W. H. WRIGHT.

Harvester Guard-Finger.

No. 208,874. **Patented Oct. 8, 1878.**

Fig. 1.

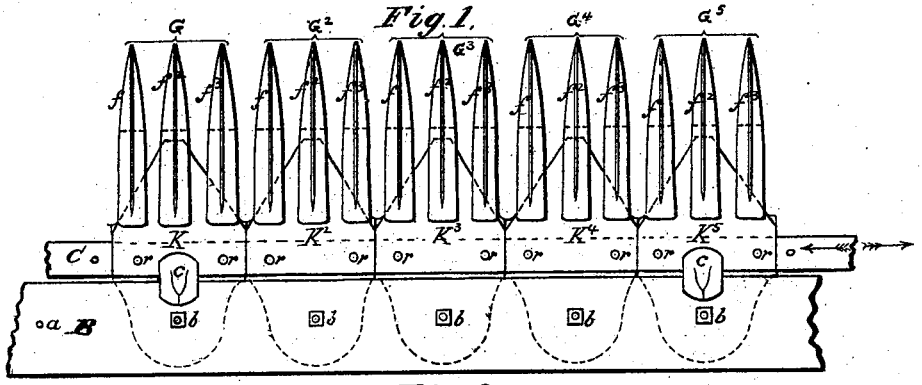


Fig. 2.

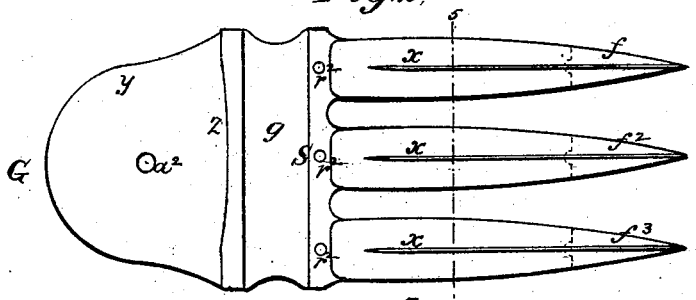


Fig. 3.

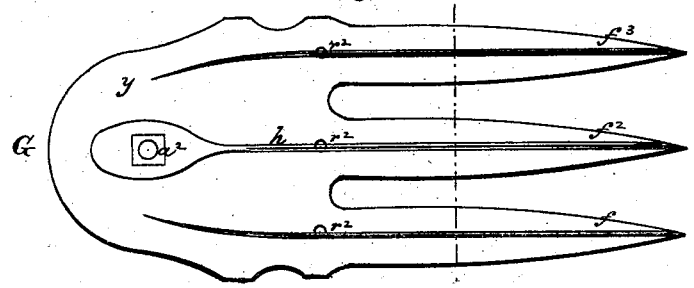


Fig. 4.

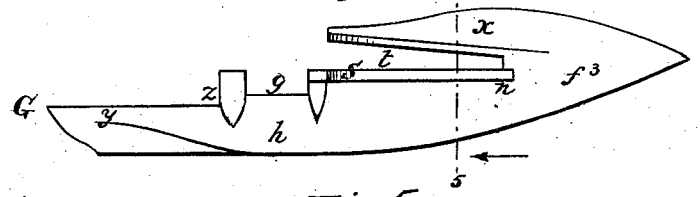
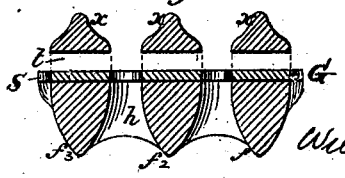


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. WRIGHT, OF NORTH TARRYTOWN, NEW YORK.

IMPROVEM ENTIN HARVESTER GUARD-FINGERS.

Specification forming part of Letters Patent No. **208,874**, dated October 8, 1878; application filed October 11, 1877.

To all whom it may concern:

Be it known that I, WILLIAM HAMILTON WRIGHT, of the village of North Tarrytown and county of Westchester, in the State of New York, have invented a new and useful Improvement in Harvester-Guards, of which the following is a specification:

This invention relates to the knife-guards or fingers of ordinary reapers and mowers; and consists, primarily, in constructing guard-sections for such harvesters with two or more fingers for each knife-section, so as to multiply the interspaces and cutting-edges, and thus facilitate and improve the cutting operation, and also to increase the protecting efficiency of the guards, the fingers for each knife-section being cast together in one guard, so that they may be attached as rapidly and by the same means as the ordinary guards, and more particularly to facilitate their substitution for ordinary guards now in use, and to prevent the new guards from staggering.

The said invention consists, further, in forming a continuous steel surface beneath the blades of the knife-sections in peculiar manner by means of the sole-plates of the improved guards, the same being secured in each guard in the ordinary way, but constructed with solid heels common to all the finger portions of each plate and coextensive with the upper surfaces of the guard-heels beneath the blades.

Figure 1 of the accompanying drawing is a plan view of central portions of the finger-bar and cutter-bar of a harvester, with their knife-sections and guards, illustrating this invention. Fig. 2 is a top view, Fig. 3 a bottom view, Fig. 4 a side elevation, and Fig. 5 a vertical transverse section, of one of the guards on a larger scale, the plane of said section being indicated by the line 5 5, Figs. 2, 3, 4.

Like letters of reference indicate corresponding parts in the several figures.

B C, Fig. 1, represent, respectively, the finger-bar and the cutter-bar of an ordinary reaper or mower, and K K^2 K^3 K^4 K^5 ordinary triangular knife-sections, attached by rivets *r* to the cutter-bar, and forming therewith a reciprocating knife.

I provide the finger-bar B with a series of guards, G G^2 G^3 G^4 G^5, having two or more fingers, *f* f^2 f^3, for each knife-section. The preferred number of fingers per guard is three, as shown, one finger, f^2, being located at the center line of each knife-section and flanked by two similar fingers, *f* f^3. All the fingers are, in preference, uniform, equidistant, and parallel to the line of travel, being the same as common fingers in these respects. The fingers of each guard are united by a single heel, *h*, which determines the width of the interspaces, having a shoulder of one-half this width at each lateral extremity, so that the heels of the successive guards may abut against each other, and in so doing form interspaces of proper width between the respective guards. A broad shoulder, *z*, is at the same time afforded to rest against the bar, and this is, by preference, made concave, as shown, so that its extremities alone are in contact. Projecting rearward from this shoulder is a horizontal extension, *y*, having a central bolt-hole, a^2, to correspond with one of the ordinary bolt-holes *a* in the finger-bar, so that the new guards may be attached by the ordinary number of bolts *b*. The upper surface of the heel has the ordinary groove *g*, to receive the cutter-bar C, which is held therein by clips *c* on the finger-bar, and the ordinary slot *t*, Figs. 4 and 5, accommodates the blades of the knife-sections.

One steel sole-plate, S, is provided to form the cutting-edges of all the fingers of each guard, the same being held by notches *n* at the extremity of the slot in each finger and by a rivet, r^2, at the base of each finger, in the ordinary way, as clearly shown in Figs. 2 and 4. The series of sole-plates abutting against each other, like the guards, form a continuous steel surface beneath the blades of the knife-sections, displacing the ordinary interspaces of rough iron. If desired, however, for any reason, each finger may have its own sole-plate, and this may be of the common form, or the guards may be adapted to operate without sole-plates.

The overhanging portion of each finger above the slot *t*, I provide with a vertical guard flange or rib, *x*, which is curved or tapering toward each end. The bottom of each guard is shaped with reference to riding over obstructions with the greatest ease.

The proportions represented in the drawing are reliable for practical use, having been

tested in the field, but they may be modified in unessential particulars. The total capacity of the interdigital spaces will be made equal to or slightly greater than that of the same extent of ordinary fingers.

The advantages of the improved guard-section above described over the ordinary single guard-finger per knife-section now in use include the following: First, the multiplied fingers and interspaces provide a correspondingly-multiplied number of cutting-edges, or length of cut per knife-section, and the required frequency of sharpening and the wear of sole-plates are correspondingly reduced; second, the reduced size of the individual bunches of grass or grain collected in the respective interspaces facilitates cutting the same, a given quantity being cut in two or more instalments instead of at one operation; third, the multiplied number of the interspaces also renders the cutting operation practically continuous, and consequently without jar; fourth, no bending of the stalks is necessary to bring them against cutting-surfaces, and the common loss by shaking or shelling out grain is thus prevented; fifth, a more even swath and smoother stubble are left by the machine; sixth, the proximity of the fingers causes them to effectually exclude stones, roots, stubs, and other obstructions of any considerable size, and such as enter the interspaces are too light to have any serious wedging effect; seventh, each knife-section is at all times firmly supported above and beneath, so that it cannot be sprung out of a guard.

The single broad heel, with its central bolt-hole, affords a steady support against staggering and provides for attaching the multiplied fingers as rapidly as single guards, and by the same means, or for the substitution of one for the other in existing machines. The combination-guard may also be manufactured very nearly as cheaply as the old single guard, while it possesses the highly-important advantages above set forth.

The continuous sole-plate materially reduces the friction of the knife. The guard flanges or ribs x increase the durability of the respective fingers and form efficient grass-openers. They also facilitate casting the guard.

I am aware that guard-fingers have been re-enforced by flanges and enlargements, and that a connected series of sole-plates has been patented as a removable secondary cutter for use in connection with single guards; also, that the mere multiplication of single guards is not new, and that the casting of two or more guard-fingers in one piece is also old.

The following is what I claim as new and of my own invention, and desire to secure by Letters Patent, namely:

1. A guard-section for ordinary reapers and mowers having two or more fingers in place of a single finger and a broad heel common to all said fingers, with a horizontal flange projecting rearwardly at bottom and a central bolt-hole in said flange, said fingers being adapted to match with one knife-section of an ordinary cutter-bar, and said bolt-hole to match with one of the bolt-holes of an ordinary finger-bar, as herein specified, for the purposes set forth.

2. A guard-section having two or more fingers for one knife-section, a single broad heel common to all said fingers, and an attached sole-plate constructed with cutting-sections for the respective fingers, and with a single heel portion common to all said cutting-sections, substantially as herein specified, for the purpose of forming a continuous steel surface beneath the blades of the knife-sections of a harvester, in the manner set forth.

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