

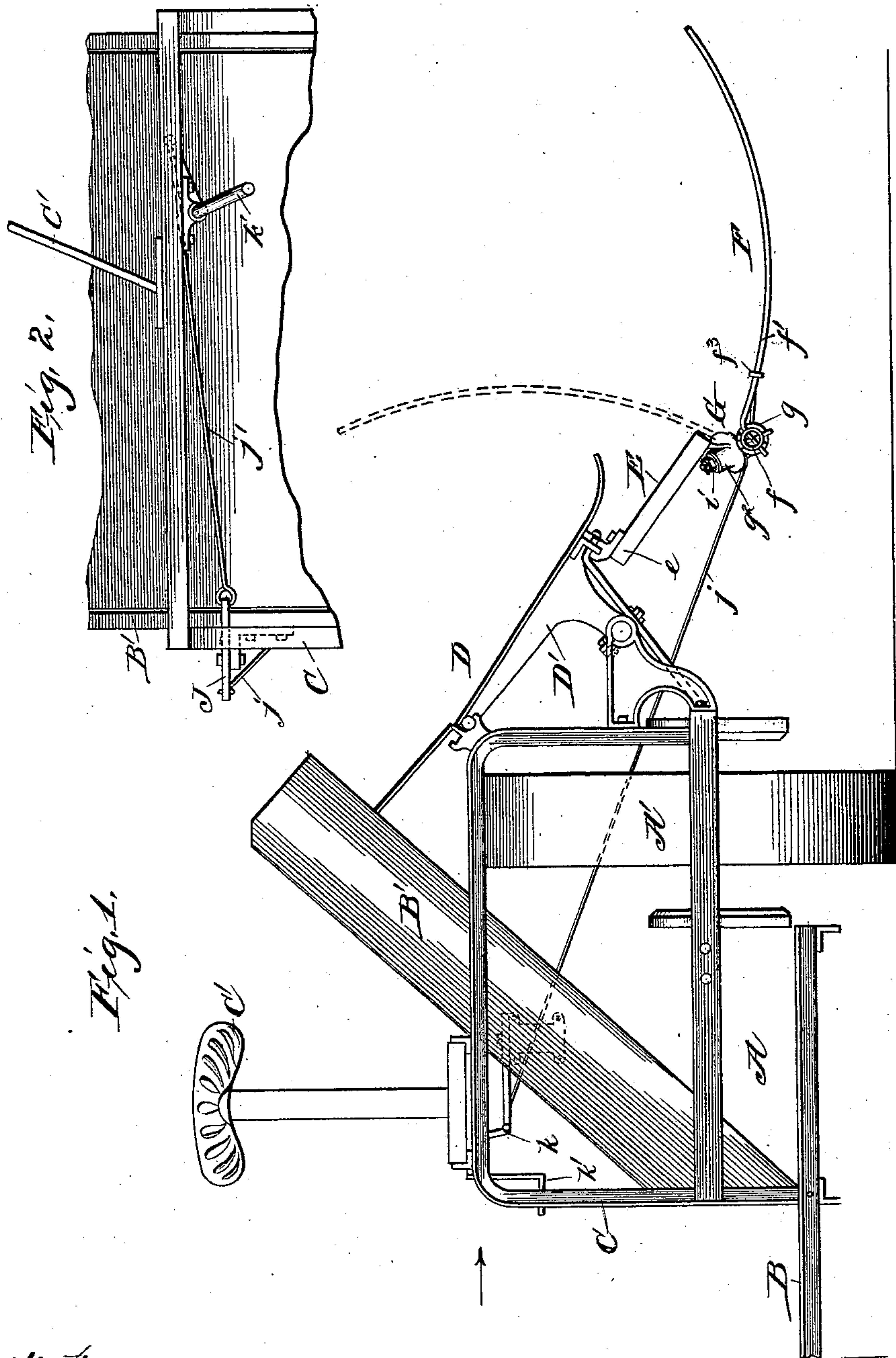
(No Model.)

4 Sheets—Sheet 1.

B. F. STEWART.
BUNDLE CARRIER FOR HARVESTERS.

No. 471,737.

Patented Mar. 29, 1892.



Witnesses,
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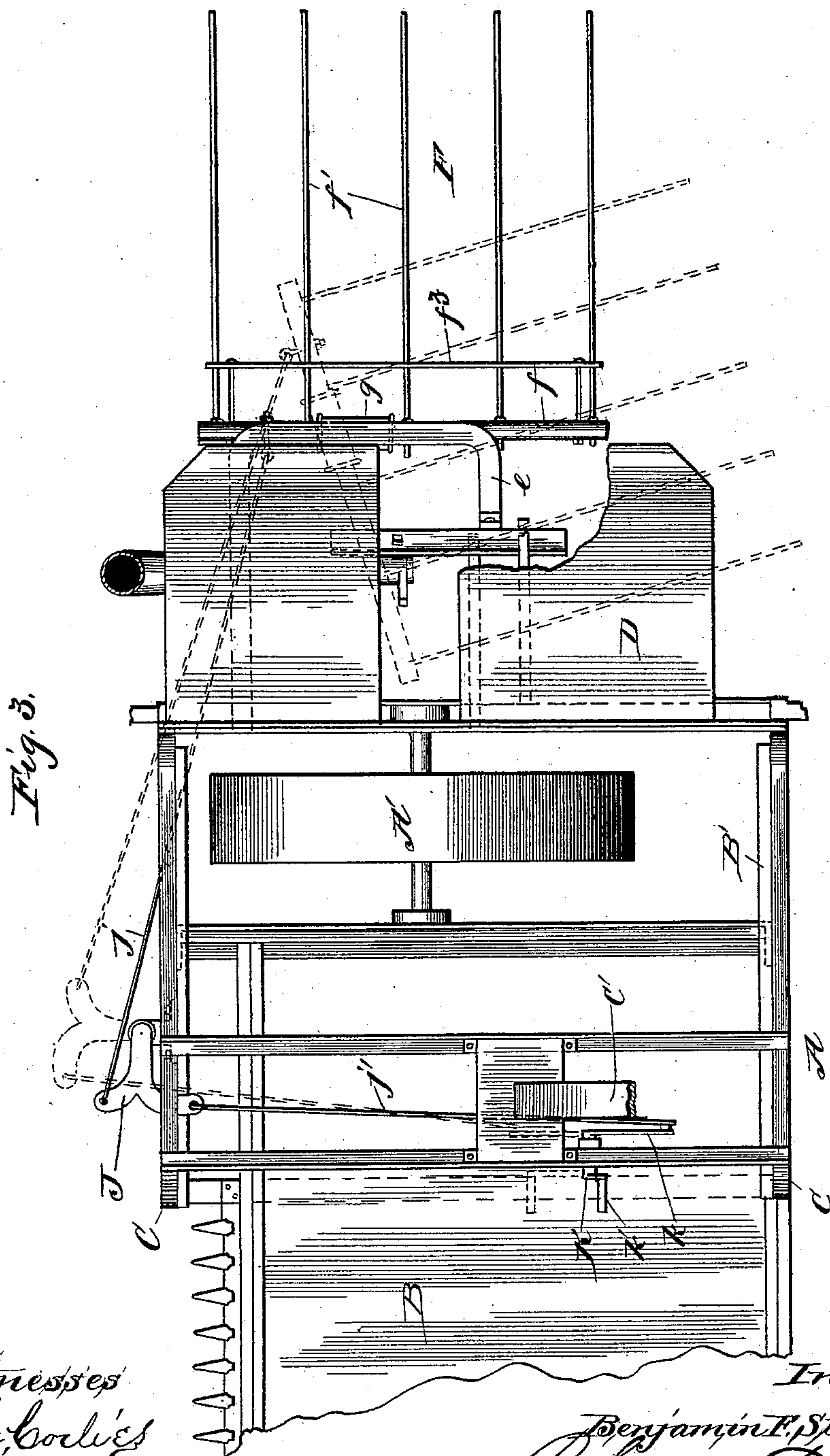
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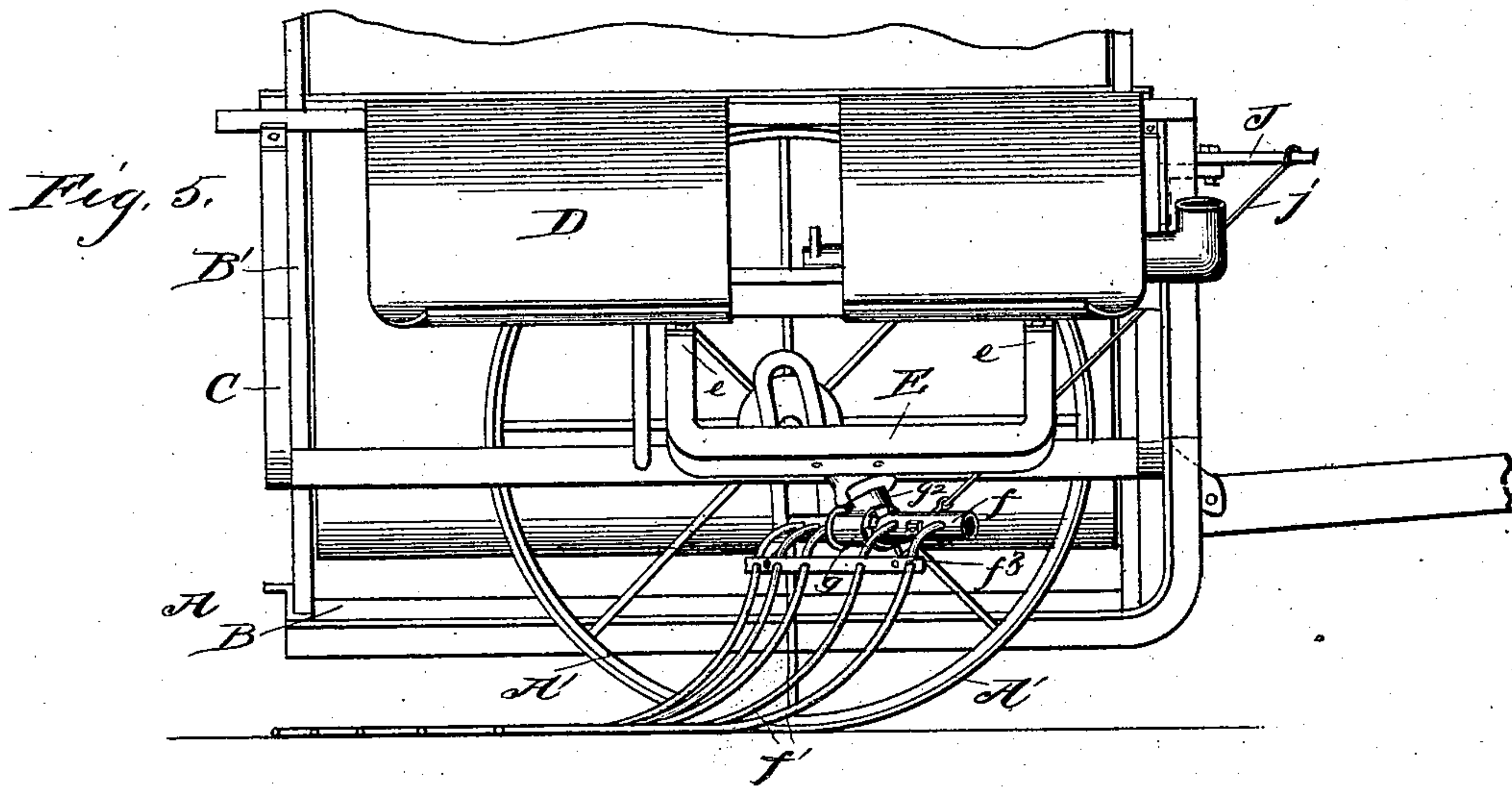
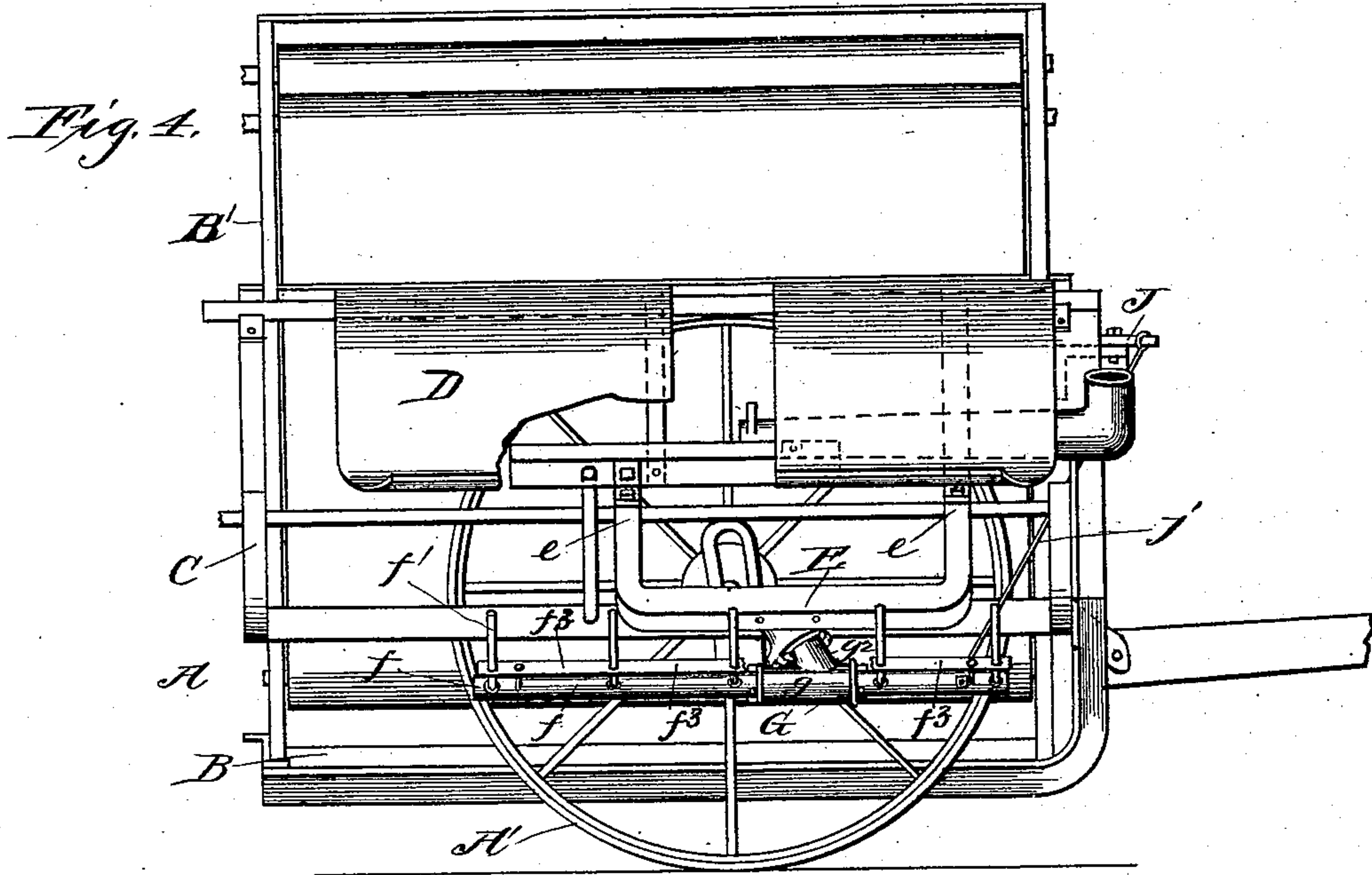
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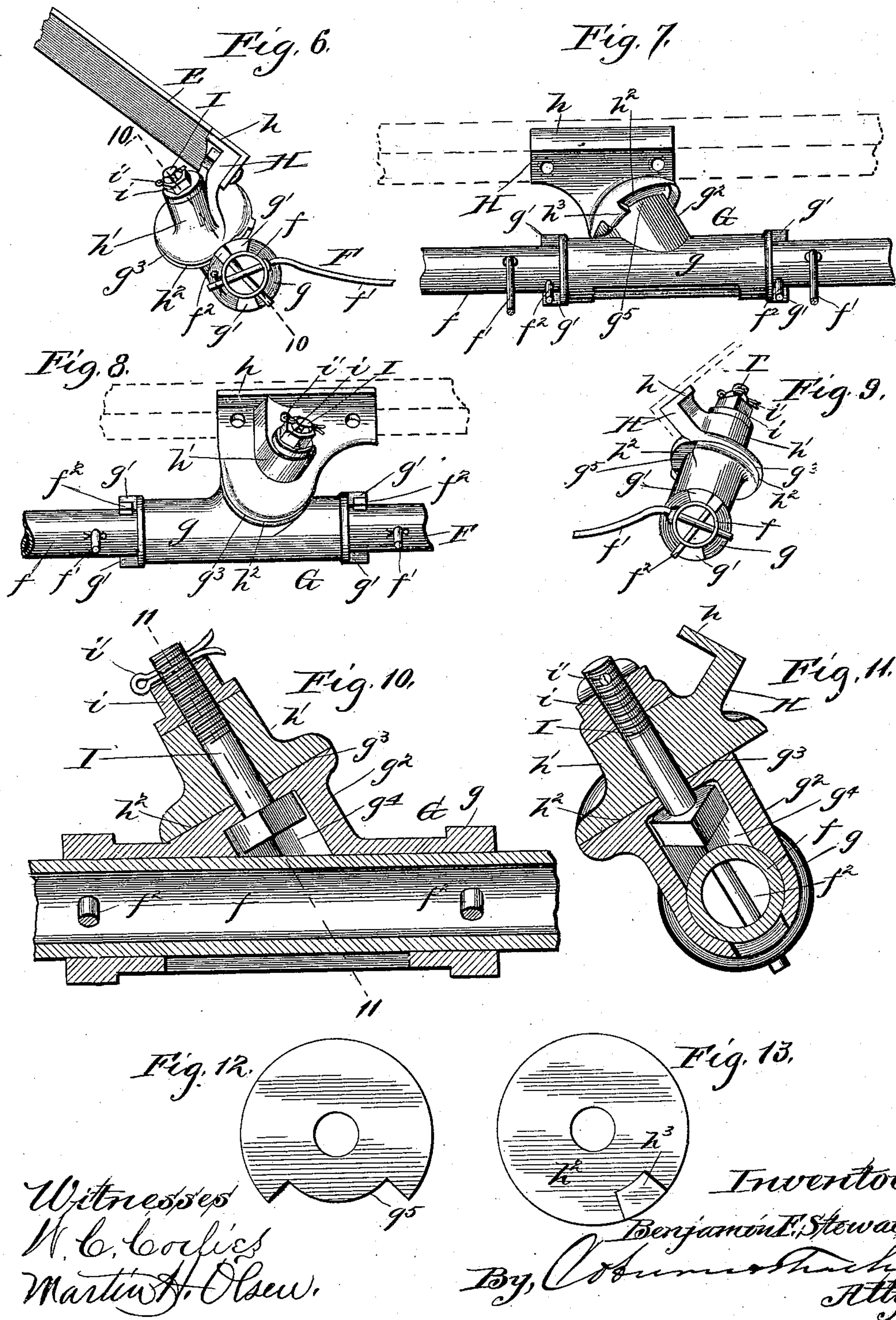
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4 Sheets—Sheet 4

B. F. STEWART.
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UNITED STATES PATENT OFFICE.

BENJAMIN F. STEWART, OF PLANO, ILLINOIS.

BUNDLE-CARRIER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 471,737, dated March 29, 1892.

Application filed August 10, 1891. Serial No. 402,194. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. STEWART, a citizen of the United States, now residing at Plano, in the county of Kendall 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 rear elevation of a harvester embodying my invention, the grain-platform being mostly broken away; Fig. 2, a detail inside elevation of the upper portion of the upright frame of the harvester, looking in the direction of the arrow, Fig. 1; Fig. 3, a plan view of the machine shown in Fig. 1; Fig. 4, an end elevation of the machine, looking from the stubble with the bundle-carrier in receiving position; Fig. 5, a similar view with the bundle-carrier in discharging position; Fig. 6, a detail rear elevation showing the joint of the carrier; Fig. 7, a side elevation of the same looking from the stubble; Fig. 8, a like elevation of the same looking from the inside thereof or opposite to Fig. 7; Fig. 9, a front or reverse elevation of the joint shown in Fig. 6; Fig. 10, a detail section of the same, taken on the line 10 10 of Fig. 6; Fig. 11, a detail section of the same, taken on the line 11 11 of Fig. 10; Fig. 12, a detail plan of the pivot-lug on the carrier-support, and Fig. 13 a bottom plan of the corresponding face of the stationary bracket or pivotal support.

Figs. 1 to 5, inclusive, of the drawings are on one scale, Figs. 6 to 9, inclusive, upon another and enlarged scale, and Figs. 10 to 13, inclusive, upon a third and still further enlarged scale.

In modern automatic grain-binding harvesters a bundle-carrier is now demanded almost as a necessity. It will be understood, of course, that by this I mean a device which receives the bound bundles from the binder and retains them until a sufficient number has accumulated to form a sheaf, when they are to be discharged together upon the ground. Obviously this device must be located in a convenient position to receive the bound bundles as they are discharged from the binder, must have a strong firm support, and must be capable of some kind of turning or tilting

movement to deliver the bundles upon the ground. It is also desirable to arrange for the tilt of the carrier in a line approaching at least a parallel to the forward movement of the machine, as the bundles are then left on the ground in much better shape.

My invention relates to certain improvements in the devices for supporting and moving the bundle-carrier, whereby, I believe, I obtain all of the advantages above mentioned.

I will now describe in detail the construction and operation of a bundle-carrier, its actuating mechanism, and so much of a harvester as is necessary to an understanding thereof, in which I have embodied my invention in one practical way, and will then point out more definitely in claims the particular improvements which I believe to be new and wish to secure by Letters Patent.

In the drawings, A represents the gear-frame of the harvester; B, the platform-frame, and C the upright frame. A' is the main or ground wheel; B', the inclined elevator-frame; C', the driver's seat, and D the inclined deck of the binder. These parts are all of any ordinary construction and require no further description here. It will be understood, of course, that the grain falling upon the platform as it is cut is carried up by the elevator and discharged over the wheel upon the deck, where it is formed in bundles, which are bound and then discharged from the deck or binding-table. It is evident, then, that the bundle-carrier must be located so as to receive these bound bundles as they are discharged from the deck. This required arrangement of the bundle-carrier I obtain by means of a support E, which is arranged just underneath the outer edge of the deck and is securely fastened to the binder-frame D'. This support is preferably of metal and in the form of a small U-shaped frame, as seen in Figs. 4 and 5 of the drawings, the arms e thereof being firmly bolted to the binder-frame, as seen in Figs. 1 and 4. The frame need extend only part way along the binder-frame and being attached thereto moves with it when the said binder-frame is adjustable, as is the case in most binders at present. The support inclines downward as it extends outward, so as to bring the bundle-carrier near the ground.

The bundle-carrier F is a kind of cradle

consisting of a long head f , to which is attached a series of arms of teeth f' , slightly curved, as seen in Figs. 1 and 5. This cradle or receiver is mounted so that in normal position the head will be about parallel to the movement of the machine just below the outer edge of the binder-deck and with the arms extending outward directly therefrom, as seen in Fig. 1 and full lines in Fig. 3. Evidently in this position the bound bundles as they are discharged from the deck of the binder will be delivered directly upon the carrier. The mounting of this carrier upon the supporting-frame is effected by peculiar devices.

The head f of the carrier is preferably a metal tube—gas-pipe, for instance, is suitable for this purpose. This head is mounted loosely in a support G , which is sleeved on the head by means of a long sleeve g , which forms a bearing for the head f . At each end of this sleeve there are two lugs g' , projecting slightly each way from the sleeve and standing normally about in a vertical line. Bolts or pins f^2 are passed through the head f , their upper ends being arranged in rear of or behind the upper lugs on the sleeve, as seen in Fig. 8, while their lower ends pass out in front of the lower lugs of the same, as seen in Fig. 7. Obviously these bolts fasten the head of the carrier to the sleeve and prevent it from turning therein in a direction which will permit the arms to drop, so that the latter will normally be held in the horizontal position shown in full lines, Fig. 2. It will also be seen that the head is free to turn in its sleeve in the opposite direction within certain limits—that is, until the projecting ends of the bolts strike the opposite faces of the respective lugs. Hence the carrier is free to be turned up, so as to throw the arms into an upright position, as seen in dotted lines, Fig. 1, where they will be out of the way in passing through gates or elsewhere, when the projecting arms will interfere with the movement of the machine. The arrangement of the bolts or pins whereby this movement is permitted, while at the same time the head is held from oscillation in the opposite direction, is shown in Figs. 6 and 9. The arms f' pass loosely through a stay-rod f^3 , by which they are connected and retained.

Obviously, in order to discharge the bundles from the carrier it will be necessary, however, to depress or turn downward the projecting arms, and in order to make the discharge substantially in line with the movement of the machine, as mentioned above, it will be necessary to swing the carrier around to the rear. I accomplish this result by attaching the carrier to its supporting-bracket by means of a pivotal connection which provides for both of these movements in the bundle-carrier at the same time. The sleeve-support G , in which the head of the carrier is mounted, as just described, is provided with a lug or boss g^2 , rising from the upper side of the sleeve portion g and having a flat face g^3 , but arranged at an

angle to the axis of the sleeve, as seen in Fig. 10. The inclination of this face is downward toward the rear of the machine, and the angle of inclination approaches forty-five degrees—say about thirty degrees. This boss has an interior recess g^4 opening into the sleeve, as seen in Fig. 10. The outer edge of the face portion of the boss is also cut away at the front side, so as to provide a long notch g^5 , as seen in Fig. 12. This sleeve-bearing of the carrier is pivoted to a bracket H , which in turn is securely fastened to the U-shaped frame E , thus mounting the carrier upon the latter, as stated above. The bracket H is constructed with a long angle-shaped seat h , whereby it is adapted to be seated upon the front portion of the U-shaped frame E and securely bolted thereto, as seen in Figs. 6 and 7. From this seat portion there projects a circular boss h' , which is arranged at an angle to the former and terminates in a flat face h^2 , corresponding to the inclined face of the boss on the sleeve. The inclination of this boss on the bracket is opposite to that of the sleeve—that is, the inclination of the face h^2 is downward and somewhat inward away from the forward end of the seat portion h of the bracket. The sleeve-support G is pivoted to the bracket H by bringing the two faces of the respective bosses together and then passing through them a pivot-bolt I , the head of which is received within the recess g^4 , as seen in Figs. 10 and 11. The bolt is secured by means of a nut i on its upper end, fastened by a locking-pin i' or by any other suitable device. On the face h^2 there is at one point on the outer edge a small lug h^3 , standing vertically to the face and adapted to enter the long notch g^5 in the edge of the sleeve-boss, as seen in Figs. 7 and 13. Obviously with this mounting the sleeve-support is free to turn upon its pivot within certain limits, which limits are determined by the length of the notch g^5 , as the movement in either direction will be limited by the lug h^3 coming in contact with one or the other faces of this notch. It is also obvious that, owing to the inclination of the bearing-surfaces of this pivotal joint between the sleeve-support of the carrier and the bracket, when the former is swung around to the rear it will also have a turning or twisting movement downward, which movement will give a corresponding downward turn to the head of the carrier, thus depressing the arms thereof, as seen in Figs. 3 and 5 of the drawings, which depression of the arms into the stubble effects the discharge of the bundles from the carrier. This swinging movement of the bundle-carrier to the rear for the purpose of discharging bundles therefrom must of course be under the control of the driver, so that he may empty the carrier at will. It is obvious that this may be effected by any suitable system of levers. As shown in the drawings, I provide a kind of bell-crank lever J , which is pivoted to the front of the upright frame. One arm of this lever is connected by a link-rod j to the for-

ward end of the carrier-head f , while the other arm is connected by a similar rod j' to a rock-shaft K, mounted near the foot of the driver's seat and provided with a crank-arm k , to which this rod is connected. The shaft is also provided with a foot-lever k' , whereby the driver may at any time oscillate the shaft in the direction required and turn the bundle-carrier backward for the purpose of discharging the bundles and then bring it back again into normal position whenever he sees that a sufficient number of bundles for a sheaf has been delivered to the carrier. A hand-lever may be employed instead of a foot-lever, if desired, and any other arrangement of levers and connections with the carrier suitable for the purpose may be substituted for that herein described. It will be noticed that in swinging the carrier laterally for the purpose of discharging the bundles, as described above, the head of the carrier swings or turns in substantially the same plane—that is, there is no substantial change in the horizontal position of the head during this swinging movement. The discharge is effected by a downward oscillation of the carrier-head while it is swinging around in a nearly horizontal plane. This is one of the peculiar features of my invention, and I wish to be understood as claiming it without respect to the particular mode of supporting the head, for the latter may be mounted by means different from the inclined pivot which I have herein shown and described and yet have substantially the same movements referred to above.

In details of construction there may of course be changes without departing from the main characteristic of my invention, which is the connection of the bundle-carrier to its permanent support in such a way that the head of the carrier may be swung laterally without substantial change horizontally and at the same time oscillated to throw the carrier-arms downward, as described above.

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

1. In a grain-binding harvester, a binder-frame, in combination with a bundle-carrier having its head arranged parallel to the side of the machine just below the outer edge of the binder-deck, and a connecting-joint between the carrier-head and its support, constructed to permit the said head to be swung horizontally underneath the binder-frame and at the same time to be oscillated to throw the carrier-arms downward, substantially as described.

2. In a grain-binding harvester, a binder-frame, in combination with a bundle-carrier having its head about parallel to the side of the machine, and a single pivotal joint con-

necting the head of the carrier with its support and having the respective bearing-faces of the said pivot inclined to the horizontal plane of the head in normal position, whereby the carrier-head may be swung around horizontally on said pivot and at the same time positively oscillated, substantially as described.

3. In a grain-binding harvester, a binder-frame, in combination with a bundle-carrier having its head arranged parallel to the side of the machine, a pivotal support in which said head is mounted, whereby it may be turned in a horizontal plane on its pivot and in which the head itself is free to oscillate on its axis, and stops arranged to limit said oscillation to hold the bundle-carrier normally in a horizontal position, but free to be oscillated in the opposite direction to turn up the outer ends of the carrier-fingers against the binder-frame, substantially as described.

4. In a harvester, a bundle-carrier, in combination with a support G, to which it is connected and which is provided with an inclined bearing-face g^3 , the supporting-bracket H, also provided with an inclined bearing-face h^2 , and a pivot-pin I, substantially as described.

5. In a harvester, a bundle-carrier, in combination with a support G, provided with an inclined bearing-face g^3 and a notch g^5 in the edge thereof, the stationary bracket H, provided with an inclined bearing-face h^2 and a lug h^3 thereon, the pivot-pin I, and mechanism for swinging the carrier on said pivot, substantially as described.

6. In a harvester, the fixed bracket H, having an inclined face h^2 and lug h^3 , in combination with the carrier-support G, having a sleeve g , inclined bearing-face g^3 , and edge notch g^5 , the pivot-pin I, the bundle-carrier F, composed of the head f and arm f' , the former mounted in said sleeve, and the stop-pins f^2 , substantially as described.

7. In a bundle-carrier, the supporting fixed bracket H, having inclined face h^2 , in combination with the bundle-carrier support G, having an inclined face g^3 , the bundle-carrier F, mounted therein, the pivot-pin I, connecting the carrier-support to the bracket, the link-rod j , bell-crank lever J, actuating-lever K, and link-rod j' , substantially as described.

8. In a harvester, the U-shaped frame E, attached to the binder-frame, in combination with the bracket H, rigidly secured thereto, the bundle-carrier support G, pivoted to said bracket, and the bundle-carrier F, mounted in said support, substantially as described.

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