

(No Model.)

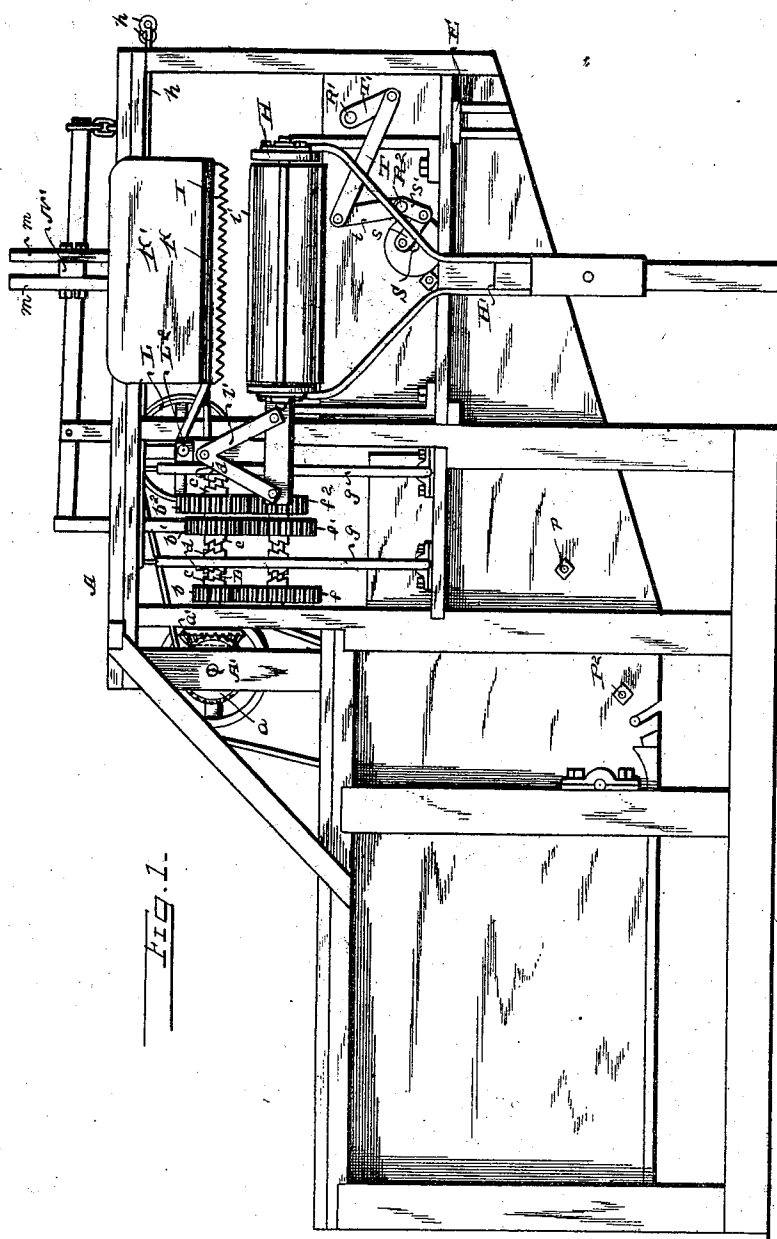
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A. J. AMICK.

FEEDER AND BAND CUTTER FOR THRASHING MACHINES.

No. 502,162.

Patented July 25, 1893.



WITNESSES

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(No Model.)

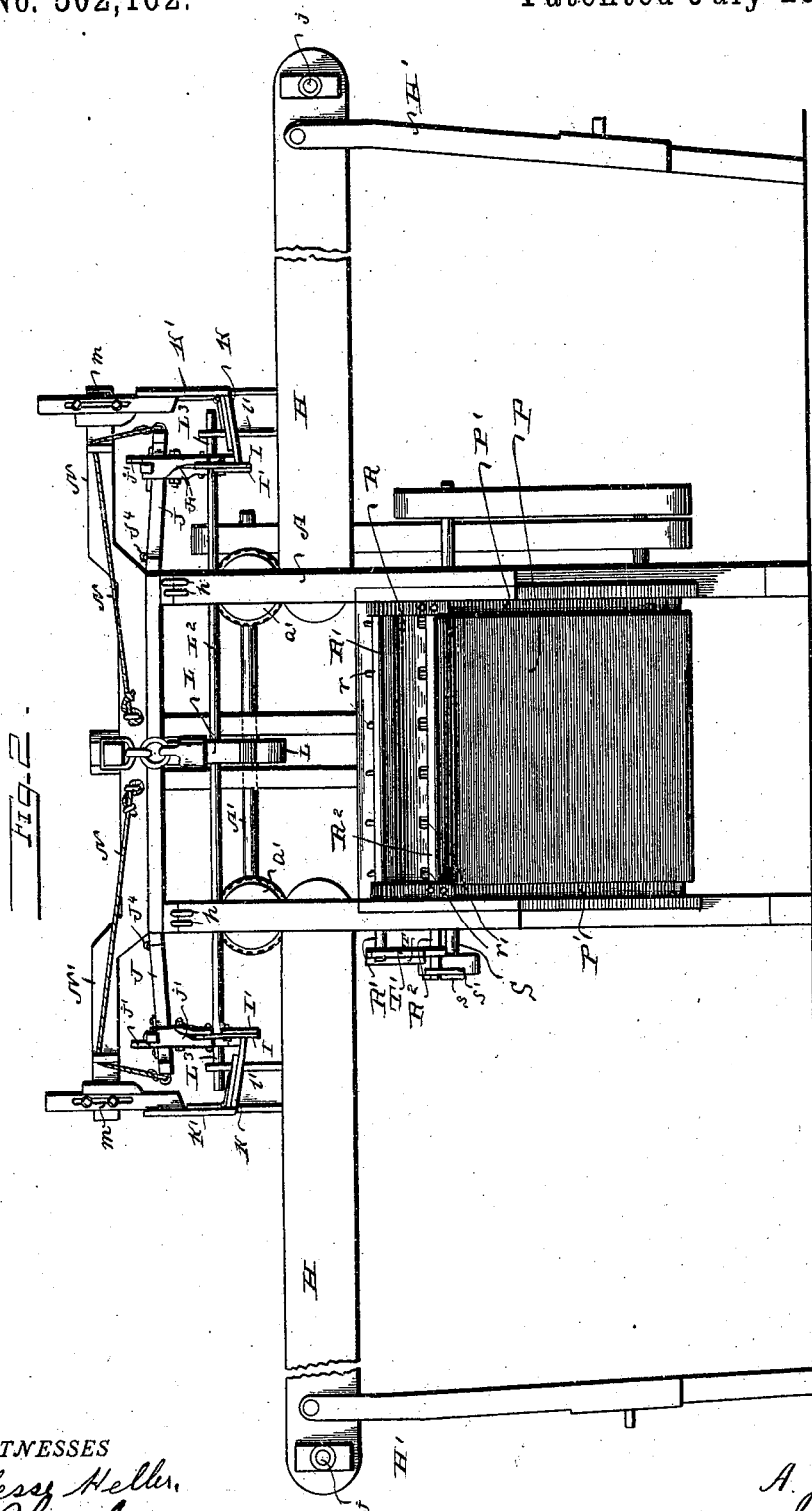
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WITNESSES

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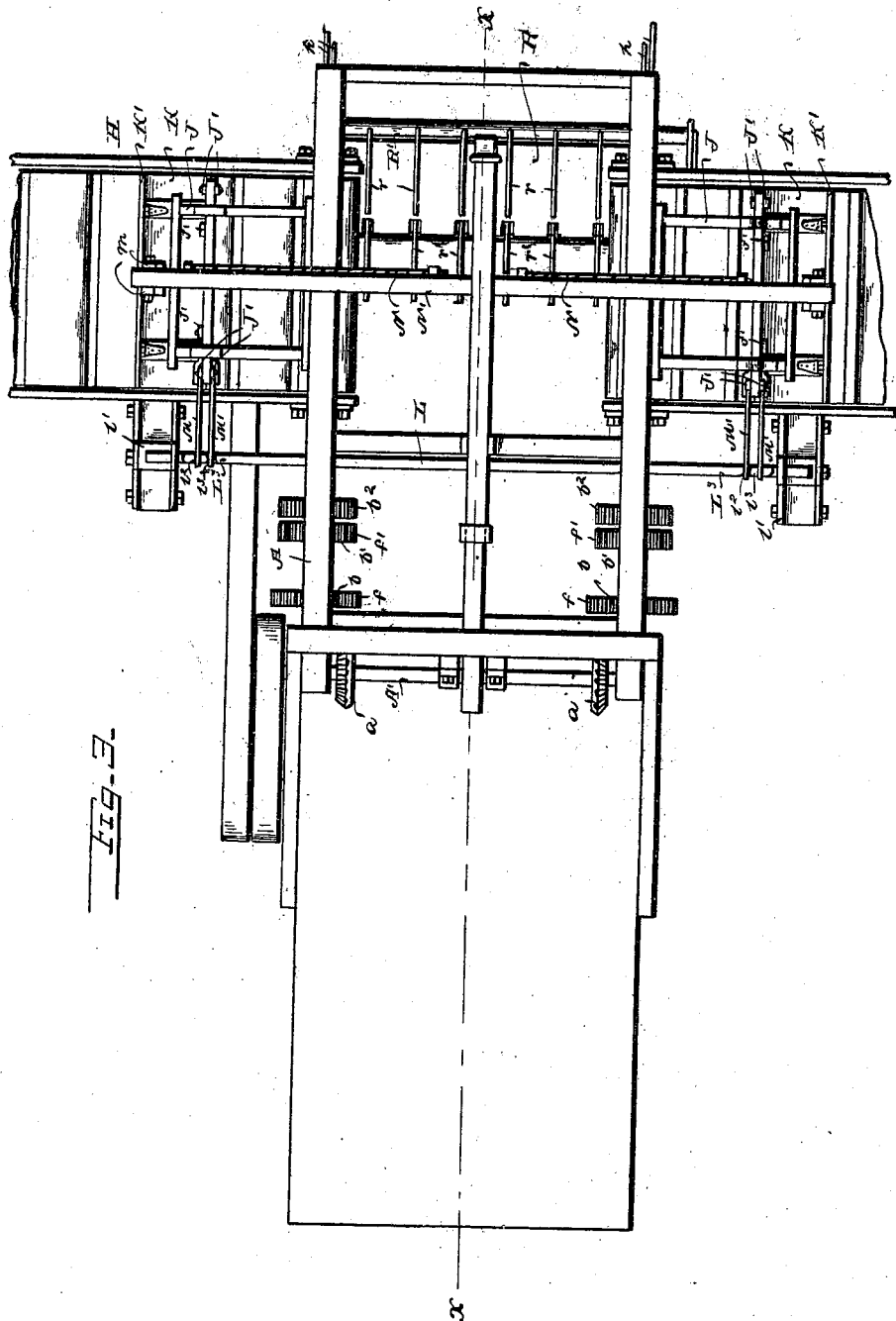
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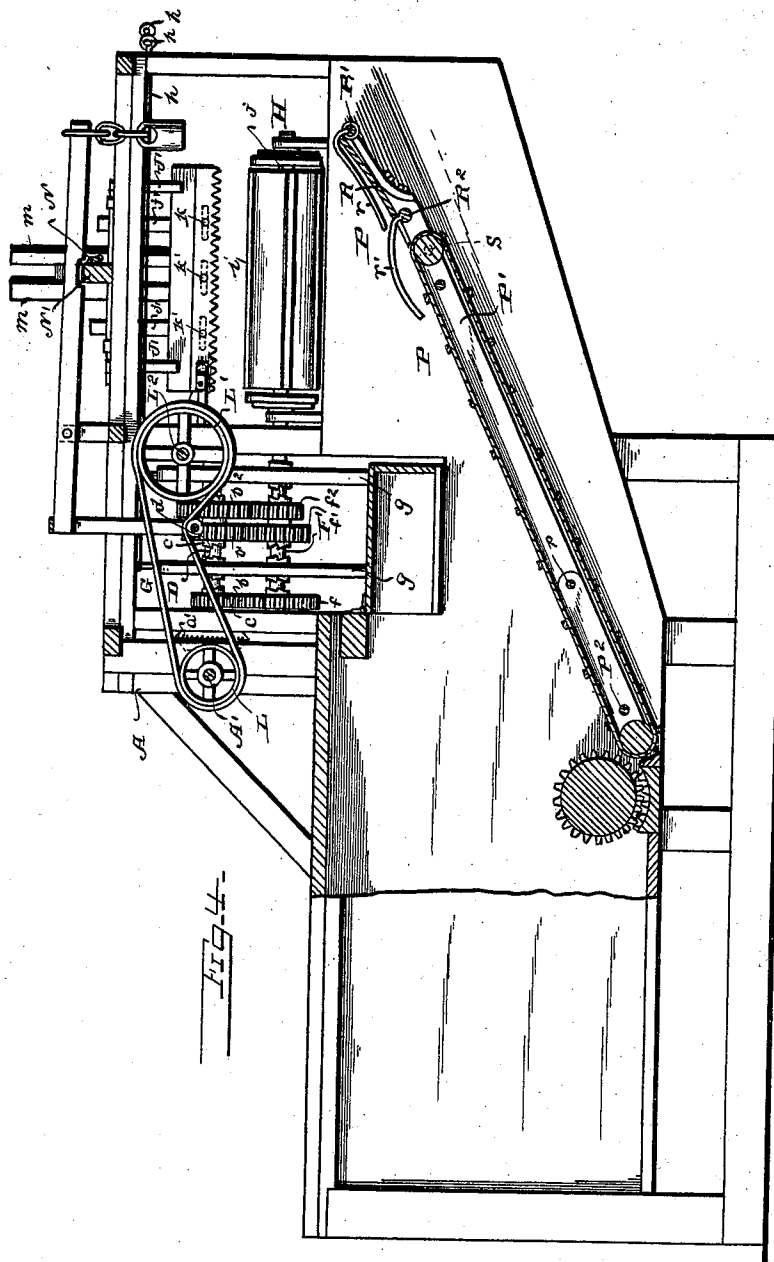
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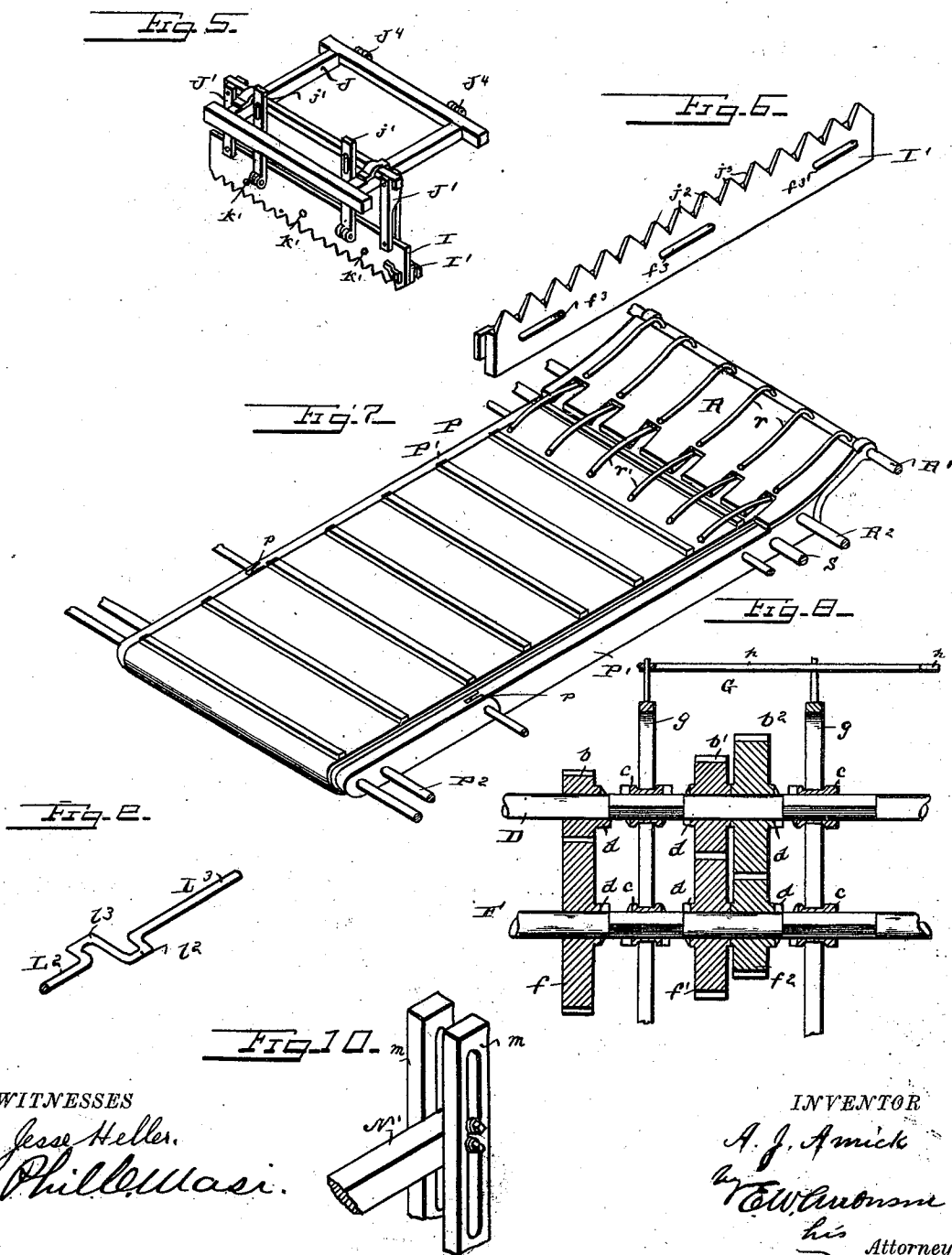
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WITNESSES

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UNITED STATES PATENT OFFICE.

ANDREW J. AMICK, OF BOONESBOROUGH, MISSOURI.

FEEDER AND BAND-CUTTER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 502,162, dated July 25, 1893.

Application filed January 19, 1893. Serial No. 458,951. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. AMICK, a citizen of the United States, and a resident of Boonesborough, in the county of Howard and State of Missouri, have invented certain new and useful Improvements in Feeders and Band-Cutters for Thrashing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a thrasher, with my invention applied. Fig. 2 is a rear view of the same, with the platforms E removed. Fig. 3 is a plan view of the same, with the platforms removed. Fig. 4 is a vertical longitudinal section on the line $x-x$ Fig. 3. Fig. 5 is a detail perspective view of the cutter-carrying frame and cutters. Fig. 6 is a similar view of the cutters detached. Fig. 7 is a detached perspective view of the feeder. Fig. 8 is a detail sectional view of a portion of the variable driving gear for the bundle carriers. Fig. 9 is a detail view of one of the crank shafts L^3 . Fig. 10 is a detail view showing the adjustability of the arms to which the guide boards are attached.

This invention has relation to certain new and useful improvements in band cutters and feeders for thrashing machines, and it consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the accompanying claims.

The objects of the invention are to provide improved mechanism for cutting bands, to provide an adjustable feed, and to generally improve the construction and arrangement of parts.

In the accompanying drawings, illustrating the invention, the letter A designates the thrasher frame, having supported and journaled thereon a transverse shaft A' , driven from the separator shaft of the thrasher, or other suitable part of the gear. At each end portion said shaft carries a bevel-toothed pinion a , meshing each with a corresponding pinion a' on the shafts D, one on either side, and at right angles to the shaft A' . As the mechanism carried and operated by each of

the shafts D is a duplicate of the mechanism carried and operated by the other of said shafts, the description will be generally confined to that upon one side. Loosely mounted on the shaft D is a series of graduated pinions b, b', b^2 , each of which has a clutch hub or collar c , designed to engage with a corresponding clutch hub or block d , fast with said shaft. The shaft, between the pinions is of angular form, and the clutch collars or blocks d have similarly shaped slots or apertures to receive said shaft, so that while the said blocks will revolve with the shaft, they are capable of longitudinal movement thereon.

Below the shaft D, and parallel therewith, is a shaft F, which also carries a series of graduated pinions f, f', f^2 , but which are arranged in the reverse order as regards their diameter, to the pinions b, b', b^2 , on the shaft D, with which they respectively mesh. Similar clutch mechanism is carried by these pinions and by the shaft F, to that carried by the shaft D and its pinions.

G is the clutch-operating mechanism which may consist of the vertically-slotted arms or levers g, g , pivoted at their lower ends to the frame in such a manner as to permit them to oscillate or swing backward and forward. These arms or levers g, g , engage respectively the corresponding pairs of the clutch blocks on the shafts D and F, so that when the said pairs are moved, the blocks will be slid in the corresponding direction on their shafts. Connected with the upper ends of these arms or levers g, g are rods h, h which extend forwardly along the frame to within reach of the platforms or steps E, from which they may be operated.

H, H, designate the bundle carriers, one at each side supported at one end upon the frame of the thrasher, and at the other end upon the adjustable legs H' . As both these carriers with their cutting mechanism are the same, but one will be described. The carrier consists of an endless belt or canvas, having secured thereto transverse strips or cleats i , said belt or canvas working upon rollers j , the forward pair of which receive motion by a connection with the shaft F, as indicated. It will therefore be apparent that by throwing into gear different sets of the graduated pinions b, b', b^2 , and f, f', f^2 , this canvas or belt may

be driven at different rates of speed, as may be desired, to suit the condition of the grain.

I, I' are the knives or cutters located transversely over the carriers H, said knives working side by side, one being about twice the width of the other. The broad knife I is swung by oscillating arms J' to a frame J, which is hinged at one end to the main frame, and at the other end connected by the arms j' to the presser board K, which at its outer end is hinged to the lower edge of the guide board K'. The narrow cutter I' has in its blade three slots j³, about six inches in length, and is connected to the broader blade by bolts k', which work loosely therein and are secured to the broad blade. The cutting edges of these plates may be formed, as shown in Figs. 5 and 6 with scalloped teeth j², the edges of which, at the outer face of each blade, are beveled, as indicated at j³, the flat faces of said teeth working together, or the cutting edges may have ordinary saw teeth, this depending upon whether straw or twine is used as the binding.

On the main shaft A' is a pulley L, from which runs forwardly a belt which drives a pulley L' on a second transverse shaft L². To the ends of this shaft L² are coupled short crank shafts L³, which are also journaled in arms l' rising from the carrier tables. Said crank shafts are formed with two opposite cranks l², l³, on which are journaled respectively the pitmen or connecting rods M, M', which at their other ends are connected to the respective knives I, I'. It will therefore be apparent that each turn of the shaft L³ will reciprocate the knives in opposite directions.

Connected with the hinged frame J, to which the knives are secured, are ropes or cables N, which pass through suitable guides and are secured at their opposite ends to the frame of the table within reach of the platform E. By the operation of these ropes, the knives may be set to any height above the table. The guide boards K' are carried by arms m, which are adjustably secured to a cross bar N', so that the said board may be set for any size of bundle. When the machine is to be moved, the hinged frame J is folded over onto the main frame.

P designates the feeder, onto which the grain is delivered from the bundle carriers, and by which it is fed to the cylinder. Said feeder comprises an endless slatted canvas, working in a frame P', the lower end of which is supported in front of the cylinder just close enough so that the teeth of the latter will not hit the canvas. Said end is usually held in place by a transverse removable rod P², and the frame P' is jointed at p, so that when said rod is removed, the feeder will drop sufficiently to permit access to the cylinder, when necessary. The upper end of the frame is secured to the frame of the separator in a rigid manner. Above this canvas is a metal plate R, the lower portion of which partially overlaps the canvas. R' is a rod or shaft extending

transversely at the upper edge of said plate, and journaled in the upper end of the frame P'; and carried by said rod or shaft is a series of fingers r, which lie over said plate.

R² is a second transverse rod or shaft, journaled in the frame underneath the lower portion of the plate, and which also carries a series of fingers r', which extend through slots in said plate and lie over the upper portion of the canvas.

S is a shaft, which imparts motion to the canvas, and which is driven by a connection with a pulley on the separator, as indicated. Connected to an eccentric pin on the opposite end of said shaft is an arm s, which is connected to a crank s' on the rod or shaft R²; and on said rod or shaft R² is an upwardly extending arm t, to which is connected one end of a rod or link T, the other end of which is connected to a crank T' on the rod or shaft R'. These connections are so arranged that as the shaft S is revolved, the shafts R', R² will be reversely rocked or operated, causing one set of the fingers to play upwardly, and the other set downwardly, and vice versa. This action of the fingers keeps the grain shaken up. The driving pulley for the shaft S and the connections for operating the shafts R', R², are located outside the separator frame, underneath the bundle carriers at the respective sides.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a band cutter and feeder for thrashing machines the combination with the separator frame, and the transverse shaft A' journaled therein, of a shaft D at right angles to said transverse shaft, and driven thereby, a graduated series of pinions on said shaft D, a shaft F parallel with the said shaft D, a graduated series of pinions on said shaft F, said pinions on the shaft F being arranged reversely to those on the shaft D as regards their diameter, clutch pieces or collars on the pinions of both series, and also on their shafts, the vertically slotted arms or levers g, g, engaging the clutch pieces or collars on said shafts, and the operating rods connected to said levers, substantially as specified.

2. In a band cutter and feeder for thrashing machines the combination with the separator frame and the shaft A' journaled transversely thereof, of the shaft D at right angles to the shaft A' and driven therefrom, the shaft F parallel with the shaft D, oppositely arranged variable gear wheels or pinions mounted upon said shafts, and carrying clutch hubs, the levers pivoted at their lower ends to the frame, and having vertical slots therein, movable clutch hubs on said shafts engaged by said levers, and band cutter mechanism driven by said shaft F, substantially as specified.

3. In a band cutter and feeder for thrashing machines the combination with the separator frame, and the bundle carrier, of the frame J connected to said separator frame,

the oscillating arms J' carried by said frame J, the knife or cutter I carried by said oscillating arms, the knife or cutter I' having a pin and slot connection with the knife or cutter I, and mechanism for effecting the opposite reciprocation of said knives or cutters, substantially as specified.

4. In a band cutter and feeder, the combination with the carrier, of the frame J hinged at one end to the separator frame, a presser board K, arms j' connecting said presser board to the frame J', the guide board K' to which the outer end of said presser board is hinged, the knives or cutters swung from said frame J, and means for effecting the adjustment of said guide board, presser board, and cutters, substantially as specified.

5. In a band cutter and feeder for thrashing machines, the combination with the carrier, the hinged frame J, the adjustable guide board, the presser board hinged at its outer end to the lower end of said guide board, and at its inner edge connected to said frame J, the knives or cutters swung from said frame J, and means for effecting the opposite reciprocation of said knives or cutters, substantially as specified.

6. In a band cutter and feeder, the combination of the adjustable guide board, the presser board hinged to the lower edge thereof, the knife carrying frame hinged at one end to the main frame, and at the opposite portion connected to said presser board, and the adjusting rope or cord connected to said hinged frame, substantially as specified.

7. The combination with the bundle carriers,

and the separator, of the feeder located in the mouth of said separator, comprising the frame P' supported at its lower end portion in close relation to the cylinder, the endless traveling canvas or apron working on said frame, the plate R above said apron or canvas, the transverse rods or shafts R', R² journaled at the upper portion of said frame, a series of fingers carried by each of said rods or shafts, and mechanism for alternately rocking said rods or shafts, substantially as specified.

8. The feeder, comprising the jointed frame P', situated in the mouth of the separator, and rigidly supported at its upper portion, a removable support for its lower portion, an endless traveling canvas or apron working on said frame, the plate R overlapping the upper portion of said canvas or apron, the rod or shaft R' journaled transversely at the upper end portion of said frame P', the rod or shaft R² journaled transversely underneath the lower portion of the plate R, a series of fingers r' carried by each of said rods or shafts, those of the shaft R' working over the plate, and those of the shaft R² working over the upper portion of the apron or canvas through slots in said plate, and mechanism for imparting an alternately rocking movement to said rods or shafts and the fingers carried thereby, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

A. J. AMICK.

Witnesses:

J. T. WOOD,
S. R. QUINBY.