(No Model.)

# J. F. WALKER.

## HARVESTER CUTTER.

No. 371,288. Patented Oct. 11, 1887.

Fig. 1

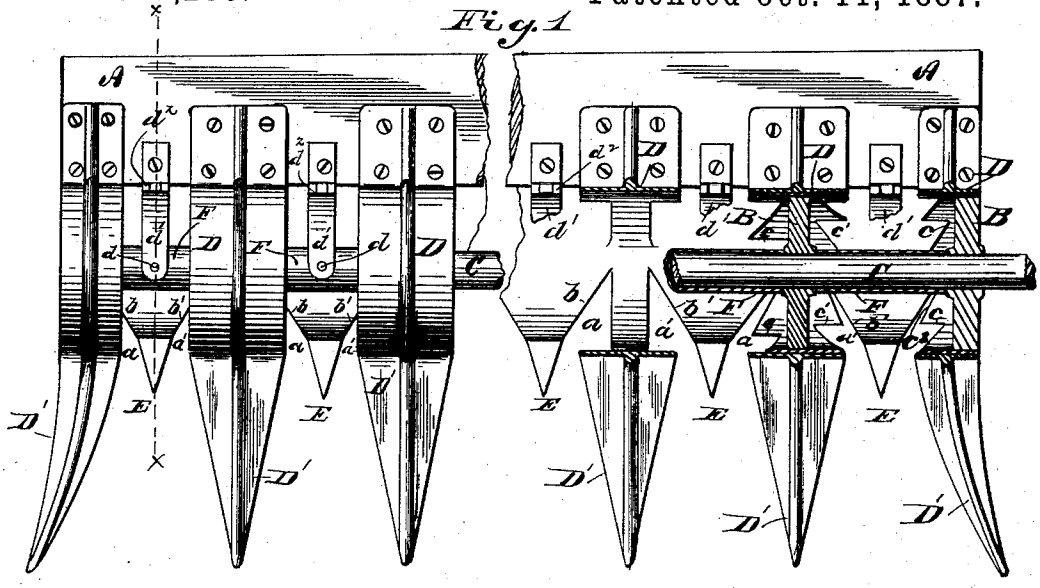


Fig. 2

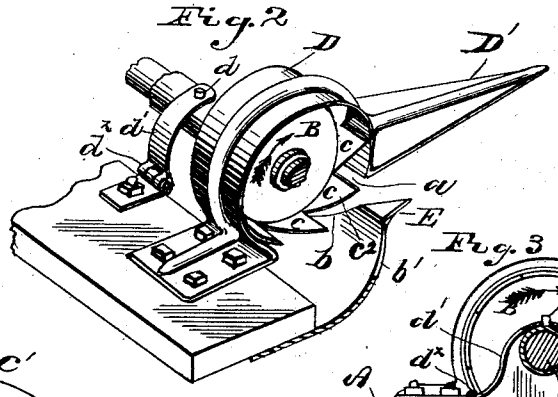


Fig. 3

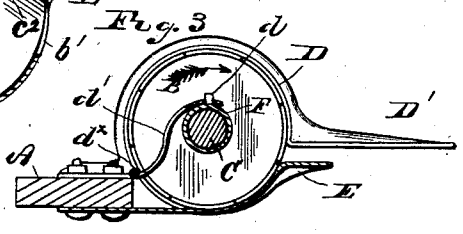


Fig. 4

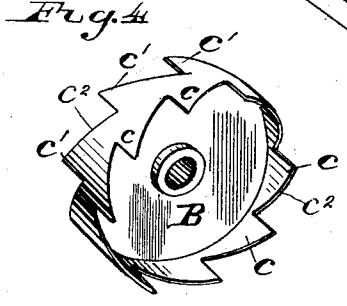
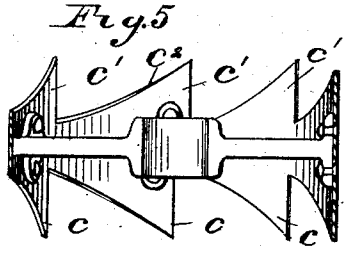


Fig. 5



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES F. WALKER, OF COLUMBUS, KANSAS, ASSIGNOR OF ONE-HALF TO LOEWEN BROS., OF SAME PLACE.

## HARVESTER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 371,288, dated October 11, 1887.

Application filed February 8, 1887. Serial No. 226,988. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. WALKER, a citizen of the United States, residing at Columbus, in the county of Cherokee and State of Kansas, have invented certain new and useful Improvements in Harvester-Cutters, of which the following is a specification.

My invention relates to improvements in harvester-cutters; and the object of my invention is to dispense with the reciprocating cutter heretofore generally used in connection with the guard-fingers and substitute therefor a rotary cutter of peculiar construction, whereby the noise and jar incident to the reciprocating cutters is largely overcome, the probabilities of serious accident considerably lessened, and the efficiency of the machine largely increased.

My invention consists, first, in a rotary cutter provided with an encircling shield having an opening therein, one side of which is adapted to form a cutting-edge, and means for directing the material to be cut into said opening as the cutter advances.

My invention further consists in a guard-finger of novel construction adapted to form a shield for said cutter, and an intermediate finger adapted to guide the material into the rotary cutter by a forward movement as the material is moved against the said cutter, or vice versa.

My invention further consists in a stationary shield of novel construction adapted to cover the revolving shaft between the respective cutters of the series.

My invention further consists in various constructions and combinations of parts, hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view, partly in section, of a portion of a finger-bar having guard-fingers and cutters thereon embodying my invention, one of the cutters being shown removed. Fig. 2 is a perspective view of one of the guard-fingers and cutters in detail. Fig. 3 is a transverse sectional view taken on the line *x x* in Fig. 1. Fig. 4 is a perspective view of one of the cutters in detail. Fig. 5 is an enlarged sectional view of the same.

Like parts are indicated by similar letters of reference throughout the several views.

In the said drawings, A A represent the finger-bar, which may be made of any suitable material and of such length and shape as desired.

B B, &c., are rotary cutters, which are mounted upon a revolving shaft, C, and secured thereto in such a manner as to revolve therewith. Each of the cutters B is provided with an encircling shield, D, of a width equal to the width of the face of the cutters B, each of the said shields being preferably provided with a forwardly-extending finger, D′. Immediately below the finger D′, at the point where it joins the shield D, the said shield is cut away at each side to form openings *a* and *a′*, said shield being preferably cut away at an angle at one side of each of said openings to form cutting-edges *b* and *b′*.

The cutters B and the fingers D′ are arranged in a series on the finger-bar A and the revolving shaft C. The fingers D′ are adapted to divide the grain or other material to be cut and guide it to either side of the respective cutters B.

In order that the grain or other material may be carried into the opening *a* and against the cutting-edges *b* and *b′*, I provide an intermediate finger, E, which preferably extends forward and ends in a point half-way between the respective cutters, the sides thereof being adapted to join the sides which respectively bound the openings *a* and *a′* in the adjacent shields D D and form continuations of the cutting-edges *b* and *b′*.

The cutters B are each provided with a double series of serrations, *c* and *c′*, having cutting-edges $c^2$, and are preferably adapted to revolve in the direction in which the finger-bar is advanced. The cutters B B fit snugly in the shield D, and are so constructed that the respective series of serrations *c* and *c′* pass over the openings *a* and *a′* and the cutting-edges *b* and *b′* in the said shield. Each of the serrations *c* and *c′* is so formed that as the cutter B is revolved a shearing movement is produced between the respective serrations and the cutting-edges *b* and *b′*, the cutting-edges of the respective

serrations being preferably of a greater angle than that of the respective cutting-edges *b* and *b'*.

In order to prevent the grain, grass, or other material operated on by the cutters from becoming entangled in the shaft C, I provide between the respective cutters B a stationary shield or cover for said shaft. Each of these shields or covers is preferably formed in the nature of a sleeve, F, extending over the shaft C and resting at each end against the central portion or hub of the respective cutters B B. On each of the sleeves F is a small projection, *d*, adapted to engage in an opening in the end of a stop-brace, *d'*, which extends backward and downward and is hinged at *d²* to the finger-bar A. By this construction the sleeves F are held stationary around the shaft C, but may be readily detached in case it is desired to remove the cutters B.

The operation of my improved harvester-cutter will no doubt be readily understood from the above description. The finger-bar A is attached to any of the ordinary machines now in use for harvesting purposes. The power to drive the cutters B may be applied to the revolving shaft C through the medium of any suitable gearing or driving mechanism from the wheels of the harvesting-machine. As the machine is advanced, the cutters B will be rapidly revolved, the material to be harvested will be forced into the openings *a* and between the cutters B and the cutting-edges *b b'*, and be cut thereby. Each of the intermediate fingers, E, is placed slightly below the main projecting fingers D', so that an increased opening will be secured for the passage to the cutters of that portion of the grain which is divided by the main fingers D'.

A harvester-cutter as above described is light-running and has but little friction. Having a continuous rotary motion, the shock and strain occasioned by the rapid reversing of the stroke in the reciprocating cutters is obviated. The cutters, being entirely surrounded by the guards and shields, are less liable to injury from obstructions, and at the same time the probability of serious accidents and loss of life therefrom is largely reduced.

It is obvious that the constructions herein described admit of various modifications. The shape, size, and number of the cutters may be varied as desired, as may also the shape, size, and number of the serrations in the respective cutters. The shape and size of the guard-fingers, the openings therein, and the cutting-edges may also be variously modified without departing from the spirit of my invention, and I do not therefore limit myself to the constructions herein shown and set forth; but

I claim, broadly—

1. A rotary cutter provided with laterally-projecting serrations and an encircling shield having an opening therein and provided with a cutting-edge which forms one side of said opening and over which the serrations of the said cutter are adapted to pass, and means for directing the material to be cut into said opening between the said laterally-projecting serrations and the said cutting-edge, substantially as set forth.

2. A rotary cutter having a double series of laterally-projecting serrations thereon, an encircling shield having on either side an opening, and a cutting-edge which forms one side of said opening and over which the serrations in the said cutter are adapted to pass, and means for directing the material to be cut into said openings between the said serrations and cutting-edges, substantially as set forth.

3. A rotary cutter provided with an encircling shield having an extending guard-finger, openings in either side of said shield immediately behind said guard-finger, a cutting-edge in each of said openings, and a double series of cutting-edges on the said rotary cutter, and intermediate fingers for directing the material to be cut into said openings, substantially as set forth.

4. The combination, with the revolving cutter, of an encircling shield having an opening therein and provided with an inclined cutting-edge, which forms one side of said opening, said rotary cutter being provided with a series of laterally-projecting serrations adapted to pass over said openings, the inclination of said serrations being greater than the inclination of the said cutting-edge, whereby a shearing movement is produced by the revolution of the said cutter between the said serrations and the said cutting-edges, substantially as set forth.

5. The combination, with a series of rotary cutters, each provided with an encircling shield having a forwardly-projecting finger and openings, and formed with cutting-edges in the rear of said finger, of intermediate fingers between the said main fingers adapted to guide the material to be cut into the said openings, said intermediate fingers being placed in a lower horizontal plane than the forwardly-extending fingers, substantially as set forth.

6. The combination, with a series of revolving cutters mounted on a revolving shaft and provided with encircling shields, of the stationary sleeves on the said revolving shaft between the said cutters, substantially as set forth.

7. The combination, with the revolving cutters and the revolving shaft, of independent sleeves on the said shaft between the said cutters, said sleeves being each provided with a small projection and a hinged stop-brace, substantially as set forth.

8. The combination, with a series of revolving cutters mounted on a revolving shaft, each of said cutters being provided with an encircling shield having openings with cutting-edges therein, stationary sleeves around said shaft between the respective cutters, and means for directing the material to be cut into the said openings and against the cutting-edges, substantially as specified.

9. A rotary cutter provided with an encircling shield having openings and cutting-edges at either side thereof, said rotary cutter being provided with a double series of serrations, the serrations in the respective series being adapted to follow each other, so that an alternating shearing motion is produced between the serrations in the respective series and the respective cutting-edges of the shield, substantially as set forth.

In testimony whereof I have hereunto set my hand this 31st day of January, A. D. 1887.

JAMES F. WALKER.

Witnesses:

CHARLES L. MCCLUNG,

JOSEPH A. J. WALKER.