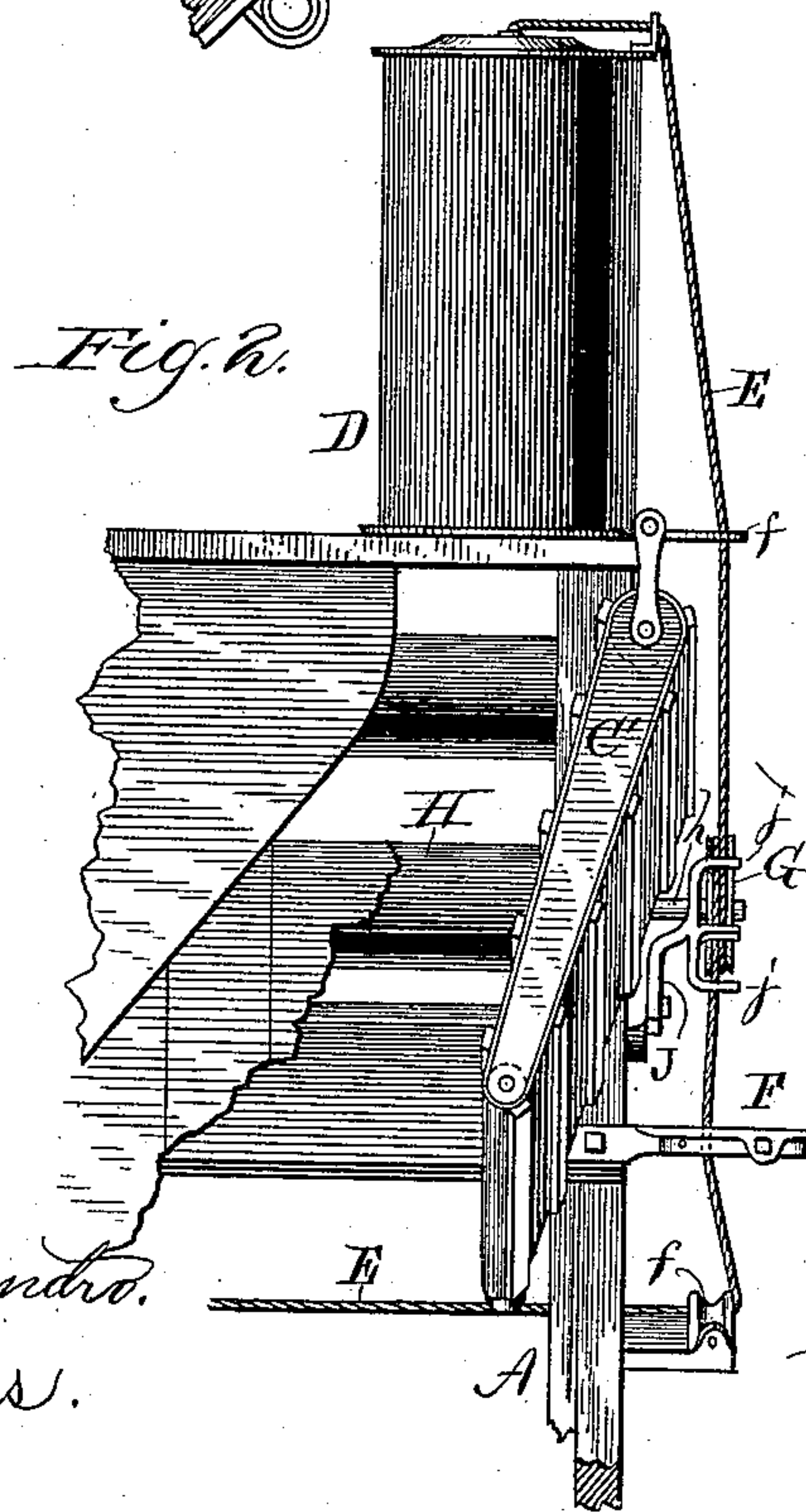
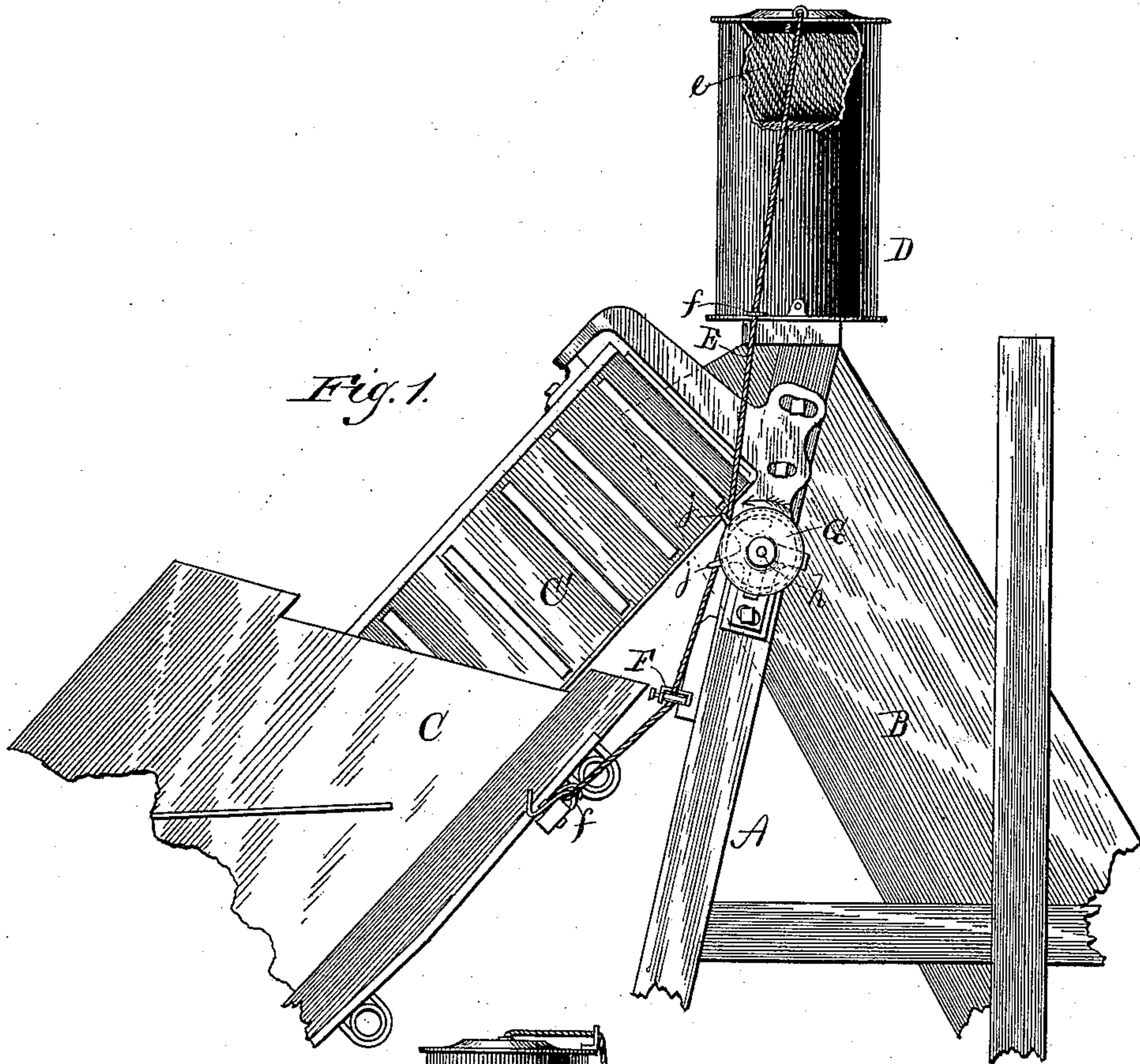


(No Model.)

J. F. APPLEBY.
GRAIN BINDER.

No. 332,985.

Patented Dec. 22, 1885.



Witnesses.

Will B. O'Connell.

J. M. Richards.

Inventor

By, John F. Appleby,
W. B. Richards,
Att'y.

UNITED STATES PATENT OFFICE.

JOHN F. APPLEBY, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE
MINNEAPOLIS HARVESTER WORKS, OF SAME PLACE.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 332,985, dated December 22, 1885.

Application filed October 28, 1884. Serial No. 146,651. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. APPLEBY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to grain-binders of that class in which cord wound in balls or upon spools is used for binding the gavels into sheaves. In binders of this class as made previously to my invention difficulties have been experienced in feeding the cord to the binder-arm and knotter. From the fibers of the cord projecting and being held by parts of the cord while other parts are unwound from the ball and from other causes the retardation of the cord is often so great as to interfere with the operations of the binding mechanism, and do so interfere whenever the resistance to the forward feed of the cord is greater than that caused by the tension device used.

The object of my invention is to overcome these difficulties; and to this main end and object this invention consists in the employment of a feed-roller located between the tension device and the ball of cord, and adapted to feed the cord forward to the tension device, as hereinafter fully described.

In the accompanying drawings, which illustrate my invention in connection with adjacent parts of a grain-binder to which it is applied, Figure 1 is a front elevation, and Fig. 2 is a side elevation.

As this invention relates wholly to the novel means for feeding the cord forward to the tension device, I need only herein show and explain those parts of a binder which are more immediately associated with my invention.

In the drawings, the same reference-letter indicates the same part in the different figures.

I have shown in the drawings the upper part of the frame A of the elevator and ele-

vator-spout B, and also the upper part of the end-board C and butt-adjuster C'. I have also shown the twine-box or cord-box D located on the top of the frame A. Further, as shown, the cord E passes from the ball *e*, contained in the box D, downward through the tension device F and guides *f f* to the binder-arm and knotter. (Not shown.)

The parts hereinbefore described by reference-letters are parts of an ordinary construction of grain-binder, and for the purposes of my invention may be constructed and arranged as shown, or in any other manner which will admit of applying my improvement thereto.

G is a pulley grooved in its periphery for the better retention of the cord E, which is passed around it. The pulley G is located between the cord-ball *e* and the tension device F, and, as shown, is fixed to a shaft, *h*, which projects from the lower one of the upper rollers, H, of the elevator-belt. The shaft *h* and pulley G rotate continuously with the roller H, in the direction of the arrow shown at Fig. 1, when the machine is in operation. An arm, J, with branches and eyes *j*, through which eyes the cord passes, serve as guides for the cord to the pulley G.

In operation the rotation of the pulley G feeds the cord forward toward the tension device F, and any retardation at the ball *e* of the forward movement of the cord will tend to tighten the cord on the pulley G, and thereby cause it to feed it forward to the tension device with certainty. When there is little or no retardation of the cord at the ball, then it will so slacken on the pulley G that said pulley will draw but slightly on the cord, and thus the pulley G will, under all the varying conditions of retardation of the cord at the ball, feed the cord forward to the tension device uniformly and in such manner that the binder-arm and knotter will be fed with cord at a uniform tension, as regulated by the tension device.

The cord-box may be located elsewhere than I have shown, and in fact may be dispensed with, and the ball of cord otherwise mounted on the machine, and the cord may pass to the binder-arm in other directions than what I have shown. The tension device may also be

located elsewhere than I have shown, and hence I do not limit my claims to the particular location of these parts, nor to the location of the pulley G on the end of the roller H, as
5 this pulley may be located elsewhere and otherwise rotated, it only being necessary to preserve its location between the cord-ball and the tension device, and if the tension device is dispensed with, as it may be, then to pre-
10 serve its location between the cord box or receptacle and binder-arm.

What I claim as new is—

1. The combination, substantially as herein described, with the cord-receptacle and ten-
15 sion device, of a rotating feed-pulley located between the cord-receptacle and said tension device, around which pulley the cord passes, and is uniformly fed forward to the tension device, regardless of the varying force with
20 which the cord is held back at the ball.

2. The combination, substantially as herein

described, with the cord-receptacle, binder-arm, and knotter, of a rotating feed-pulley located between the cord-receptacle and binder-arm, around which pulley the cord passes, and
25 is uniformly fed forward toward the binding-arm, regardless of the varying force with which the cord is held back at the ball.

3. The combination, substantially as described, with the cord-receptacle, tension de-
vice, binder-arm, and knotter, of a feed-pul-
30 ley adapted to operate on the cord, substantially as described.

4. The combination, substantially as herein described, with a cord-receptacle and cord, of
35 a feed-pulley around which said cord passes, and by which the cord is fed forward, substantially as and for the purpose specified.

JOHN F. APPLEBY.

Witnesses:

C. M. CASTLE,
HENRY HONKOMP.