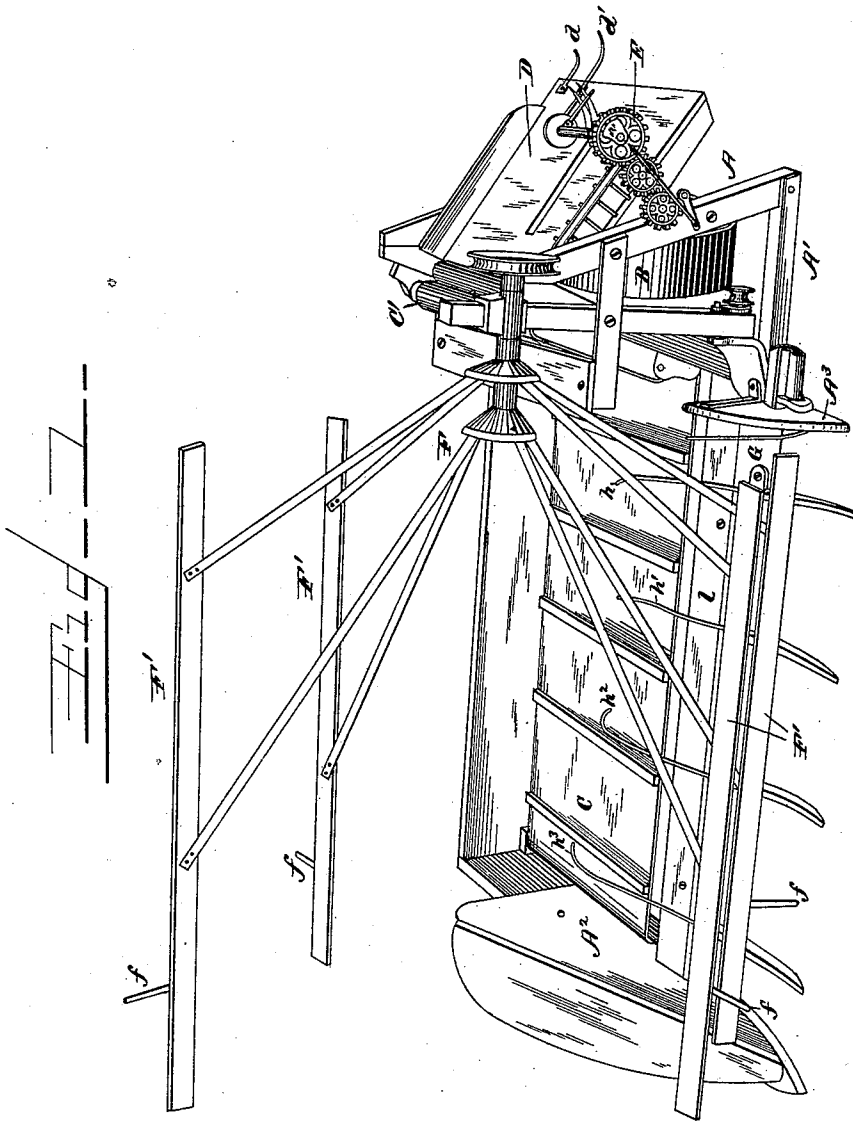


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COMBINED GLEANER, BINDER, AND SWATHING MACHINE.

No. 426,952.

Patented Apr. 29, 1890.



Witnesses:  
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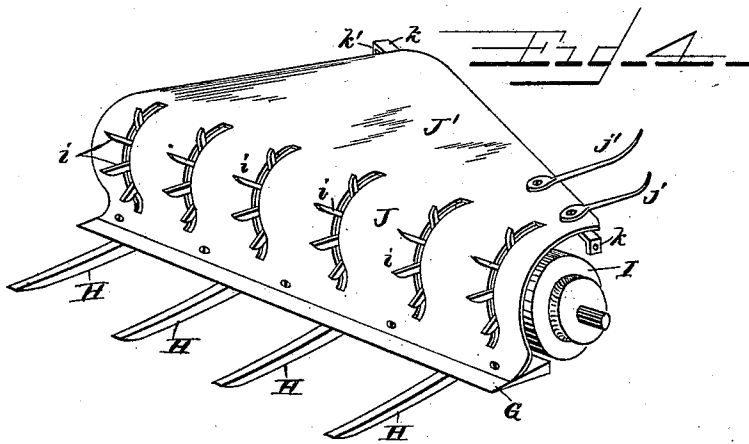
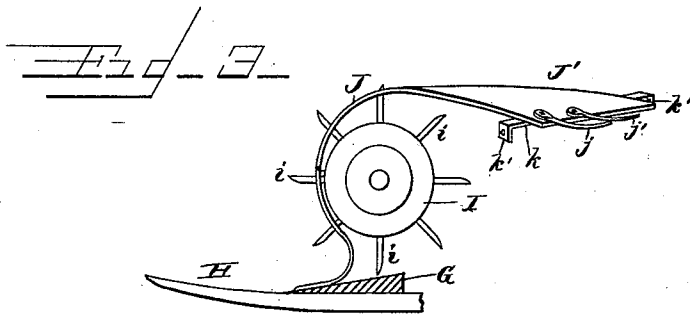
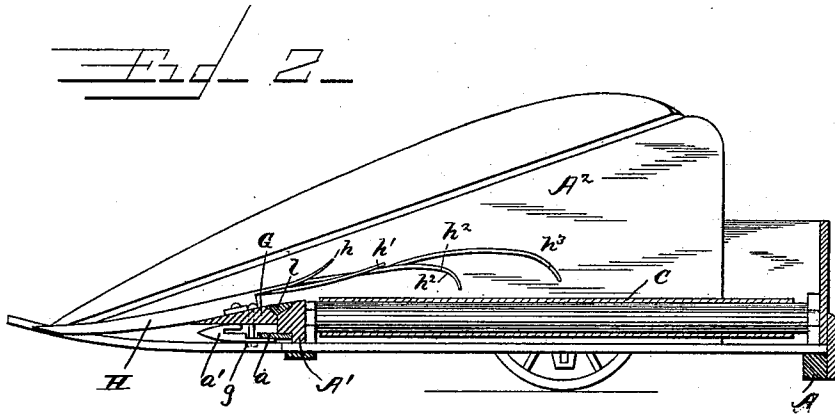
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# UNITED STATES PATENT OFFICE.

CHARLES N. OWEN, OF MECHANICSBURG, PENNSYLVANIA.

## COMBINED GLEANER, BINDER, AND SWATHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 426,952, dated April 29, 1890.

Application filed February 14, 1890. Serial No. 340,443. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES N. OWEN, a citizen of the United States, and a resident of Mechanicsburg, county of Cumberland, and State of Pennsylvania, have invented a new and useful Improvement in Combined Gleaner, Binder, and Swathing-Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to that class of harvesting-machines employing a platform-carrier adapted to move the grain laterally to the inner side thereof, and preferably, also, an elevating-carrier for taking the grain from the inner end of the platform-carrier, carry it up and delivering it to the binder mechanism on the outer or stubble side of the wheel; but it will be apparent that it may be used in a machine in which a down-binder is employed in connection with a platform-carrier for conveying the grain thereto.

It consists in the combination, with a laterally-moving platform-carrier, of a gleaner attachment for taking the grain up from the ground or stubble on which it has been deposited in cutting and delivering it to the carrier and fingers operating in connection with the carrier to turn the grain or straw from the position in which it is received by the gleaner to one substantially at right angles thereto and to the path of the platform-carrier.

It further consists in the combination of a gleaner, a laterally-moving platform-carrier, and a binder mechanism, and in certain features of construction and arrangement of parts, whereby the machine is adapted to be used as an ordinary grain-binding harvester, or for laying the grain in a swath on the ground, and afterward, with the gleaner attachment applied, for picking up the grain thus laid in a swath, delivering it to the platform-carrier and thence to the binder, as hereinafter described and claimed.

It is frequently found necessary, for the preservation of a crop, to cut it at a time when it is not in condition to be bound into bundles and housed, and for the proper curing or drying of the grain at such times it is

desirable that it should be laid in a swath and evenly spread on the ground after cutting it; and to do this was the object of the swathing device for which Letters Patent were granted to me May 22, 1888, No. 383,317. The same object had been attained to a certain extent by other means, such as the revolving or sweep rake, and for taking up and binding the grain thus deposited after it had become properly cured has been the subject-matter of a number of patents under the head or class known as "gleaners and binders;" but ordinarily these have been of a type of machine separate and distinct from those by which the cutting of the grain was effected, and necessitated the purchase by the farmer of an independent machine to do the work. In none of these, so far as I am advised, has the grain been delivered by the gleaner to a laterally-moving platform-carrier, and after being turned to a position at right angles, or thereabout, to the position in which it was received, carried to a binder at one side thereof and bound.

In carrying out my invention I prefer to make use of a grain-binding harvester of any usual or well-known construction employing a laterally-moving platform-carrier, that shown in the drawings being of the "elevator type," in which the grain is carried over the driving-wheel and bound upon the inclined deck or table on the stubble side of said wheel, any suitable binding mechanism being employed for binding it, after which it is discharged, either on the ground or into a suitable receptacle or bundle-carrier.

To enable others to understand the invention, it will be described with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a grain-binding harvester with my improvements applied. Fig. 2 represents a longitudinal section through the platform-frame and gleaner attachment, taken adjacent to the inner side of the inner platform-carrier roller and looking toward the grain-wheel. Fig. 3 is a section similar to Fig. 2, so far as the gleaner is concerned, showing, however, a modification in the form of the latter, and Fig. 4 is a perspective view of the gleaner attachment shown in Fig. 3.

The machine proper represented in the drawings is of well-known construction, and need not therefore be described in detail.

A A' indicate parts of the frame of the machine; B, the drive-wheel; C, the platform-carrier; C', the elevator for taking the grain up over the drive-wheel; D, the binder deck or table, and E the binder mechanism, all of which parts may be of any usual or preferred form or construction.

A' in Fig. 2 indicates the front sill of the platform-frame, and to this the usual cutting apparatus is attached in any usual manner, *a* indicating the finger-bar, and *a'* the guard-fingers thereof, the machine represented being designed to be a grain-binding harvester of usual construction, complete in all details, F indicating the reel for bringing the grain in properly to the cutting apparatus.

To the machine thus organized and complete a gleaner attachment is applied, the construction of which may be as follows: G indicates a bar, made preferably of wedge shape in cross-section; as shown in Figs. 2 and 3, of a length to fill in the space between the outer and inner shoes or divider-boards A<sup>2</sup> and A<sup>3</sup> and arranged to overlie and cover the cutting apparatus and rigidly secured thereto by bolts *g*, passing down through said bar and the finger-bar or between the guard-fingers thereof. It may also be secured at its ends to the divider-boards, if desired. To the upper forwardly-inclined face of this bar are rigidly secured a series of fingers H, which project in front of the bar G any required distance, and are made in runner form or curved slightly upward and pointed at their forward ends, adapting them to readily penetrate the stubble and run under the grain lying thereon and on the surface of the ground without rendering them liable to run into the latter. These fingers are shown provided with rear projections in the form of attenuated, curved, and flexible extensions overlying the forward edge of the platform-carrier. The first or inner one *h* of these fingers extends but a short distance over the carrier-apron, and has its rear end bent upward to catch and hold the straw at that side or end. The second *h'* extends a little farther over the canvas and is less bent up at its end. The outer ones *h*<sup>2</sup> and *h*<sup>3</sup> are extended each still farther over the canvas, and instead of being bent up are inclined or curved downward at their ends to permit the grain to slide easily off on the carrier. The reel-beaters F' are shown provided each near its outer end with a finger *f* of sufficient length to cause it to engage the straw on the fingers *h* at the outer ends thereof, and to assist in moving the grain at said end up and over the outer fingers *h*<sup>2</sup> and *h*<sup>3</sup> and onto the carrier-apron, which, acting on said ends of the straw while the inner ends are still held by the inner upturned fingers *h* *h'*, carries said outer ends inward until they overtake the inner ends, thus bringing the straw cross-wise of the carrier and at right angles, or there-

about, to the path thereof, in which shape it is delivered to the elevator and carried thereby to the binder-table to be bound and discharged in the usual manner.

The fingers *h* *h'*, &c., may be made separate from the gleaner-fingers H and separately secured to the bar G, and the number may be increased or diminished, and being made of malleable metal, they can be bent more or less as the length of the straw or other conditions may suggest or require. But a single finger *f* is shown at the outer end of each reel-beater, and ordinarily that will be sufficient for the purpose of assisting in carrying up and delivering the straw to the carrier, as explained. Others may, however, be added, if required.

In the construction shown in Figs. 3 and 4 the reel F, working from above, is dispensed with, and in lieu thereof a picker reel or cylinder I is employed, arranged underneath a curved and slotted drum or apron J, made, preferably, of sheet metal and secured at its lower forwardly-bent edge to the bar G. The apron extends up in close proximity with the forward face of the cylinder I, and thence over and back of the cylinder, diverging therefrom above and back of the cylinder sufficiently to strip teeth *i* of the cylinder of the straw or grain carried thereby. The upper horizontal portion J of this apron is made wider at the outer than at the inner end to carry the grain farther over on the platform-carrier at that end, and the inner narrow end is provided with short rearwardly-projecting fingers *j* *j'*, corresponding to the fingers *h* and *h'*, above described, and for the same purpose—viz., of holding the grain at said end while the outer ends are being swung by the movement of the carrier on which they rest around into the longitudinal plane of said fingers. The outer end of the apron J' may incline slightly to the rear, if desired, to facilitate the movement and discharge of the straw at that end.

The oblique rear edge of the apron J' is shown supported on a bar *k*, having perforated feet *k'* at its ends, through which it may be attached to the divider-boards. The shaft of the picker reel or cylinder I may be journaled in bearings on the divider-boards or in suitable uprights on the frame, and may be rotated in an opposite direction to that given to the reel F by a crossed belt from the shaft that actuates the reel F, the latter being removed when the picker-reel is used, or it may be geared to and driven from the main drive-wheel in any suitable manner. The gleaner-fingers H, in this construction, are shown attached to the lower face of the bar G, and it will be apparent that they may be attached to either side of and made removable with said bar.

The operation will be understood without further description. For ordinary work the grain-binding harvester is used. If the grain is too wet or green to be bound, the binder can be detached or thrown out of action, with the binder-arm, packers, &c, depressed below

the binder deck or table D, and the latter may be provided with projecting fingers *d d'* at or near its rear end, as shown, similar to *h* and *h'*, above described, or an equivalent swathing device which will catch and hold the heads of the grain while the butts slide rapidly off and are thrown outward from the inclined deck D and caught and held by the ground while the heads are carried forward into the transverse plane of the butts, when they also drop off the fingers, leaving the grain in a continuous swath on the ground. When the grain is sufficiently cured, the fingers *d d'* can be removed, though this is not necessary, the binder thrown into gear, and the gleaner attachment applied, and the machine is in readiness to gather up the swath and bind the grain into bundles. When the gleaner is applied, the harvester-knife bar or pitman may be either removed or disconnected from its actuating-crank and the unnecessary waste of power required for driving it obviated.

While I have described the machine proper as an ordinary grain-binding harvester with its usual cutting apparatus applied, it will be obvious that when desired the cutting apparatus may be omitted, leaving the machine complete in other respects, and consequently a separate machine from that which cuts the grain, but this involves unnecessary expense to the farmer, and I therefore prefer to make my improvements in the form of an attachment, as described.

In Fig. 2 the platform-frame bar *A'* is shown beveled on its upper face to facilitate the movement of the cut grain over it, in ordinary use as a reaper. Where this construction is found, the depression thus formed may be filled in, when the gleaner is applied, by a V-shaped piece *l*, which gives a plane surface for the passage over it of any matter that might otherwise accumulate on the points of the guards and obstruct the proper working of the parts.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grain-binding harvester, the combination, with a platform-carrier having a side-delivery movement, of a gleaner attachment and interposed fingers for assisting in turning the grain on said carrier, substantially as described.

2. The combination, in a grain-binding harvester, of the gleaner, the laterally-moving platform-carrier receiving the grain from said gleaner, and interposed flexible fingers for holding and assisting the carrier in turning the grain, substantially as described.

3. The combination, with a harvesting-machine having a side-delivery platform-carrier

and a binder mechanism, of a gleaner attachment for picking up the cut grain, and fingers to assist in turning the grain to a position on the carrier substantially at right angles to that in which it is taken up by the gleaner, substantially as described.

4. A gleaner attachment for reapers adapted to project over the platform-carrier at its outer end and having fingers at its inner end to retard the straw and assist in turning it from the position in which it is received by the gleaner to one at right angles to the path of the platform-carrier, substantially as described.

5. The combination, in a harvesting-machine, of the side-delivery platform-carrier, the gleaner attachment, and a reel provided at its outer end with fingers to assist in delivering the grain at said end to the platform-carrier, substantially as described.

6. The combination, in a grain-binding harvester, of a side-delivery platform-carrier, a gleaner attachment in front thereof, intermediate fingers to assist in turning the grain on said carrier, and a reel to assist in moving the grain rearward onto said fingers and carrier, substantially as described.

7. The combination, in a grain-binding harvester, of a side-delivery platform-carrier, a gleaner attachment in front of said carrier, interposed fingers for turning the grain, and a binder attachment at the delivery end of said carrier, all substantially as described.

8. The combination, with a grain-binding harvester, of a removable gleaner attachment, a side-delivery platform-carrier, binder mechanism at the inner end of said carrier, an inclined binder-table, and a swathing device connected with said table, whereby the machine is adapted to be used as a swather, as an ordinary grain-binding harvester, or as a gleaner and binder, substantially as described.

9. The combination, with a grain-binding harvester, of a side-delivery platform-carrier, a removable gleaner attachment, an elevator-carrier, a binder mechanism and table receiving the grain from said elevator, and swathing-fingers detachably connected with said table, whereby the machine is adapted to lay the grain in a swath when required, and also to glean and bind the same, substantially as described.

In testimony whereof I have hereunto set my hand this 12th day of February, A. D. 1890.

CHARLES N. OWEN.

Witnesses:

J. B. STAUFFER,  
GEORGE W. OWEN.