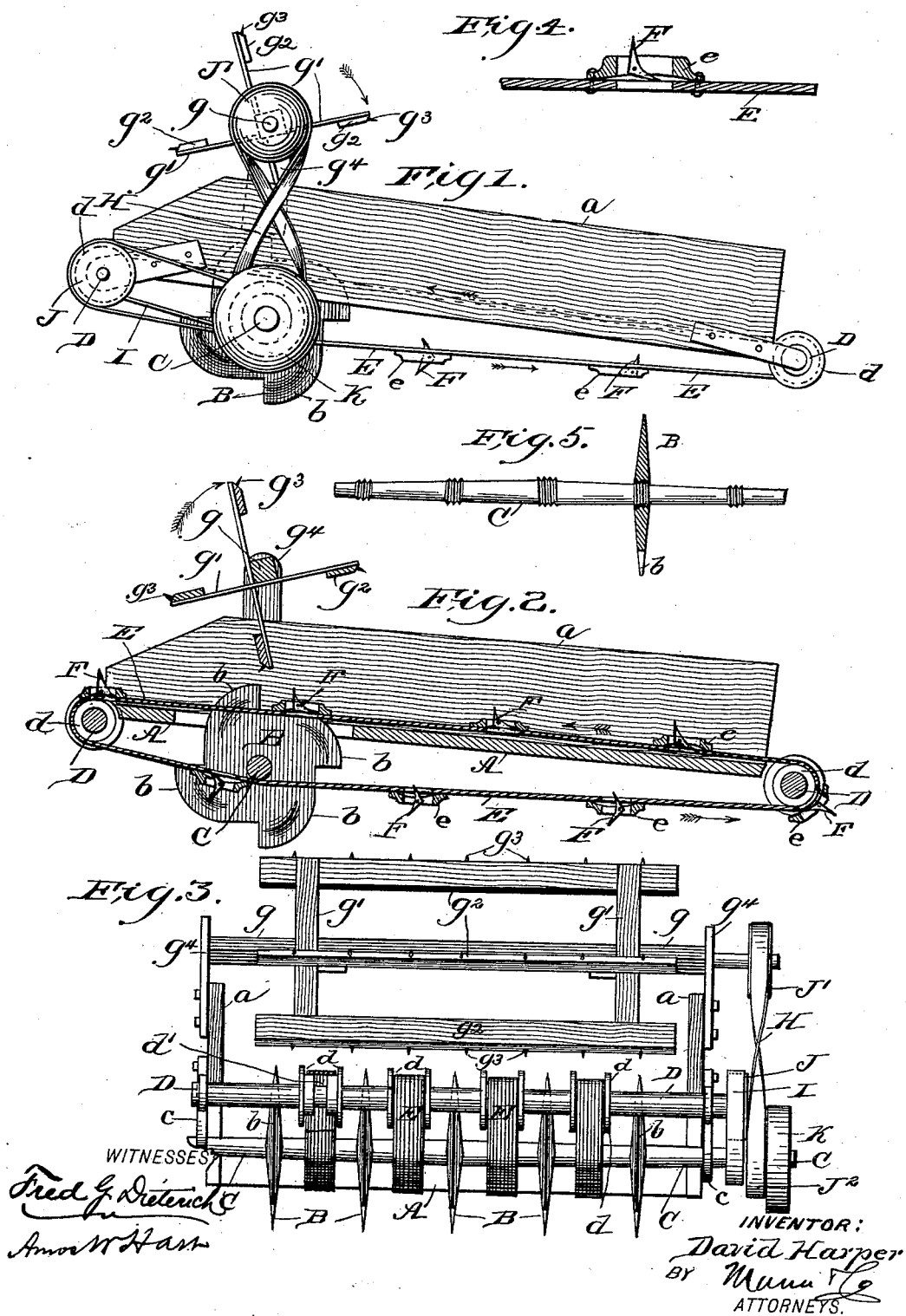


(No Model.)

D. HARPER.  
SELF FEEDER AND BAND CUTTER FOR THRASHING MACHINES.  
No. 523,279. Patented July 17, 1894.



# UNITED STATES PATENT OFFICE.

DAVID HARPER, OF SCOTT COUNTY, ILLINOIS.

## SELF-FEEDER AND BAND-CUTTER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 523,279, dated July 17, 1894.

Application filed November 14, 1893. Serial No. 490,911. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID HARPER, of Scott county, (post-office, Neelyville, Morgan county,) Illinois, have invented a new and  
5 Improved Self-Feeder and Band-Cutter for Thrashing-Machines, of which the following is a specification.

My invention is an improvement in that class of automatic machines adapted for sever-  
10 ing the bands of straw-bound gavels of wheat or other grain and pushing the same forward into the throat of a thrasher.

My improvements include certain features of construction and arrangement of parts as  
15 hereinafter described.

In accompanying drawings—Figure 1 is a side view of my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is an end view—one of the carrier belts being  
20 broken away. Figs. 4 and 5 are detail views hereinafter referred to.

The flat feed-board, A, is provided with vertical parallel sides, *a*, and with a transverse row of slots through which the rotary knives  
25 or cutters, B, project upward, as usual in machines of this class. In practice, the feed-board is arranged at a suitable angle to the throat of a cylinder thrashing-machine. The knives, B, are mounted on a shaft, or arbor,  
30 C, arranged beneath the feed-board, A, and hung in bearings, *c*, which are bolted to the sides, *a*, of the feeder. At the ends of the feed board, are arranged parallel shafts, D, having a series of flanged pulleys, *d*, arranged  
35 equidistantly thereon and provided with a central peripheral groove, *d'*, (Fig. 3,) in the belt-bearing surface which lies between the flanges—for a purpose that will be presently stated.

40 The gavel carrier is formed of endless leather or steel belts, or chains, E, that run on the pulleys, *d*, and travel around the feed-board, A, in the direction indicated by arrows in Fig. 2. Each belt, E, carries a series  
45 of sharp pointed teeth, F, which are angular, or elbow-shaped and pivoted loosely, at their angles, in elongated slots in small metal blocks or castings, *e*, riveted to the belts, as shown best in Fig. 4. The belts, E, are slitted directly beneath the teeth, F, and the tapered  
50 arms or shanks *e'* of the latter project through the slots and thus slide in contact with the

surface of the feed-board A, whereby the points of the teeth are held vertical during the time of such traverse. The belts are held  
55 from lateral displacement by the flanges of the pulleys, *d*, and the central grooves accommodate the shanks of the pivoted teeth, as the latter pass over the pulleys. A reel is mounted above and slightly in advance of the knives, 60 and consists of a shaft, *g*, radial arms, *g'*, and cross-bars, *g''*, provided with teeth, *g'''*, as shown. The said shaft, *g*, is supported in bearings, *g''''*, bolted to the sides of the feed-board. The function of the reel is two-fold, namely; to  
65 press or hold the gavels down upon the knives, while passing over them, thus assuring the severance of the bands; and also to feed or push the gavels forward to the thrasher.

The shaft, C, carrying the knives, is the  
70 driver from which the other shafts derive rotary motion through the medium of a suitable arrangement of belts, H and I, and pulleys J, J', J'', as shown best in Figs. 1 and 3. A large pulley, K, is keyed on the knife shaft, C, and  
75 on this, in practice, a drive belt (not shown) will run from the thrasher. In order to vary the speed of the feeder, as may be required, I propose to employ different sizes of this  
80 pulley.

The knives, or cutters, B, have a peculiar form, each being constructed of a flat steel plate having a series of angular peripheral notches and intervening sickle-edged projec-  
85 tions, *b*, which constitute so many separate cutters or blades. The cutting edges of these several blades are rounded as shown, to better adapt them to make a draw cut as the knives rotate. In such operation, the blades, *b*, are the only portions that project through  
90 the slots in the feed-board and above its upper surface. I attach the knives, B, to the shaft, C, in a peculiar manner. The shaft is tapered slightly (Fig. 5), from the middle toward each end, and is screw-threaded at in-  
95 tervals of five inches, as shown.

The several knives, B, are provided with correspondingly-threaded holes, which are varied in diameter, according to the place they are designed to respectively occupy on  
100 the shaft. Thus, the two knives having the largest openings will be screwed on the shaft at points nearest to each side of the center, and the two knives having the next largest

openings are placed adjacently, and so on. The threads on one half the shaft are right-hand, and those on the other half are left-hand threads, so that the several knives are

5 screwed on the shaft in a direction contrary to that in which the shaft revolves, and hence can not become loose while in operation.

The bars,  $g^2$ , of the reel are beveled on their outer edges, and the teeth,  $g^3$ , are set in such

10 beveled surfaces, perpendicular thereto, so that they are adapted to enter the gavels, as the latter pass over the knives, and push them forward into the throat of the thrasher.

In operation, the gavels or bundles of straw-

15 bound wheat or other grain are thrown upon the feed-board, and the pivoted teeth of the endless carrier, or elevator, pierce the same and carry them up to the rotating knives, where the reel teeth take into them and assist in

20 forcing them along and at the same time hold them down on the cutters. The latter sever the bands, and the carrier and reel then carry

and push the unbound and loosened grain forward to the thrashing cylinder.

What I claim is—

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1. In a self-feeder and band-cutter, the combination of a tapered shaft having a series of knife seats at regular intervals, and a series of knives having different-sized or graduated apertures, whereby they are adapted to fit the

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2. In a self-feeder and band-cutter, the combination with the shaft which is tapered in each direction from the middle, and provided with a series of threaded knife seats, and a

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like series of knives having threaded openings differing in diameter according to the different locations of the knives on the shaft, as shown and described.

DAVID HARPER.

Witnesses:

JOHN MEEHAN,

W. D. KNIGHT.