No. 821,635. PATENTED MAY 29, 1906.

F. HAMACHEK.

GUARD FINGER FOR MOWERS OR REAPERS.

APPLICATION FILED NOV. 21, 1904.

Fig. 1.

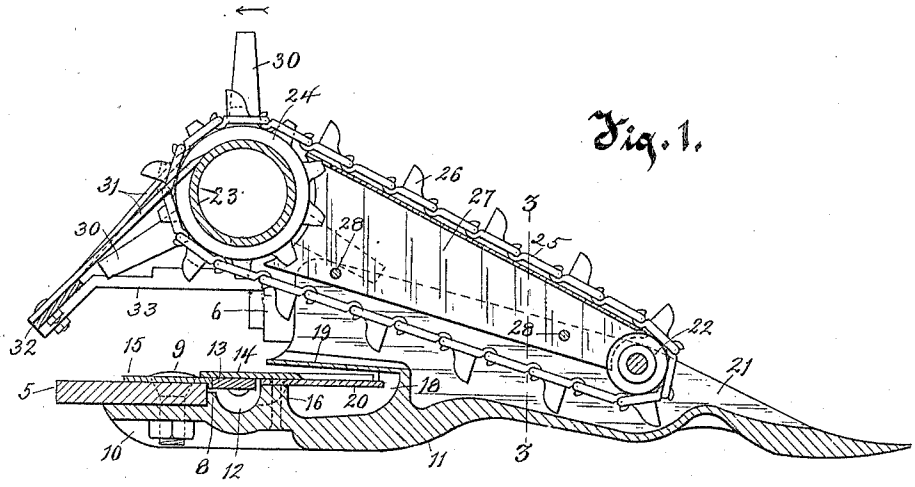


Fig. 2.

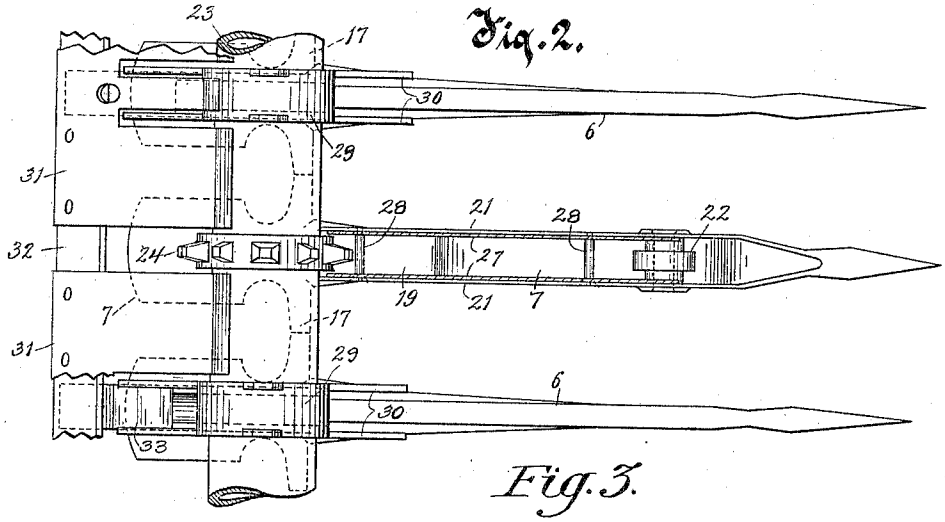
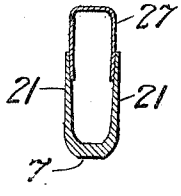


Fig. 3.



Witnesses.

C. A. Keeney.

R. S. Caldwell.

Inventor.

Frank Hamachek.

By Benedick and Morsell.

Attorneys.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK HAMACHEK, OF KEWAUNEE, WISCONSIN.

GUARD-FINGER FOR MOWERS OR REAPERS.

No. 821,635. Specification of Letters Patent. Patented May 29, 1906.

Application filed November 21, 1904. Serial No. 233,552.

To all whom it may concern:

Be it known that I, FRANK HAMACHEK, residing in Kewaunee, in the county of Kewaunee and State of Wisconsin, have invented new and useful Improvements in Guard-Fingers for Mowers or Reapers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to guard-fingers for mowers or harvesters, and has for its object to provide a guard-finger which will pick up fallen or lodged grain or vines and forcibly draw them into engagement with the cutting-teeth and over the cutter-bar.

Another object of this invention is to provide a guard-finger with a toothed chain conveyer for the above-mentioned purpose and to furnish in connection therewith a means for clearing the conveyer of the grain or vines when they have been carried beyond the cutter-bar.

A further object is to produce a casing for such a conveyer guard-finger to protect the moving parts thereof from entanglement with the grain or vines.

With the above and other objects in view the invention consists in the devices and parts and their equivalents, as hereinafter more fully set forth.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in the different views, Figure 1 is a side elevation, partly in section, of a guard-finger emboding the present invention. Fig. 2 is a plan view of a portion of a cutter-bar provided with the guard-finger shown in Fig. 1, the upper section of the casing being sectioned and the chain conveyer being removed therefrom; and Fig. 3 is a tranverse sectional view of the body portion and the guard-shell, taken on the line 3 3 of Fig. 1.

In the drawings, 5 represents the finger-bar, constituting a support for the guard-fingers, of which some may be constructed in accordance with the present invention and others, such as guard-fingers 6, may be of different constructions.

With the guard-finger of the present invention there is a body portion or casing 7, which is rabbeted at its rear upper edge to fit against the finger-bar 5 and bear on the front edge thereof with its upwardly-extending shoulder 8 formed by the rabbet. The rear end of the body portion 7 is secured to the finger-bar 5 by means of a bolt 9, passing therethrough and having its nut beneath located between a pair of downwardly-extending side flanges 10 of the body portion 7, which merge with the rounded central portion 11 thereof and together form a runner or bearing surface to slide upon the ground. The side flanges 10 on either side of the nut of the bolt 9 being lower than the end of the bolt, prevent said bolt engaging the ground. In the top of the body portion 7, just in advance of the finger-bar 5, is a transverse groove 12, through which slides a sickle-bar 13, carrying its cutting-teeth 14 in the usual manner and bearing upon an angular bearing-plate 15, held to the top of the finger-bar 5 by means of the bolts 9 and taking the rear thrust of the sickle-bar. In front of the slot 12 and forming one wall thereof is a transverse upwardly-extending flange 16, in alinement with which extend lateral spacing-arms 17 on either side of the body portion to abut against similar spacing-arms on the adjacent guard-fingers and serve to hold the several guard-fingers in their proper position. In advance of the flange 16 is a pocket or recess 18 with an overhanging upper wall 19, which with the slotted side walls of said pocket forms a guard for the cutting-teeth. With its point contained within said pocket and its cutting edges passing out through said slots, the stationary cutting-tooth 20, having the upper cutting-tooth 14 resting thereupon, is secured to the upper surface of the flange 16 by means of a rivet which passes vertically through said cutting-tooth and the flange 16 to the space between the depending flanges 10 underneath the body portion. The front end of the bearing-surface 11 is drawn to a point and is made comparatively thick, and at the side edges of the body portion 7 are upwardly-extending walls 21 with their edges inclining from the pointed front end of said portion 7 and forming between them the lower section of a casing for containing moving parts to be later described.

Journaled across the lower section of the casing, with its bearings in the parallel side walls 21 thereof, is a small roller 22, and mounted on a suitably-driven hollow shaft 23, above and in the rear of the cutting mechanism, is a sprocket-wheel 24. Traveling around the roller 22 and the sprocket-wheel 24 is an endless conveyer-chain 25, having outwardly-projecting engaging teeth 26 on

the side members of some of its links. Just in advance of the roller 22 the bottom wall of the body portion 7 is indented upwardly to form a rounded cam projection in front of said roller to prevent the vines or grain starting in beneath said roller and causing them to pass in a position to be engaged by the teeth 26 of the conveyer-chain. The shaft 23 is considerably higher than the roller 22 and rotates in a direction to cause the chain to travel, with its upwardly-extending teeth 26, from the roller 22 at quite an incline to the top of the sprocket-wheel 24.

In order that the material being carried by the conveyer-chain 25 cannot fall beneath the upper length of said chain and become entangled in the moving parts, a tapering shell 27, U-shaped in cross-section, with its lower edges passing between the upper edges of the vertical side walls 21, is secured to said vertical walls by means of bolts 28, extending across the casing formed between these parts and through the edges of said side walls and shell, threading into one of the side walls 21. At its ends the shell 27 is slotted to permit of the passing of the roller 22 and the teeth of the sprocket-wheel 24, respectively, and is curved at the side portions to conform as nearly as possible to the shape of these parts. The upper wall of the shell 27 extends in line with the travel of the upper length of the conveyer-chain just beneath the same, so that there is no opportunity for the grain or vines finding their way beneath the chain conveyer and becoming entangled with the sprocket-wheel. Grain or vines being carried up by the conveyer-chain 26 are removed therefrom when cut by the cutter-bar by means of clearing-wheels 29, mounted on the shaft 23 above the guard-finger 6 on either side of the sprocket-wheel 24 and provided with pairs of radial fingers 30, which in their rotation lift the grain and vines from the conveyer-chain 26 and the cutting mechanism and dump them in the rear of the cutter-bar.

In order to remove from the sprocket-wheel 24 and the clearing-wheels 29 any grain or vines which may become caught therein, a series of plates having inclined spring stripping-fingers 31 are provided to bear upon the shaft 23 between the sprocket-wheel 24 and the clearing-wheels 29 and upon the clearing-wheels 29 between the pairs of fingers thereof. The plates, with the spring stripping-fingers 31, are secured to an inclined strip 32, extending parallel with the cutter-bar at the rear thereof and which is supported thereby in any suitable manner, preferably by means of brackets 33 on the guard-fingers 6 at each side of the conveying guard-finger of this invention, as shown.

From the foregoing it will be seen that in operation the guard-finger of this invention bears upon the ground at the front and rear portions without presenting an exposed projection capable of being caught in and held by obstructions or of gathering accumulations to constitute obstructions to the proper operation of the device. The forward end is pointed and slightly raised from the ground, so as to pass beneath the low-lying grain or vines without digging into the dirt, and having passed therebeneath the inclined edges of the side walls 21 raise the said grain or vines until they are engaged by the teeth 26 of the conveyer-chain 25. As this chain moves at such a speed as to carry the grain or vines to the rear faster than the machine moves forward, the grain or vines will be quickly lifted considerably in advance of the cutter-bar, so that by the time the cutter-bar is brought into engagement therewith the heads of the grain or the seed-pods of the vines will be elevated above the plane of said cutter-bar and will not be severed thereby. By this operation grain or vines lying in the direction of travel of the machine will be lifted and cut properly.

The casing for the moving parts of the conveyer, formed by the shell 27 and the side walls 21, whereby only the rearwardly-traveling upper length of the chain is exposed to engagement with the grain or vines, prevents the entanglement of the grain and vines with such moving parts and especially avoids the falling of the grain-heads and the vine seed-pods into the space between the upper and lower lengths of the conveyer-chain, where they would become separated and lost by being cut by the sprocket-wheel and chain in their operation.

The grain and vines are prevented from returning with the chain to the front end of the guard-finger by means of the clearing-wheels 29, which lift them from the conveyer-chain as soon as they are cut and deposit them upon the inclined spring stripping-fingers 31, from which they slide to the ground at the rear of the cutter-bar. The spring-fingers 31, pressing upon the shaft 32 and the clearing-wheels 29, prevent the vines or grain being wound thereon or entangled therewith, and so keep these parts clear of all obstruction.

It is obvious that with guard-fingers of the construction herein shown and described all possibility of the cutter-bar becoming clogged and obstructed is prevented, for the materials as soon as cut are carried over the cutter-bar and discharged therebehind.

It is apparent that by the construction employed with this invention the conveying feature is accomplished without materially altering the proportions of the guard-fingers and without presenting engaging parts for accumulating obstructions to the proper operation of the device. Further, the construction of this invention does not necessitate the alteration of the remainder of the cutter-bar; but, on the other hand, this guard-finger

may be interchangeable with the ordinary forms of guard-fingers, so that they may be substituted therefor or replaced thereby at will.

While the particular details of construction and arrangement of parts as here shown and described are at present preferred for the accomplishment of the objects of this invention, it is obvious that numerous alterations and modifications may be made therein without departing from the spirit and scope of the invention as claimed.

Though the finger-guard is herein described as attached to the finger-bar of the cutting mechanism, it is obvious that should it be found desirable to mount it in any other manner this may be done without materially affecting its operation, and therefore without departing from the invention.

What I claim as my invention is—

1. A guard-finger for cutting mechanism, comprising a guard-finger body portion, a movable conveyer carried thereby, and means for operating the conveyer during the operation of the cutting mechanism.

2. A guard-finger for cutting mechanism, comprising a guard-finger body portion, and a suitably-operated chain conveyer carried by the body portion adapted to operate during the operation of the cutting mechanism.

3. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of said cutting mechanism, and a suitably-operated chain conveyer carried by the body portion and arranged to move at an incline over the cutting-teeth of the cutting mechanism during the operation of said cutting mechanism.

4. A guard-finger for cutting mechanism, comprising a guard-finger body portion, a suitably-operated chain conveyer carried thereby and moving from the front part thereof at an incline to beyond the cutting-teeth of the cutting mechanism during the operation of the cutting mechanism, and means for removing material from the chain conveyer and depositing it in the rear of the cutting mechanism.

5. A guard-finger for cutting mechanism, comprising a guard-finger body portion, a suitably-operated toothed chain conveyer carried thereby, and means for removing material from the chain conveyer comprising clearing-wheels having radially-projecting fingers arranged on either side of the chain conveyer and adapted to discharge the material at the rear of the cutting mechanism.

6. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, a roller journaled near the front of the body portion, a sprocket-wheel suitably mounted and driven above and to the rear of the cutting-teeth of the cutting mechanism, and a chain conveyer passing around said sprocket-wheel and roller.

7. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in front of the cutting-teeth of the cutting mechanism, a roller journaled in the body portion, a suitably-operated shaft located higher than the cutting-teeth of the cutting mechanism, a sprocket-wheel carried by said shaft, a chain conveyer traveling around the roller and the sprocket-wheel, and clearing-wheels mounted on said shaft on each side of the sprocket-wheel and provided with radial fingers for removing material from the chain conveyer and discharging it in the rear of the cutting mechanism.

8. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, a roller carried by the body portion, a suitably-operated shaft located higher than the cutting-teeth of the cutting mechanism, a sprocket-wheel mounted on said shaft, a chain conveyer traveling around the roller and the sprocket-wheel, and means for removing material from the chain conveyer comprising suitably-mounted spring-fingers bearing upon the shaft on either side of the sprocket-wheel.

9. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, a roller carried by the body portion, a suitably-operated shaft located higher than the cutting-teeth of the cutting mechanism, a sprocket-wheel carried by the shaft, a chain conveyer connecting the roller and the sprocket-wheel, clearing-wheels mounted on the shaft on either side of the sprocket-wheel and provided with pairs of radial fingers for removing material from the chain conveyer, and a series of spring stripping-fingers suitably supported and bearing on the shaft between the sprocket-wheel and the clearing-wheels and on the clearing-wheels between the fingers thereof.

10. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, a roller carried by the body portion, a suitably-operated shaft, a sprocket-wheel mounted on the shaft, a chain conveyer passing around the roller and the sprocket-wheel at an incline, clearing-wheels mounted on the shaft on either side of the sprocket-wheel and provided with pairs of radial fingers for removing material from the chain conveyer, a suitably-supported strip, and a series of inclined spring-fingers mounted on said strip and bearing on the shaft between the clearing-

wheels and the sprocket-wheel and on the clearing-wheels between the arms thereof, said inclined spring-fingers adapted to keep the sprocket-wheel and the clearing-wheels free from entanglements and receiving the material from the clearing-wheels and discharging it at the rear of the cutting mechanism.

11. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in front of the cutting-teeth of the cutting mechanism, said body portion having upwardly-extending side walls, a roller journaled between the side walls of the body portion, a suitably-operated sprocket-wheel located above the cutting-teeth of the cutting mechanism, and a chain conveyer passing around the roller and the sprocket-wheel.

12. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, said body portion having upwardly-extending side walls, a roller journaled between the side walls of the body portion, a sprocket-wheel suitably mounted and driven above the cutting-teeth of the cutting mechanism, a chain conveyer traveling around the roller and the sprocket-wheel, and means completing a casing with the upwardly-extending side walls of the body portion to protect the lower part of the chain conveyer from engagement with the material.

13. A guard-finger for cutting mechanism, comprising a guard-finger body portion having upwardly-extending side walls, a roller journaled between the side walls of the body portion, a sprocket-wheel suitably mounted and driven above the cutting-teeth of the cutting mechanism, a conveyer-chain traveling around the roller and the sprocket-wheel, and means for completing a casing with the upwardly-extending side walls of the body portion for protecting the lower part of the chain conveyer from engagement with the material, comprising a shell U-shaped in cross-section and having its edges overlapping the edges of said side walls and connected thereto.

14. A guard-finger for cutting mechanism, comprising a guard-finger body portion, adapted to extend in advance of the cutting-teeth of the cutting mechanism, said body portion having upwardly-extending side walls, a roller journaled between the side walls of the body portion, a sprocket-wheel suitably mounted and driven above the cutting-teeth of the cutting mechanism, a conveyer-chain traveling around the roller and the sprocket-wheel, and means for completing a casing with the upwardly-extending side walls of the body portion for protecting the lower part of the conveyer-chain from engagement with the material, and comprising a shell U-shaped in cross-section and having its edges fitting within the edges of the side walls of the body portion and secured thereto, said shell having its ends curved to conform to the curvature of the roller and the sprocket-wheel.

15. A guard-finger for cutting mechanism, comprising a guard-finger body portion adapted to extend in advance of the cutting-teeth of the cutting mechanism, said body portion having upwardly-extending parallel side walls with inclined top edges, a roller journaled between the side walls of the body portion, a sprocket-wheel suitably mounted and driven above the cutting-teeth of the cutting mechanism, and a chain conveyer traveling around the roller and the sprocket-wheel and adapted to carry the material upwardly and rearwardly into engagement with the cutting-teeth of the cutting mechanism and discharge it in the rear of the cutting mechanism, the bottom of the body portion being indented in advance of the roller to form an inclined guide for leading the material to the chain conveyer.

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

FRANK HAMACHEK.

Witnesses:

V. H. JANDA,

ARNO B. SCHMITZ.