

(No Model.)

2 Sheets—Sheet 1.

W. G. SMITH.
FODDER HARVESTING MACHINE.

No. 539,091.

Patented May 14, 1895.

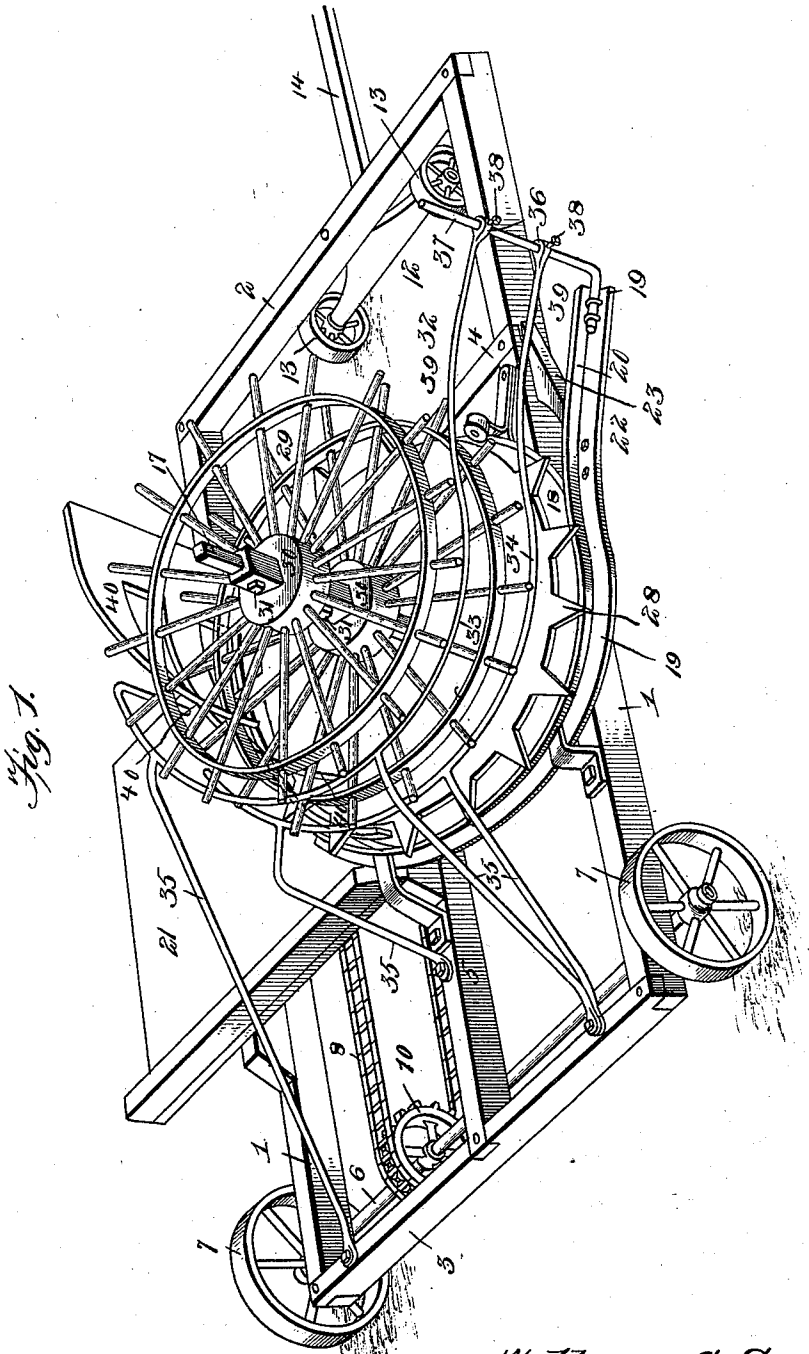


Fig. 1.

Inventor

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Witnesses

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Chas. H. Hane

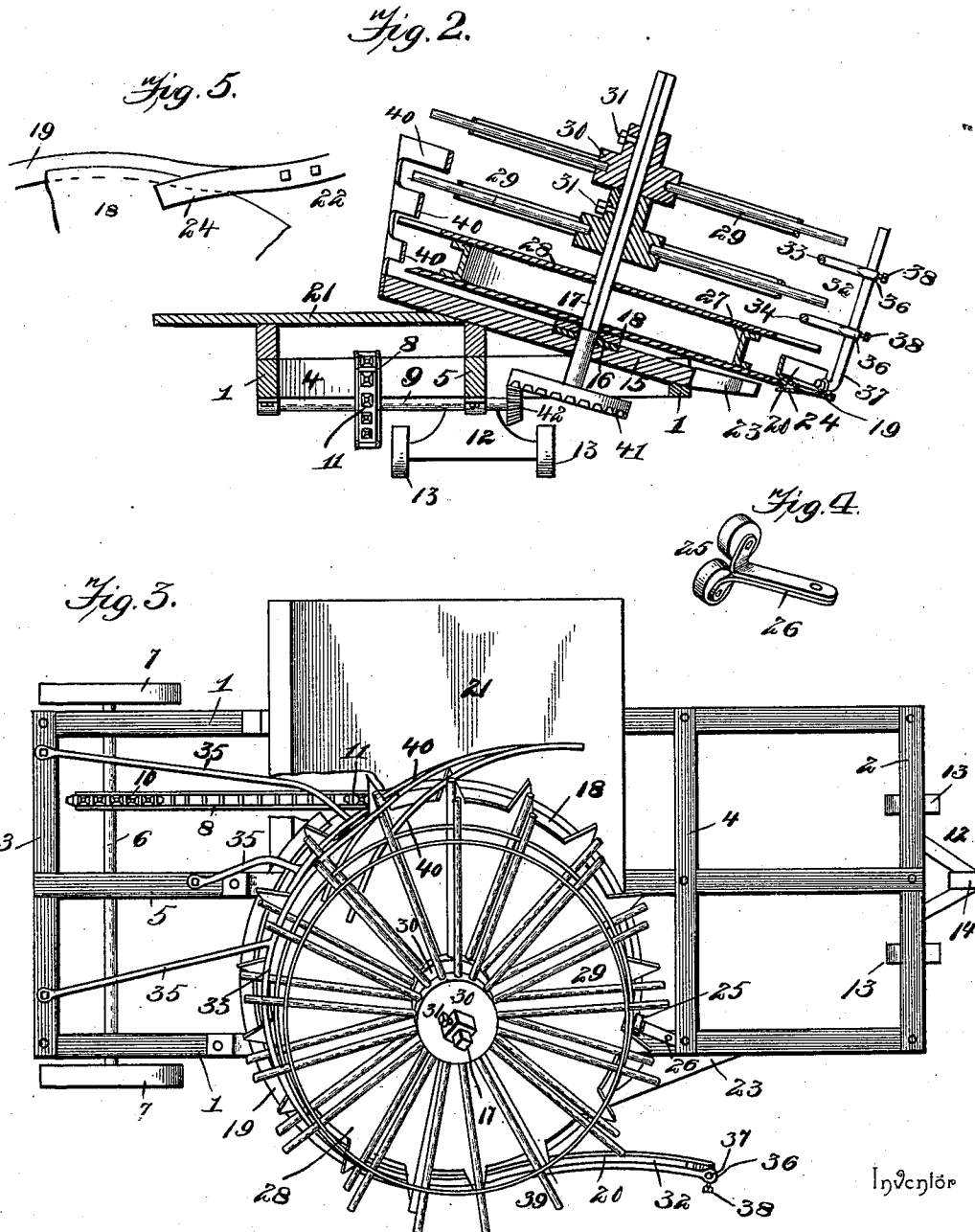
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UNITED STATES PATENT OFFICE.

WILLIAM G. SMITH, OF TRIBUNE, KANSAS.

FODDER-HARVESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,091, dated May 14, 1895.

Application filed March 31, 1894. Serial No. 506,942. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. SMITH, a citizen of the United States, residing at Tribune, in the county of Greeley and State of Kansas, have invented a new and useful Fodder-Harvesting Machine, of which the following is a specification.

My invention relates to harvesters, and particularly to machines for cutting fodder, and it has for its objects to provide a simple, efficient, and durable device for cutting the fodder and depositing it upon a table provided for the purpose, in convenient position for tying in bundles or stacking; and to provide means for adjusting the several parts of the mechanism to suit fodder of different heights.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a transverse vertical section. Fig. 3 is a plan view with the platform partly broken away to show the subjacent mechanism. Fig. 4 is a detail view of the guiding-rolls and supporting-bracket detached. Fig. 5 is a detail bottom plan view of the guard which is carried by the curved butt-guide and between which and the said guide the cutter operates.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The framework of the improved harvester comprises the parallel side-beams 1 which are connected by the front and rear cross-beams 2 and 3, an intermediate cross-beam 4 connecting the side-beams in rear of the front beam, and an intermediate longitudinal beam 5 connecting intermediate points of the cross-beam 4 and the rear beam 3.

The main or drive shaft 6 is mounted in bearings in the side-beams and carries the ground-wheels 7, and a sprocket-chain 8 connects the main or drive-shaft to a counter-shaft 9 by means of the sprocket-wheels 10 and 11, secured respectively to said shafts. A truck 12, having the supporting wheels 13, is pivotally connected to the center of the

front cross-beam of the frame, and to this truck is connected the draft-tongue 14.

An inclined supporting-bar 15 extends from the inner side-beam to the intermediate longitudinal beam of the framework, and in a bearing 16 in said bar is mounted the inclined cutter-spindle 17, carrying the annular rotary cutter or knife 18, which coacts with the curved guide 19. The inclination of the cutter spindle causes the cutter or knife to decline toward its inner or operating edge, and the curved guide is arranged upon a similar inclination and has an upstanding flange 20 which rises above the plane of the cutter or knife for a purpose to be hereinafter explained.

The guide is preferably made of angle iron and it extends from a point on the cutting side of the machine slightly in advance of the cutter or knife around to the upper or outer edge of the same, above the table 21 which is provided for the reception of the fodder. The front end of the guide is deflected as shown at 22 to form a gathering-finger and in connection with the guide-block 23 which is attached to the adjacent side-beam directs the stalks to the cutter or knife. The guide is further provided upon its under side, at the point of intersection of the cutter or knife therewith, with a guard 24, which passes under and lies close to the under surface of the cutting edge of the cutter or knife, whereby the latter operates between the under side of the guide and the said guard, thus forming a force-feed and preventing the deflection of the cutter or knife at the operating point. Guide-rolls 25 mounted upon a bracket 26 are arranged in operative relation with the outer edge of the cutter or knife in advance of the intersection of the latter with the guide 19, to prevent deflection and vibration.

Carried by the cutter or knife, and spaced above the same by the interposed rim 27, is a peripherally toothed reel 28, the teeth of which operate close to the plane of the upper edge of the flange 20 on the curved guide and serve to carry the butts of the stalks around to the table after severance. The stalks rest upon and are supported by the cutter or knife, and are prevented from becoming displaced by said flange on the guard. The tops of the

stalks are carried at a rate corresponding with their lower ends by superjacent reels 29 which are fixed to the cutter-spindle. This spindle is preferably angular in cross-section above its bearing in the bar 15, and the cutter and reels are provided with angular bored hubs 30 which fit the spindle and are locked in place by means of set-screws 31, whereby the upper-reels may be adjusted vertically upon the spindle to suit the height of the fodder.

A top-guide 32 to coact with the upper reels is arranged above the butt-guide 19 and corresponding with the latter in shape, and it comprises, essentially, the curved rods 33 and 34, held in place at their rear ends by the inclined braces 35 and provided at their front ends with eyes 36 which fit slidably and adjustably upon a standard 37 rising from the front end of said butt-guide 19. These eyes are secured in the desired positions upon the standard 37, to suit the adjustment of the top-reels 29, by means of set-screws 38, and the front ends of the guide rods are deflected, as shown at 39 to agree with the deflection of the front end of the butt-guide.

A series of curved or deflected detaching-fingers 40 is arranged adjacent to the table to guide the stalks outward from the reels and deposit them upon the table, the said fingers being arranged respectively between the planes of adjacent reels.

The cutter-spindle receives motion from the counter-shaft through bevel-gears 41 and 42 secured respectively to the spindle and said counter-shaft.

This being the construction of the machine, the operation thereof is as follows:

The cutter and reel carrying spindle is inclined laterally inward or toward the crop in order to bring the operating portion of the edge of the cutter close to the ground and enable the stalks to be carried to a table arranged in a plane above the point of severance. A further advantage in laterally inclining the cutter and reel spindle is that the top-reels are enabled to gather the spread tops of the stalks. In addition to this lateral inclination of the spindle I preferably give it a forward inclination in order that the top-reels may engage the tops of the stalks before they are severed by the cutting mechanism, to insure a proper and effective engagement preparatory to carrying the stalks to the table.

The cutting operation will be understood without further explanation, and after the stalks are detached their butts rest upon the upper surface of the cutter, being held thereon by means of the curved butt-guide, and their tops are held in place by the top guides, while the reels carry them around to a point adjacent to the table. As the stalks approach the table they are gradually pushed outward by the detaching fingers and are dropped in convenient position for manipulation upon the table.

It will be understood that various changes

in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, I claim—

1. The combination with a supporting framework having ground-wheels, of an upstanding spindle, connections between the ground-wheels and said spindle, a butt-guide having a curved or semi-circular portion arranged concentric with said spindle, and a laterally deflected front end arranged at an angle to one side of the framework to form a throat for the reception of stalks, a co-operating throat guide-block secured to the framework, a standard rising from the extremity of the laterally deflected front end of the butt-guide, a rotary cutter secured to said spindle contiguous to the plane of the under surface of said butt-guide and co-operating therewith to sever the stalks, a flange on the inner edge of said butt-guide, a butt-reel fixed to the spindle contiguous to the plane of the upper edge of said flange and having a solid center and peripheral points 28 which operate close to the edge of said flange and extend thereover and beyond the same, top-guides arranged above the butt-guide, corresponding in form therewith, and having curved portions arranged concentric with the spindle, the front ends of said top-guides being detachably and adjustably connected to a standard rising from the extremity of the butt-guide, top-reels fitted upon said spindle and having rotary arms which extend outward and overlap the concentric portions of the top-guides, and means for adjusting said top-reels vertically upon the spindle to agree, respectively, with the planes of the top-guides, substantially as specified.

2. The combination with a framework having ground-wheels, of an upstanding spindle, connections between said spindle and the ground-wheels, a butt-guide having curved portions concentric with the spindle and having a laterally deflected front end arranged at an angle with the contiguous side of the framework to form a throat for the reception of the stalks, a cutter fixed to the spindle contiguous to the plane of the under surface of the butt-guide and extending outward beyond the inner edge of said guide to co-operate therewith in severing the stalks, a guard secured to the under side of the butt-guide and extending under the contiguous portion of the cutting edge of the cutter to prevent downward displacement of the cutter at one side of the throat, a bracket secured to the framework at the opposite side of the throat and having anti-friction rolls which bear respectively upon the upper and lower surfaces of the cutter, a flange at the inner edge of the butt-guide, a butt-reel fixed to the spindle contiguous to the plane of the upper edge of said flange and provided with radial peripheral points which extend outward beyond the

flange, top-guides having curved portions arranged concentric with the spindle, and top-reels fixed to the spindle approximately in the planes, respectively, of said top-guides
5 and having arms extending outward beyond said guides, substantially as specified.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM G. SMITH.

Witnesses:

ROBERT KING,
CURRAN H. ADAMS.