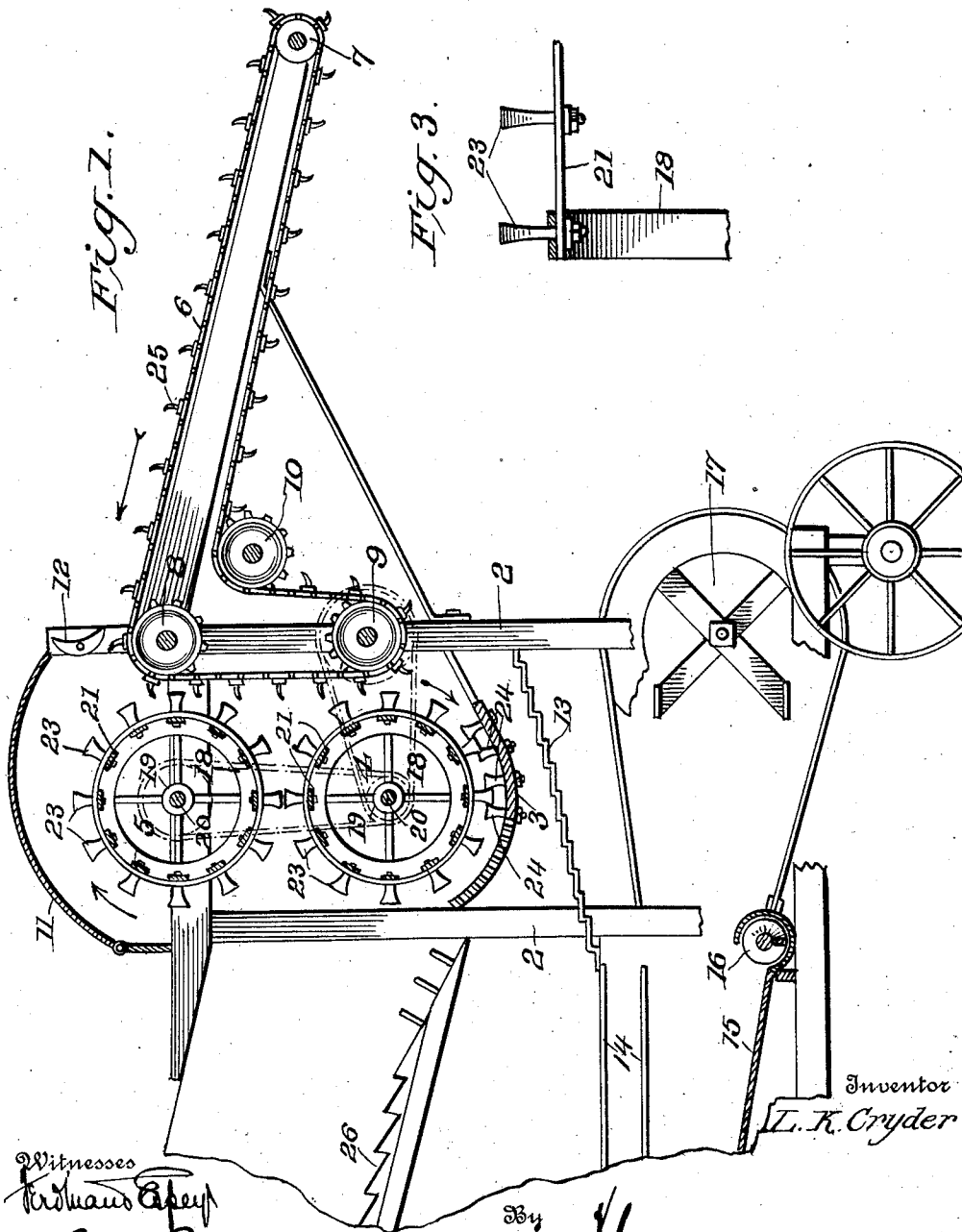


L. K. CRYDER.
BUNDLE SEPARATOR FOR THRESHING MACHINES.
APPLICATION FILED AUG. 13, 1912.

1,049,810.

Patented Jan. 7, 1913.

2 SHEETS—SHEET 1.



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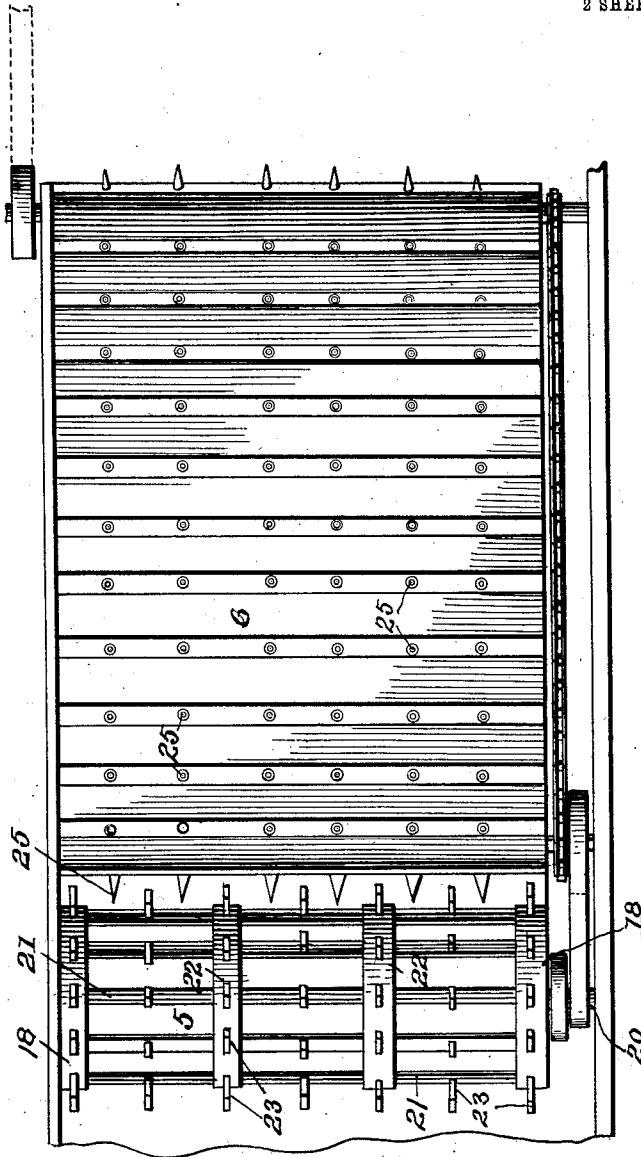
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Fig. 2



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UNITED STATES PATENT OFFICE.

LOUIS K. CRYDER, OF KINGSTON, OHIO.

BUNDLE-SEPARATOR FOR THRESHING-MACHINES.

1,049,810.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed August 13, 1912. Serial No. 714,872.

To all whom it may concern:

Be it known that I, LOUIS K. CRYDER, citizen of the United States, residing at Kingston, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Bundle-Separators for Threshing-Machines, of which the following is a specification.

My invention relates to threshing machinery and particularly to the cylinders and concaves thereof.

The primary object of my invention is to provide means whereby the grain may be more thoroughly separated from the straw before the straw passes to the racks and ridges.

A still further object is to provide means for thoroughly separating the bundles of straw before the straw passes to the cylinder and concave, thus preventing a choking of the cylinder and rendering the resistance to the driving power more uniform.

A further object in this connection is to provide a threshing machine having a preliminary cylinder disposed above the usual cylinder and concave and running at a slower speed but in the same direction as the lower or main cylinder, and to provide in connection therewith a feeding belt which has a flight running vertically downward from a point approximately opposite the upper cylinder to a point approximately opposite the lower cylinder, this feeding belt running at a slower speed than either of the other cylinders.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 is a vertical section through the forward part of a threshing machine showing the main cylinder, the auxiliary cylinder and the feeding belt in elevation. Fig. 2 is a fragmentary plan view of the part shown in Fig. 1. Fig. 3 is a fragmentary detail view of one of the cylinders.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these drawings, 2 designates the framework of the forward portion of a threshing machine, it being understood that inasmuch as my invention does not lie in any special supporting frame, I have not illustrated the details of this supporting frame. Mounted in this supporting frame is a concave 3 of any suitable construction and supported in any suitable manner, and

disposed immediately above the concave is the toothed cylinder 4, the details of construction of which will be hereafter described.

Mounted above the toothed cylinder 4 or main cylinder is an auxiliary cylinder designated 5 and constructed in the same manner as the main cylinder and provided with a plurality of teeth, the teeth being so arranged as to be in alinement with the teeth on the cylinder 4. The cylinder 5 and the cylinder 4 rotate in the same direction, but the cylinder 4 rotates preferably at a speed about twice that of the cylinder 5. A feed belt or carrier 6 passes over a suitable roller 7 supported at the forward end of the machine and having a sprocket wheel 7^a at one end. This belt passes upwardly and rearwardly to a roller 8 disposed preferably in line with the axis of the cylinder 5 and having a sprocket wheel 8^a. The feed belt passes over this upper roller 8, then extends directly downward to form a vertical flight and then passes over a roller 9 disposed opposite the axis of the cylinder 4 and having a sprocket wheel 9^a. After passing over the roller 9, the feed belt or carrier passes upward and outward over a supporting roller 10 having a sprocket wheel 10^a and from thence passes back to the roller 7, thus completing the cycle of the belt. This feed belt or carrier (the detailed construction of which is immaterial and forms no part of my invention) is provided with upwardly projecting teeth so set that they will pass between the teeth on the cylinder 5 and on the cylinder 4. It will be understood, of course, that the belt is provided with transversely extending rows of teeth as are the cylinders 4 and 5. Suitable mechanism may be provided for driving this belt but I have not illustrated this mechanism in detail as it will be readily understood by any one conversant with the art. The belt is driven at a speed less than the speed of rotation of the cylinder 5 and consequently less than the speed of rotation of the cylinder 4. Above the roller 8 are disposed band cutters 12.

The cylinder is covered by means of a hinged cover plate 11, and below the concave is disposed the stepped grain board 13 which is downwardly inclined to the cleaning sieves 14. From the cleaning sieves the grain falls onto the grain board 15 from which it is carried to the grain auger 16 which may be of any suitable construction and driven in any suitable way. Mounted

in connection with the grain sieves so as to direct a blast of air between the grain sieves and the grain board 15, is a blower 17 of any suitable construction and driven in any suitable manner.

Each of the cylinders 4 and 5 is formed with opposed heads 18 connected by spokes to a central hub 19 and fast on the shaft 20. These heads are connected by transverse bars 21 and by circumferentially extending bands 22. As illustrated, there are twelve rows of teeth 23, each row containing seven teeth. These teeth are preferably broadened at their outer ends and as illustrated in Fig. 1 overlap the teeth of the concave. The concave 3 is also formed with upwardly projecting teeth designated 24 which are disposed in alternate relation to the teeth of the cylinder 4. The teeth 25 of the band as before stated are disposed in alternate relation to the teeth of the cylinders 4 and 5 and slightly overlap the teeth of the cylinder 5.

The operation of my invention is as follows: The bundles of straw are placed upon the feed belt and are carried upward and fed into the space between the vertical flight of the feed belt and the upper cylinder 5. Here the bundles of straw with the grain thereon are forced by the feed chain against the rapidly revolving cylinder 5. Inasmuch as the cylinder 5 is moving faster than the feed chain, the bundles are torn apart and separated. The downwardly extending flight of the chain carries this separated straw downward and into contact with the cylinder 4 which as it very rapidly revolves, draws the straw away from the feed belt and carries it between the cylinder 4 and the concave, thus finally separating the grain from the straw, the grain dropping down upon the grain board 13. The straw then passes upward and is carried onto the racks 26 and from thence passes on through the machine in the ordinary manner common to practically all threshing machines. It is finally ejected through the usual blower while the grain passes down and is carried laterally by the grain auger 16 and is discharged through the usual grain chute.

It is to be understood that the teeth used upon the cylinders 4 and 5 may be of any ordinary construction but that preferably these teeth are bolted in place upon the cylinders.

I have found in practice that my invention works extremely well and that the preliminary whipping apart of the bundles acts to prevent the choking up of the feed and causes a uniform feed, thus rendering more uniform the resistance to the power. I have also found in practice that subjecting the straw to be threshed to the beating action

of two cylinders, a preliminary cylinder and the usual cylinder acting in conjunction with the concave, acts to more thoroughly strip the grain from the heads than with the usual one cylinder and concave and so that less grain passes with the straw to the riddle racks or other like devices and thus a less percentage of grain is lost than with the usual construction.

What I claim is:

1. In a threshing machine, the combination with a cylinder and concave, of an auxiliary cylinder mounted adjacent to the first named cylinder and rotating in the same direction, and a feed carrier having a flight extending downward in a plane in front of said cylinders.

2. In a threshing machine, the combination with a cylinder and concave, of a toothed auxiliary cylinder mounted immediately above the first named cylinder and adjacent thereto and rotating in the same direction as the first named cylinder but at a less speed, and a toothed feed carrier extending to the auxiliary cylinder then downward in a plane in front of the said cylinders and then outward, the teeth of the feed carrier overlapping the teeth of the auxiliary cylinder.

3. In a threshing machine the combination with a concave and a toothed cylinder coacting therewith, of an auxiliary cylinder disposed vertically above the main cylinder and provided with projecting teeth, said auxiliary cylinder moving in the same direction as the main cylinder, a supporting roller mounted diametrically opposite and in front of the auxiliary cylinder, a supporting roller mounted diametrically opposite and in front of the main cylinder, an endless carrier mounted on said rollers and having a flight extending vertically downward in front of said rollers, said endless carrier being provided with teeth.

4. In a threshing machine the combination with a concave and a toothed cylinder operating therein, of an auxiliary cylinder disposed above the first named cylinder and having projecting teeth, and an endless feed carrier having a flight extending vertically downward in front of the auxiliary cylinder and the main cylinder and having teeth arranged in alternate relation to the teeth of said cylinders and adapted to overlap the teeth of the auxiliary cylinder.

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

LOUIS K. CRYDER. [L. S.]

Witnesses:

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F. N. R. REDFERN.