2 Sheets—Sheet 1

M. A. KELLER.
Grain-Binder.

No. 207,123. Patented Aug. 20, 1878.

Fig. 1.

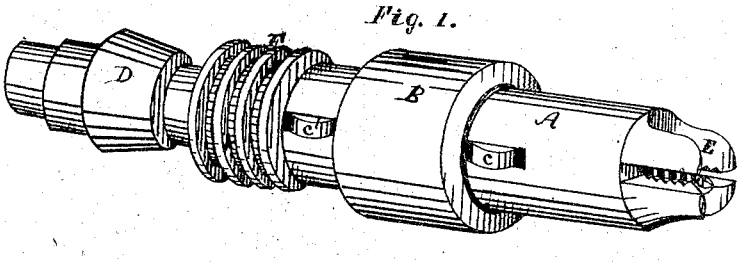


Fig. 2.

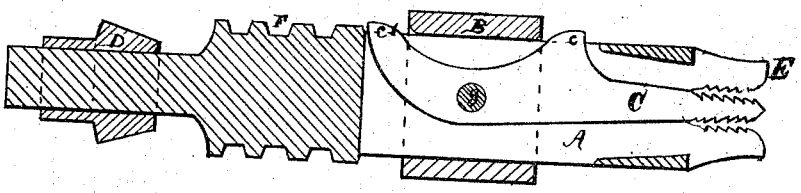


Fig. 3.

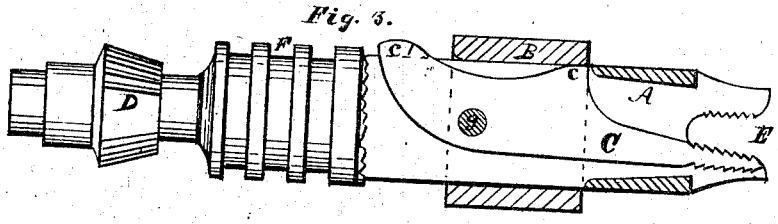
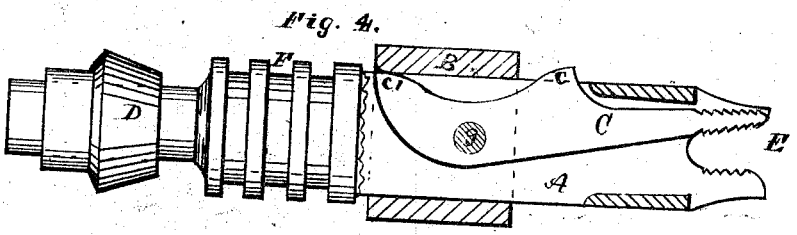


Fig. 4.



WITNESSES:
H J Englebeck
L. I. Norton Jr

Moses A. Keller.
INVENTOR

2 Sheets—Sheet 2.

M. A. KELLER.
Grain-Binder.

No. 207,123. Patented Aug. 20, 1878.

Fig. 5.

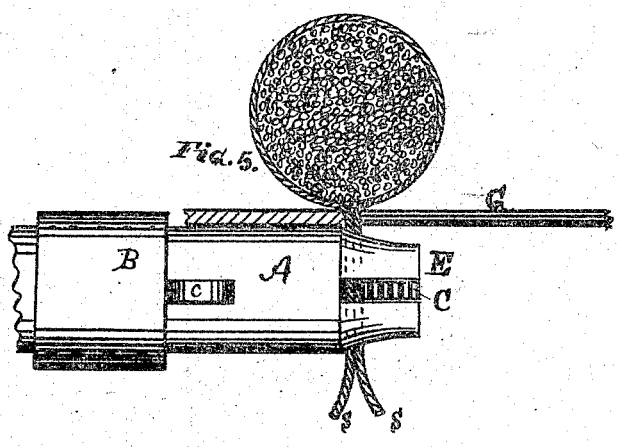


Fig. 6.

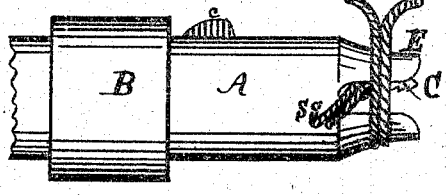


Fig. 7.

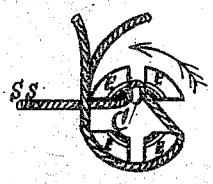


Fig. 8.

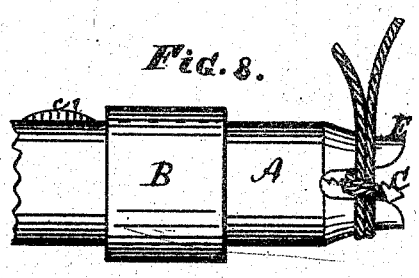
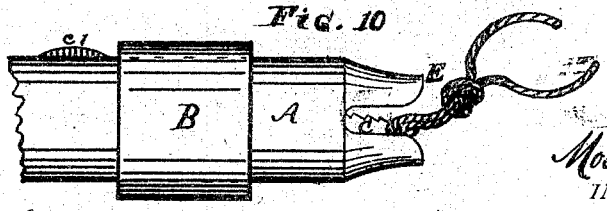


Fig. 9.

Fig. 10



WITNESSES:
H. J. Englebeck
F. S. Norton Jr.

Moses A. Keller
INVENTOR

UNITED STATES PATENT OFFICE.

MOSES A. KELLER, OF FREMONT, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO W. J. ENGLEBECK, OF SAME PLACE.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **207,123**, dated August 20, 1878; application filed May 28, 1878.

To all whom it may concern:

Be it known that I, MOSES A. KELLER, of Fremont, in the county of Sandusky, State of Ohio, have invented certain new and useful Improvements in Knotting Mechanism for Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents, in perspective, my improved knotting mechanism, and Figs. 2, 3, and 4 are longitudinal sections of the same. Fig. 5 represents so much as is necessary to an understanding of a side view, with a section of the frame G and the position of the cord around the sheaf just previous to forming the knot. Figs. 6, 7, 8, and 9 represent the different positions assumed by the device, showing the successive stages of the process of tying the knot. Fig. 10 exhibits the knot completed as it slips from the prongs E.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of an intermittently-revolving shaft having its one end formed into two or more prongs, for the purpose of receiving the cord and forming the knot, and a vibrating tong or latch, for the purpose of securing the cord to the prongs until the knot is completed.

Referring to the drawings, A represents a shaft having its one end formed into four prongs, E, and about one inch back from the base of these prongs is a mortise made of suitable size. Into this mortise is pivoted upon a pin, *g*, the toothed latch C, having projecting horns *c c'*. There is a sliding collar or sleeve, B, upon the shaft, which, when sliding back and forth, comes in contact with one or the other of the projecting horns *c c'*, and thereby causes the latch C to vibrate from side to side. Just back of the mortise are formed on the shaft several transverse cogs, F, for the purpose of receiving a suitable mechanism to give the necessary reciprocating motion to the shaft part A, and just back of these cogs is a pinion, D, which is to gear with a suitable driver to produce an intermittently-rotating motion to the shaft A; but other gear arrangement than that just described may be employed to produce the requisite movements to the shaft A and latch C without departing from the nature or essence of my invention.

Having stated in the foregoing description the shaft part A as having two or more prongs, E, I find that two prongs, each having a groove or concavity on the inside to receive the toothed latch C, may answer all the purpose; but I prefer the grooves to extend through, for the purpose of preventing clogging by foreign matters.

Having thus described the construction of my invention, the operation is as follows: Referring to the drawing, Fig. 5 represents the cord in position around the sheaf, with the ends of the cord drawn between the prongs E, the toothed latch C being drawn to one side, as shown in Fig. 3. Just previously to the entering of the cord, at the moment the cord has entered between the prongs E, the sleeve B slides back, pressing down the projection *c'*, thereby causing the latch C to close upon the cord, pinching it between the prongs E. At this moment the shaft A begins to revolve in the direction of the arrow, as shown in Fig. 7, and having completed three-fourths of a revolution it stops, leaving the cord wrapped upon the prongs E, as represented in Figs. 6 and 7. The ends of cord *s s* are now brought by a suitable mechanism around the upright strands of the cord and between the prongs E. At this moment the sleeve B will slide forward and press down projection *c*, thereby causing the latch C to close upon the ends of the cord. The shaft A is now drawn back, and the loop slips off the prongs E, the ends of the cord being held fast in the prongs E by toothed latch C until the loop is drawn into a hard knot, as shown in Fig. 10, when the sleeve B again moves back, thereby causing the latch C to release its hold upon the cord, and the knot will be completed.

Those parts of the machine by means of which the cord or twine is carried around the sheaf and brought between the prongs E and finally severed are not shown, as they do not enter into this invention.

Having described my invention, what I claim, and desire to protect by Letters Patent, is—

1. An intermittently-rotating shaft, A, having an endwise movement, and having its end formed into two or more prongs, E, and having a pivoted latch, C, or jaw working between said prongs, substantially as shown.

2. The combination of the intermittently-rotating shaft A, having an endwise movement, and pivoted latch C with the sliding sleeve B and pinion D, to operate the shaft and latch, substantially as described.

3. The latch C, pivoted in the rotating shaft A, and provided with the two horns *c c'*, in combination with the sliding sleeve B, whereby the front end is made to play back and forth, substantially as set forth.

4. The combination of the shaft A, having the prongs E, transverse cogs F, and pinion D, with the pivoted latch C, having the serrated end and horns *c c'*, and the sliding collar B, to operate the latch, all arranged to operate substantially as shown.

MOSES AARON KELLER.

Witnesses:
W. J. ENGLEBECK,
H. EVERETT.