No. 649,731. Patented May 15, 1900.

E. A. JOHNSTON.

BUNDLE DISCHARGING MECHANISM.

(Application filed June 19, 1899.)

(No Model.)

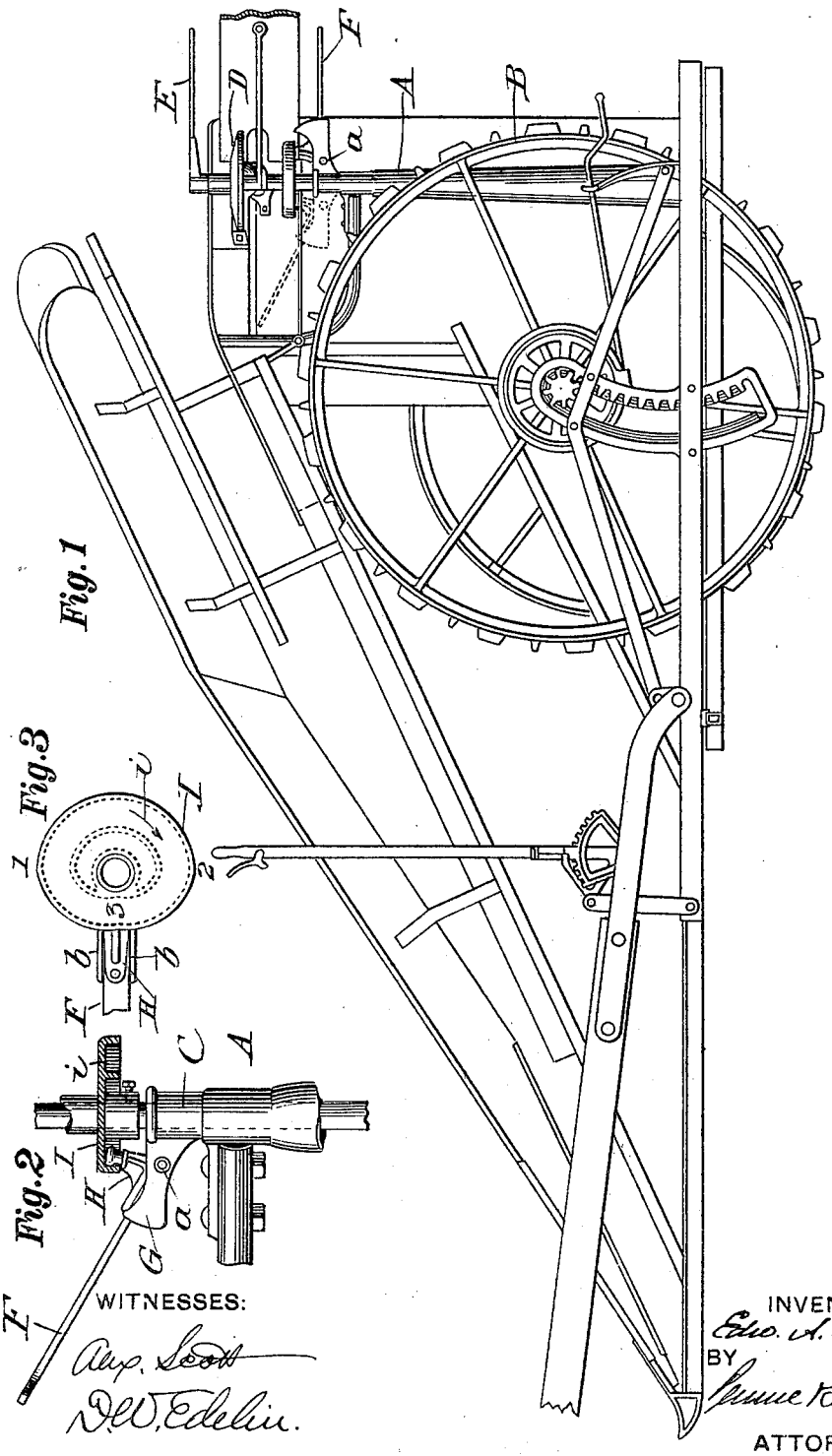

Fig. 1

Fig. 3

Fig. 2

WITNESSES:

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EDWARD A. JOHNSTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCORMICK HARVESTING MACHINE COMPANY, OF SAME PLACE.

BUNDLE-DISCHARGING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 649,731, dated May 15, 1900.

Application filed June 19, 1899. Serial No. 721,072. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. JOHNSTON, 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 Bundle-Discharging Mechanisms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to the bundle-discharging mechanisms of such machines for binding corn, grain, and other crops as have their discharge-arms projecting radially from revolving shafts and where, owing to the organization of the machines, some part of the mechanism is necessarily so located as to be in the path normally described by the revolution of the dischargers, and has particular reference to corn-harvesters which cut and bind the stalks while standing on end—such, for example, as are manufactured by the McCormick Harvesting Machine Company in accordance with the patent to Peck, No. 466,512, dated January 5, 1892, and are known as the "Peck" type of machines.

In all corn-harvesters it is necessary that the main supporting and driving wheel should be larger than in grain-harvesters in order to secure the necessary traction on the ground. It is also necessary that the binder should be set low in order to cut and bind short corn. The whole machine must also be narrow enough to pass between the rows, and the length of the machine from the cutters to the place where the bound bundles are discharged must for obvious reasons be kept within narrow limits. In order to preserve these features, it is necessary that the binder-frame be set near the main wheel, and the position of the bundle-discharger on the knotter-operating shaft is such that the top of the main wheel comes in the path normally described by it as it is swept around by the revolving shaft, and the present improvement consists in mounting the discharger on the shaft so that at the point in its revolution where the main wheel is in the way it will be elevated so as to pass above and clear the top of the wheel, the discharger being restored to its normal position immediately after passing the wheel.

The improvement is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of so much of a corn-harvester of the type above referred to as is necessary to understand the invention. Fig. 2 is a detail of the bundle-discharger and its operating-cam, the latter being in section; and Fig. 3 is a plan view looking down on the cam.

The machine illustrated in the drawings is now so well known that it is not deemed necessary to describe the general organization and arrangement further than to say that the binder-frame casting A is located at the rear of the machine on the side next the main wheel B and as near to the wheel as possible in order to keep the width of the machine within the narrowest practicable limits. Journaled in this frame-casting is the usual knotter-operating shaft C, and the ordinary knotter-cam and gear-wheel D is carried at the usual point on the shaft. Above and below this knotter-wheel the dischargers E and F are carried by the shaft, the arm E being on the end of the shaft and well above the level of the main wheel, but the arm F being below the knotter-wheel and in such position that as it is swept around by the shaft it is liable to strike the top of the main wheel.

The discharger E projects radially from the shaft and is of the ordinary construction; but I pivot the discharger F to a short arm G, that projects radially from the shaft just above the upper end of the vertical member of the binder-frame A, the pivot being transverse to the shaft, as shown at *a* in Fig. 2, so as to allow the discharger to fold upwardly toward the shaft, but without weakening or impairing its strength or rigidity in the direction of its discharging movement. Preferably I secure the discharger F to a casting or hub H, which is pivoted to the arm G, the latter having side flanges *b b*, between which the hub H works so as to brace and support it. The hub H is of bell-crank form, and the discharger F is secured to that arm, which projects outwardly from the shaft C. The other arm of the hub H extends lengthwise the shaft C, and secured in fixed position

around the shaft, above the arm G and between it and the knotter, is a cam I, having an eccentric track *i*, formed by flanges on the under side of the cam-disk. The vertical arm N of the bell-crank hub carries a roller at its end and projects upwardly into the track *i*, so that as the arm G revolves with its shaft C the roller will travel around in the track and cause the hub H to be rocked on its pivot *a*, thus lifting the discharger from a horizontal position into an upwardly-inclined one, as illustrated in Fig. 2 and in dotted lines in Fig. 1.

The outline of the cam-track is best shown in Fig. 3, where it will be seen that for half the circumference of the cam it is concentric with the shaft and that it approaches and recedes from the shaft just before reaching and after passing, respectively, a point about midway opposite this concentric portion. It is this deflection of the track toward the shaft which causes the bell-crank hub H to rock on its pivot and lift the discharger into its elevated position, and the point of nearest approach of the track to the shaft is located on that side of the cam next the main wheel, so that the time when the discharger is lifted corresponds with that part of the revolution of the discharger where it is passing the said wheel. The direction of rotation of the shaft with respect to the cam is indicated by the arrow in Fig. 3. When the arm H is traveling from the point 1 to the point 2, the discharger projects horizontally, and it is at this time that the bundle is discharged. In passing from 2 to 3 the discharger is raised above the wheel, as already described, and then lowered again as the bell-crank H passes from 3 to the point 1 again. Throughout the revolution of the shaft C the discharger is held firmly and steadily in position by the roller on the hub H being confined between the flanges of the cam-track.

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

1. In a corn-harvester, the combination with the main frame and wheel, of a vertical binder located in proximity to said wheel, a shaft journaled in the binder-frame, and having a bundle-discharger pivoted thereto, and a fixed cam adapted to swing the discharger upwardly on its pivot at the point in its revolution where it would strike the wheel were it not pivoted.

2. In a corn-harvester, the combination with the main frame and wheel, of the vertically-arranged binder-frame located in proximity to said wheel, the knotter-operating shaft journaled in said binder-frame and having a radial arm projecting from near its upper end, a bundle-discharger pivoted to said arm on an axis transverse to the shaft, an annular cam-track carried by the binder-frame and surrounding the shaft, and an arm projecting from the discharger lengthwise the shaft and into the cam-track, the eccentricity of the cam-track being arranged so that the discharger is thrown up as it approaches the main wheel so that it may pass above the same.

3. In a corn-harvester, the combination with the main frame and wheel, of the vertically-arranged binder-frame, located in proximity to said wheel, the knotter-operating shaft journaled in the binder-frame and having a radial arm projecting from it near its upper end, a bundle-discharger pivoted to said arm so as to fold upwardly, a cam on the binder-frame above the discharger and having an eccentric track surrounding the shaft, and an arm projecting from the discharger into the cam-track and having a roller on its end, the point of least radius of the cam-track being on the side of the shaft nearest the main wheel.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD A. JOHNSTON.

Witnesses:

WILLIAM WEBBER,

CHAS. W. ALLEN.