(No Model.)

J. F. STEWARD.

SHEAF CARRIER FOR SELF BINDING HARVESTERS.

No. 490,591. Patented Jan. 24, 1893.

Fig. 1.

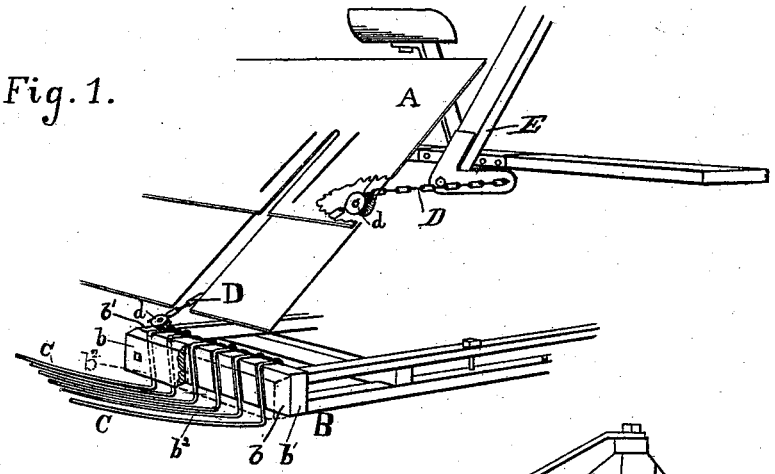


Fig. 2.

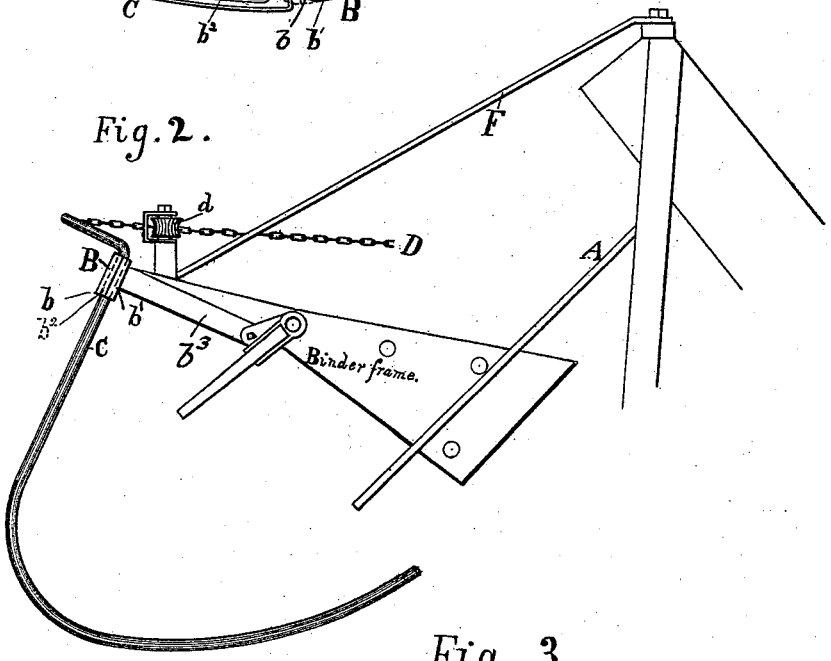
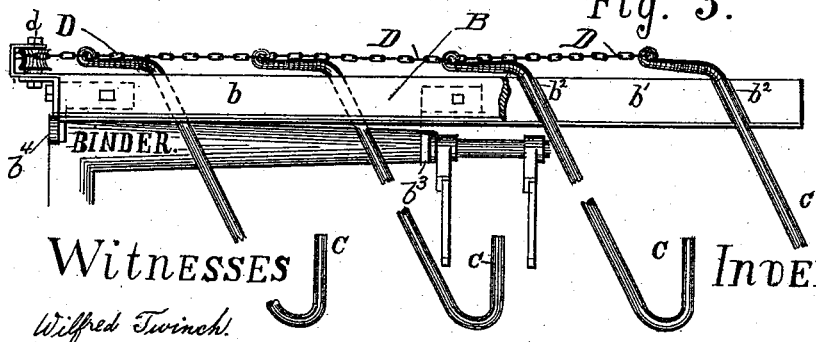


Fig. 3.



Witnesses

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SHEAF-CARRIER FOR SELF-BINDING HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 490,591, dated January 24, 1893.

Application filed March 24, 1886. Serial No. 196,409. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. STEWARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheaf-Carriers for Grain Harvesting and Binding Machines, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, forming a part hereof.

The aim of my invention is to provide a light and simple attachment for receiving the sheaves as they fall successively from the binder and dumping them at intervals, a number at one point.

My invention consists in jointing a series of rods to a supporting bar by means of joints placed diagonally across said bar, or the equivalent thereof; the said bar or equivalent being substantially horizontal; whereby the tendency of the weight of the load is to swing the fingers in the direction of the discharge when set free.

It also consists in the combination of these fingers with connecting devices, and other minor parts as hereinafter more fully explained.

I am aware that independent or disconnected sheaf-receiving fingers have been pivoted to swing rearward with an upward action in order to pass obstructions; and I am aware that horizontal parallel rock-shafts have been provided with sheaf-receiving fingers extending obliquely therefrom so that they could be rotated in vertical planes from an upturned position, to a position in which they extend downward and rearward, the arrangement being such, however, that they did not close together, and that their ends could not swing laterally with respect to the line of travel to and from the harvester.

In the accompanying drawings,—Figure 1 is a perspective view of a portion of a harvesting and binding machine with my carrier applied thereto in its most approved form. Figs. 2 and 3 are respectively a front elevation and an elevation from the stubble side showing my carrier in modified form.

Various parts are broken away in the several figures, and other customary parts foreign to the invention omitted in order that the essential features may the more clearly appear.

Referring to the drawings,—A represents the binder-deck or table of an ordinary Appleby-binder located in an inclined position at the outer end of a harvesting machine. The sheaves are bound upon this table and delivered from its lower outer edge.

As the table and the binder may be constructed and adapted to operate in every particular in the customary manner it is deemed unnecessary to describe them more in detail.

In the form shown in Fig. 1 B is a support for my sheaf-carrying fingers consisting essentially of a bar or timber suitably secured to the harvester-frame in a fore and aft direction below the outer or delivery edge of the binding table. The support is formed of two flat bars b and b' united as one, with grooves b^2 cut into their contiguous surfaces. These grooves viewed from the front of the machine are in substantially vertical position, but viewed from the stubble side they have a forward inclination toward their lower ends, the lower ends being about two inches farther forward than the upper ends. The grooves are substantially parallel and serve as journal bearings for the wrists or journals on the inner ends of the sheaf-carrying fingers C. These fingers are formed preferably of half inch round spring steel, and are adapted to reach outward from beyond the table a suitable distance to receive and retain the sheaves. They are somewhat higher at the outer than the inner ends in order that the sheaves may not roll from them at improper times. At the inner or supported end each finger is bent upward to form a journal or pivot which is passed through one of the grooves b^2, the upper end of the journal being bent horizontally inward, that is to say, in the opposite direction from the finger for a distance of six inches more or less to form a crank-arm through which to control the position of the finger. The series of arms or cranks are connected by a chain, D, which passes thence rearward around guiding sheaves d d on the frame to a lever, E, mounted on the harvester within convenient reach of the driver. When the lever is thrown forward it acts through the chain and crank-arms to hold the teeth in a laterally-extended

or receiving position, as shown in Fig. 1. The parts stand in such relation that when the lever is thrown fully forward the stress of the chain will be so nearly in line with the axis of the lever as to produce a locking of the parts. Owing to the inclination of the journals or axes of the fingers from the perpendicular they tend by reason of their weight, and of the weight of the grain upon them, to gravitate to the rear when released; owing to this inclination the release of the lever and chain is followed by a swinging motion of the fingers rearward and downward around their individual axes, each finger sweeping through an inclined or oblique path, its outer end falling, and moving to the rear, and also swinging laterally toward the machine, and toward the tooth next in rear thereof, so that the entire series of teeth fold compactly together at the side of the machine.

In the modified form of the device shown in Figs. 2 and 3, the toothed support B is located at a considerable distance beyond the binder-frame, being sustained therefrom by suitable outreaching bars b^3 b^4. It is also sustained in part by a rod or brace, F, extended to the top of the usual elevator-frame of the harvester as shown. The carrying fingers are essentially the same as in the first form of apparatus but stand in a reversed position, that is to say, with their journals at the outer instead of at their inner ends. Their journals are inclined forward toward their upper ends and mounted in the support in the same manner as the journals in Fig. 1, and they are provided with crank-arms and connected through a chain with each other and with the operating lever on the machine in like manner. Their ends project inward beneath the binder table in suitable position to receive the falling sheaves. When released they swing rearward downward and outward from the machine around their individual axes and in oblique paths. They swing laterally toward each other and close together in the same manner as the teeth of Fig. 1. In this form of the carrier the sustaining-bar B, and the axis of the fingers incline upward toward the harvester, but this inclination is immaterial since the fore and aft inclination is such as to allow the falling of the ends of the fingers as they swing to the rear.

It is to be observed that in each form of my apparatus the teeth are adapted to close together with a lateral swinging movement, that is to say, with a movement around substantially upright axes so that their ends sweep rearward in lines transverse to the path of the machine.

The form of carrier shown in Fig. 1 is deemed preferable because the teeth by their falling action reduce the width of the machine so that they may readily pass obstructions, trail sidewise from under the bundles, and permit the machine to pass through narrow openings.

Having thus described my invention, what I claim is,—

1. In combination with a self-binding harvester and secured to the frame thereof, a finger-supporting bar substantially parallel with the line of advance of the machine, having holes which form journal bearings bored therethrough, said holes leaning so as to be farther rearward at the upper edge of the bar than at the lower edge, sheaf-supporting fingers placed parallel with each other and thus forming a sheaf-receiver and having axes formed by bending the said rods so as to pass through said diagonal bearings bored through the supporting bar, substantially as described, by which arrangement of axes the weight of the load of sheaves is made to be instrumental in turning the fingers on their axes and force an initial movement as well as continue the movement from under the load.

2. In a sheaf-carrier, a supporting bar sustained from the harvesting machine and substantially parallel with the line of advance of the said machine, and having bearings for the sheaf-supporting fingers formed in the said bar, diagonal thereacross, so that the lower end of said bearing is farther forward than the upper end, a series of fingers pivoted therein and sustained in position or released by suitable mechanism, at will, substantially as described, by means of which rearwardly leaning axes the weight of the sheaves is instrumental in forcing the said fingers to have an initial movement on their axes in the direction of discharge.

3. In a sheaf-carrier of the kind in which the fingers of a series are secured to a supporting bar that is sustained from the main frame of the machine substantially parallel with the line of advance of the said machine and a series of fingers adapted to be supported with their free ends projecting substantially transverse to the line of advance of the machine to receive the load and then move rearward and downward to a position near the side of the machine and thus swing and draw from beneath the load, a finger-supporting bar having journal bearings parallel with each other but leaning so as to be farther to the rear at their upper ends than at their lower ends, the finger-axes extending through said bearings, substantially as described, by which rearwardly leaning arrangement of the said axes the weight of the load of accumulated sheaves becomes the means for giving the sheaf-receiving fingers their initial swinging movement in the direction of discharge by forcing them to turn on their axes.

4. In a sheaf-carrier of the kind having a series of fingers projecting transverse to the line of advance of the machine and there sustained while receiving the load, and which fingers, in dumping, are permitted to move to the rear and draw from beneath the load, a finger-supporting bar having journal bearings adapted to receive the axes of the sheaf-re-

ceiving fingers and sustain the latter so that at their upper ends they shall lean so as to be farther to the rear than at their lower ends, by which leaning arrangement of the axes the weight of the load of sheaves is made instrumental in giving the fingers their initial movement in the direction of the discharge, substantially as described.

5. In a sheaf-carrier of the kind in which sheaf-supporting fingers project transversely to the line of advance of the machine to receive the sheaves, a series of fingers journaled to a supporting bar upon axes that are farther to the rear at their upper ends than at their lower ends, whereby the weight of the load of sheaves becomes an impelling means for causing the initial movement of the sheaf-receiving fingers to pass them from their receiving position to their discharging position, in combination with a lever under the control of the driver and suitable connecting mechanism whereby the lever resists the tendency of the weight of the bundles to move the fingers in the direction of discharge, until set free by the attendant, substantially as described.

6. In a sheaf-carrier, a supporting bar sustained from the harvesting machine to which the said carrier is attached, said bar substantially parallel with the line of advance of the machine, said support having journal bearings adapted to sustain the axes of sheaf-receiving fingers in such a manner that the said axes shall lean rearwardly, sheaf-supporting fingers formed of rods having axes bent in them, said axes extending downwardly and forwardly through the said journal bearings, and the rods extending thence outwardly in a substantially horizontal direction and curved upwardly at their outer ends to prevent the sheaves from rolling off when the said fingers are in the receiving position, by which diagonal arrangement of the axes the weight of the load becomes the means for giving the said fingers their initial movement as well as final movement in the direction of discharge, combined with means under the control of the attendant for returning the fingers to the receiving position and holding them there until he desires the load to fall, substantially as described.

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Witnesses:
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