No. 787,750. PATENTED APR. 18, 1905.

J. E. GOODHUE.

SNAPPING ROLLERS FOR CORN HARVESTERS.

APPLICATION FILED JAN. 3, 1905.

Fig. 1.

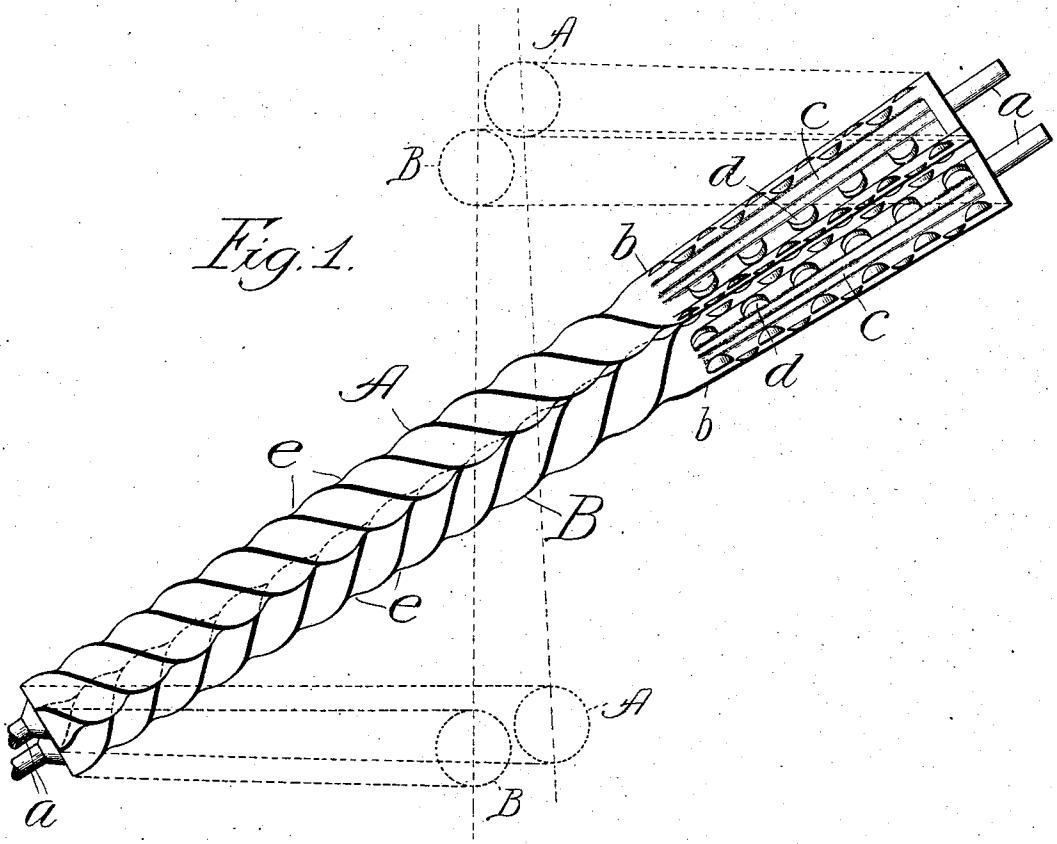
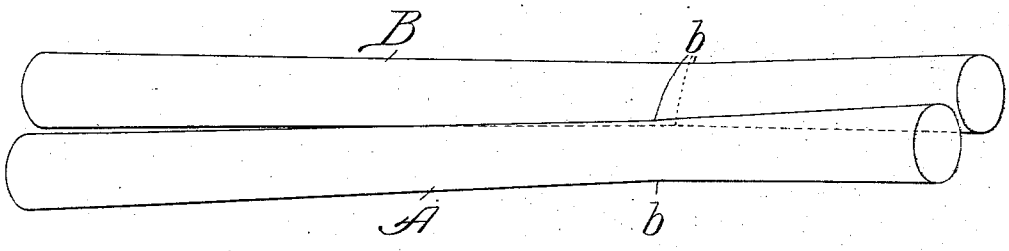


Fig. 2.



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No. 787,750. Patented April 18, 1905.

UNITED STATES PATENT OFFICE.

JAMES E. GOODHUE, OF ST. CHARLES, ILLINOIS.

SNAPPING-ROLLERS FOR CORN-HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 787,750, dated April 18, 1905.

Application filed January 3, 1905. Serial No. 239,389.

To all whom it may concern:

Be it known that I, JAMES E. GOODHUE, a citizen of the United States, residing at St. Charles, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Snapping-Rollers for Corn-Harvesters, of which the following is a specification.

My invention relates to improvements in the construction and arrangement of snapping-rollers for corn-harvesting machines of the class which operate to gather the ears of corn from standing plants in the field.

It is common in machines of the class mentioned to employ a pair of forwardly-inclined snapping-rollers at one or each side which in the travel of the machine rotate and owing to their inclination move up the stalks and snap off the ears of corn. It has been usual hitherto to cause the rollers to extend along their upper surfaces in the horizontal plane; but this has been found objectionable in practice, because the ears when snapped thereby are apt to remain upon the rollers and clog the same.

In an application for Letters Patent, Serial No. 187,451, filed by me January 2, 1904, for a corn-harvester, on which Letters Patent were issued January 3, 1905, No. 779,078, I have shown and described one desirable form of snapping-rollers extending parallel, but one at a higher level than the other, whereby when they snap the ears from the stalks the ears are discharged by gravity over the lower roller, and thus prevented from remaining upon and clogging the rollers. In my said former construction the snapping-rollers extend throughout at the same angle with relation to each other, and as the upper (or rear) portions of the rollers should extend with relation to each other in a plane preferably not less than forty-five degrees from the horizontal to insure proper discharge of the ears the rollers extend in the same plane at their lower or forward ends. This construction requires the employment of stalk engaging and bending means in advance of the forward ends of the rollers capable of bending the stalks near their butt-ends laterally to approximately the angle stated to guide them into the bite of the rollers.

My present object is to provide a pair of rotary snapping-rollers of improved construction for the purpose set forth which will be approximately parallel with each other along a spiral line, whereby at their forward portions they may extend with relation to each other in a more or less nearly horizontal plane and at their rear end portions in a more or less nearly vertical plane. Thus comparatively little if any bending of the stalks is required to guide them into the bite of the rollers and the ears when snapped from the stalks will be discharged laterally from the rollers as desired.

As my present invention relates only to the construction of the snapping-rollers, it is not thought necessary to show them in connection with a corn-harvesting machine, particularly as the general construction of such machines is well known.

Referring to the drawings, Figure 1 is a side view of the snapping-rollers as they appear when mounted in position in an ear-gathering corn-harvesting machine, and Fig. 2 a diagrammatic plan view of the rollers.

A and B are the rollers, provided at their opposite ends with journals *a*. From approximately the line *b* to the upper end of each roller the latter is in the form of a frustum of a cone. From the said line to the lower end of each roller the latter is also frusto-conical. From about the line *b* to their upper ends the rollers are formed with longitudinally-extending coöperating cam-surfaces *c* and peripheral pockets *d*, as shown, which construction is described and claimed in Letters Patent of the United States No. 762,523, granted to me June 14, 1904. From about the line *b* to their lower ends the rollers are formed with spiral grooves *e*, as shown.

As indicated by the dotted projections, the lower ends of the rollers extend with relation to each other in a plane approximately, say, twenty degrees from the horizontal, while the upper ends extend with relation to each other

in a plane approximating sixty degrees from the horizontal. The rollers being of a form wherein they flare from given points to opposite ends may be mounted, as described, to extend with relation to each other at their lower ends in a more or less nearly horizontal plane and at their upper ends in a more or less nearly vertical plane. When thus mounted, the adjacent surfaces of the rollers extend approximately parallel along a line of spiral form, this relation being fixed and maintained during rotation of the rollers. An angle approximating twenty degrees at the lower ends is usually sufficient for all practical purposes in engaging the stalks and, in the same way an angle of sixty degrees at the upper ends is sufficient to cause proper discharge of the ears. Obviously the rollers may be caused to flare from given points toward opposite ends at greater or less degrees than described, whereby parallelism between adjacent surfaces of the rollers may be maintained even when the lower ends are in a horizontal plane and the upper ends in a vertical plane.

In operation the cornstalks in the travel of the machine along a row of standing corn enter the bite of the rollers at the lower or forward ends thereof and are engaged and steadied by the coöperating spiral grooves *e*. As the rollers rise along the stalks the upper portions of the spiral parts of the rollers and the cams *c* and pockets *d* engage the ears and remove them from the stalks, in some cases by breaking the stems of the ears, but more often by forcing the ears out of their husks, leaving the latter on the stalks. This operation of husking the ears while gathering them is a great advantage and is due for the most part to the construction of the rollers involving the cam-surfaces and pockets shown.

I do not wish to limit the construction of the rollers to the employment of the spiral grooves along their lower portions or the cams and pockets along their upper portions, though this form is preferred.

It will be obvious that the rollers may be variously modified in the matter of details of construction without departing from the spirit of my invention as defined by the claims.

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

1. In combination, a pair of rotary coöperating snapping-rollers relatively shaped and supported to extend spirally with relation to each other along adjacent surfaces.

2. In combination, a pair of rotary coöperating snapping-rollers flaring toward opposite end portions and supported to extend spirally with relation to each other along adjacent surfaces.

3. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, for the purpose set forth.

4. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, the rollers being formed with coöperating spiral stalk-engaging grooves along their lower end portions, for the purpose set forth.

5. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, the rollers being formed with coöperating spiral stalk-engaging grooves along their lower end portions, and with coöperating cam-surfaces and pockets along their upper end portions, for the purpose set forth.

JAMES E. GOODHUE.

In presence of—
J. H. LANDES,
F. M. WIRTZ.