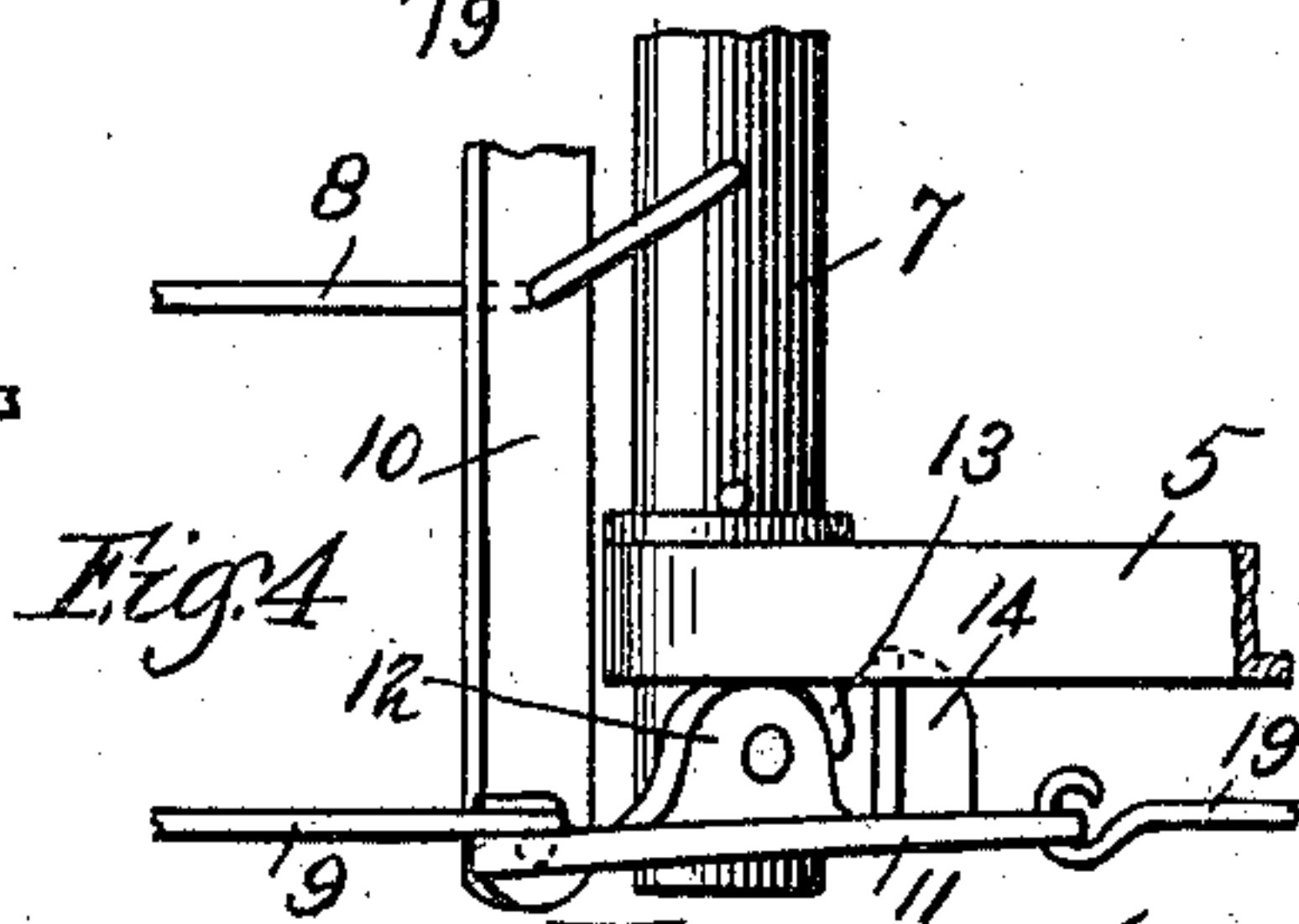
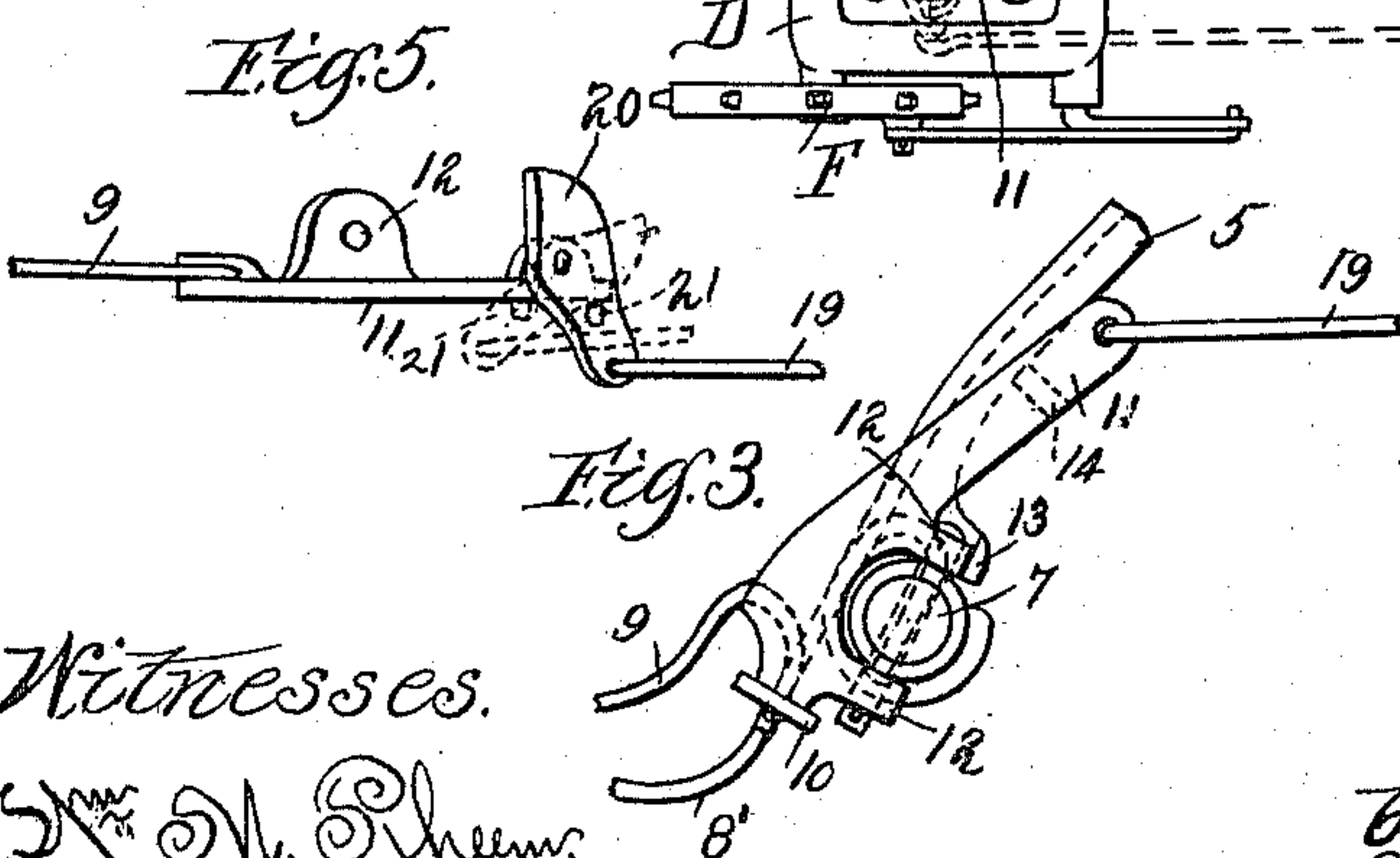
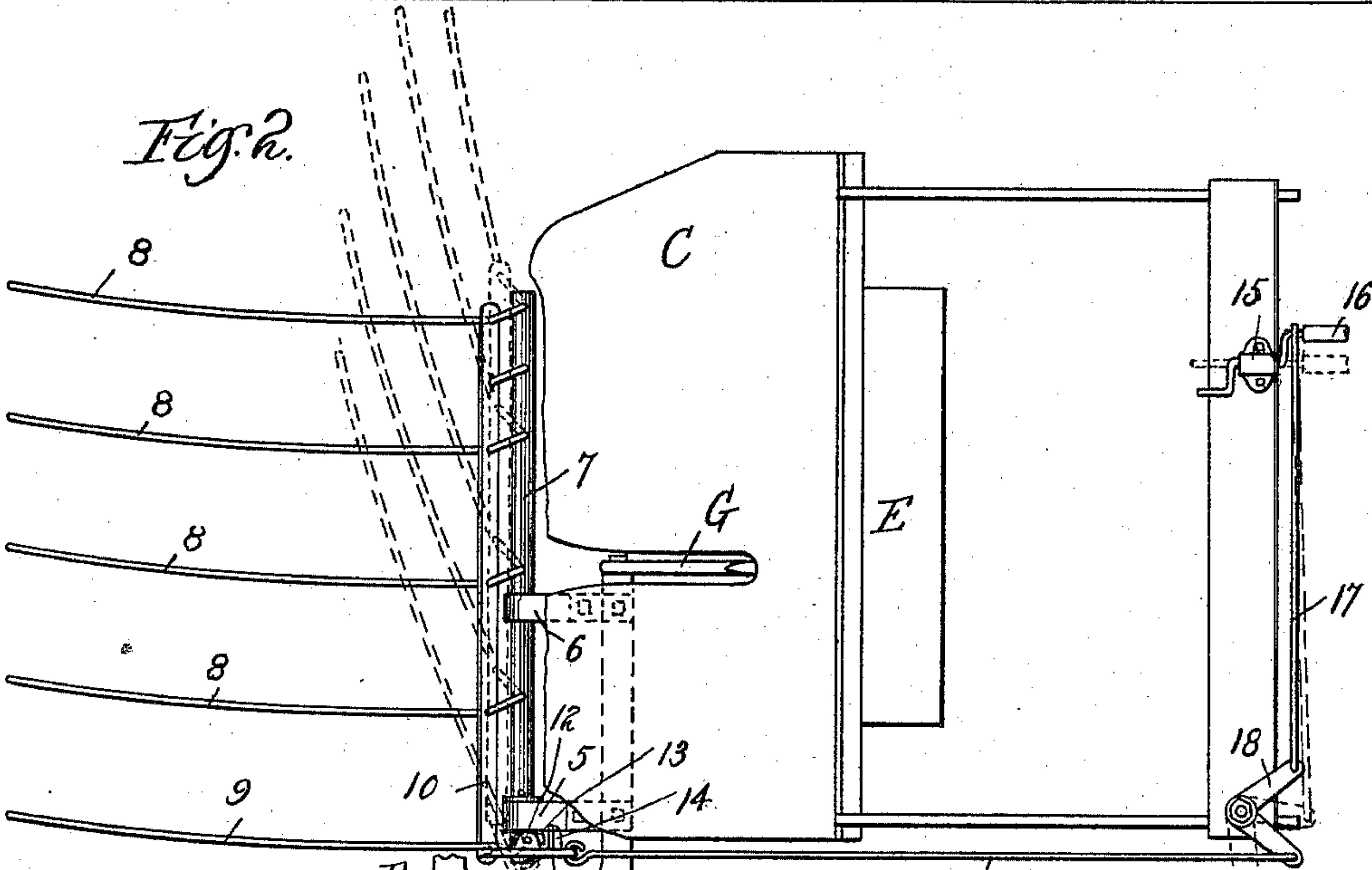
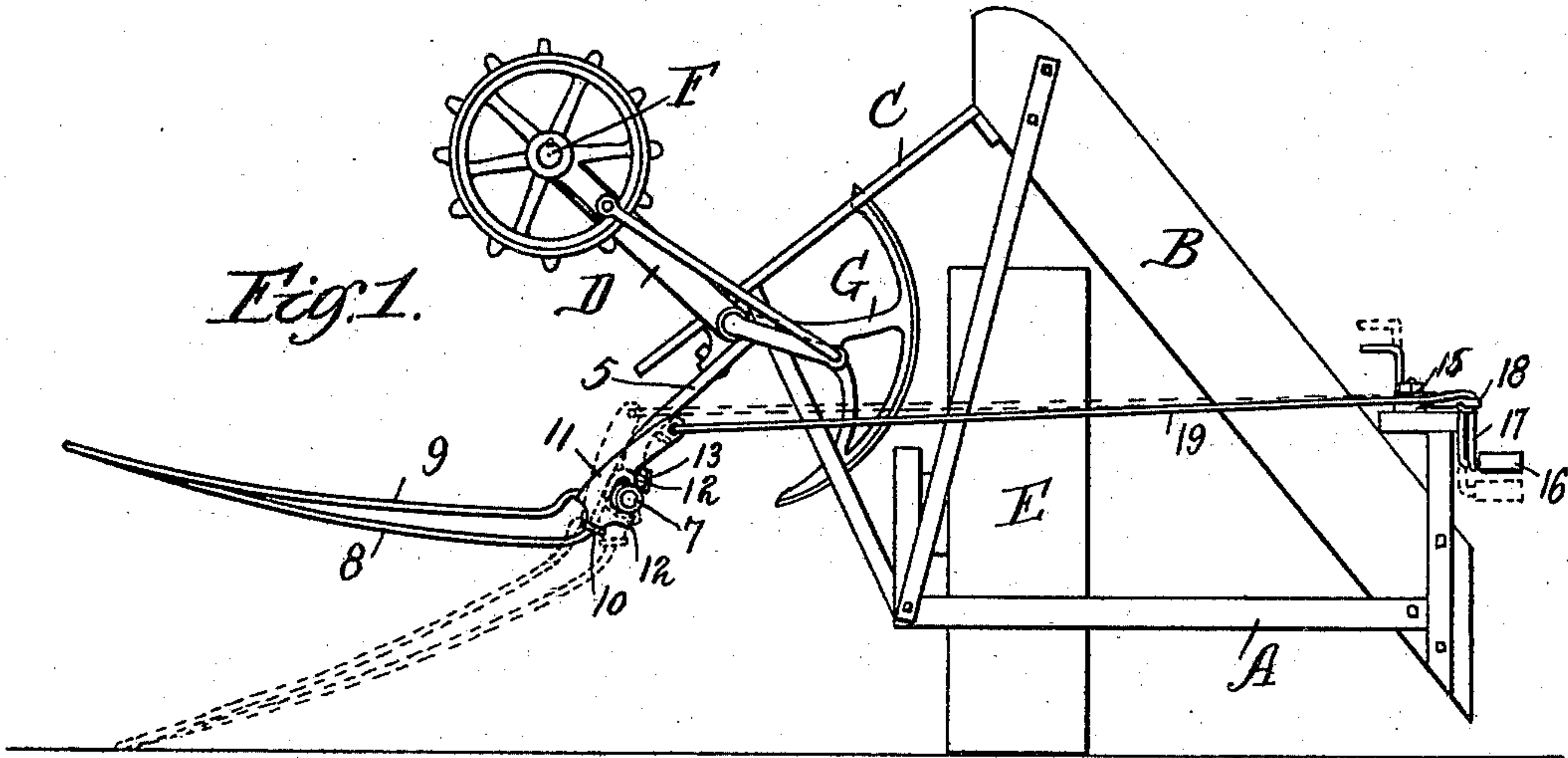


(No Model.)

P. HANSON.
BUNDLE CARRIER FOR HARVESTERS.

No. 573,086.

Patented Dec. 15, 1896.



UNITED STATES PATENT OFFICE.

PAUL HANSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE DEERING HAR-
VESTER COMPANY, OF SAME PLACE.

BUNDLE-CARRIER FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 573,086, dated December 15, 1896.

Application filed December 6, 1894. Serial No. 530,971. (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 new and useful Improvements in Bundle-Carriers for Harvesters, of which the following is a specification.

It is usual in modern automatic grain harvesting and binding machines to provide mechanism constructed and arranged to receive the bundles of grain when formed by and ejected from the binding mechanism and to retain such bundles during the travel of the machine through the field until a sufficient number thereof has been collected, when they are discharged or deposited upon the ground at one operation.

The present invention relates to appliances of this nature; and its object is to provide an improved construction simple, inexpensive, durable, easily understood and operated for accomplishing the desired result.

A further object is to provide a carrier mechanism of simple and improved construction adapted to be easily and readily folded or collapsed, whereby the mechanism is enabled to pass by obstructions or through restricted openings.

A further object of the invention is to provide a carrier mechanism of simple and improved construction arranged and adapted to be so operated as to rapidly and easily effect a discharge of all the bundles or sheaves of grain collected therein.

Further objects of the invention will more fully hereinafter appear.

The invention consists substantially in the construction, combinations, locations, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a view in front end elevation of a portion of a grain harvesting and binding machine with my invention applied thereto, illustrating in dotted lines the position of the parts at a point in the operation thereof. Fig. 2 is a view in plan of the same, showing in dotted lines a different position of the parts. Figs. 3 and 4 are enlarged detail views, in side elevation

and plan, respectively, of parts of the carrier-operating mechanism. Fig. 5 is a detailed view in plan of a slightly-modified form of carrier-operating mechanism, illustrating in dotted lines the operation thereof.

The same reference-sign is employed to designate the same part wherever it occurs throughout the drawings.

A indicates a portion of the framework of a harvesting-machine; B, the elevator-deck thereof; C, the binder-deck; E, the master-wheel; F, the knoter-operating shaft; G, the needle, and D a portion of the binder-housing. These parts may be of any desirable or convenient construction and do not require specific description.

Suitably supported adjacent to the delivery edge of the binder-deck are brackets 5 6, extending stubbleward from the machine. In said brackets is journaled a rock-shaft 7 of any suitable form or construction; but preferably, in order to reduce weight and to afford better means of support for the ends of the bundle-carrying arms presently to be described, said shaft may be in the form of a tube or pipe.

A series of swinging arms 8 are pivoted at their inner ends to rock-shaft 7, and are suitably bent to form a cradle when the parts are in proper position, as hereinafter described more fully, adapted to receive the bundles of grain when formed and ejecting from the bundle-forming mechanism. A bar 10, suitably perforated for the passage of arms 8 loosely therethrough, connects said arms and assists in controlling and governing the movement of said arms and secures simultaneous movement thereof when said arms are folded or rocked to and from the position thereof shown in dotted lines in Fig. 2, for a purpose presently to be described. In the form shown rock-shaft 7 is provided with a series of transverse perforations, and the inner ends of the swinging arms 8 are reversely bent upon the main body portion of said arms, as indicated in Fig. 3, and the bent portion is arranged to be received loosely in said perforations in the rock-shaft, and are suitably maintained therein, whereby said arms are permitted a free rocking motion about the bent portions thereof. In order to permit said arms to rock closely

into line with each other and against the side of the machine when the machine passes an obstruction, the grainward ends of said arms are given a slight lateral bend or offset from the stubbleward ends of the arms, as clearly shown in Fig. 2, and in order to further contribute to this desirable result the arms 8, adjacent to their pivoted ends, are provided with an acute bend, as at 8', Fig. 3, in the direction of the length thereof, thereby forming a substantially vertical portion between said bend and the bend forming the pivot above described. On this vertical portion is arranged the bar 10, which, as will be understood from the foregoing description, is thus located in close proximity to and in a lower plane than the rock-shaft 7, thus permitting the bundle-supporting arms to rock into close proximity to the side of the machine and to each other, and this, too, whether shaft 7 is rocked or not, thus permitting the arms to be folded as well in their elevated position as when their outer ends are depressed or lowered. By this construction is avoided the objection of portions of the stalks of grain being gripped or clamped between the bar 10 and the rocking bar or shaft 7, which would prevent the bundles from being readily deposited or discharged, and hence would cause them to drag along the ground.

Reference-sign 11 indicates an arm provided with lugs 12, extending laterally therefrom and by which said arm is pivotally connected to the front end of shaft 7. The arm 11 is provided with a circularly-cut-away portion between said lugs to receive the shaft 7. (See Figs. 1 and 3.) The forward carrier or cradle-arm 9 is rigidly secured at the inner end thereof to said arm 11, as shown, to move therewith, and is pivotally connected to control-bar 10, as shown, and hence said carrier or cradle-arm, and through it said control-bar 10, is controlled and operated by the movement of said arm 11.

It will be observed that hanger 5 is located adjacent to the end of shaft 7 and that arm 11 is arranged adjacent to said bracket. A lug 13, formed on or secured to said bracket 5, serves as an abutment for one of the lugs 12 on said arm 11 to limit the movement thereof when rocked in a direction to rock said shaft 7 to elevate the outer ends of the carrier-arms. A projection 14 is formed on or carried by arm 11 and is adapted to engage the inner edge of bracket 5 for the purpose of sustaining the swinging arms or cradle in elevated position to receive the bundles of grain. (See Figs. 2 and 4.) In order to facilitate the engagement of lug 14 with said bracket, I round the inner corner of said lug, retaining a flat outer surface thereof to form the bearing.

In a bearing 15, arranged in any suitable or convenient position upon the framework of the machine, but preferably convenient to the seat of the driver or other person operating the machine, I journal a suitable

crank 16, adapted to be operated or rocked, preferably, by the feet of the operator. Connecting to an arm of crank 16 and extending toward the front end thereof is a rod or other suitable connection 17, connecting at its front end with one arm of a bell-crank lever 18. A rod or other suitable connection 19 extends across the front end of the machine and has connection at one end to the other arm of said bell-crank lever 18 and at the opposite end with the upper end of arm 11.

In Fig. 5 I have shown a slightly-modified form of construction for assisting in supporting the cradle or carrier in its elevated position, which in many instances it may be desirable to employ. In this form instead of providing a holding-lug 14, rigid with respect to operating-arm 11, I pivot a lug 20 upon said operating-arm, and to the outer or forward end of said lug I loosely attach connection 19, the lug 20 in effect and mode of operation constituting a lever pivoted intermediate its ends. Any suitably-arranged lugs, as at 21, (see Fig. 5,) may be provided to limit the rocking motion of said lug or lever 20 about its pivot, and the rear face or edge of said lug or lever may be suitably rounded similarly to the construction above described with respect to lug 14, in order to facilitate the passage thereof past the edge of the hanger or bracket 5.

When it is desired to lower the cradle-arms, as, for instance, when it is desired to deposit upon the ground the bundle of grain, the lug 14 is disengaged by the driver suitably manipulating the treadles 16, whereby the connections 17 and 19 are projected longitudinally, the connection 19 being moved endwise stubbleward of the machine. By reason of the fact that the pivot of lever 11 is offset from the plane of said lever it will be seen that the thrust of connection 19 will tend to rock said lever about its pivot, and hence in a direction to disengage lug 14 from the hanger 5, thereby permitting the shaft 7 to rock or rotate in its bearings and the cradle-arms to be depressed or lowered.

The operation of my bundle-carrier is exceedingly simple. The parts stand normally in the position shown in full lines in Figs. 1, 2, 3, and 4. The sheaves when formed and ejected from the binding mechanism are received in the cradle formed by the arms 8. When the desired number of sheaves have accumulated in the cradle, the driver through the connections described disengages lug 14 or 20, as the case may be, from the bracket 5, thereby permitting the shaft 7 to rock in its bearings by the weight of the bundles, or shaft 7 may be positively rocked by the driver suitably manipulating the connections above described, as will be readily seen and understood, and which may be desirable in case the grain is too light to effect such movement by its own weight, thereby lowering or depressing the outer ends of the cradle-arms. When the outer ends of said arms come in

contact with the ground, or, as is most common, when they come in contact with the stubble, as the machine proceeds through the field, said arms are rocked about their pivots upon supporting-shaft 7 into closely-folded position against the side of the machine, thus insuring a discharge of the bundles or sheaves from the carrier and easily riding over the stubble or other obstruction without imposing undue resistance or strain tending to impede the progress of the machine through the field. It will be observed that the pivoting of control-arm 11 to rock-shaft 7 enables said arm to rock about two pivots intersecting each other at right angles, one of said pivots being the axis of the rock-shaft 7, and hence, in effect, said arm 11 acts as a lever in two directions, the one to rock shaft 7 in its bearings and the other to move control-bar 10 longitudinally to fold the cradle-arms or to distend said arms. By offsetting laterally from the plane of arm 11 the pivot thereof, about which it rocks to operate control-bar 10, it will be seen that a crank action is secured and hence a greater amount of leverage for actuating said control-bar. (See dotted lines in Fig. 2.) When the obstruction has been passed, or when the sheaves or bundles have been deposited upon the ground, the driver suitably manipulates crank 16, whereby a pull is imparted to connections 17 19. In case there is an obstruction of any kind in the way, as, for instance, a bundle of grain or the projecting ends of the stubble offering opposition to the forward swing of the cradle-arms, the first effect of the pull in connections 17 19 is to rock shaft 7 in its bearings and hence to elevate the cradle-arms above the obstructions, and then continued pull effects a swinging of the arms into their normal position. Of course if no obstruction is encountered the first action of the pull referred to is to swing forward or distend the cradle-arms and then to elevate them by rocking shaft 7. The construction permitting this result is an important feature of my invention, for thereby the driver is relieved of the severe strains necessary in order to pass an obstruction, an objection and defect in bundle-carriers of prior construction.

Many modifications and alterations would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited to the exact details shown and described.

I am aware of the construction set forth in the patent to Butterfield, No. 362,930, dated May 17, 1887; also, Burson, No. 391,451, dated October 13, 1888; also, patent to Goetze, No. 382,603, dated May 8, 1888; also, patent to Willey, No. 380,968, dated April 10, 1888, and do not desire to be understood as claiming such constructions; but

Having now fully explained the object and nature of my invention, its principle and

mode of operation, and a form of mechanism embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a bundle-carrier a rock-shaft, a series of bundle-supporting arms, pivotally supported at the grainward ends thereof by said rock-shaft, a bar loosely connecting all of said arms at a point intermediate the ends thereof, a lever pivotally mounted upon said rock-shaft and connected to said bar, and means for rocking said lever; as and for the purpose set forth.

2. In a bundle-carrier, a pivoted support, a series of bundle-supporting arms pivotally supported thereon, a bar loosely connecting all of said arms, a lever pivotally mounted on said support and connected to said bar, and means for rocking said lever, whereby said support is rocked and said bar moved endwise, thereby elevating or lowering said arms and distending or folding the same; as and for the purpose set forth.

3. In a bundle-carrier for harvester-machines, a rock-shaft, a series of bundle-supporting arms, pivotally supported at the grainward ends thereof by said rock-shaft, a bar loosely connecting said arms at a point intermediate the ends thereof, a lever pivotally mounted intermediate the ends thereof upon said rock-shaft and secured at one end to said bar, and means connected to the other end of said lever for rocking the same, whereby said arms may be folded and distended and raised and lowered at will; as and for the purpose set forth.

4. In a bundle-carrier, a rock-shaft, bundle-supporting arms pivotally mounted at one end upon said rock-shaft, a bar capable of movement independent of said shaft and loosely connecting said arms intermediate the ends thereof, a bell-crank lever, pivotally mounted upon said rock-shaft to swing upon an axis at right angles to the axis of said rock-shaft, and having one end connected to said bar, and means connected to the other end of said lever for actuating the same, whereby said shaft is rocked and said bar moved endwise, as and for the purpose set forth.

5. In a bundle-carrier for harvester-machines a framework, hangers secured thereto, a shaft journaled in said hangers, a series of arms pivotally supported by said shaft, a lever carried by said shaft and having a lug thereon adapted to engage a hanger, connections between said lever and arms whereby said arms are sustained in elevated position, and means for disengaging said lug, whereby said shaft may be rocked to lower said arms; as and for the purpose set forth.

6. In a bundle-carrier for harvester-machines a framework, hangers supported thereby, a shaft journaled in said hangers, a series of arms pivotally supported by said shaft, a bar loosely connecting said arms, a lever pivoted intermediate its ends to said shaft and connected at one end to said bar, said lever

provided with a lug adapted to engage a hanger, whereby said arms are supported in elevated position, and means, under control of the driver, for disengaging said lug, whereby said shaft and arms may be rocked; as and for the purpose set forth.

7. In a bundle-carrier, a pivoted support, a series of bundle-supporting arms pivotally supported on said support, a bar loosely connecting all of said arms, a lever pivotally mounted on said support, said lever directly connected to said bar, and means for rocking said lever, whereby said support is locked and said bar moved endwise, thereby elevating or lowering said arms and distending or folding the same; as and for the purpose set forth.

8. In a bundle-carrier, a series of bundle-supporting arms, a rock-shaft, said arms being pivotally supported at one end thereof upon said shaft, a control-bar, capable of movement independent of said rock-shaft, and arranged to loosely connect said arms intermediate the ends thereof, a lever pivotally mounted intermediate its ends upon said rock-shaft, the axis of its pivotal support arranged to intersect the axis of said rock-shaft at right angles, said lever connected at one end thereof to said control-bar, and means connected to the opposite end of said lever for actuating the same; as and for the purpose set forth.

9. In a bundle-carrier a framework, a shaft journaled therein, a series of cradle-arms supported by said shaft, a lever mounted upon said shaft whereby the same may be rocked to raise or lower said arms, and a pivoted lug carried by said lever adapted to engage a part of the framework to support said arms in their elevated position, and means for disengaging said lug; as and for the purpose set forth.

10. In a bundle-carrier a perforated rock-shaft, a series of bundle-supporting arms, having their inner or grainward ends upturned and arranged to arch over and be received in the perforations in said shaft, a control-bar provided with a series of perforations through which said arms are arranged to pass, said control-bar arranged intermediate the ends of said arms and in a lower plane than said rock-shaft, a lever pivotally mounted upon said shaft to swing upon an axis at right angles to the axis of said shaft, said lever connected to said bar, and means for actuating said lever, whereby said shaft is rocked and said bar moved endwise, as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 3d day of December, 1894.

PAUL HANSON.

In presence of—

S. E. DARBY,

F. A. HOPKINS.