

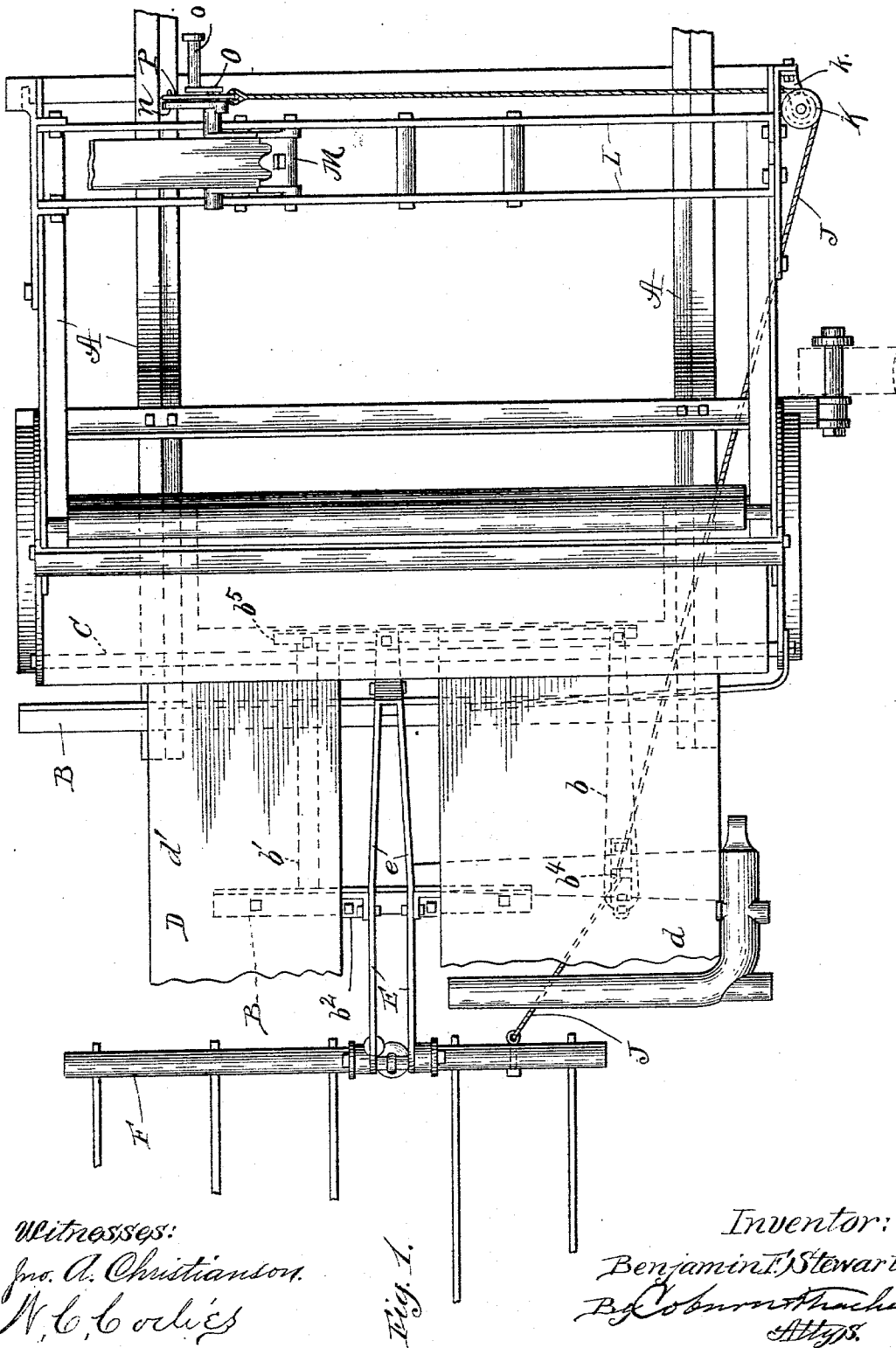
(No Model.)

2 Sheets—Sheet 1.

B. F. STEWART.
BUNDLE CARRIER FOR HARVESTERS.

No. 571,807.

Patented Nov. 24, 1896.



UNITED STATES PATENT OFFICE.

BENJAMIN F. STEWART, OF WEST PULLMAN, ILLINOIS.

BUNDLE-CARRIER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 571,807, dated November 24, 1896.

Application filed July 20, 1895. Serial No. 556,574. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. STEWART, a citizen of the United States, residing at West Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bundle-Carriers for Harvesters, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a detail plan of the main frame and, as here shown, the outer or stubble ends of the platform-sills, the elevator-frame, binder-incline, and bundle-carrier; Fig. 2, a detail elevation of the locking-lever and foot tripping device therefor by means of which the bundle-carrier is fixed in receiving position and released for discharge of bundles; Fig. 3, a detail rear elevation of Fig. 2; Fig. 4, a detail front elevation showing the lower portion of the binder-incline, the head of the bundle-carrier, and the devices by means of which it is connected to and supported by the binder-frame; Fig. 5, a detail cross-section taken on the line 5 5 of Fig. 4 and showing a part of the lower portion of the binder-frame and a part of the upper portion thereof, both in cross-section on the same line; Fig. 6, a side elevation of the seat-bracket provided with a bearing for the locking device of the bundle-carrier and detached from the machine, and Fig. 7 a plan view of the same. In the drawings, Fig. 1 is upon a scale by itself. All the remaining figures are upon one scale, but enlarged from that of Fig. 1.

The present invention relates to an improvement on the structure shown and described in my prior Letters Patent, No. 471,737, dated March 29, 1892. The bundle-carrier itself is practically the same as in the said prior patent, and the joint by which it is connected to its support is also practically the same.

The main features of the present invention are the support for carrying the bundle-carrier and the mechanism or devices for temporarily holding the bundle-carrier in position to receive the bundles as they are dropped from the binder and to release the carrier for the discharge of the bundles accumulated thereon. There are also some minor details

in devices which, however, will appear in the description and need not be designated here.

The entire machine is not shown in the drawings, but only so much as is necessary to an understanding of the construction and operation of the present improvements, and these parts do not require a specific description, as in their special features they do not constitute a part of the present invention and will be referred to only briefly.

The main parts of the machine as an entirety are not shown in the drawings, as they have no particular bearing upon the present invention.

In the drawings, A represents a main or wheel frame, the particular construction of which is of no special importance here, and B the binder-frame, which also is of ordinary general construction and mounted on bearings outside of the main wheel, on which preferably it is free to slide transversely of the main frame. The binder-frame B is mounted and supported by cross straps or arms *b* at the front and *b'* at the rear, which are loosely connected at their upper ends to the usual tubular rod C, running across the main frame and connecting the upper portion of the up-rights thereof just outside of the wheel. The lower ends of said cross straps or arms *b b'* are connected to the outer or lower main supporting-bar *b²* of the binder-frame, and at their upper ends to the upper cross-bar *b³* of the binder-frame. The incline or deck D of the binder is mounted upon these two bars or beams of the binder-frame and is in two sections *d d'*, the former at the front of the binder-frame and the latter at the rear thereof, a wide open space being left between the inner edges of the said incline-sections. A two-part or sectional support E is mounted in this open space between the sections of the deck. This device is composed of two separate bars *e*, which at their upper ends are secured to a kind of bracket *e'*, mounted on the upper cross-bar of the binder-frame, the same as the end cross straps or arms of the said frame. The two members of this forked support pass downward and outward in the open space between the deck-sections and over the lower bar or beam of the binder-frame, as seen in Fig. 5, and as the sections of the deck pass

down directly over the same piece the two arms of the said forked support will rise above the adjacent sections of the deck at the point of crossing, as seen in Fig. 5, and, running backward and upward from this point, will gradually pass more and more down into the space between the said fork-arms until some distance from their upper connection they will pass entirely underneath the plane of the incline, as indicated in the upper section of Fig. 5. At their lower support the two members of this forked arm are fastened to the lower or main bar or beam of the binder-frame by means of angular brackets b^3 , secured, respectively, to the said beam and the outside of the said sections of the forked arm, as seen in Figs. 1 and 4. With this relative construction and arrangement the central portion of the gavel while being formed will be supported above the level of the deck and the discharge of the bound bundle thus facilitated.

From the position of the two-part supporting-arm E it will readily be understood by any one conversant with the construction of self-binding harvesters that the space between the two arms $e e$ above their attachment to the binder-frame B is adapted to form a working-place for the needle of the binding apparatus where it projects up above the binding-deck; that the space between the bars $e e$ below their attachment to the binder-frame B is similarly adapted for the compressor-arm, and, finally, that the spaces between the deck D and the two-part support E are adapted to afford room for the operation of the packers which are mounted on the cranks I, hereinafter described. This binding mechanism, however, as well as the binder-frame and the end supports by which it is mounted on the main frame, does not constitute any essential part of the present improvement, but makes a part of the subject-matter of another application, Serial No. 553,895, filed by me June 24, 1895.

The bundle-carrier F is of the same general construction as shown and described in my prior patent mentioned above and is mounted by means of an inclined pivot-pin f on a supporting-bracket G, the two contacting faces of the said parts being arranged at an angle to the head of the carrier. The device by means of which the carrier is connected to and carried by the binder-frame is different, however, from that shown and described in my said prior patent. This support H has at its outer or lower end an enlargement of circular form corresponding to the outer or upper face of the bearing on the carrier-head mentioned above. The construction of the upper support or bracket II, the support by which it is carried, and the means for connecting it thereto are different from my said prior patent. An arm h extends upward from the base of this bracket, being curved slightly inward, as seen in Fig. 5. The lower or outer ends of the two-part or forked arm

extend outward a considerable distance beyond the lower supporting bar or beam of the binder-frame and at their outer extremities are constructed with downward-curved ends g , as seen in Fig. 5. The curved projection h of the bracket II corresponds to the curve at the outer ends of the two-part or forked support and passes up between them, as seen in Figs. 4 and 5. At its upper end between the two parts of the forked support it is provided with lugs h' , projecting out from each side thereof and with apertures running through them and the body of the arm. This construction provides means for fastening the said bracket between the curved outer ends of the two-part or forked arm by means of headed bolts h^2 , passing through both of these parts and secured by nuts h^3 on their threaded ends projecting out at the side of one of the fork-bars. Obviously this means of attachment provides for readily disconnecting the bundle-carrier support from the binder-frame whenever desired; but the bundle-carrier is evidently supported by the said forked arm and thereby transported or carried with the machine. On the outer faces of the two arms of the forked support, between the bundle-carrier support and the lower or main bar of the binder-frame, there are secured brackets I, one arm i of which is bolted to the outer face of the respective fork-arms, while at its lower end there is a short journal-stud i' , which constitute the pivotal journals for the connecting-links, pivoted at their other ends to the packer-arms, as described and shown in my prior application mentioned above.

The mechanism for securing the bundle-carrier in temporary fixed position to receive the bundles and for releasing it to discharge the latter by turning on its inclined journal-bearing will now be described. One end of a chain or cable J is fastened to the bundle-carrier head somewhat in front of its tubular support. Thence it is carried up through an aperture in a small bracket b^4 , secured to the under side of the main bar or beam of the binder-frame, as seen in Fig. 1. This guide-opening for the chain or cable may be strengthened a little and the bounding edge or face enlarged and made smooth by constructing it as a boss on the face of the bracket. Passing up through this aperture, the chain is carried inward on a slight forward incline past the front of the main wheel and around a small idle-pulley K, mounted on a small bracket k , secured in a fixed position on any suitable support. The chain or cable is then run alongside the outer seat-supporting bar to the seat-bracket near the rear of the machine. The seat-bars L are of ordinary construction and arranged transversely of the main frame in the usual way, as seen in Fig. 1. The seat-bracket M in its main features is substantially like the seat-bracket shown and described in my prior application, Serial No. 546,126, but it has an additional attach-

ment to which the rear end of the carrier-chain is connected, whereby the said chain may be drawn taut to keep the bundle-carrier in position to hold the bundles and released when required to permit the discharge of said bundles. The rear end m of the bracket, which extends upward and backward on an incline, has concave bearings m' on the under side thereof, which are arranged so that they will be just over the upper edges of the seat-bars when the bracket is fixed in place thereon. Narrow flanges $m^2 m^3$, of like concave shape, extend outward on each of the bracket sides at this point, and the flange m^2 is provided with a short stud or projection m^4 , extending forward and slightly inclined upward. This stud projects out a little beyond the end of the bearing on the side of the seat-support next to the platform, and a curved or circular groove m^5 is cut therein just at the foot where it is joined to the projecting journal-flange, as seen in Figs. 6 and 7. A shaft N is journaled in this opening, being extended across the seat-bracket, and has upon its end projecting toward the platform an arm n fixed thereon and provided at its lower end with an inwardly-projecting flange n' , curved and arranged so that its outer edge will fit into the curved groove m^5 on the journal-bearing, and provided with a short stop edge n^2 radial to the shaft, which is in position to strike against the upper end or edge of the stud m^4 on the shaft-journal, thereby limiting the forward throw of this arm and the corresponding turn of the shaft to which it is attached. This is its position of rest, in which the arm extends upward and on a backward incline, as seen in Fig. 2. On the upper or outer end of this arm there is a short round pin n^3 on the face opposite to the flange and at right angles to the arm itself. The arm n is therefore adapted to act as a kind of crank-arm for the shaft to which it is attached. This shaft extends outward a little beyond the fastening of the crank-arm thereto, and at its extremity on this side of the seat-support a second crank-arm O is provided and depends therefrom almost in line with the upper inclined arm n , though the two are inclined slightly toward each other at the rear of the shaft, so that they stand at an acute angle relatively, as seen in Fig. 2. At the lower end of the crank-arm O there is a pin o , projecting horizontally outward or toward the platform and having at its outer end a narrow annular flange o' . There is thus provided a kind of crank by means of which the short shaft may be held in place by the foot of the driver, placed on the projecting pin or allowed to take a swinging movement controlled by the pressure of the driver's foot thereon in the proper direction. A link-rod P is loosely journaled at one end to the pin on the upper end of the crank-arm n . The link passes down from this pivot and at its free end is bent to form a kind of circular hook p , which passes down behind and then forward under-

neath the end of the shaft N in a narrow space between the arm n and the foot-crank arm O . In normal position, as seen in full lines in Fig. 2, the extremity of this curve or hook end and an aperture p' therein are located above the shaft N and out of line with the shaft N and the pin n^3 , to which the link-rod is journaled. The rear or outer end of the chain J , extended back from the idle-pulley, is fastened to the extremity of this hook or curve in any suitable way. In the drawings it is effected by passing the end through the aperture p' in the hook and fastening it in this position.

Now when the bundle-carrier is in position to receive the bound bundles discharged from the binder, as seen in Fig. 1, the fastening and adjusting devices just described are in the position shown in full lines in Fig. 2, and as the aperture in the end of the hook is in a plane outside that of the two journals n^3 and N the rod P will be automatically locked in this position. When it is desired to discharge the bundles accumulated on the said carrier, the driver pushes the crank-arm forward by the pressure of his foot on the crank-pin, as indicated by the arrow applied to this crank-arm below the seat-supports in Fig. 2. As it is thus swung forward the strain of the chain on the crank-arm n , through the hooked link-rod, will be increased by the weight of the bundles on the carrier and the arm n will be turned backward and downward, turning the shaft to which it is attached with it in the same direction, thereby permitting the link-rod to turn on its pivot and straighten out forward, about in line with the arm, as indicated in dotted lines in Fig. 2. At the same time the foot crank-arm will be thrown forward and upward above the seat-support, as indicated in dotted lines in the same figure. This action of the device effects the discharge of the bundles from the carrier, and when thus discharged the driver, pressing with his foot upon the pin of the crank-arm, will turn it forward and downward again, as indicated by the arrow accompanying the dotted lines above the seat-support showing this foot-lever, thereby returning the devices described to their normal position, (shown in full lines,) which obviously will bring the bundle-carrier back into its normal position for receiving the bundles, in which it is held, as already described, until a sufficient number of bundles has accumulated thereon to require a discharge.

It will be seen from this description of the construction and operation of these devices that the control of the bundle-carrier is easy and the devices for this purpose are conveniently arranged with reference to the driver and easily operated by him.

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

1. In a grain-binding harvester, the binder-frame, in combination with a forked or two-

part bundle-carrier-supporting arm secured to said frame, attached to the upper support therefor by a sliding connection and extending outward some distance beyond the binder-frame proper, a bundle-carrier arranged outside of and below the binder-frame, and a jointed mechanism for connecting the carrier to the outer or lower ends of the said forked support, substantially as described.

10 2. In a grain-binding harvester, the binder-frame, in combination with a forked or two-part strap, G, connecting the binder-frame to its upper support by a sliding connection and extended outward some distance beyond
15 the binder-frame and provided at their extremities with downward and outward bends, g, and mechanism for fastening the bracket H to the outer projecting ends of the fork-arms, substantially as described.

20 3. In a grain-binding harvester, the binder-frame, in combination with a supplemental two-part or forked supporting-arm connecting the binder-frame to its upper support by a sliding connection, arranged between the
25 end strap-supports thereof and having the outer or lower ends of the two parts extended some distance beyond the binder-frame, which are bent at their extremities to form downwardly-curved ends, a bundle-carrier mounted with side lugs, h', filling the space between
30 the said fork ends, and bolts, h², passing

through the fork-arms, the bracket-arm and side lugs thereon, whereby the carrier is securely connected to and supported by the fork-arms, substantially as described.

35 4. In a grain-binding harvester, a binder-frame laterally adjustable upon its supports; a two-part supporting-arm E attached to the binder-frame, and at one end connected to the binder-frame support by a sliding connection, and at the other end supporting the
40 bundle-carrier, the space between the two parts of the arm E being adapted to leave room for the working of the needle and compressor-arm, substantially as described.

45 5. In a grain-binder, a binder-frame; a two-part deck resting upon and secured to the upper faces of the lower supporting-bars of the binder; a two-part connecting-arm, supporting the bundle-carrier, the members of
50 which are disposed approximately parallel to each other, leaving a space between them for the passage of the needle, and at the crossing of the lower supporting-bar of the binder rising above the deck, whereby the
55 center of the gavel is supported above the deck while being formed, bound and discharged.

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Witnesses:

ALOYSIA HELMICH,
I. A. HELMICH.