(No Model.) 3 Sheets—Sheet 1.

H. A. GUY.

BAND CUTTER AND FEEDER.

No. 562,724. Patented June 23, 1896.

Fig. 1.

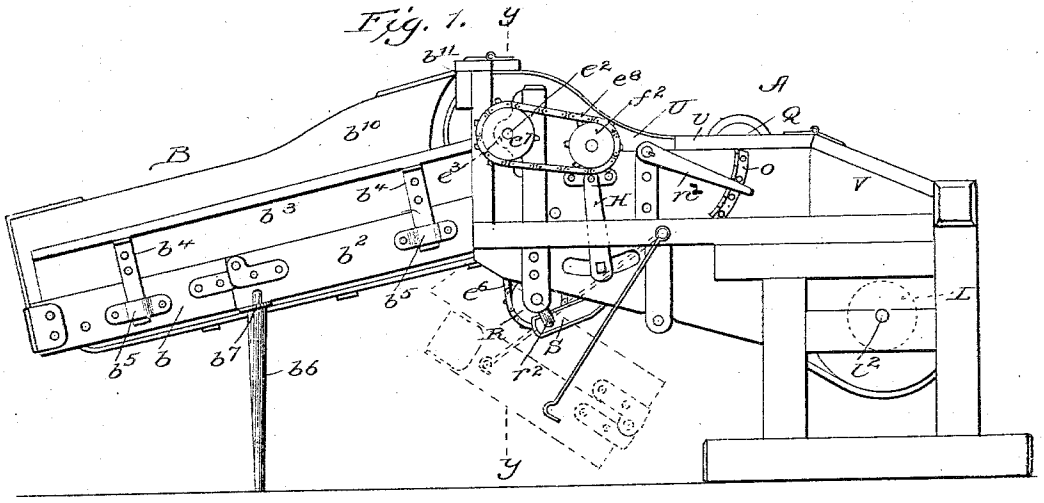

Fig. 2.

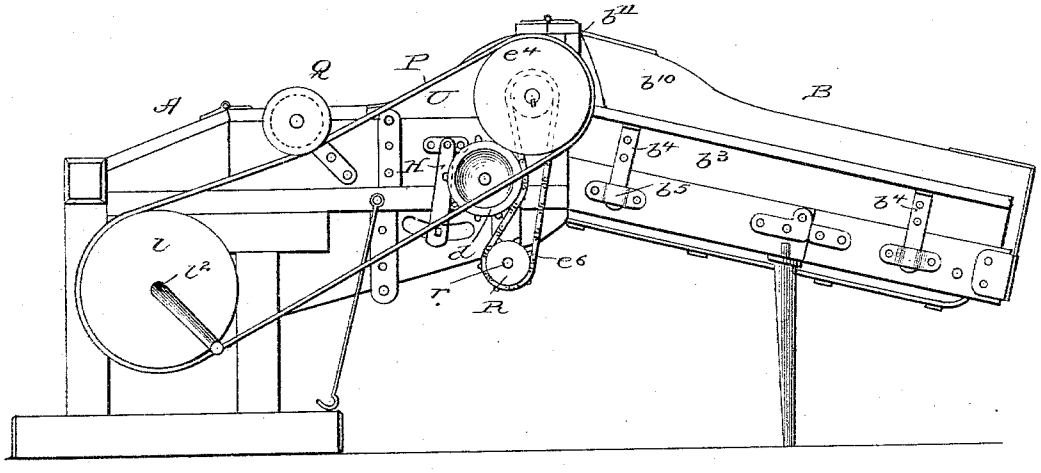

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Fig. 3.

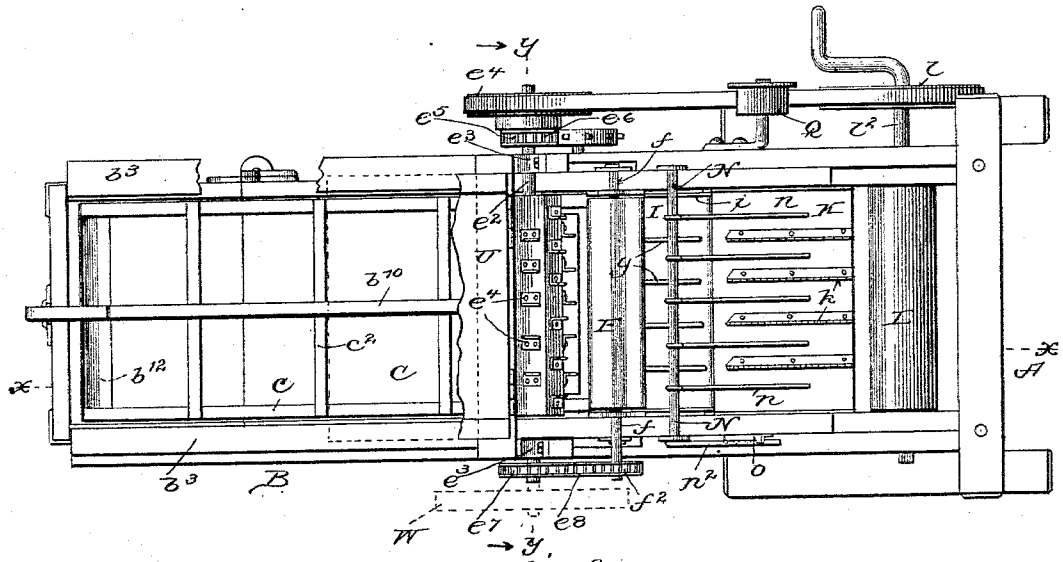
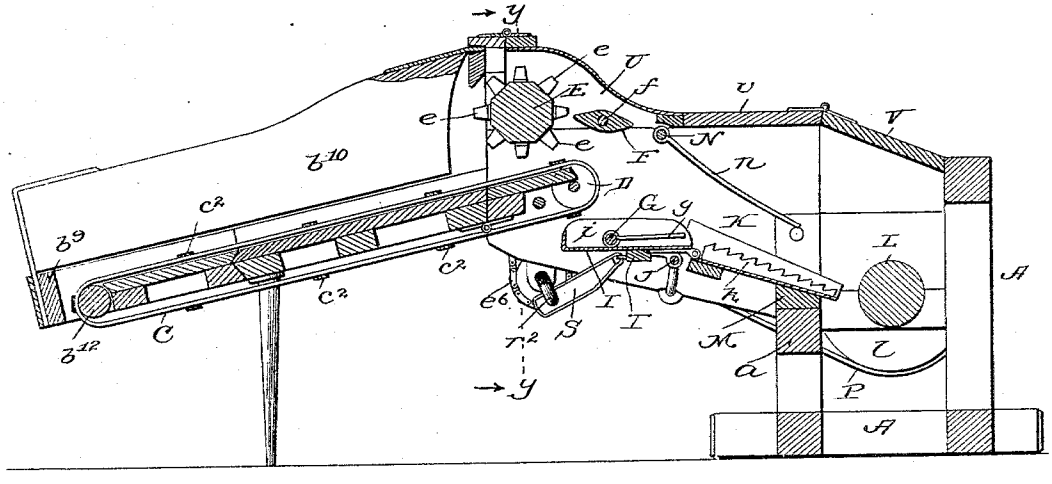


Fig. 4.



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H. A. GUY.

BAND CUTTER AND FEEDER.

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Fig. 5.

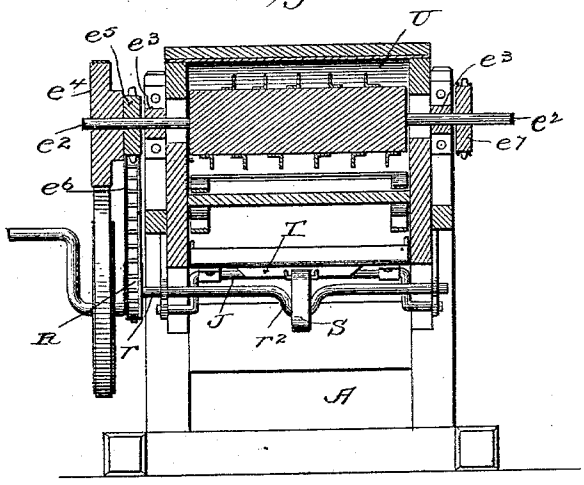
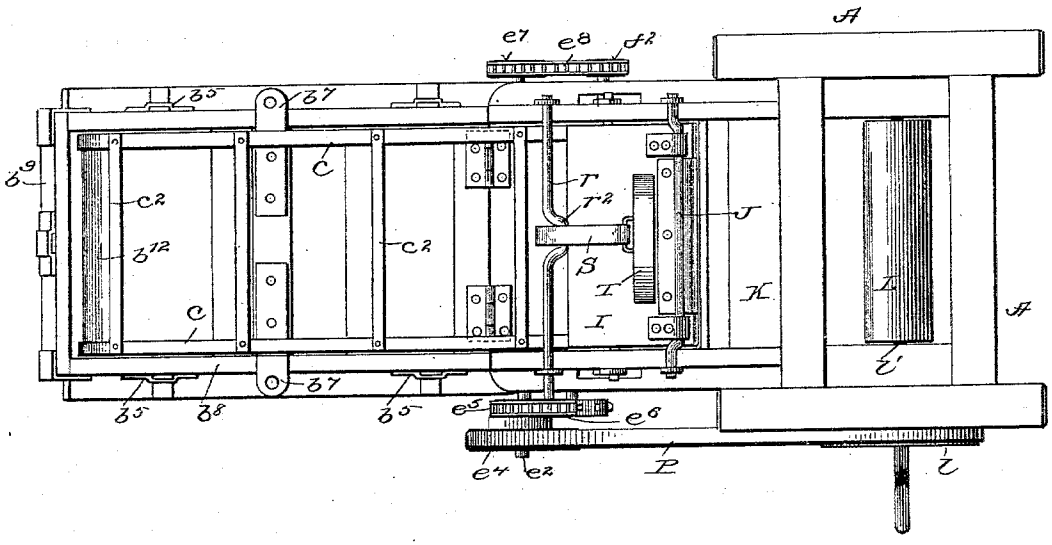


Fig. 6.



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UNITED STATES PATENT OFFICE.

HIRAM A. GUY, OF WOOD RIVER, NEBRASKA.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 562,724, dated June 23, 1896.

Application filed March 28, 1895. Serial No. 543,464. (No model.)

To all whom it may concern:

Be it known that I, HIRAM A. GUY, a citizen of the United States, residing at Wood River, in the county of Hall and State of Nebraska, have invented certain new and useful Improvements in Band-Cutters and Feeders; and I do hereby 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.

This invention relates to band-cutters and feeders.

The object of the invention is to produce a band-cutter and feeder which will, in a ready, efficient, and rapid manner, feed the bound grain to the band-cutter, thoroughly disintegrate the same after the band has been cut, and then force the separated grain to a threshing-machine; furthermore, to produce a band-cutter and feeder in which the blades of the band-cutter will be automatically sharpened by the action of the grain when the machine is in use; furthermore, to provide a band-cutter and feeder provided with a reversible band-cutter cylinder having its knives formed with a cutting edge on each side, whereby one edge will be sharpened by the action of the grain while the other edge is being dulled.

With these objects in view the invention consists in the novel construction and combination of parts of a band-cutter and feeder, as will be hereinafter fully described, and pointed out in the claim.

In the accompanying drawings, forming part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated one form of embodiment of my invention capable of carrying the same into effect, although other embodiments thereof may be employed without departing from the spirit thereof, and in the drawings—

Figure 1 is a view in side elevation, a portion of the frame being broken away to show certain parts of the internal mechanism. Fig. 2 is a similar view looking in the opposite direction from that viewed in Fig. 1. Fig. 3 is a top plan view. Fig. 4 is a vertical longitudinal sectional view taken on the line $x\,x$ of Fig. 3. Fig. 5 is a transverse sectional view taken on the line $y\,y$ of Fig. 3 and looking in the direction of the arrow indicated thereon. Fig. 6 is an inverted plan view looking in the direction of the arrow in Fig. 1.

Referring to the drawings, A designates the frame or body of the machine, to which is suitably hinged the carrier-frame B, comprising two sections b and b^2, hinged together, and adapted to be folded backward underneath the body A, as indicated in dotted lines in Fig. 1, such arrangement facilitating the handling of the machine. When the machine is in use, the carrier-frame is held rigidly in position by means of side pieces b^3, provided each with straps b^4, engaging sockets b^5 on the side pieces of the carrier, detachable legs b^6 being employed for holding the carrier at the proper elevation. These legs have their upper ends inserted in perforated plates b^7, located adjacent to the hinged portion of the frame, although, if desired, they may be located at any other preferred point. The front ends of the sides b^8 are connected by a cross-piece b^9, which serves to prevent spreading of the side pieces, and, also, to hold in position a centerboard b^{10}, the inner end of which is suitably secured at b^{11} to the upper portion of the body of the machine.

The front end of the frame adjacent to the cross-piece is provided with a roller or cylinder b^{12}, around which passes an endless carrier-belt C, the other end of the carrier-belt being supported by a roller D, journaled in suitable bearings in the sides of the body A. The carrier-belt comprises two or more belts c, connected by cross-strips c^2 of metal or wood, and passes entirely under and beyond the band-cutter drum E, so as to effect a positive feed thereto of the bundles of grain.

The band-cutter drum E is preferably polygonal in cross-section, and has secured to its outer surface cutting-blades e, provided with a cutting edge on each side and arranged in such order with relation to each other that the blades on one of the faces of the cylinder will be in alinement with the blades on each alternate face—that is to say, if the cylinder is constructed with six faces the blades on each alternate face will aline. By this arrangement the rapid and effective cutting of the bands is accomplished without unnecessary wear on any one set of blades. The shaft e^2 of the band-cutter drum is mounted in removable boxes e^3, which permits of the drum being removed and turned end for end when

the cutting edges on one side of the knives have become dulled, the friction between the blades and the grain serving to resharpen the cutting edges of each alternate row that have become blunted or dulled. By thus providing a reversible band-cutter drum I effect the automatic resharpening of the blades or knives without removing the same from the cylinder. If one of the knives is broken in use, it may be readily removed by loosening bolts e^4 and replacing the broken blade by a new one. Immediately in rear of the band-cutter drum is journaled a shaft *f*, carrying a beater F, the said beater in cross-section being approximately diamond-shaped, and serves to beat the grain down upon the forks *g* of a kicker-frame G, located directly beneath the beater, the latter also serving to prevent the grain from wrapping around the band-cutter drum.

The ends of the kicker-frame are rigidly connected with swinging supports H, pivoted one on each side of the frame A, and project through the side walls *i* of the shaker-pan I, serving to support the latter in operative position, the rear portion of the pan being supported by means of a rock-shaft J. Hinged to the shaking-pan I is a feeding-pan K, which is arranged at an angle to the first pan and is provided with a series of serrated ribs or flanges *k*, which serve to force the grain toward the cylinder L of the thresher. The pan K may be adjusted at any angle with relation to the cylinder L by means of an adjusting-block M, which rests on one of the upper cross-pieces *a* of the frame A, and has its upper face inclined downward toward the rear end of the machine. By sliding the block in or out the pan K will be elevated or depressed with relation to the cylinder L of the thresher, and thus increase or diminish the feed of grain thereto, as will be obvious by reference to Fig. 4. The passage of the grain from the kicker-frame to the cylinder L is regulated by means of a series of feed-regulating fingers *n*, carried by a shaft N to which is secured an arm n^2, adapted to traverse a rack-plate O, and thereby hold the fingers at the desired adjustment for regulating the amount of grain fed to the thresher.

Motion is imparted to the shaft e^2 of the band-cutter drum through the medium of a belt P, engaging band-wheels e^4 and *l*, located, respectively, on the band-cutter shaft and on the cylinder-shaft l^2, a tension device Q being employed for keeping the belt P under proper tension. The shaft e^3 carries, adjacent to the wheel e^4, a sprocket-wheel e^5, which is engaged by a sprocket-chain e^6, passing around a sprocket-wheel R on a shaft *r*, the latter shaft being provided, preferably at its center portion, with a crank r^2 on which is mounted one end of a pitman S, the free end of which is connected with an abutment T on the under side of the front shaker-pan I. The belt e^6 also engages a sprocket-wheel *d* on the roller-shaft D, and operates to impart motion to the carrier-belt. On the end of the band-cutter drum opposite that on which the sprocket-wheel e^4 is mounted is secured a sprocket-wheel e^7, around which passes a sprocket-chain e^8 to and around a sprocket-wheel f^2 on the beater-shaft *f*.

When the machine is in operation, the bundles of grain are placed upon the carrier and are carried thereby beneath the knives of the band-cutter drum, the centerboard b^9 serving to prevent an unequal distribution of the grain, and also to guide the gavels in a proper manner beneath the drum. As the grain passes out from beneath the drum it is met by the beater F, which beats it down upon the kicker-forks *g*, which latter serve thoroughly to disintegrate the grain, and also to throw it in the direction of the cylinder L, the fingers *n* serving to prevent the passage of too great a quantity to the cylinder. As the pans have a horizontal vibratory motion, the serrations on the ribs or flanges *k* will engage with the grain and force it in a step-by-step motion to the thresher, where it is treated in a manner not necessary to be described.

In order to prevent the escape of dust and of grain from the machine when in operation, a hinged cap or cover U is employed for covering the band-cutter drum and the beater, and a box or casing V, provided with a hinged cover *v*, for covering the rear kicker-pan and the cylinder.

It is to be understood that the band-wheel e^4 is to be made readily detachable from the shaft e^3 in order to admit of the reversing of the band-cutter drum, and in order to compensate for any irregularity in the action of said drum a detachable balance-wheel W may be employed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A band-cutter and feeder comprising a supporting-frame A, a carrier-frame B hinged thereto and adapted to be folded backward and underneath the supporting-frame, a reversible band-cutter drum E journaled in suitable bearings on the supporting-frame, a beater F arranged adjacent to and in the rear of the drum E, a shaker-pan I and a feeding-pan K hinged together, a kicker-frame G supporting the shaker-pan and having fingers working in the said pan, swinging supports H pivoted to the supporting-frame and supporting the kicker-frame, a crank-shaft r^2 driven from the drum E, a pitman-rod S connecting the crank-shaft and the shaker-pan, feed-regulating fingers *n* above the feeding-pan, and an adjusting-block M arranged beneath the feeding-pan, substantially as described.

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

HIRAM A. GUY.

Witnesses:

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