KILLINGER.

Witnesses:
CHAS. E. ANDERSON,
A. P. KILLINGER.