(No Model.) 2 Sheets—Sheet 1.

P. HANSON.

SHEAF CARRIER FOR HARVESTERS.

No. 563,229. Patented June 30, 1896.

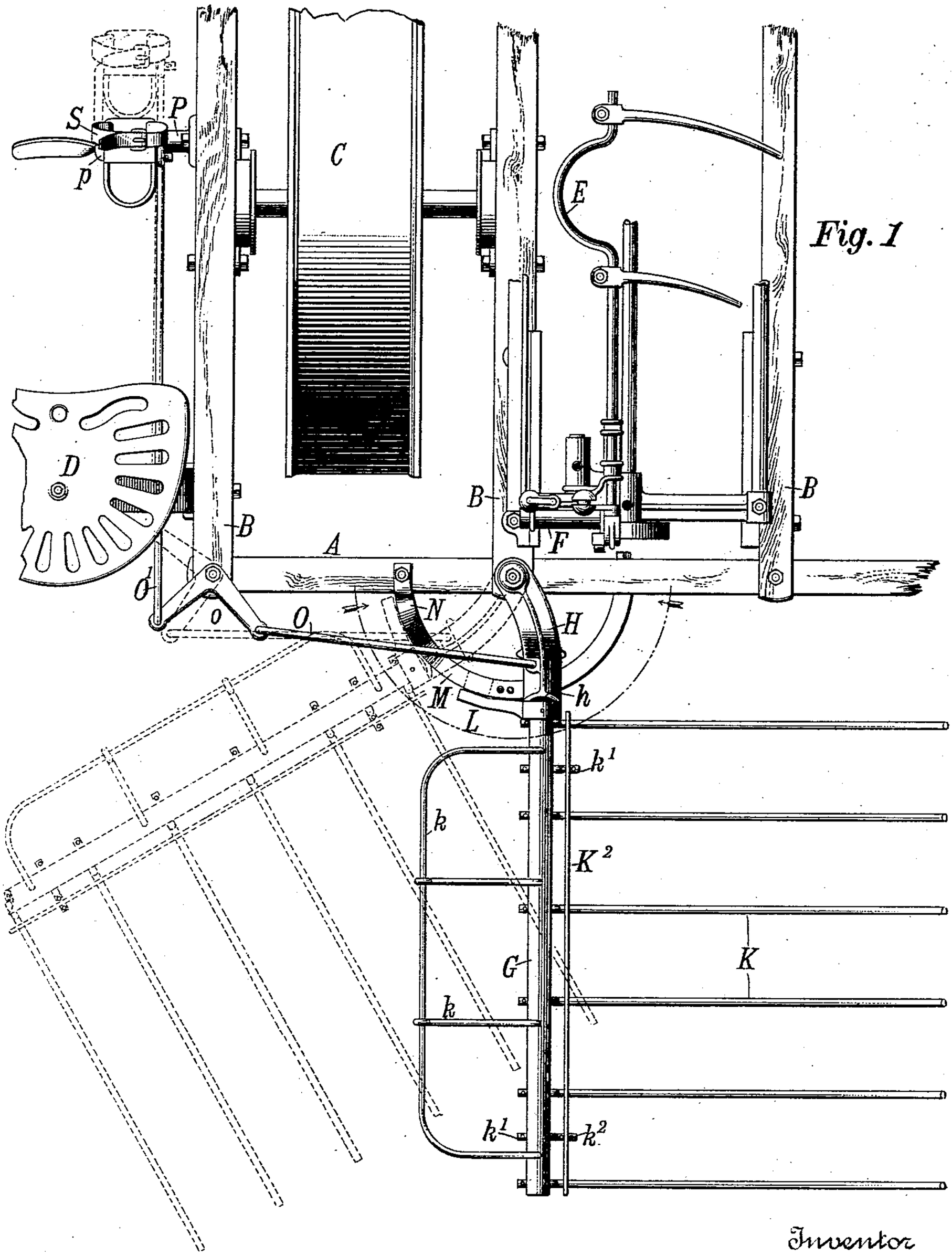

Fig. 1

Witnesses
John W Culver
E. E. Clinton.

Inventor
Paul Hanson
By his Attorney C. B. Swift.

(No Model.) 2 Sheets—Sheet 2.

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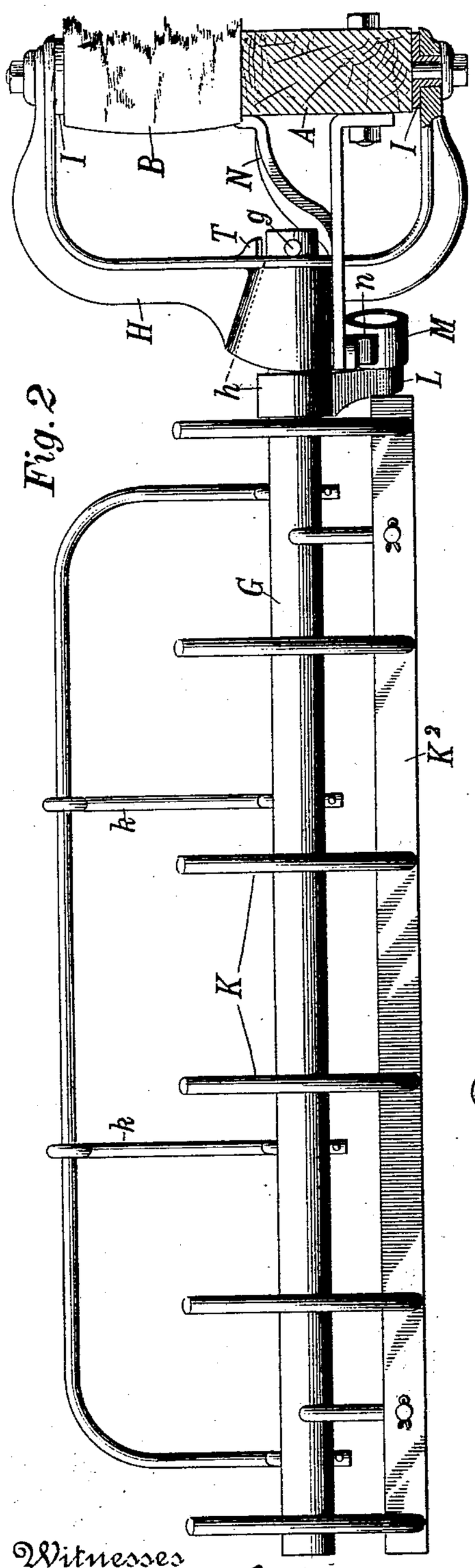

Fig. 2

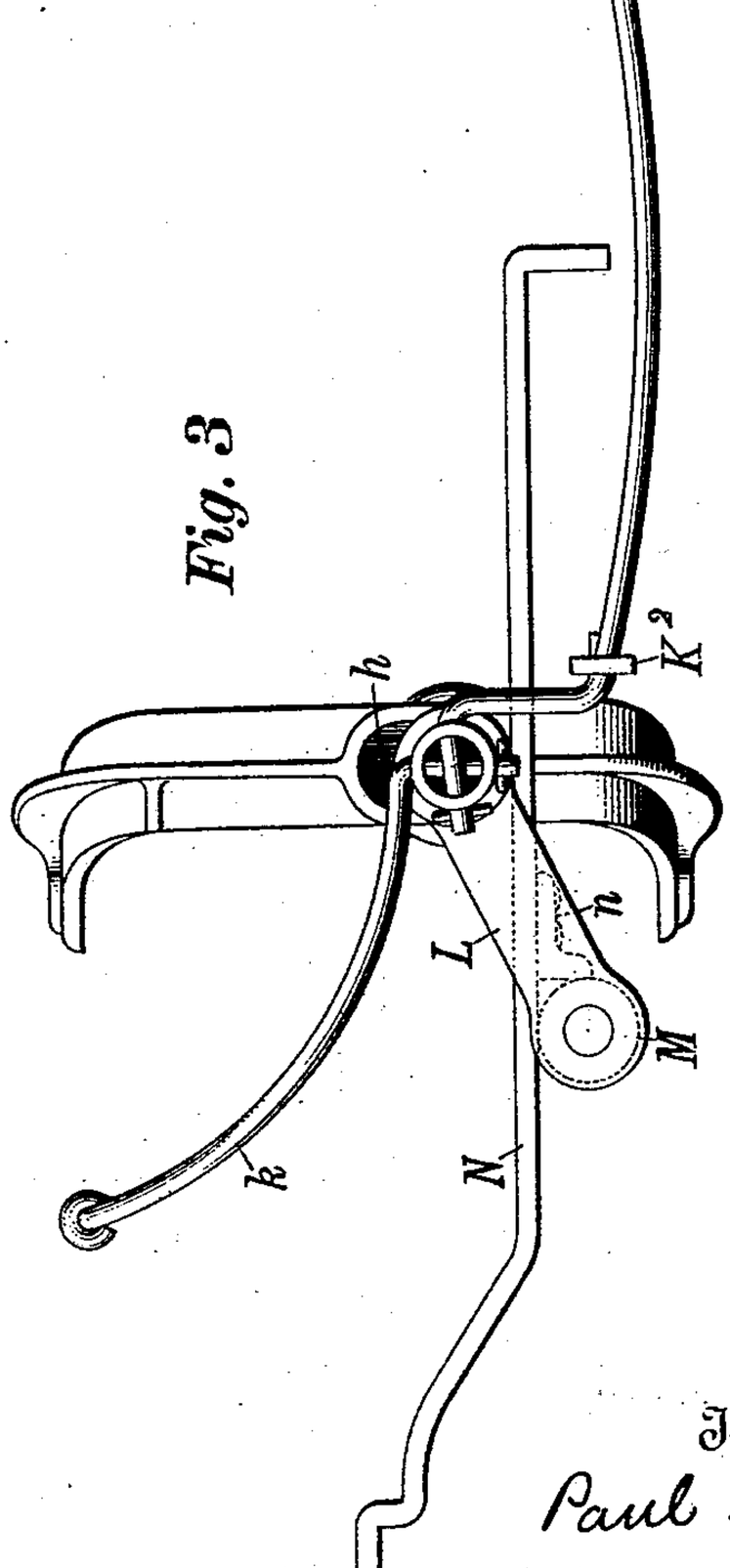

Fig. 3

Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

PAUL HANSON, OF CHICAGO, ILLINOIS.

SHEAF-CARRIER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 563,229, dated June 30, 1896.

Application filed March 13, 1895. Serial No. 541,528. (No model.)

To all whom it may concern:

Be it known that I, PAUL HANSON, 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 Harvesters, of which the following is a specification.

The object of my invention is to provide a sheaf-carrier for the class of harvesters in which the binding mechanism is located between the cutting-platform and the supporting and driving wheel of the harvester, and in which the sheaf, when bound, is not carried over the said wheel, but is discharged directly or diagonally to the rear of the machine, which carrier shall, before dropping its accumulated load of bundles upon the ground, move them out of the way of the horses on the next round.

In machines of the elevator type the binding attachments are mounted on the machines high enough above the ground so that the bundles can be discharged onto a carrier situated in a lower plane. In low-down self-binding harvesters, however, the carrier cannot be gotten any nearer the ground, and the binder cannot discharge upon it. The bundle must be lifted into a higher plane and fall on the carrier when discharged. The only practical plan of making a discharge that will load a carrier positioned in the rear of the binder is that shown in the patent to James R. Severance, No. 452,460, granted May 19, 1891, in which a discharge-fork lifts the bundle from the binder and turns it in the air, so that it falls butts to the rear.

In the drawings I show this type of a discharge device.

Figure 1 is a plan view of my improved carrier with enough of a harvester-frame to show the method of attachment and operation. In broken lines is shown the discharging position of the carrier. Fig. 2 is a view, on an enlarged scale from the right of Fig. 1, of the carrier with the rear sill of the harvester-frame in section. Fig. 3 is a rear elevation of the carrier, also on an enlarged scale, showing the form of the teeth, the roll-carrying arm, and the yoke. A diagrammatic view of the dumping-track is also shown in this figure.

In Fig. 1 is shown, located on the harvester-frame, a small part of a binder-frame resting upon two slides, which are secured to two adjacent sills or cross-girts. This binder-frame supports the discharge-fork, which oscillates about a horizontal axis at its rearward end, and receives its motion through a system of cam-lever and pitman with universal connections. The function of this fork is to lift the bound sheaf from the binder, carry it to the rear, and deposit it, clear of the frame of the machine, upon the ground or upon a carrier. If deposited upon the ground, there is usually just sufficient space between it and the standing grain for the team in going the next round to comfortably pass.

Now, if a carrier be placed to catch the bundles as they drop from the discharge-fork, the first bundle will probably fall and lie in about the same perpendicular plane that it would if it fell upon the ground, but the bundles following would be deflected and roll to the right and left, and if the axis of tilt of the carrier be so placed that when dumped the bundles will drop at once to the ground, as is usual, some of the bundles will in the next round be trampled upon by the near horse, which, of course, is very undesirable. To obviate this, I so construct and attach my carrier to the harvester-frame that the initial movement in discharging swings the carrier with its load laterally about one of its corners, thus carrying the load, before it is dumped, out of the path of the horses. The feature of swinging the carrier away from the grain when operated to discharge its load leaves a clear way for the driver to get at the binder for threading or adjusting it. If, however, the carrier is not dumped at the time the driver wishes to attend to the binder, it can be turned on the supporting-bar so that the platform will stand vertically, and thus open a way. Any bundle on the carrier would roll off to the side, also out of way of the attendant.

A is the rear sill, and B cross-girts, of a harvester-frame of the low-down type.

C is the main wheel, and D the seat of the driver and operator.

The cutting apparatus and platform conveying-apron are not shown, but are located at the right in Fig. 1.

The binding mechanism is not shown in the drawings, but stands in such position that

the bundles may be lifted from it by the discharge-fork E. The principal movement of this fork is about its horizontal axis in the bearing F, from the horizontal position, as shown, to one beyond the perpendicular, rearwardly. It also has a rocking movement, which allows the points of the fork-tines to dip below the bundle in their return movement. Thus it will be seen that in the conveyance of a bundle from the binder to the carrier it is turned completely over, falling upon the carrier, butts to the rear.

The supporting-bar of the carrier G, preferably made of gas-pipe, is supported at its inner end in a vertically-pivoted yoke H, the socket of which, *h*, in which the supporting pipe or bar rests, being the frustum of an elliptical cone with its elongated diameter vertical and its base to the rear, so that the outer end of the pipe may rise if it should strike the ground, as in case the main wheel should drop into a hole or dead furrow. The smaller or front end of this elliptical socket is only large enough for the pipe to play freely therein, and a pin *g*, driven through the pipe near its end, projecting on each side and bearing against the face of the yoke, prevents the supporting-bar from working out. The boss of the roller-crank L, pinned to the bar, prevents movement in the other direction. The swinging yoke is pivoted on the bolt that joins the rear sill to one of the cross-girts of the harvester-frame, one arm of the yoke being above and the other below the timbers of the frame, thus giving a long and firm bearing.

It is essential that the yoke may swing freely, and at the same time the bolt must be drawn up tight, to hold the parts of the frame rigid. Hence trunnions I are provided, which form a loose working bearing for the ends of yoke and a seat for the washers under the head of the bolt and the nut.

The bed of the carrier consists of a series of rods K or fingers attached to and transverse to the supporting-bar, and extending grainward from it, while extending stubbleward is a rack or guard, consisting of short fingers *k*, passing vertically through bar G and connected together at their outer extremity. Different means of attaching the fingers to the bar may be employed. I have shown them passing through nearly horizontal holes in the bar. A cotter near the end of the finger prevents its slipping from the supporting-bar, while movement in the other direction is prevented by a sharp, downward bend in the finger. The portion of the finger adjacent to the bar is nearly horizontal, but trends upwardly toward the end, as do also the fingers *k* of the guard. The axes of support of the fingers are not horizontal, but incline slightly upward to pass through or above the ends of the fingers; otherwise a weight, as of a bundle, falling across the extremity of the fingers, would cause them to independently revolve. If the fingers were left entirely independent, a bundle might fall between two of them in such a way as to form a wedge and force them apart and itself fall through. To obviate this, a retaining-bar K^2 is secured to each finger and is itself held from endwise movement on the fingers by two cranks *k'*, which are identical in form with the supported ends of the fingers. In fact, their only use is to avoid putting the holes k^2 through the fingers proper, as it is undesirable to weaken them at that point.

So far as described, the bar G is free to rock and would be tilted by the weight of the load, being greater on one side than on the other. To retain the carrier in position for holding its load, an arm or crank L is rigidly secured to the supporting-bar, which bears at its end a friction-roll M. This roll runs on the under side of a track N, that is concentric with the pivotal axis of the yoke H, and thus opposes the tendency of the fingers to rock the bar by their weight and that of their load. It is desirable to have as little pressure as possible on the track from the roll M, and to this end the center of gravity of the load is brought quite near to the supporting-bar by extending the guard and making it a supporting part of the carrier-bed, instead of a retaining side merely, as it would be did it stand perpendicularly up from the bar. The track N is horizontal at the point at which the roll stands, while the carrier is in receiving position, and remains horizontal and thereby holds the carrier in a horizontal position until the latter has been swung far enough that, when dumped, the bundles will be out of the way of the horses on the next round. The track then inclines rapidly upward, so that the fingers will fall with some force. The inclination must not be so great, however, as to make it impossible to bring the carrier back to receiving position.

When in the discharged position, the carrier is moving diagonally forward, and if the fingers were rigid in the bar they might be bent on striking a root, stone, or other small obstruction that the machine had passed over, but, by reason of the form of the fingers and manner of pivoting them, they swing free, always regaining the proper position. The bar K^2 is not a controlling-bar attached to a fixed part of the machine, but merely serves to keep the fingers always the same distance apart.

A rod O, connecting the yoke to one arm of the bell-crank *o*, and the rod O' between the other arm of the bell-crank and the stirrup, afford means to operate the carrier at the will of the driver.

P is a bearing carrying one end of a U-shaped crank *p*. The other end of the crank has a bearing in the stirrup S and passes through an eye at the end of the foot-rod O'. The stirrup affords support for one foot. A foot-support, being a projection from the journal-bracket P, is provided for the other.

In order to prevent the carrier from turning too far over when thrown up vertically to allow the attendant to get to the binder, a

stop T is located on the yoke H, so that the pin *g* will engage it.

To limit the movement of the carrier upon its return to receiving position, a stop *n* is secured to the under side of the track N.

I do not wish to confine myself to the exact construction shown. The fingers might be differently fixed to the supporting-bar, and thus extend therebeyond, themselves forming the guard or a platform fixed thereon. The roll might be above the track on the opposite side of the supporting-bar, the pivot of the supporting-bar need not be exactly vertical, and other minor changes might be made.

What I claim as new is—

1. In combination with the discharging mechanism of a grain-binder that delivers the bundles rearwardly from the machine, a sheaf-carrier pivoted to the machine in rear of the binder, and connections from the carrier extended convenient to the driver whereby the carrier is swung on its pivot away from the uncut grain and the bundles deposited upon the ground farther from the uncut grain than the binder.

2. In combination with the discharging mechanism of a grain-binder that delivers the grain with the butts to the rear, a bundle-carrier pivoted to the machine in the rear of the binder its pivot being located to the outer side of the center of the carrier, and connections from the carrier extended convenient for the operator whereby the carrier is swung on its pivot away from the standing grain and its load deposited on the ground farther away from the grain than the binder.

3. In combination with the discharging mechanism of a binder, a sheaf-carrier pivoted to the machine on a practically vertical pivot and comprising a shaft having a series of fingers, a track concentric with the pivot of the carrier and provided with a deflection, and an arm on the carrier-shaft bearing against the track for preventing the fingers from tilting until the deflection is reached.

4. In combination with the discharging mechanism of a binder, a sheaf-carrier pivoted thereto and comprising a horizontally-swinging shaft and a series of fingers, a track concentric with the pivot of the carrier and provided with a deflection, an arm on the carrier-shaft bearing against the track for preventing the tilting of the fingers until the deflection is reached, and connections from the carrier to a point within reach of the driver, whereby the carrier may be swung horizontally and its operation controlled.

5. In combination with the discharging mechanism of a grain-binder, a rocking and horizontally-swinging supporting-bar having fingers attached thereto, an arm on the bar, a track on the machine concentric with the pivot on which the bar swings, the track having a deflected portion at the place in its length where it is desired to dump the carrier, and means for swinging the bar so that the arm will reach the deflected portion of the track and thus allow the bar to rock and dump the carrier by the weight of the load.

6. In combination with the discharging mechanism of a grain-binder, a sheaf-carrier pivoted to the machine in the rear of the binder, an arm to control the dumping movement of the carrier, a track concentric therewith, and having a vertical deflection into which the arm may pass to permit the dumping of the carrier connections extended convenient to the operator whereby the carrier is swung, and a stop to limit the movement of the carrier.

7. In combination with the discharging mechanism of a grain-binder, a yoke pivoted to the machine on a practically vertical pivot, a rock-shaft journaled in the yoke and having fingers attached thereto, said rock-shaft being adapted to rock in one direction to dump the carrier and in the opposite direction to allow the fingers to be turned up into vertical position, and a stop on the yoke against which the rock-shaft strikes when the fingers are turned up vertically.

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Witnesses:
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E. E. CLINTON.