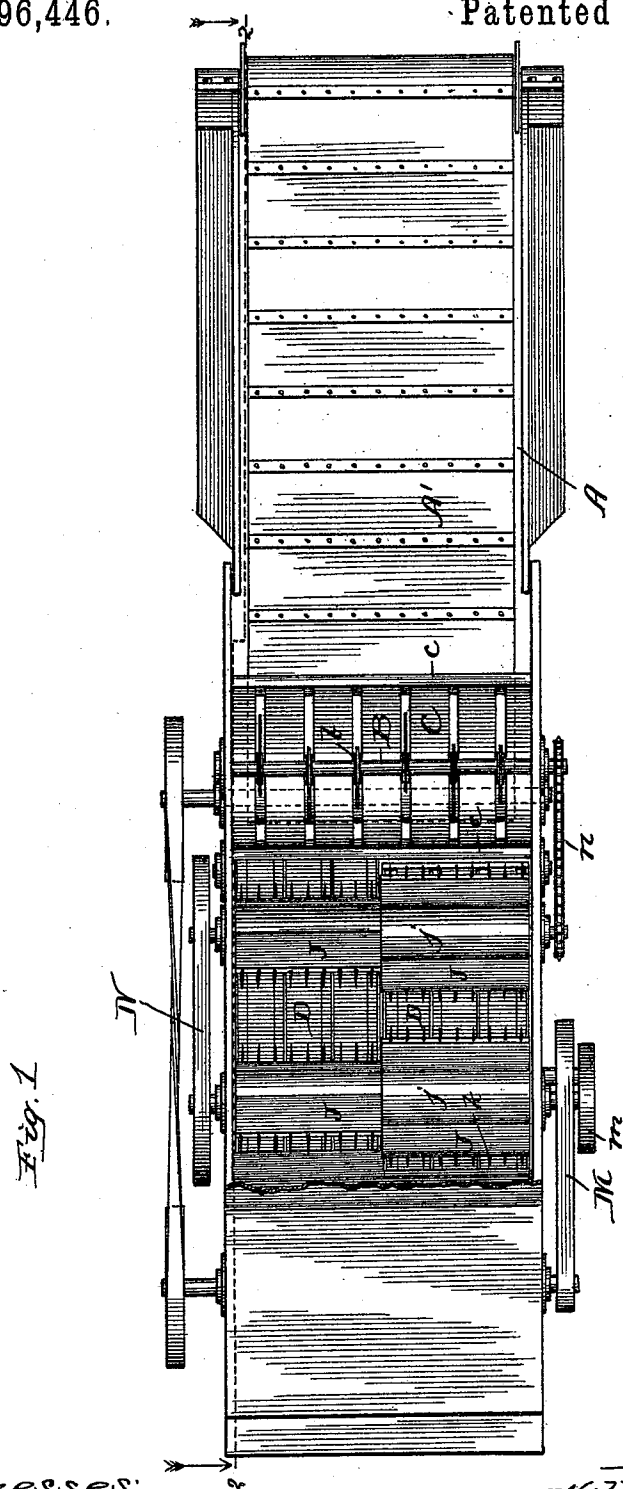


W. N. RUMELY.

BAND CUTTER AND FEEDER FOR THRASHING MACHINES.

No. 496,446.

Patented May 2, 1893.



Witnesses:

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Emma Hack

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his Attorneys.

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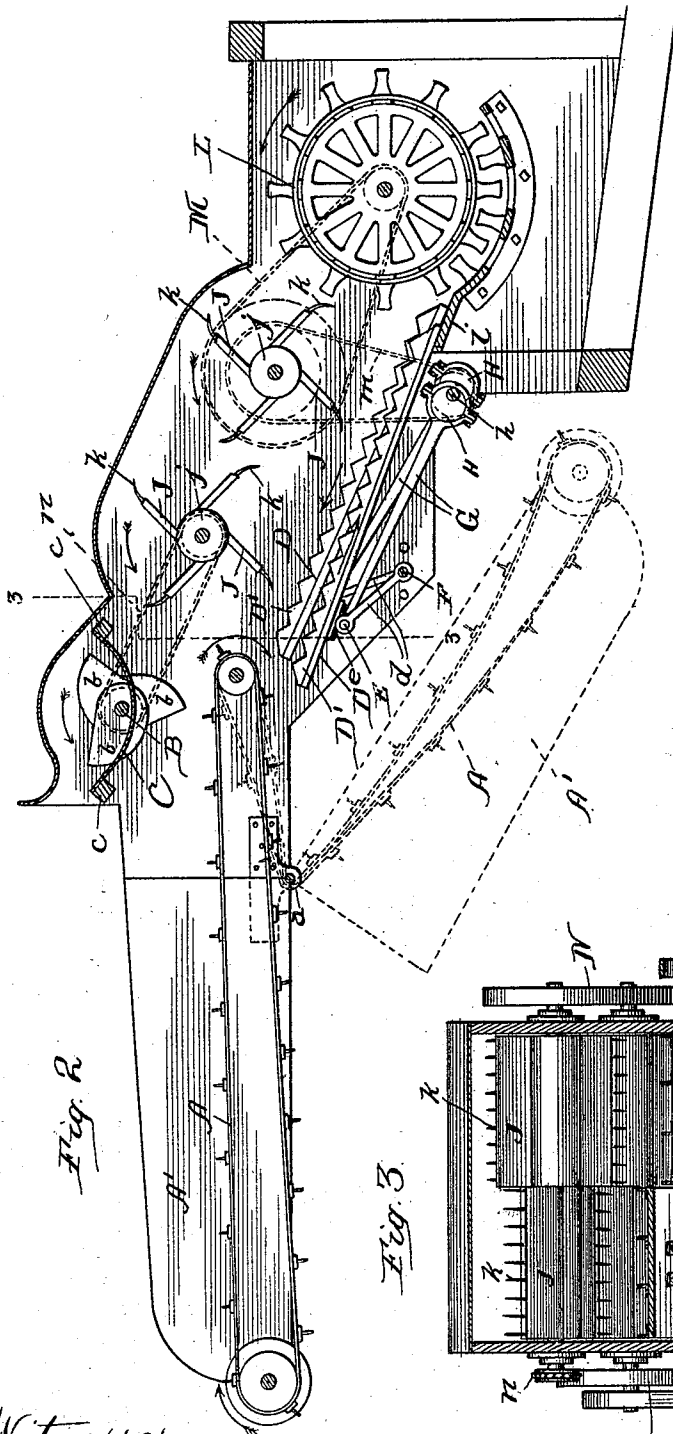


Fig. 2

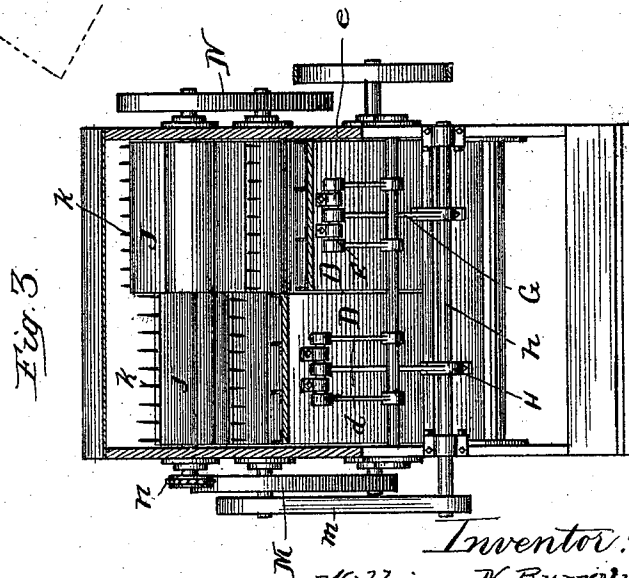


Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM N. RUMELY, OF LA PORTE, INDIANA.

BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 496,446, dated May 2, 1893.

Application filed July 1, 1892. Serial No. 438,685. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. RUMELY, a citizen of the United States, residing at La Porte, in the county of La Porte and State of Indiana, have invented a new and useful Improvement in Band-Cutters and Feeders for Thrashing-Machines, of which the following is a specification.

This invention relates to improvements in the band cutting and feeding mechanisms of thrashing machines.

The invention consists in the novel combinations of parts and the novel construction of parts hereinafter set forth and specified in the claims.

In the drawings Figure 1 is a plan view of the part of the thrasher to which my invention relates and Fig. 2 is a section thereof on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 2.

In the drawings A represents the endless feeding belt onto which the bound bundles of grain are thrown and located in a box A'. This belt carries the bundles under a shaft B provided with a series of band cutting knives *b* placed at suitable distances apart on the shaft and also so as to radiate therefrom in different directions, as illustrated. Between the knives are stationary guards C formed of sheet metal and supported upon cross bars *c*, and adapted to prevent the grain from rising into contact with the shaft B, and also adapted to strip from the knives any of the straw which may tend to adhere to them. These strips are readily exchangeable and also readily movable upon the supporting bars to which they may be secured by screws.

The belt A discharges the grain and straw onto agitating pans D D provided with toothed ridges D'. These pans, which are preferably not less than two in number, are placed side by side and each receives motion independently compounded of a longitudinal reciprocation and a rising and falling movement. This movement of the pans is obtained by the following mechanism: Each pan is supported at the end upon which the grain first falls by links *d* pivotally united to the pans by a pivot shaft E attached to the bottom of the pans by the strap bearings *e*. The crank arms of both pans are supported upon a shaft F extending across the machine. Pitmen G are

joined to each of the pivot shafts E at their upper ends, and at their lower ends are provided with bands which encircle eccentrics H upon the shaft *h*. Shaft *h* is suitably driven, and by its rotation the eccentrics H are made to reciprocate the pitmen G. This gives the compound motion already mentioned, to the receiving ends of the pans and these movements are alternate, one pan advancing while the other is retreating, and vice versa, this feature being due to the positioning of the eccentrics H upon their carrying shaft. The lower ends of the pans rest and slide upon a stationary cross piece *i* which may be part of the cylinder concave. Above the agitating pans I locate one or more rotating beaters which are driven in a direction corresponding to the direction in which the grain moves and in fixed relation to movements of the pans as more particularly stated below. The beaters are provided with any suitable number of arms or vanes J radiating from the hub *j*, and the arms or vanes are preferably formed of wood and at their outer edges are furnished with a series of teeth *k*. These beaters are of course adapted to urge the straw into the machine. But in order to separate and draw the straw apart so that it may not enter the machine in a bunched condition, I time the movements of the agitating pans so that they may retreat and draw back the straw at the time the beaters are urging it forward, the two instrumentalities thus operating upon the straw in opposite directions. This results in a drawing apart of the upper and lower layers of the incoming grain. The forward movements of the agitating pans are also designed to take place during the intervals of non-action by the beaters, that is to say after one of the beater arms has acted upon the straw and before the next arm in course reaches the acting position the forward movement of the agitating pan will take place, so that when the next beater arm begins its work the agitating pan will be ready to move back against the incoming grain as before. This peculiarity in the combined action of the beaters and pans is very beneficial in evening up the grain before it reaches the thrashing cylinder L. The beaters are also preferably made of the same width as the pans, that is to say each vane thereof extends half way across the ma-

chine so that the beater arms may be readily timed with relation to the movements of the pan beneath them and produce the results described. I prefer that the beater arms or vanes upon each beater should be two in number above each pan, as that gives me the interval of time between the action of the beater arms in which to give the forward movement of the pans. I prefer also to employ two beater shafts, each with beater arms extending over each pan and to rotate such beater shafts in unison. This is the construction illustrated. The eccentric shaft is conveniently driven by belt *m* from the shaft of the lower beater, and said beater may be driven by the belt *M* from the cylinder shaft. A third belt *N* may carry motion from the lower beater shaft to the upper beater shaft, and a sprocket chain *n* may connect the knife shaft with the upper beater.

The receiving box *A'* and the belt *A* are preferably made to fold under and against the machine as indicated in broken lines in Fig. 2. For this purpose the receiving box is hinged at *a*, the outer end being sustained by a suitable prop when the machine is in use. But when the machine is to be moved or stored, this outer end of the box is tipped down upon the hinge *a* to the position indicated by the broken lines in Fig. 2, the belt *A* being flexible and offering no obstacle to this folding of the box.

It is sometimes desirable to vary the motion given to the agitating pans. For this purpose the shaft *F* upon which the links *d* are supported, is made adjustable, openings being provided in the side boards of the machine in which said shaft may be adjusted. This change of position of the shaft *F* will modify the action of the crank arms and change the movement imparted to the pans, as desired, by varying the rise and fall of said pans.

I claim—

1. The combination in a thrasher of the feeding belt, agitating pans, links *d* supporting one end of said pans and pivotally united thereto, a shaft upon which said links are mounted and which is adjustable to vary the proportion of rise and fall to back and forth motion, pitmen for reciprocating the pans and eccentrics for actuating the pitmen, substantially as specified.

2. The beaters composed of sets of vanes *J* arranged in sets or series and mounted upon a rotating shaft driven in the direction of the feed, said vanes extending partly across the machine, in combination with reciprocating agitating pans located one under each set of vanes, substantially as set forth.

3. The agitating pans having the reciprocal movements described, and placed side by side, in combination with beaters having vanes *J* of the same width as the pans and arranged on their shaft as set forth, whereby each pan and the vanes directly above it may be timed to coact in separating the straw, substantially as specified.

4. The combination in a thrasher of a feeding belt, agitating pans receiving the material from the belt and having a reciprocating movement and beater shafts *j j* arranged one in advance of the other and over the pans and rotating in the direction of the feed with a slow motion, the pans being timed to move against the feed at the instant the beaters are acting to urge the material forward, whereby the under layer of the stream of material is retarded in its progress while the upper layer is speeded, substantially as specified.

WILLIAM N. RUMELY.

Witnesses:

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