(No Model.) 2 Sheets—Sheet 1.

W. N. WHITELEY.

KNOTTER FOR GRAIN BINDERS.

No. 346,393. Patented July 27, 1886.

Fig. 1

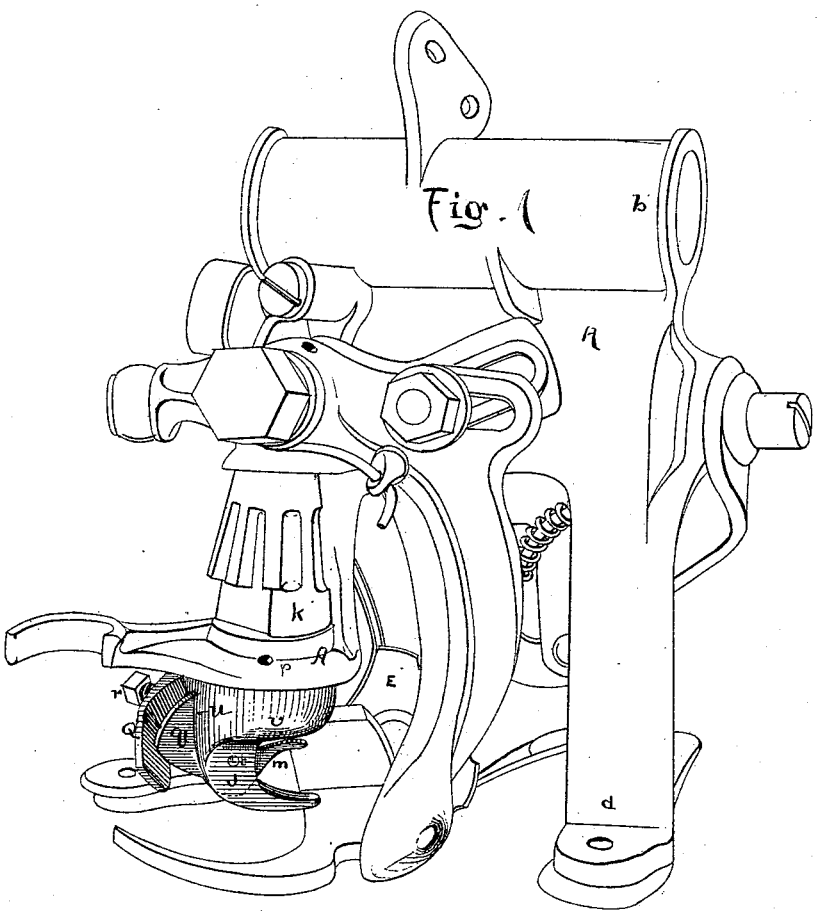


Fig. 2

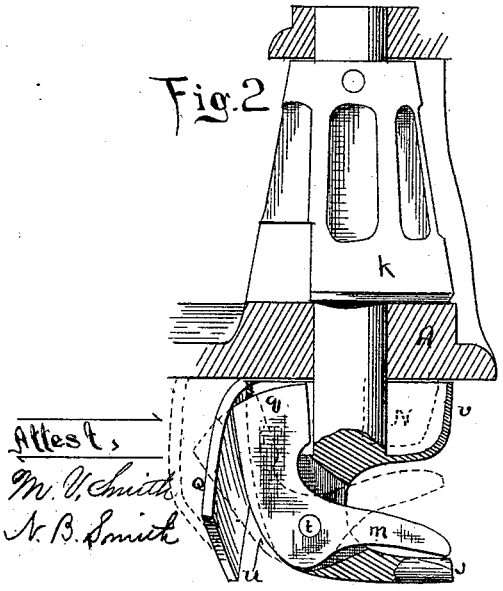
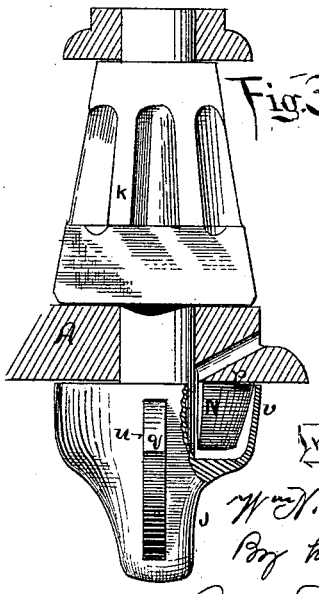


Fig. 3



Attest,
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N. B. Smith

Inventor,
Wm N. Whiteley
By his atty
R. D. O. Smith

(No Model.) 2 Sheets—Sheet 2.

W. N. WHITELEY.

KNOTTER FOR GRAIN BINDERS.

No. 346,393. Patented July 27, 1886.

Fig. 4.

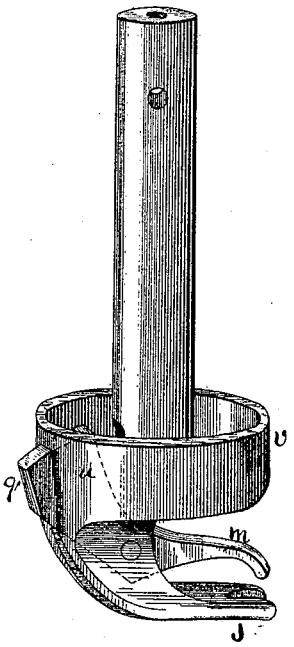


Fig. 5.

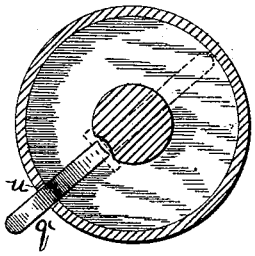
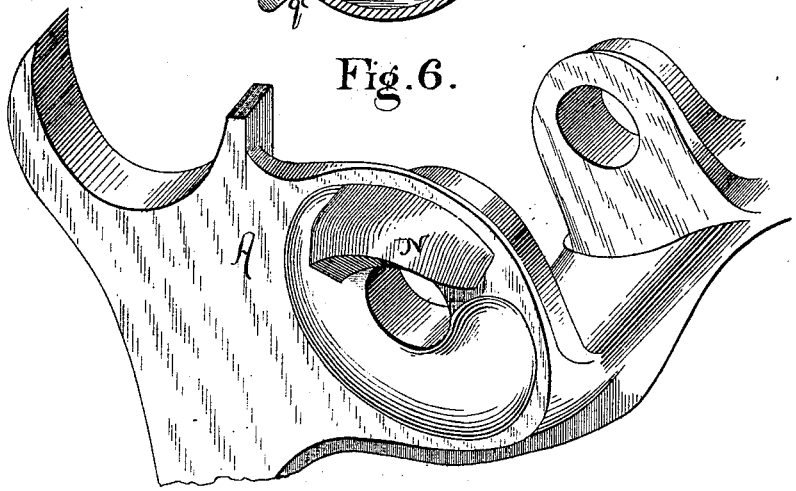


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELEY, OF SPRINGFIELD, OHIO.

KNOTTER FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 346,393, dated July 27, 1886.

Application filed August 4, 1885. Serial No. 173,531. (No model.)

To all whom it may concern:

Be it known I, WILLIAM N. WHITELEY, of Springfield, in Clark county, Ohio, have invented a new and useful Improvement in Knotters for Automatic Grain-Binders; and I do hereby declare that the following is a full and accurate description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of the knotter having my improvement. Figs. 2 and 3 are vertical elevations, partly in section, of the knotting-hook and related parts. Fig. 4 is a perspective view of the bill-hook and jaw detached. Fig. 5 is a transverse section of the same on line *x x*. Fig. 6 is a perspective view of a part of the frame, showing the bearings for the bill-hook spindle and the cam which opens the bill-hook jaw.

This invention relates to the improvement in knotters invented by Whiteley, Bayley, and Dyer, for which application No. 162,582, was filed in the Patent Office April 17, 1885, wherein the base of the knotting-hook is provided with an inclosing shield or case surrounding the shaft-bearing of said hook and the stationary cam, whereby the movable jaw is caused to open to prevent straw or trash of any kind from winding around the base of said hook and disabling it. In said application the heel end of said movable jaw is provided with a friction-roller to traverse said cam and the exterior cam, whereby said jaw is caused to close, and said shield is provided with an opening in its side to permit said roller to pass in and out, and the cylindrical form of said roller necessarily leaves said opening open and unoccupied during a considerable portion of each revolution of said hook, so that obstructing matter may still gain access to clog and obstruct the movable jaw. My improvement is designed to avoid this detrimental effect by constructing the heel end of said jaw as a flat plate with parallel sides, and expanding edgewise toward its upward extremity, with its inner and outer edges fashioned to properly meet the opening and closing cams, and an opening in the side of said shield to permit said heel end of the jaw to move forward and backward without leaving said opening for a moment unfilled, whereby the entrance of obstructing matter is effectually prevented.

That others may fully understand the improvement, I will particularly describe it.

A is the frame of the knotter, provided with the sleeve-bearing *b*, for the driving-shaft and feet *d*, whereby said frame may be bolted to the frame of the binder. The impelling mechanism is not shown herein, because it is well understood, and does not enter into the subject of this patent; but for convenience and a clear understanding the parts immediately concerned and shown in the drawings will be referred to.

E is the notched disk-holder for the cord.

J is the rotating knotting-hook provided with the segment-pinion, *k*, which is rotated by a segment-gear which is not shown. The knotter-hook J is provided with a gripping-jaw, *m*, pivoted to said hook at *t*, which is caused to open by a stationary cam, N, rigidly attached to the frame at *p*, and said jaw is caused to close by an elastic cam, Q, pivoted to the frame, and forced forward with an elastic pressure by a spring having an adjusting-nut, *r*, behind it. The cams N and Q are located in proper positions to cause the jaw *m* to open and close at the proper points in its rotation.

The shank or journal-shaft of the knotter J where it passes into the bearing-frame near *p* has heretofore been liable to derangement by trash, straw, or the band material winding around said shank, or, entering beside the heel end of the pivoted jaw, cuts the protecting-shield *v*, which is attached to said hook and incloses the cam N, as shown in Figs. 2 and 3. To prevent such entrance of obstructing matter, the heel end *q* of the jaw *m* is made as a flat plate with parallel sides, and its end concentric with the axis of the pin *t*, and with inner and outer edges diverging outward, and properly fashioned, respectively, to traverse the cams N and Q, without at any moment passing out of the opening *u* in the side of the shield *v*, to which the part *q* is accurately fitted, and thereby clogging the knotter is effectually prevented.

Having described my invention, I claim—

1. In a cord-knotter for a grain-binder, a revolving knotting-hook, J, provided with a shield, *v*, to surround and protect the bear-

ing and the cam N, said shield being provided with an opening, *u*, and combined with a pivoted jaw, *m*, provided with a heel-extension, *q*, having parallel sides, and width greater than its range of motion, and fitted accurately to said opening *u*, whereby said opening is never unclosed during the movement of said jaw.

2. The hook J, provided with a shield, *v*, having an opening, *u*, in its side, combined with the jaw *m*, provided with the heel-extension *q*, having parallel sides, its outer end in width greater than its range of motion, and its end concentric with its pivot-pin *t*, the whole of said extension accurately fitted to said opening *u*, as set forth, whereby said opening is at all times closed by said part *q* and obstructing matter excluded.

WILLIAM N. WHITELEY.

Witnesses:
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F. B. FURNISS.