

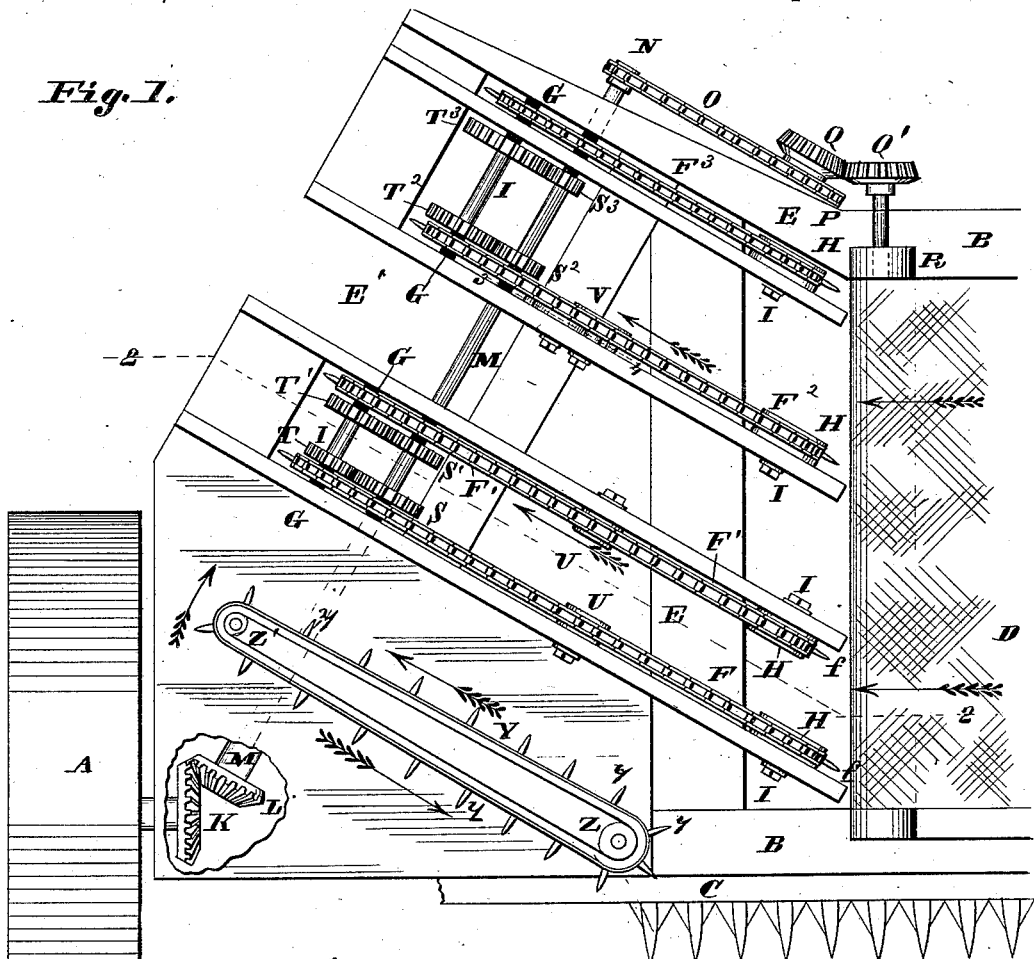
(No Model.)

H. BURFEIND.  
HARVESTER.

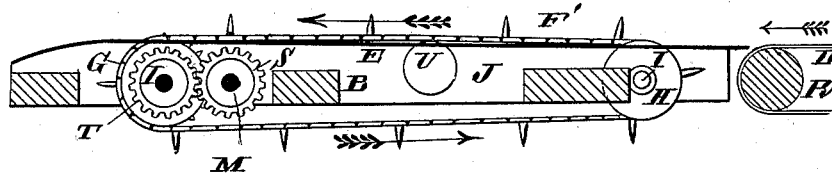
No. 304,905.

Patented Sept. 9, 1884.

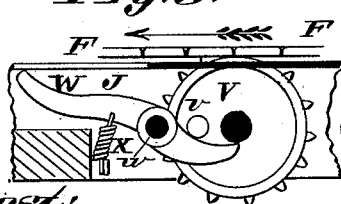
*Fig. 1.*



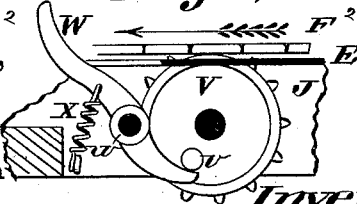
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

HERMANN BURFEIND, OF FROHNA, MISSOURI.

## HARVESTER.

SPECIFICATION forming part of Letters Patent No. 304,905, dated September 9, 1884.

Application filed August 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN BURFEIND, of Frohna, Perry county, in the State of Missouri, have invented a certain new and useful Improvement in Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a device for carrying the grain from the endless apron to the binder and changing the position or direction of the grain in passage.

Reference is made to the claims for statement of invention.

Figure 1 is a top view of a part of a harvester to which my improvement is applied. Fig. 2 is a vertical section at 2 2, Fig. 1. Figs. 3 and 4 are enlarged sections at 3 4, showing the checking device in its two positions.

Only the parts of a harvester required to illustrate my invention will be shown and described.

A is the drive-wheel, upon which that side of the frame B is supported.

C is the sickle-bar.

D is an endless apron, upon which the most of the grain falls as it is cut. It will be seen that the sickle-bar extends beyond the end of the endless apron toward the drive-wheel, so that a part of the grain falls beyond the end of the apron. This part of the grain falls on a platform, E, made of either wood or metal, and over which run a number of carrying-chains, four (F F' F<sup>2</sup> F<sup>3</sup>) being shown. These chains have spurs upon their outer sides to carry forward the grain to the binder. These chains are set angularly to the endless apron. As shown, they are set at an angle of thirty degrees; but the amount of obliquity is not essential. It may be more or less, as required, according to the diameter of the drive-wheel or other peculiarities of the machine to which the improvement is applied. The chains F F', &c., are supported on sprocket-wheels G and wheels H, the wheel G in each case being the drive-wheel, and the wheels H being mere supporting-wheels, and may be either sprocket-wheels or simple grooved pulleys turning on suitable arbors I, secured to the frame J.

K is a bevel-wheel upon the shaft of the drive-wheel A, said wheel engaging a bevel-

wheel, L, upon the counter-shaft M. The shaft M carries a sprocket-wheel, N, connected by a gear-chain, O, to a sprocket-wheel, P, upon the shaft of a bevel-wheel, Q, that engages a bevel-wheel, Q', upon the shaft of the roller R, upon which one end of the apron D is carried, (the roller R being the drive-roller of the apron.) The counter-shaft M has upon it four spur-wheels, S S' S<sup>2</sup> S<sup>3</sup>. The spur-wheel S engages with a spur-wheel, T, that is fast to the sprocket-wheel carrying the chain F. The spur-wheel T may have eighteen cogs, so as to make four revolutions while the wheel S makes three, said wheel S having twenty-four. The second spur-wheel, S', engages a spur-wheel, T', that is fast to the sprocket-wheel carrying the chain F'. The wheel T' may have an equal number of cogs to the wheel S—say twenty-four—so that it runs at the same speed as the wheel S. The arrangement is similar with the wheels S<sup>2</sup> and S<sup>3</sup> and the wheels T<sup>2</sup> and T<sup>3</sup>, except as to the relative speed of rotation. The wheel T<sup>2</sup> is fast to the sprocket-wheel carrying chain F<sup>2</sup>, and may have twenty-four teeth, while the wheel S<sup>2</sup> engaging it may have eighteen. The wheel T<sup>3</sup> is fast upon the sprocket-wheel carrying the chain F<sup>3</sup>, and may have twenty-four teeth, the spur-wheel S<sup>3</sup> engaging it having twelve teeth. It will thus be seen that the chain F travels at the greatest speed, and chain F<sup>3</sup> travels the slowest, the speed diminishing as the distance of the chains from the sickle-bar increases. The reason for this will be obviously to carry the butt of the grain faster than the head, so that it shall be presented at the proper angle or direction to the binder, which works in the gap E' of the platform, the butts having to travel farther than the heads in passing from the endless apron to the binder. My reason for carrying a part of the platform E behind the sickle-bar is to give a greater space for the operation of the chains F, &c., than could be had if the apron D extended the whole length of the sickle-bar.

To ease the motion of the chains in passing over the platform E, I provide one or more carrying-rollers, U, whose edges extend up through apertures in the apron. As shown, the carrying-roller U is dispensed with in case of the chain F<sup>3</sup>, this chain being comparatively short, and in case of the chain F<sup>2</sup> a sprocket-

wheel, V, is shown taking the place of the roller, the sprocket-wheel being turned by the chain. (See Figs. 3 and 4.) The purpose of the sprocket-wheel is as follows: In some cases the butts of the grain, owing to their looseness and bulk, may not be carried forward with the required speed relatively to the heads, and in this case the sprocket-wheel is made use of to check the forward motion of the heads by throwing up at each revolution a finger, W, into the path of the grain at the head portion. To accomplish this the sprocket-wheel has on the side a stud, *v*, which comes in contact with the finger below its fulcrum *w*, and so throws up the other end, as shown in Fig. 4. When the stud passes the lever end of the finger, the other end is drawn down beneath the platform E by a spring, X. When the finger W is not needed, it may be removed from its fulcrum-pin *w*.

Y is an endless apron forming a butt-adjuster, and carried on upright shafts Z Z', the shaft Z being the driving-shaft, and that Z' being an idler, merely supporting that end of the apron. The shaft or roller Z', I prefer to make movable. The apron carries spikes *y*, to assist in carrying forward the butts of the grain. The divider runs at a speed somewhat in excess of the chain F, while the apron D runs at about the same speed as the chain F<sup>3</sup>.

It will be understood that I do not confine myself to the exact proportional speed described for the grain-forwarding chains or belts. The relative speeds would be such as to produce the effect set forth.

I claim herein as new and of my invention— 35

1. In a harvester, the combination, with the endless apron to receive the grain as cut, of a platform to receive the grain from the apron, endless carrying-chains arranged obliquely to the delivery end of the apron, sprocket-wheels supporting the chains, gear-wheels secured to the sprocket-wheels at one end of the chains, and increasing in size from the front to the rear of the machine, and a counter-shaft provided with pinions meshing with said gear-wheels, substantially as and for the purpose set forth. 40 45

2. In a harvester, the combination of a platform having an endless apron, two or more endless toothed chains arranged in a horizontal plane and running in a direction oblique to the apron, and the butt-adjuster consisting of an endless apron provided with teeth, and carried by vertical rollers, the whole arranged substantially as shown and described. 50

3. The combination, with the grain-forwarding chains, of the checking device consisting of a sprocket-wheel having a stud and a finger, constructed and arranged to operate as set forth. 55

4. The combination of a receiving-apron, a sickle-bar having cutters extending beyond the apron, a platform at the rear of the sickle-bar extension, and belts to forward the grain falling on the platform and apron, as set forth. 60

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Witnesses:

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GEO. H. KNIGHT.