

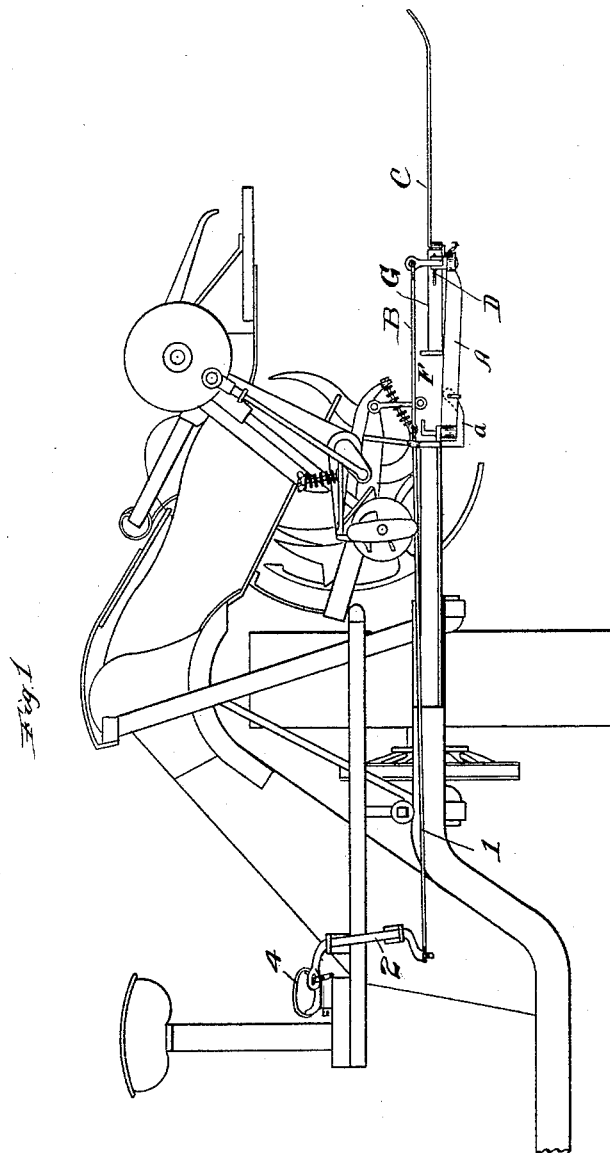
(No Model.)

4 Sheets—Sheet 1.

M. KANE.
BUNDLE CARRIER FOR GRAIN BINDERS.

No. 458,973.

Patented Sept. 1, 1891.



Witnesses:

Lew. E. Curtis
H. M. Munday

Inventor:

Maurice Kane

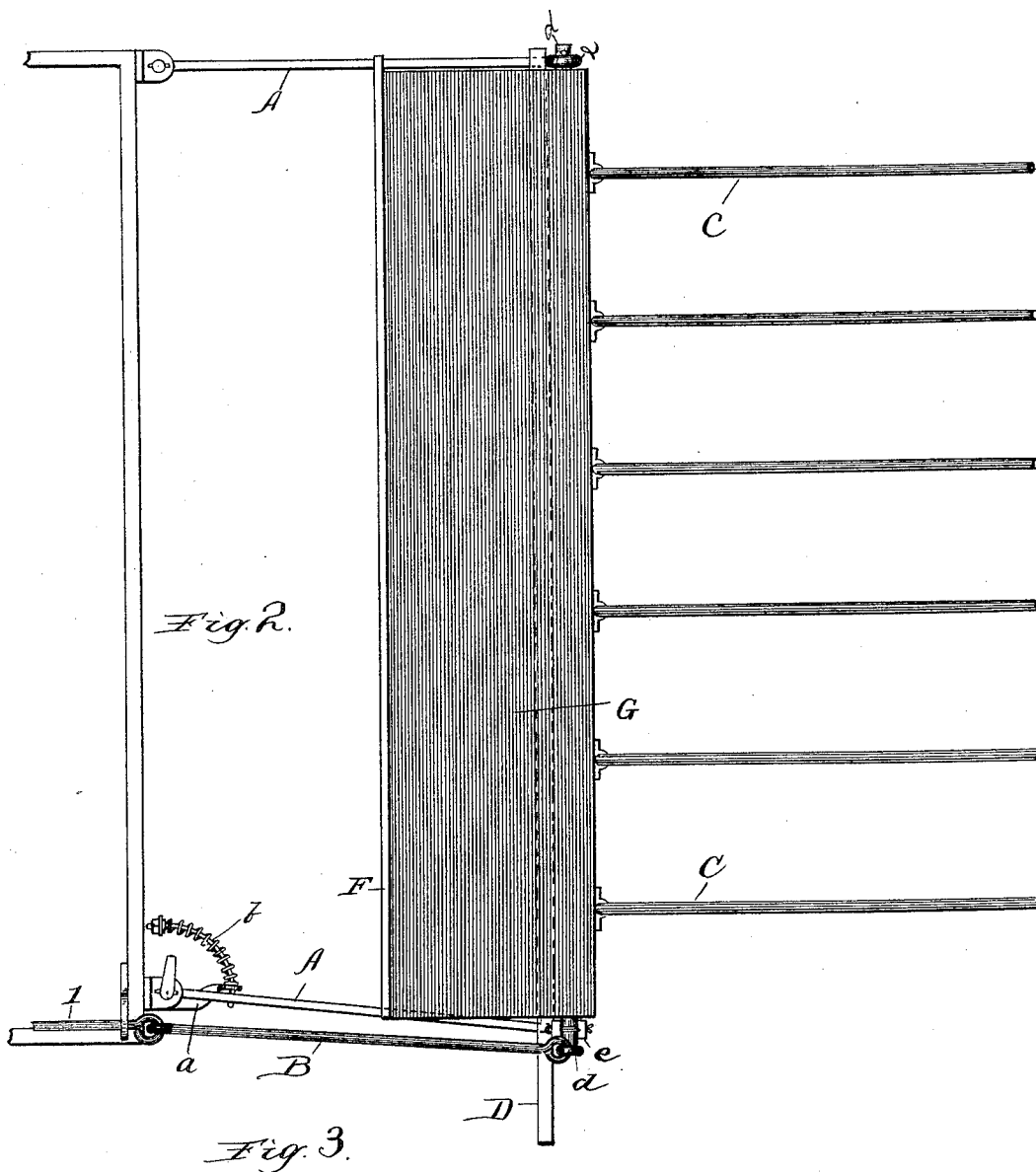
By Lutherworth Hall Moore & Smith

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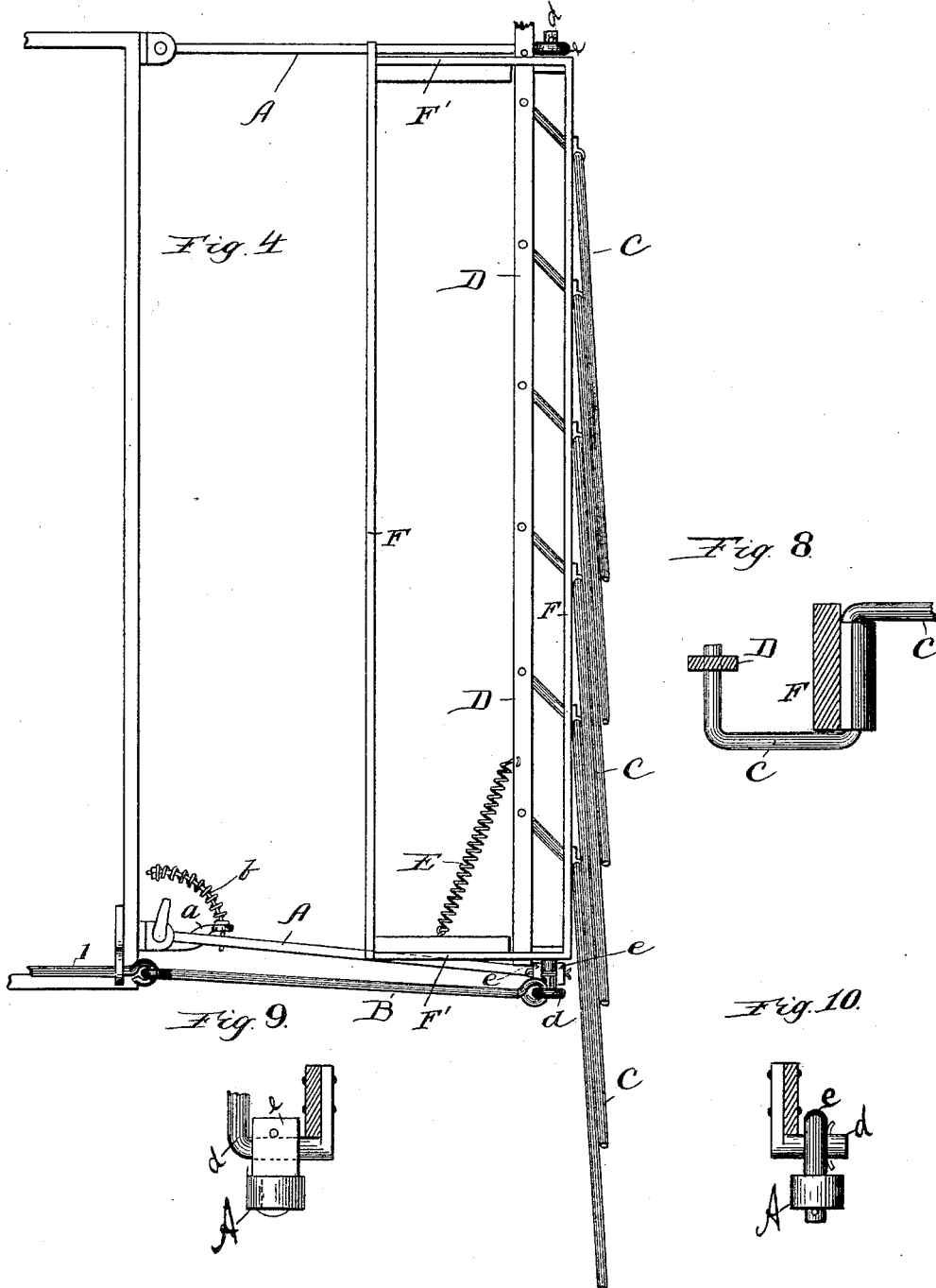
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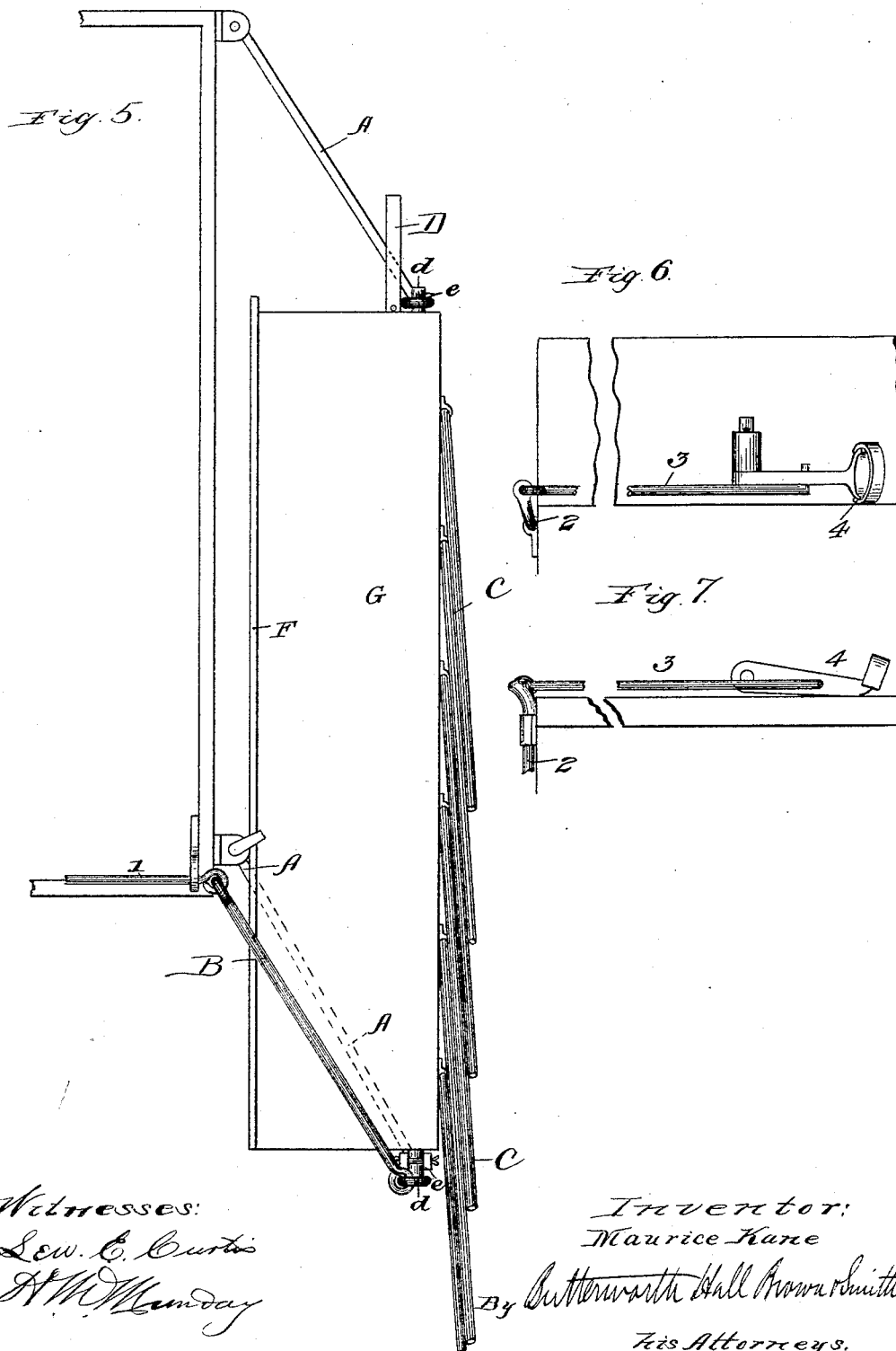
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Inventor:
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UNITED STATES PATENT OFFICE.

MAURICE KANE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WARDER,
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BUNDLE-CARRIER FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 458,973, dated September 1, 1891.

Application filed May 26, 1890. Serial No. 353,216. (No model.)

To all whom it may concern:

Be it known that I, MAURICE KANE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bundle-Carriers for Grain-Binders, of which the following is a specification.

The object of my invention is to afford an improved construction of a bundle-carrier that will permit the latter to give or move aside when encountering an obstruction or when it is desired to pass the machine through a comparatively narrow gate or opening.

To this end my invention consists in the construction hereinafter described, and then more particularly pointed out in the claims.

In the drawings like letters and numerals refer to the same parts in the several figures, in which—

Figure 1 is a rear elevation of a grain-binder embodying my improvements. Fig. 2 is a plan view of the bundle-carrier in its normal position, but detached from the grain-binder. Fig. 3 is a side elevation of the same. Fig. 4 is a top or plan view of the same with the platform of the bundle-carrier removed and the teeth of the same folded. Fig. 5 is a top or plan view of the bundle-carrier with all of its parts in their folded position. Fig. 6 is a plan view in detail of the treadle mechanism employed for tilting the bundle-carrier, and Fig. 7 is a side elevation of the same. Fig. 8 is a detail view in side elevation of the rear or crank end of one of the teeth of the bundle-carrier with the frame and operating-bar in cross-section. Figs. 9 and 10 are detail views of the swivel connections between the front ends of the bundle-carrier and the links for hinging them to the main frame.

My bundle-carrier is attached to the main frame of the grain-binder at right angles to its path of movement by two bars A A, which are hinged at their rear ends to the main frame and swiveled at their forward ends to the bundle-carrier.

The main frame of the bundle-carrier is preferably of a rectangular form and may be composed of two longitudinal bars F, of metal or other suitable material, and two shorter end bars F', connecting the longitudinal bars. On top of this rectangular frame is secured a

table or cover G of wood, sheet metal, or other suitable material.

I prefer to hinge or swivel the side bars to the bundle-carrier in the following manner: The bundle-carrier frame has secured to its ends near its outward side short horizontal pivots or axes *d d*, and these axes rest in bearings formed in the yokes *e e*, which latter each have a vertical portion, forming a pivot, around which may turn or swivel the eye or bearing formed in the outer end of each of the side bars or arms A A. One of the short axes *d d* may be extended, upturned, and provided with an eye to adapt it for connection with a system of connecting-rods for effecting the tilting of the bundle-carrier. This duplex or gimbal joint between the bundle-carrier and its supporting side bars or arms provides for a vertical movement of the former with reference to the latter, and also permits the side bars to swing freely back with the carrier, because the latter may turn horizontally in the bearings in such side bars.

In Fig. 9 the construction just described is shown in detail. In this view the horizontal pivot is shown passing through its bearing in the yoke, and the latter is shown in side elevation, its vertical pivot being indicated in dotted lines because it is inclosed by the eye in the outer end of the side bars or arms. The sectional lines indicate that the end bar of the frame of the bundle-carrier has been cut.

In Fig. 10 is shown a modified connection between the side bar and the end of the bundle-carrier frame. The horizontal pivot has no upturned end, because it is designed to be used at the end of the bundle-carrier opposite the one connected to treadle, and the yoke or bearing is made entirely of a round rod; but it also has a vertical portion serving as the axis or pivot for the outer end of the side bar or arm. The bundle-carrier frame should extend rearwardly of its horizontal pivots a distance about equal to the vertical distance of its top surface from the horizontal plane which the bundle occupies at the time of commencing its fall from the extreme edge of the grain-binder to such carrier, because by this arrangement the tilting of the same will not carry its inner end in the way of the

falling bundle. When the bundle-carrier is rocked or tilted upon its horizontal pivots, if its rearward side or that side next the binder reaches or extends upwardly above the horizontal level of the point at which the bundle drops from the grain-binder proper it is manifest such bundle will drop behind instead of upon the bundle-carrier. So it is necessary to have the width of the bundle-carrier just sufficient, so that when it is made to assume an inclined position its then upper edge will not reach above, but will be below, the level of the bundle just dropping from the machine. The bundle-carrier is pivoted near the outer side, so as to permit of its being given a steep inclination when it is being tilted, even though it is mounted at a comparatively short distance from the ground. If it were pivoted at its rear side, the same inclination would cause it to strike the ground, unless it was supported as a whole at a greater distance therefrom than I have found desirable, and in this latter event the space between the carrier and the grain-binder proper would necessarily be limited, and the pile of bundles which could be carried would be correspondingly abridged. When the treadle shown in Figs. 1, 6, and 7 of the drawings is operated it causes the connecting-rods to move the link B outwardly, and thus cause the upturned end of the horizontal pivot to be moved in the same direction and rock or tilt the bundle-carrier, as shown in dotted lines, Fig. 3. In the lug *a*, projecting from the main frame of the machine, is formed an aperture, and through this aperture passes a curved rod *b*, which latter is secured at one end to one of the hinged bars aforesaid, and is provided at its other end with a nut to afford a bearing for a spiral spring encircling such rod, the said spring being thus inclosed between the nut just mentioned and the inner side of the projection from the frame, through which the rod passes. It will therefore be seen that when the side bars are forced backward by reason of their meeting an obstruction or by manual effort the curved rod will also be carried and will compress the spiral spring encircling it, so that when the force which carried the side bars and bundle-carrier backward no longer exerts its influence the spiral spring will expand and carry the bundle-carrier to its normal position.

The construction which I have just described is most efficient in practice; but it is obvious that a different kind of spring or a weight or other variations might be made without departing from the spirit of this portion of my invention.

It is not unusual to cause the bundle-carrier of a grain-binder to be tilted, so as to discharge the bundle, by means of devices within the reach or under the control of the driver, and I contemplate employing the usual devices for this purpose, which, being in their general construction well known, need no further description than to say that they con-

sist of a horizontal bar 1, which extends from the bundle-carrier to a point near the vertical plane of the driver's seat and there connects with an angular bar or crank-lever 2, which is fitted in suitable bearings, and is in turn jointed or pivoted to one end of a shorter horizontal bar or rod 3, which connects by a loose joint or pivot with the usual treadle or foot-lever 4, as shown in Figs. 1, 6, and 7 of the drawings; but in order to prevent the interference by these devices with the movement of the bundle-carrier, as aforesaid, I have found it advisable to joint the rods connecting the treadle and the bundle-carrier at points adjacent to the hinges of the side bars of the bundle-carrier and provide swivel-joints at the forward ends of such connecting-rods, so that the jointed section thereof will swing similarly to the hinged bars. The jointed section I designate by the letter B.

It has been found advisable to provide for the swinging or folding backward of the teeth or fingers of a bundle-carrier, and I effect this purpose preferably by the construction shown, and which will now be described. The series of teeth or fingers C C are formed at their rear ends with L-shaped portions, the downward legs of which pass through bearings attached to the main frame of the bundle-carrier and the upper legs of which are all secured in a horizontal strip D, which is guided and permitted to slide freely through slots in the side frames of the bundle-carrier. A spiral or other suitable spring is attached to one side of the bundle-carrier and has its other end secured to the sliding strip D. This spiral spring I designate by the letter E. When one or more of these teeth or fingers meet an obstruction or are manually forced backward, the crank portion or portions of the same cause strip D to slide in an opposite direction to the movement of such teeth or fingers and against the retractile force of the spring; but when the power which caused the teeth or fingers to move backward is no longer exerted thereon the retractile force of the spring draws the strip into its former position and thus makes such fingers or teeth turn and assume their normal position. The construction thus described I have found in practice to be quite efficient; but it is obvious that any one skilled in the art might readily vary its details without departing from the principles of this portion of my invention.

It is to be observed that the bundle-carrier as a whole may be moved backward, or the teeth or fingers may be independently operated, or the hinged side bars may be caused to carry the main frame of the bundle-carrier backward, while the teeth or fingers remain in their normal position. If the main frame is folded and the teeth or fingers are left unfolded, the machine may still carry the bundles and at the same time avoid certain obstructions, such as posts of a narrow gate, or some obstacles which it is desired to avoid in pass-

ing the machine through a limited space, while still carrying the bundles.

What I claim, and desire to secure by Letters Patent, is—

- 5 1. The combination, with a grain-binder, of a bundle-carrier and a pair of connecting-bars jointed to both the grain-binder and bundle-carrier by substantially vertical axes, substantially as set forth.
- 10 2. The combination, with a grain-binder, of a bundle-carrier, horizontally-arranged side bars jointed to them both, and an automatic retracting device, substantially as and for the purpose set forth.
- 15 3. The combination, with a grain-binder, of a bundle-carrier and horizontally-arranged bars jointed to them both, one of which is provided with a curved rod encircled by a spiral spring, which latter is inclosed between a head
20 on the rod and a projection of the main frame of the machine, substantially as and for the purpose set forth.
- 25 4. The combination, with a grain-binder, of a bundle-carrier, bars hinged at opposite ends to each of them, and mechanism for tilting such carrier within the control of the driver and provided with a section adjacent to and substantially of the same length with the

hinged bars and jointed correspondingly thereto, substantially as and for the purpose set forth. 30

5. The combination, with a grain-binder, of a bundle-carrier, substantially parallel side bars, both of which are hinged or jointed to the former and to points near the outer side
35 of the latter and adjacent to opposite ends thereof, and a horizontal axis for the carrier near the outer side of the same, substantially as and for the purpose set forth.

6. The combination, with a grain-binder, of
40 side bars jointed to the same, a bundle-carrier also jointed to the side bars, and an additional pair of joints or axes for the bundle-carrier adjacent to the outer side of the same, substantially as and for the purpose set forth. 45

7. The combination, in a grain-binder, of a bundle-carrier and side bars hinged to the former and pivoted to the latter by vertical pivots which have bearings for the horizontal axis of the bundle-carrier, substantially as
50 and for the purpose set forth.

MAURICE KANE.

Witnesses:

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