(No Model.)

W. N. WHITELEY

KNOTTING DEVICE FOR GRAIN BINDERS.

No. 378,815. Patented Feb. 28, 1888.

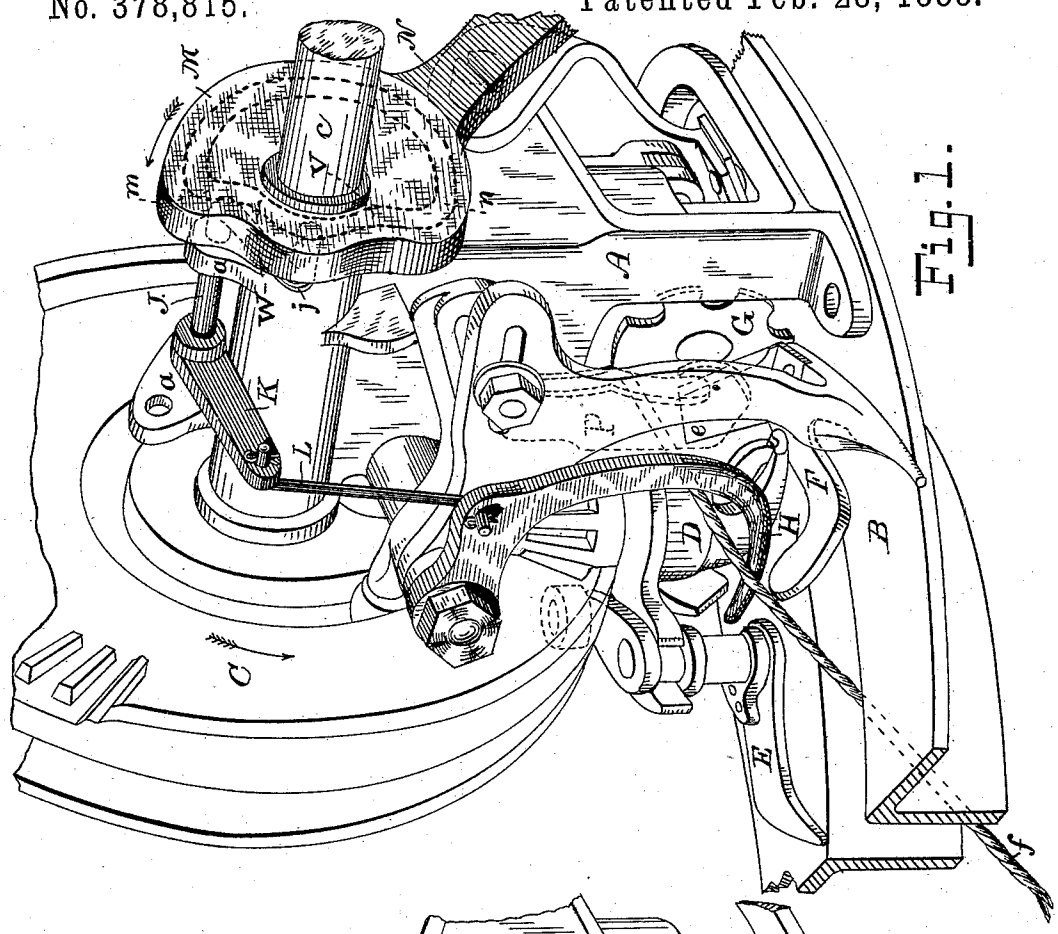


Fig. 1.

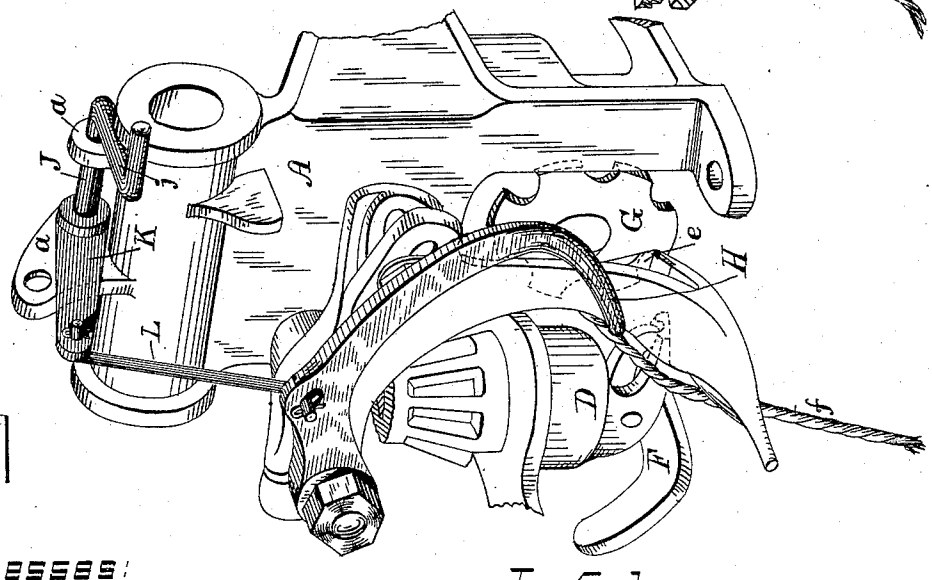


Fig. 2.

Witnesses:
Oscar E. Perrigo.
Fred State

Inventor.
William N. Whiteley

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELEY, OF SPRINGFIELD, OHIO.

KNOTTING DEVICE FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 378,815, dated February 28, 1888.

Application filed September 16, 1886. Serial No. 213,682. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WHITELEY, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Knotting Devices for Grain-Binders—namely, an automatic safety cord-finger—of which the following is such a full, clear, and exact description as will enable any person skilled in the art to which it pertains to construct and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the knotting devices of that type of grain-binders generally known as the "Appleby binder," which is shown and described in Letters Patent No. 212,420, granted to J. F. Appleby, February 18, 1879, (and since improved,) and is in the nature of an improvement on the mechanism for supporting the binding-cord previous to forming the knot.

My invention consists in providing an automatic safety cord-finger, whose function is to support the cord above and outside of the bill-hook and stripper during the interval in which said knot-stripper and cord-guide has moved out of its initial position when the binding-cord is severed after forming the previous knot, so that the cord cannot pass below the bill-hook and the stripper may freely pass under the cord when moving back to its initial position.

I am aware that various devices have heretofore been adapted for the purpose of insuring a proper position of the cord previous to its being grasped by the bill-hook. Some of these devices have been stationary, others movable, operating automatically. One of the latter consisted of a finger pivoted to the knotter-frame inside of the cord-guide and knot-stripper, and operated from the mechanism which operates the cord-holding apparatus. In this device the cord was supported inside of the usual cord-guide and knot-stripper, and was not in advance of the bill-hook, and the cord was therefore liable to be drawn under the bill-hook by the straws hanging over the returning cord and interlaced with the straws of the bundle just bound and being ejected, notwithstanding the fact that the cord was supported above the bill-hook by the finger. The supporting-finger was operated by the cord-holding mechanism, which in the construction referred to moved only during a short interval of time, and not at the proper time to bring the supporting-finger into action and out of the way, when required.

In my invention the cord-supporting finger is located outside of the knot-stripper and cord-guide, being pivoted upon the same center therewith, and is operated from the tyer-wheel shaft, by which means the above objections are avoided.

In the drawings, Figure 1 is a perspective view of a knotter, showing the safety cord-finger in the act of supporting the cord; and Fig. 2 is a similar view of the essential parts of a knotter, showing the safety cord-finger thrown back out of the way and the cord in place, guided by the usual cord-guide and knot-stripper.

Similar letters refer to like parts in both views.

A is the knotter-frame; B, the breast-plate; C, the tyer-wheel; D, the bill-hook; E, the tucker-finger; F, the cord-guide and knot-stripper; G, the cord-holding disk; *c*, the tyer-wheel shaft, all constructed and arranged as usual.

Pivoted upon the same stud as the cord-guide F, but in no wise connected with it, is the cord-supporting finger H. Pivoted in the lugs *a a* of the knotter-frame A is the rock-shaft J, having fixed upon it the arm K, which is connected with the cord-finger H by means of the rod L. Formed upon the end of the rock-shaft J is the crank-arm *j*, the projecting end of which engages a cam-track (shown by dotted lines) formed in the cam M, which is fixed to the tyer-wheel shaft *c*. Upon the cam M is also formed the inside ejector-arm, N, (only a part of which is shown.)

The operation of my invention is as follows, viz: The knotter being in the position shown in Fig. 1 and the needle-arm (not shown) retiring after a sheaf is bound, leaves the end of the cord between the cord-holder disk G and cord-holder shoe P, (shown by dotted lines,) and lays the cord across the cord-finger H, as shown. The tyer-wheel C and cam M, rotating in direction of the arrows, the incline *m* of the cam-track, engaging the projecting end of the bell-crank *j*, throws up the arm K,

which, acting through the rod L, draws back the cord-finger to the position shown in Fig. 2, and allows the binding-cord *f* to drop within the cord-notch in the cord-guide F. The projecting end of the bell-crank *j*, now encountering the circular part of the cam-track from *m* to *n*, rests. The knotter has now nearly completed the next knot, when just as the needle-arm is about to retire the incline *n* of the cam-track encounters the projecting end of the bell-crank *j*, and again throws forward the cord-finger H in time to support the cord as the needle-arm retires, as during this interval the cord-guide and knot-stripper F has drawn back to the position shown in Fig. 1, for the purpose of severing the cord (by the knife *e*, attached to the stripper F) and stripping the knot from the bill-hook, and is therefore not in position to receive and guide the cord. The circular part of the cam-track from V to W now engages the projecting end of the bell-crank *j*, causing it to rest and hold the cord-finger H in position, supporting the cord until the cord of the knot already formed has been severed and the knot stripped from the bill-hook, when the incline *m* of the cam-track engages the projecting end of the bell-crank *j* and again withdraws the cord-finger H to the position shown in Fig. 2, and the foregoing operations are repeated, and so continue at the binding of each sheaf.

Having thus described my invention, its construction, objects, and uses, and pointed out wherein it differs from the devices heretofore in use, and without wishing to be understood as confining my claims of invention to the precise form or proportion of parts herein shown and described, so long as the principles of construction and mode of operation are essentially the same as that herein set forth, what I do claim, and desire to secure by Letters Patent, is—

1. In a knotting device for a grain-binder, a cord-supporting finger pivoted to the frame in a plane exterior to the bill-hook and stripper, combined with means for transmitting motion to said finger from the tyer-wheel shaft independent of the cord-gripping and knot-stripping devices, to place said finger in position to receive and support the cord in front of the bill-hook before the stripper retreats, and to cause it to remain in that position until the stripper returns to its initial position successively after the binding of each sheaf.

2. In the knotting device of a grain-binder, a pivoted cord-supporting finger located and operated outside of the knot-stripping and cord-retaining device to furnish a support for the cord outside of said stripper during the interval in which the stripper is out of its initial position in stripping the knot, and consequently inoperative as a cord-guide.

3. In the knotting device of a grain-binder, a cord-supporting finger pivoted to the pivot-stud of the stripper, but outside of said stripper combined with means for operating said finger independent of the stripper and cord-holder, as set forth, for the purpose of furnishing a support for the cord during the interval in which the stripper is out of its initial position in stripping the knot, and consequently inoperative as a cord-guide.

4. In the knotting device of a grain-binder, a cord-supporting finger located outside of the knot-stripper and cord-guide, and a cam to operate the same fixed to the tyer-wheel shaft, and having formed upon it an ejector-arm, substantially as shown and described, and for the purpose of conveniently operating said cord-finger and assisting in discharging the bound bundle.

WILLIAM N. WHITELEY.

Witnesses:
OSCAR E. PERRIGO,
FRED STATE.