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PATENTED JULY 25, 1905.

W. H. CRANE.  
BUNDLE CARRIER FOR GRAIN HARVESTERS.

APPLICATION FILED JUNE 30, 1904.

3 SHEETS—SHEET 1.

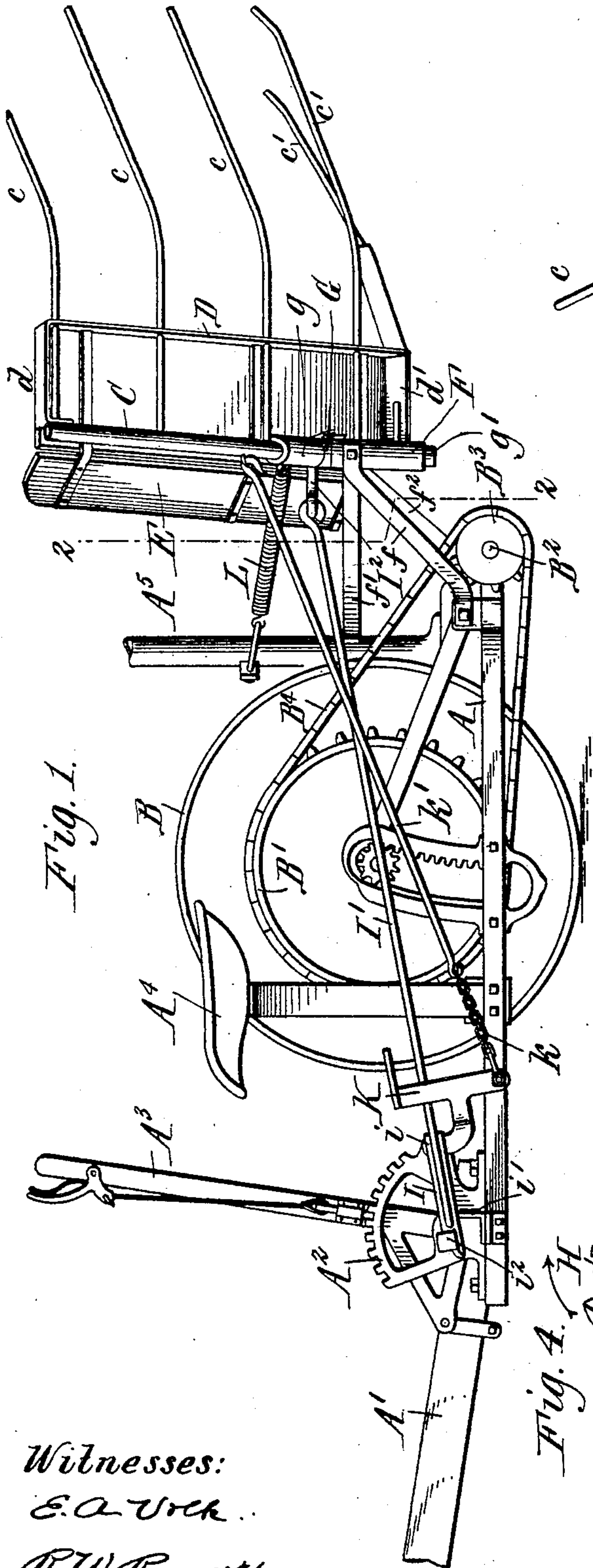


Fig. 1.

Fig. 4.

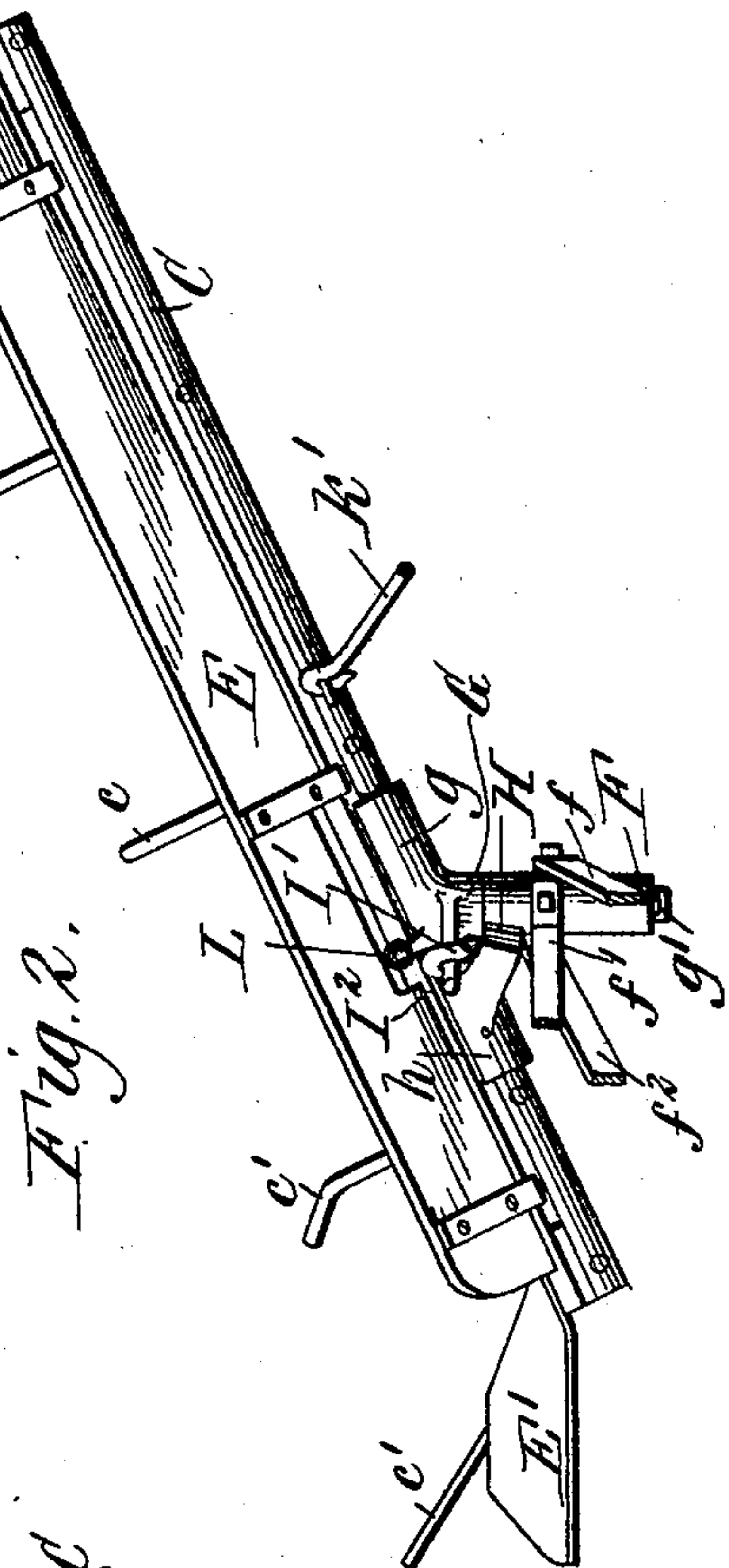
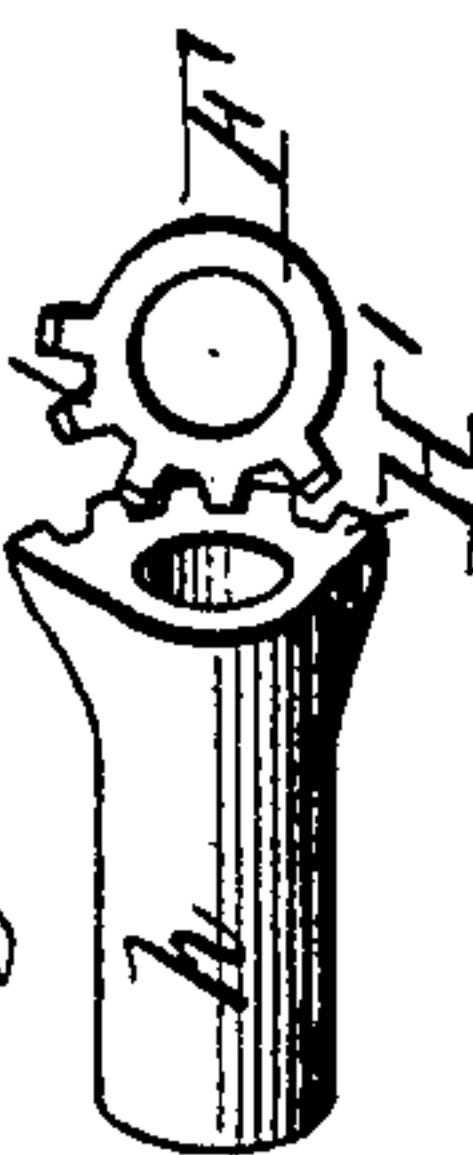


Fig. 2.

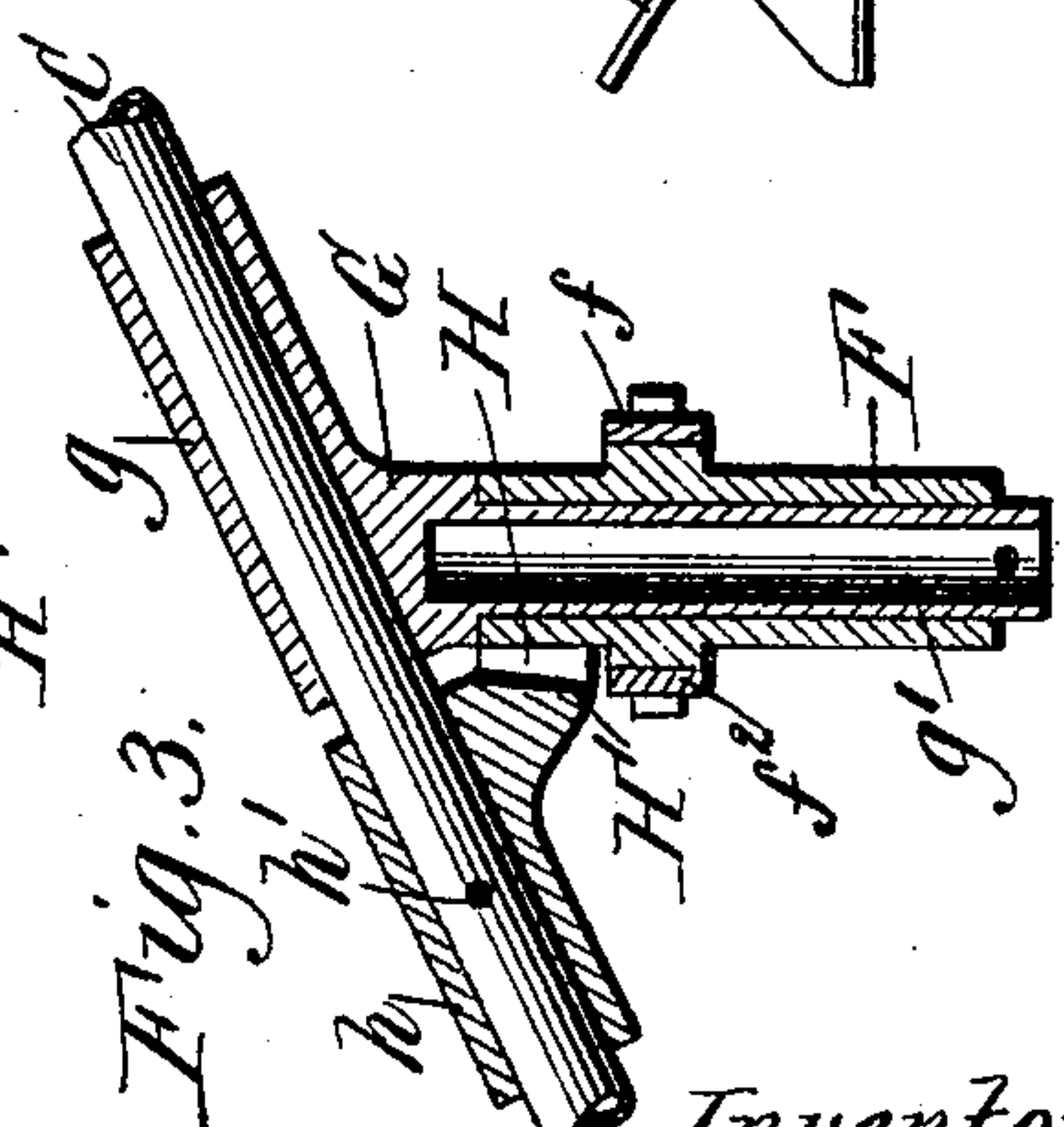


Fig. 3.

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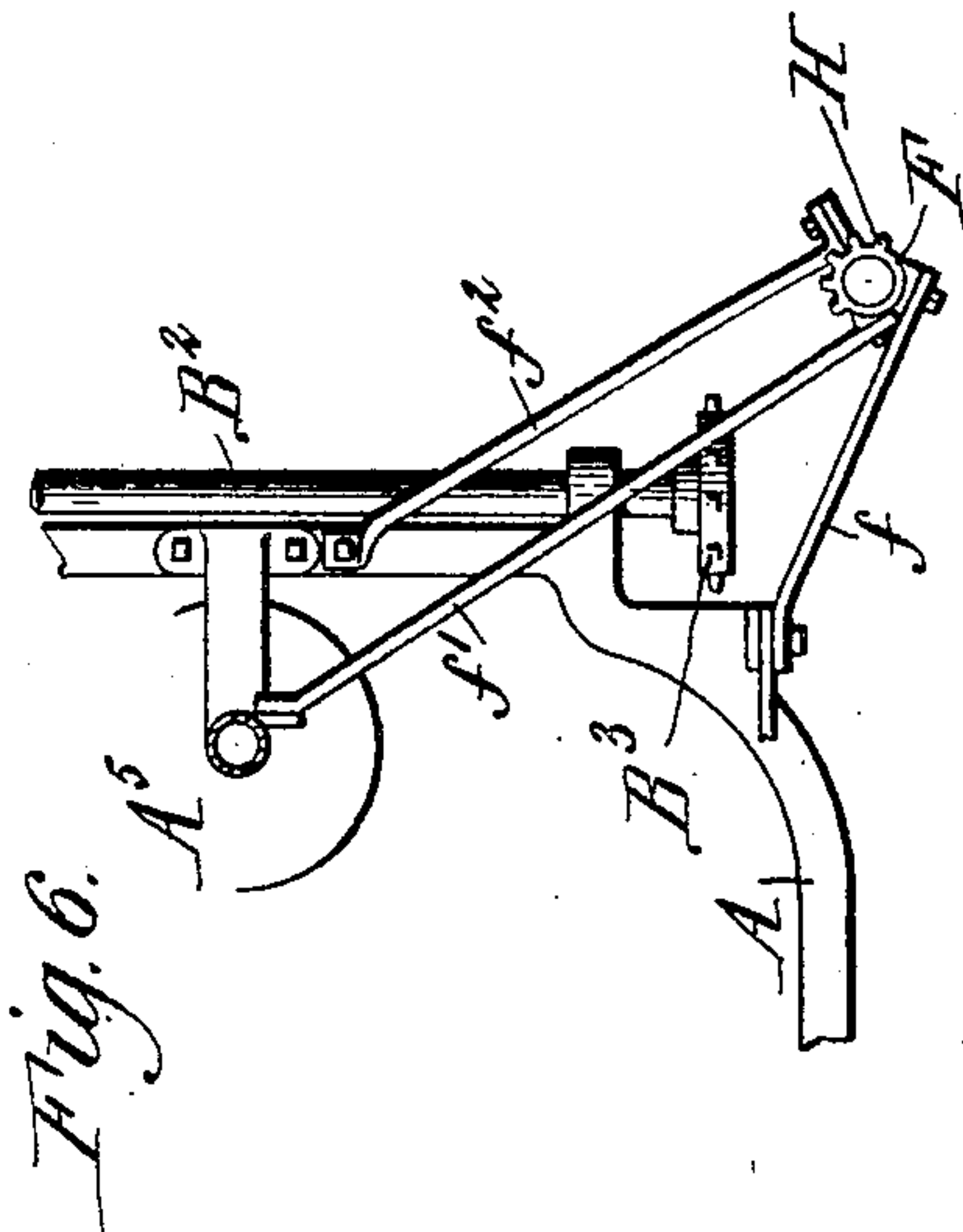
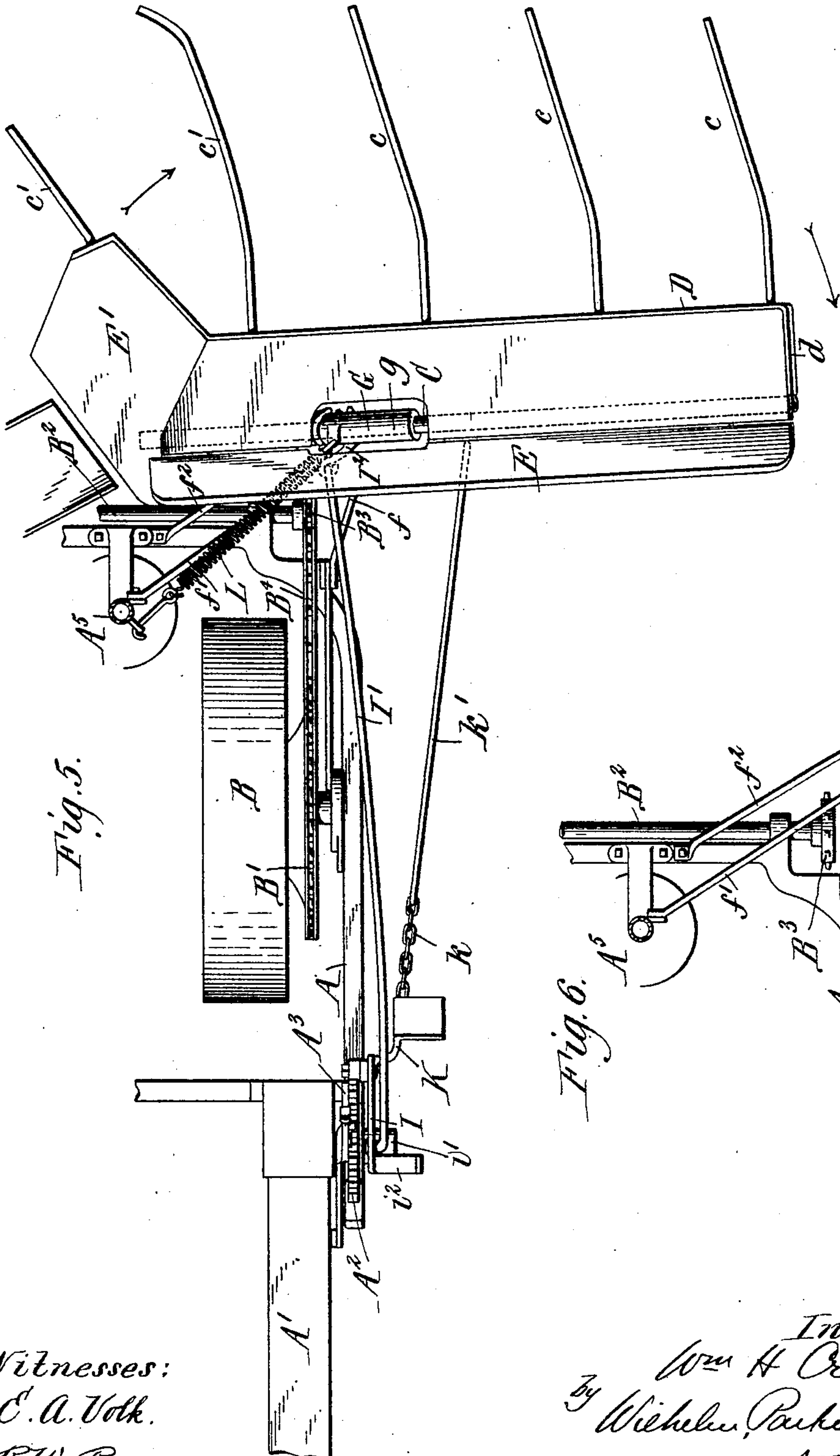
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3 SHEETS—SHEET 2.



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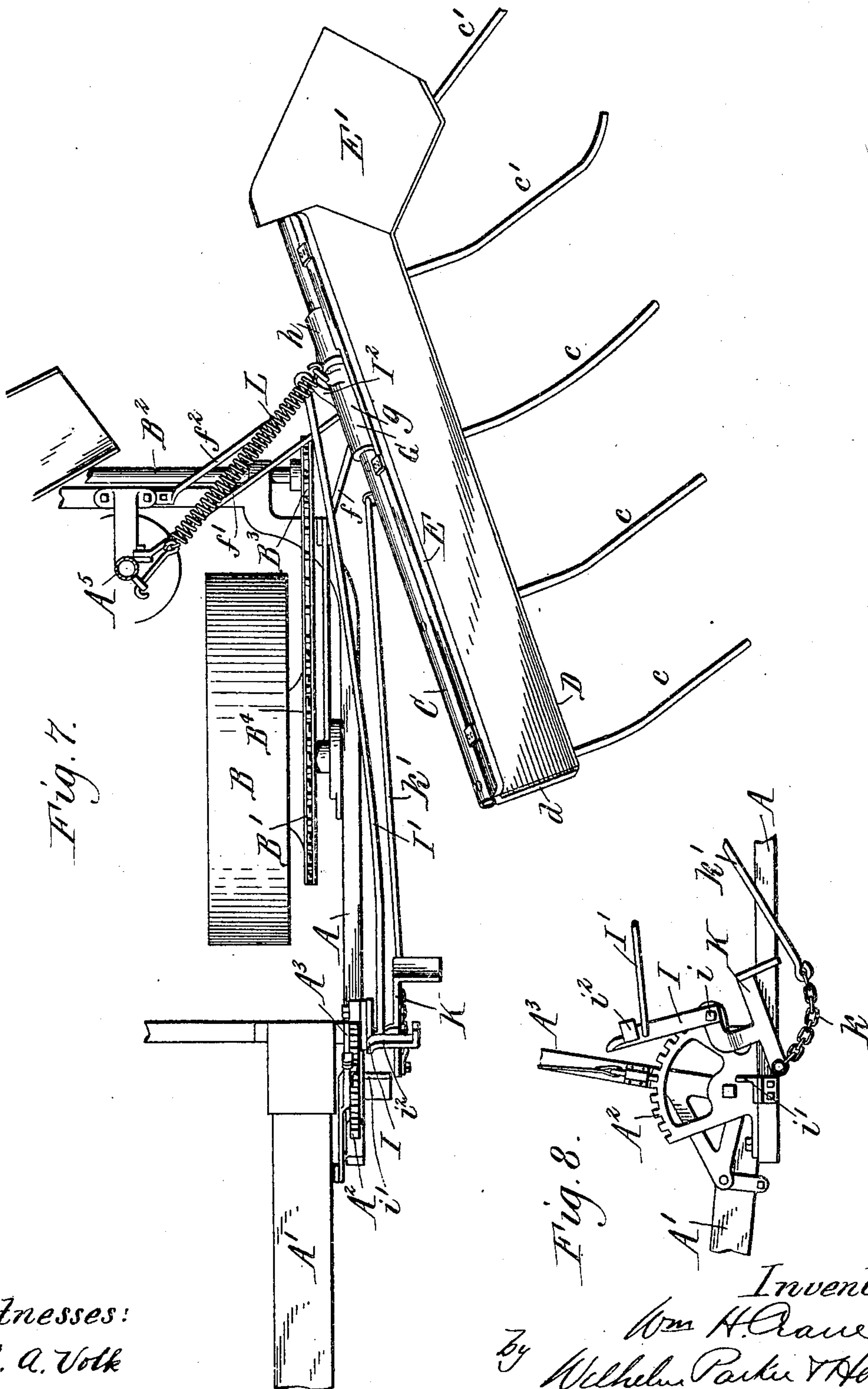
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## BUNDLE-CARRIER FOR GRAIN-HARVESTERS.

No. 795,489.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed June 30, 1904. Serial No. 214,735.

*To all whom it may concern:*

Be it known that I, WILLIAM H. CRANE, a citizen of the United States, residing at Poughkeepsie, in the county of Dutchess and State of New York, have invented new and useful Improvements in Bundle-Carriers for Grain-Harvesters, of which the following is a specification.

This invention relates to that class of bundle-carriers which are employed in connection with grain-binders, more particularly corn-binders, in which the bundles are bound on end.

The main objects of the invention are to construct the carrier in such manner that the weight of the bundles causes a rotary movement of the carrier and that such movement causes the carrier to swing on its upright pivotal support, and, further, that during the discharge movement of the carrier the bundles are moved bodily stubbleward at the butt-ends before being delivered by the carrier, whereby the bundles are carried so far from the stubbleward side of the machine that when the bundles are discharged they are out of the way of the horses on the next round of cutting.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of so much of a corn-binder as is necessary for illustrating the invention, the view being taken from the stubbleward side. Fig. 2 is a front elevation of those parts of the carrier which lie rearward of the line 2 2, Fig. 1. Fig. 3 is a fragmentary sectional elevation of the pivotal portion of the carrier. Fig. 4 is a top plan view of the pivot-socket and connecting parts. Fig. 5 is a plan view of the carrier and the stubbleward portion of the corn-binder, showing the carrier in the receiving position. Fig. 6 is a top plan view of the carrier-socket and the adjacent portions of the frame of the machine. Fig. 7 is a top plan view similar to Fig. 5, but showing the carrier in the discharging position. Fig. 8 is an elevation of the foot-levers by which the carrier is operated viewed from the stubbleward side.

Like letters of reference refer to like parts in the several figures.

A represents the stubbleward portion of the main frame of a corn-binder; A', the pole; A<sup>2</sup> A<sup>3</sup>, respectively, the segment and lever for adjusting the frame; A<sup>4</sup>, the seat; A<sup>5</sup>, a rear standard; B, the master or main ground-wheel; B', the main sprocket-wheel, and B<sup>2</sup> the rear transverse shaft provided with a sprocket-pin-

ion B<sup>3</sup>, which is driven from the wheel B' by a chain B<sup>4</sup>. All of these parts may be of any ordinary or suitable construction and may be modified in various ways.

C represents the main shaft or rod of the bundle-carrier, which is arranged near the stubbleward rear corner of the main frame A in a more or less oblique position, so as to extend upward and stubbleward. This shaft or rod is provided with rearwardly-extending tines or fingers *c c'* of the proper size and arrangement to receive and hold the bundles which are discharged successively from the binder mechanism, the tines or fingers *c* being arranged above the pivot-line of the rod C and the tines or fingers *c'* below the pivot-line. These fingers are preferably supported or braced in rear of the shaft C by a bar D, through which the fingers pass and which is secured to the shaft, near the upper and lower ends thereof, by forwardly-turned upper and lower arms or portions *d d'*. The shaft is further provided on its front side with a gather-board E and at its lower end with a base-board E' for supporting the butts of the bundles. The shaft is pivotally supported at a distance above its lower end in a vertical socket F, which is secured in rear of the stubbleward rear corner of the main frame A of the machine by any suitable means—for instance, as shown, by braces *f f' f''*.

G is the pivotal bearing-support of the carrier, which consists of an oblique journal-bearing *g*, in which the shaft of the carrier is journaled so as to be capable of turning about its own axis, and a vertical pivot *g'*, which turns in the socket F. This combined pivot and bearing allows the carrier to swing bodily about the vertical axis of the pivot and to revolve about the oblique axis of the shaft. The shaft is preferably formed of tubing for strength and lightness, and the pivot *g'* also is preferably made hollow, as shown. The pivot-socket is provided, preferably near its upper end, with a gear-segment H, concentric with the axis of the socket, and the shaft is provided below the pivot-line with a corresponding gear-segment H', the hub *h* of which is secured to the shaft by a pin *h'* or other suitable means, Figs. 3 and 4.

When the carrier stands in its normal receiving position, (shown in Figs. 1, 2, and 5,) the gear-segments are in mesh at one end of the stationary segment H, Fig. 4. In this position of the carrier the shaft stands in a



plane nearly at right angles to the side of the machine and extends stubbleward in a more or less oblique position, and its fingers extend rearwardly and more or less upwardly. When the carrier has received a load of bundles and is released to discharge the same, the rearwardly-overhanging weight of the bundles resting on the fingers causes the shaft to turn about its own axis in the bearing *g*, and this rotary movement of the shaft causes the movable gear-segment *H'* to turn about the stationary gear-segment *H* in the direction of the arrow, Fig. 4, and so compels the carrier to swing about its upright pivotal line. This swinging movement of the carrier takes place in a forward direction in that portion of the carrier which lies above or stubbleward of the pivotal line and in a rearward and stubbleward direction in that portion of the carrier which lies below or grainward of the pivotal line, as indicated by the arrows in Fig. 5. It follows from this compound swinging and rotary movement of the shaft that the carrier swings with its lower portion stubbleward and with its upper portion toward the side of the machine and that the ends of the fingers are at the same time gradually lowered. The fingers do not reach the discharge position until the carrier itself has reached the discharge position, (shown in Fig. 7,) in which it extends forwardly in an oblique line to the side of the machine. The ends of the fingers have now been so far depressed by the rotation of the shaft that the bundles roll off. The lower or butt portion of the carrier, which lies grainward of the vertical pivotal line in the normal or receiving position of the carrier, is carried stubbleward by the swinging movement of the carrier and away from the binding mechanism, so that in the discharging position of the carrier the lower or butt portions of the bundles are at a considerable distance stubbleward from the position which they occupied in the receiving position of the carrier. The bundles are thereby carried stubbleward beyond the track of the master-wheel, and in rolling from the carrier to the ground they are delivered so far stubbleward of the machine that they are out of the way of the horses on the next round of cutting.

The arrangement of the pivot-socket and pivot may be reversed, if desired, the pivot being secured to the main frame and the socket being secured to the bearing.

The carrier is provided with devices for retaining it in its elevated or receiving position, for releasing it when the load of bundles is to be discharged, and for returning it to its receiving position. These devices are constructed as follows: *I* is a foot-lever which is pivoted at *i* to the segment *A*<sup>2</sup> of the frame-adjusting mechanism or some other suitable stationary part of the machine. The lever is connected by a rod *I'* with an arm *I*<sup>2</sup> on the oblique bearing *g*. When the carrier is in its

normal or receiving position, (shown in Figs. 1, 2, and 5,) the foot-lever *I* is in its forward depressed position and rests on a stop *i'*, secured to the frame of the machine. In this position these parts are on the dead-center, or nearly so, and support the carrier in its normal position. By moving the foot-lever upwardly out of its locking position, for which purpose the lever may be provided with a stirrup *i''*, the carrier is released sufficiently to enable the weight of the bundles to set the carrier in motion.

It sometimes occurs that the bundles are not freely discharged from the binding mechanism and rest partly on the machine and partly on the carrier, in which position they offer considerable resistance to the proper working of the carrier. In order to provide means for starting the carrier under these circumstances, a starting or emergency lever *K* is provided. This lever is pivoted to the segment *A*<sup>2</sup>, preferably by the pivot *i* of the locking-lever *I*, and has its lower arm connected by a chain *k* and rod *k'* with the shaft *C* at a convenient point, so that the driver can start the carrier by depressing the lever *K*.

When the carrier has reached the discharge position, (shown in Fig. 7,) the locking-lever *I* stands in its elevated position and the starting or emergency lever *K* stands in its lower position, as indicated in Fig. 8. The carrier is returned to its normal or receiving position by pressing the locking-lever *I* forwardly and downwardly until its movement is arrested by the stop *i'*.

For the purpose of counterbalancing part of the weight of the carrier a spring *L* may be employed, which connects the carrier with a stationary part of the machine. As shown, this spring is attached at one end to the bearing *g* of the carrier and at the other end to the post *A*<sup>5</sup>.

The angle at which the shaft *C* of the carrier is arranged to the pivot-line on which the carrier swings may vary considerably, as circumstances may require, and may even reach a right angle. The pivot-line on which the carrier swings is preferably arranged vertically, as shown; but a greater or less departure from this position of the pivot-line may be made, if desired.

I claim as my invention—

1. In a harvesting-machine, a bundle-carrier mounted upon an upright pivotal support which is arranged at a distance stubbleward from the butt-end of the carrier, said carrier having an oblique rotary shaft connecting the carrier with said support and arranged to intersect with its axis the pivotal line of said support, substantially as set forth.

2. The combination of a harvesting-machine, an upright pivot-socket thereon, and a bundle-carrier arranged at an angle to said socket and provided with a pivot which is seated therein and which is arranged at a distance



stubbleward from the butt-end of the carrier, and a rotary shaft connecting said carrier and said support, which shaft has its axis arranged in the same vertical plane with the axis of said pivot and socket, substantially as set forth.

3. The combination of a harvesting-machine, an upright pivot-socket thereon, a pivot seated in said socket and carrying at its upper end a bearing arranged over the pivot at an angle to the pivotal line, and a bundle-carrier having its shaft journaled in said bearing, substantially as set forth.

4. In a harvesting-machine, the combination of a bundle-carrier, an upright pivotal support for the same, and a bearing in which said carrier is journaled to rotate and which is arranged over said pivotal support and at an angle to the pivot-line thereof, substantially as set forth.

5. The combination of a bundle-carrier, an upright pivotal support on which the carrier swings bodily in a substantially horizontal direction, a rotary connection between the carrier and its pivotal support, and a driving means which connects the carrier with the pivotal support and by which the movement of the carrier on its rotary connection causes the carrier to swing bodily on its pivotal support, substantially as set forth.

6. In a harvesting-machine, the combination of a bundle-carrier, an upright pivotal support on which the carrier swings, a rotary connection with said support which is arranged at an angle to said pivotal support and on which the carrier is caused to rotate by the weight of the bundles, and a connecting driving device by which such rotary movement causes the carrier to swing on its pivotal support, substantially as set forth.

7. The combination of a bundle-carrier, an upright pivotal support on which the carrier swings bodily, a rotary connection between the carrier and its support arranged at an angle to the axis of said pivotal support, and gears which connect the carrier and its support and

cause the discharging movement of the carrier on its rotary connection to produce a swinging movement of the carrier on its pivotal support, substantially as set forth.

8. The combination of a harvesting-machine, an upright pivot-socket thereon provided with a gear-segment, a pivot seated in said socket and provided with a bearing, a bundle-carrier journaled in said bearing, and a gear-segment on the carrier which engages the segment on the socket, substantially as set forth.

9. The combination of a bundle-carrier, an upright pivotal support for the same arranged at a distance stubbleward from the butt-end of the carrier, a rotary connection between the carrier and its pivotal support arranged at an angle to the axis of said support, and a driving device connecting the rotary carrier and its pivotal support, substantially as set forth.

10. The combination of a harvesting-machine, a pivoted bundle-carrier, a locking-lever mounted on the machine and connected with the carrier for holding the carrier in its receiving position, and a starting-lever also mounted on the machine and connected with the carrier for starting the movement of the same out of the receiving position, substantially as set forth.

11. The combination of a harvesting-machine, a pivoted bundle-carrier, a locking-lever mounted on the machine, a rod extending from said lever to an arm on the carrier, a starting-lever also mounted on the machine, and a connection extending from said starting-lever to the carrier and tending to move the carrier out of its receiving position upon operating the starting-lever, substantially as set forth.

Witness my hand this 25th day of June, 1904.

WILLIAM H. CRANE.

Witnesses:

ALBERT A. SIMPSON.

G. M. PATTEN.