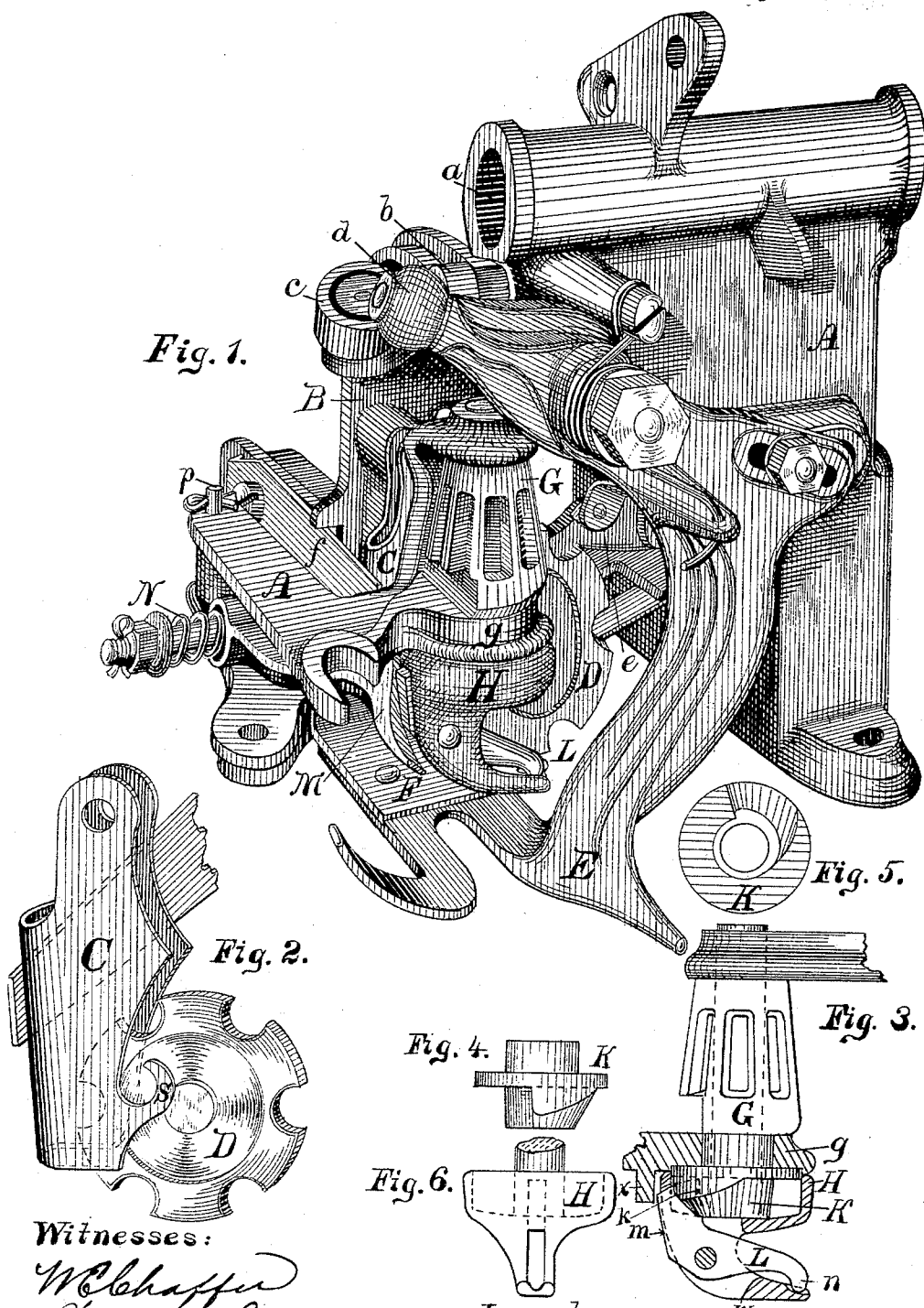


(No Model.)

W. N. WHITELEY & S. DYER.  
KNOTTING MECHANISM FOR HARVESTING MACHINES.

No. 497,848.

Patented May 23, 1893.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## KNOTTING MECHANISM FOR HARVESTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 497,848, dated May 23, 1893.

Application filed September 4, 1885. Serial No. 176,158. (No model.)

### *To all whom it may concern:*

Be it known that we, WILLIAM N. WHITELEY and SAMUEL DYER, of Springfield, county of Clark, State of Ohio, have invented a new and useful Improvement in Knotting Mechanism for Harvesting-Machines, of which the following is a specification.

Our invention relates principally to that class of harvesters known as self binders, and particularly to the knotting mechanism thereof, when cord is used as a band material, and consists in the special features, the construction, operation and uses of which are hereinafter more fully described and pointed out.

In the accompanying drawings Figure 1. is a perspective view of our knotting device. Fig. 2, is a perspective view of the cord holder; Fig. 3, a front elevation of the bill hook, &c. Fig. 4, is a side elevation and Fig. 5, a plan of the opener cam which opens the tongue of the bill hook. Fig. 6, is a front elevation of the bill hook.

Similar letters refer to like parts in the several views.

A, A, is the metallic frame of the knoter, to which the working mechanism is secured. Through the hole *a*, in the frame A. A, passes a shaft, upon which is the knoter wheel (not shown in the drawings) which has formed upon it cams engaging the friction rollers *b*, *c*, *d*, actuating the parts as follows: viz., the roller *b*, operating the oscillating frame B, which carries with it the cord holder shoe C, disk D, pawl *e*, spring *f*, &c.; the roller *c*, is upon a sliding shaft, upon which the frame B, is pivoted and operates the pawl *e*, which in turn rotates the disk D; the roller *d*, upon the stripper E, imparts to it, its motion and through E, the motion of the knife F, which is fixed to the stripper E. Also, upon the knoter wheel, (not shown) are teeth engaging the teeth of the pinion G, fixed to the shank of the bill hook H, and giving to it the intermittent, rotary motion required.

Within that part *g*, of the frame A, A, Fig. 3, through which the shank of the bill hook H, passes, is a recess for receiving the stationary opener cam K, fixed to the frame A, in the position shown at K, Fig. 3. The bill hook H, is slotted, and pivoted in this slot is the tongue L, the front side *k*, of which rests

against the opener cam K, while the back *m*, of the tongue L, comes in contact with the closing spring actuated arm M, by which it is closed at the proper point of its revolution.

The ledge *x*, on the part *g*, of the frame A, A, Fig. 3, is for the purpose of preventing the tongue L, from dropping open by the weight of the back part of the tongue L, being heavier than the point *n*. The ledge *x*, extends around only so much of the circle as may be necessary to hold the tongue L, closed until the cords have crossed in forming the knot. The closing arm M, is pivoted to the frame A, at *p*, and kept in contact with the bill hook H, by the spiral spring N.

The general construction of our knotting device is similar to those heretofore in use. The cord holder shoe C, is formed of sheet metal and has on its front side a hook *s*, formed upon it for the purpose of holding the cord firmly in position while the bill hook H, and tongue L, rotate and tie the knot, as well as to furnish a support or point of resistance for the knife F, to cut against when severing the cord after the knot is formed and also, to prevent the cord from passing too low to make the proper crossing in forming the knot, as this hook *s*, forms a stop, below which the cord cannot go by a sudden throw of the disk D, as the momentum of the disk D, is thereby checked and it is allowed to move no farther than the positive motion given it by the pawl *e*, so that the opening above in the disk D, is always secured for the entrance of the next cord. The bill hook H, is slotted all the way through, the slot extending forward of its center, (as shown at *w*, Fig. 3) whereby an escape is provided for kernels of grain or other clogging matter to pass through, thus avoiding the clogging heretofore experienced with this class of knotting devices. The tongue L, is made of malleable iron or steel and is formed with a downward hook at its point, and is received in a recess in the top of the point of the bill hook H, (as shown at *w*, Fig. 3,) but said recess extends only about half-way the distance from the point of the bill hook H, to the opening of the slot (as shown at *w*, Fig. 3), by which construction when using a large cord it is efficiently gripped and prevented from escaping by

means of the hooked point of the tongue L, coming down into the recess while small cord, when used is, equally well gripped, the point of the tongue L, entering the recess in the end of the bill hook H, and holding the cord with equal security, as larger cord. Heretofore, there has been a friction roller placed upon the top end of the tongue L, which rested against a stationary cam formed on the frame A, at *g*, whereby the tongue L, was opened when it revolved, while it was closed at the proper time by the said friction roller coming in contact with the closing arm M. In our device we dispense with the friction roller altogether, and make the tongue L, of malleable iron or steel, and harden the front and back of the top end where it comes in contact with the opener cam K, and closing spring M.

20 In place of the usual opener cam formed upon the portion of the frame A, we make said cam K, separate from the frame, so that in setting up the machine it may be moved forward or backward to adjust it to open the knotter jaw at the proper moment and then secure it in place. We do this conveniently by making a recess concentric with the axis of the knotter shaft, and fit therein a hollow sleeve, having the cam K formed on its end.

30 The interior surface of said sleeve forms a bearing for the knotter shaft. When said cam has been adjusted to the right position it is kept from turning by a pin driven

through it and into the part *g*, of the frame A. The opener cam K, and closing arm M, are made of malleable iron or steel and have their wearing surfaces hardened.

Having thus described our invention and pointed out its special features, which we believe to be new and which we desire to secure by Letters Patent, we claim—

1. In combination with a rotating knotter hook and jaw, the knotter shaft, and the frame provided with a recess, of a separable part having a jaw-actuating cam and situated in said recess in proximity to the knotter-jaw, substantially as set forth.

2. In the knotting device of an automatic grain binder, in combination with a rotating bill-hook and its shaft, and a frame having formed in it and surrounding said shaft an opening; a separate, tubular sleeve, in said opening its interior surface adapted to be a bearing for said bill-hook shaft, and provided with a cam adapted to open the bill-hook by coming in contact with the bill-hook tongue, substantially in the manner and for the purposes shown and described.

In testimony whereof we have hereunto set our hands this 1st day of September, 1885.

WILLIAM N. WHITELEY.  
SAMUEL DYER.

Witnesses:

F. B. FURNISS,  
H. T. STILWELL.