No. 667,197. Patented Feb. 5, 1901.

S. K. DENNIS.

TWINE BOX.

(Application filed Apr. 16, 1900.)

(No Model.)

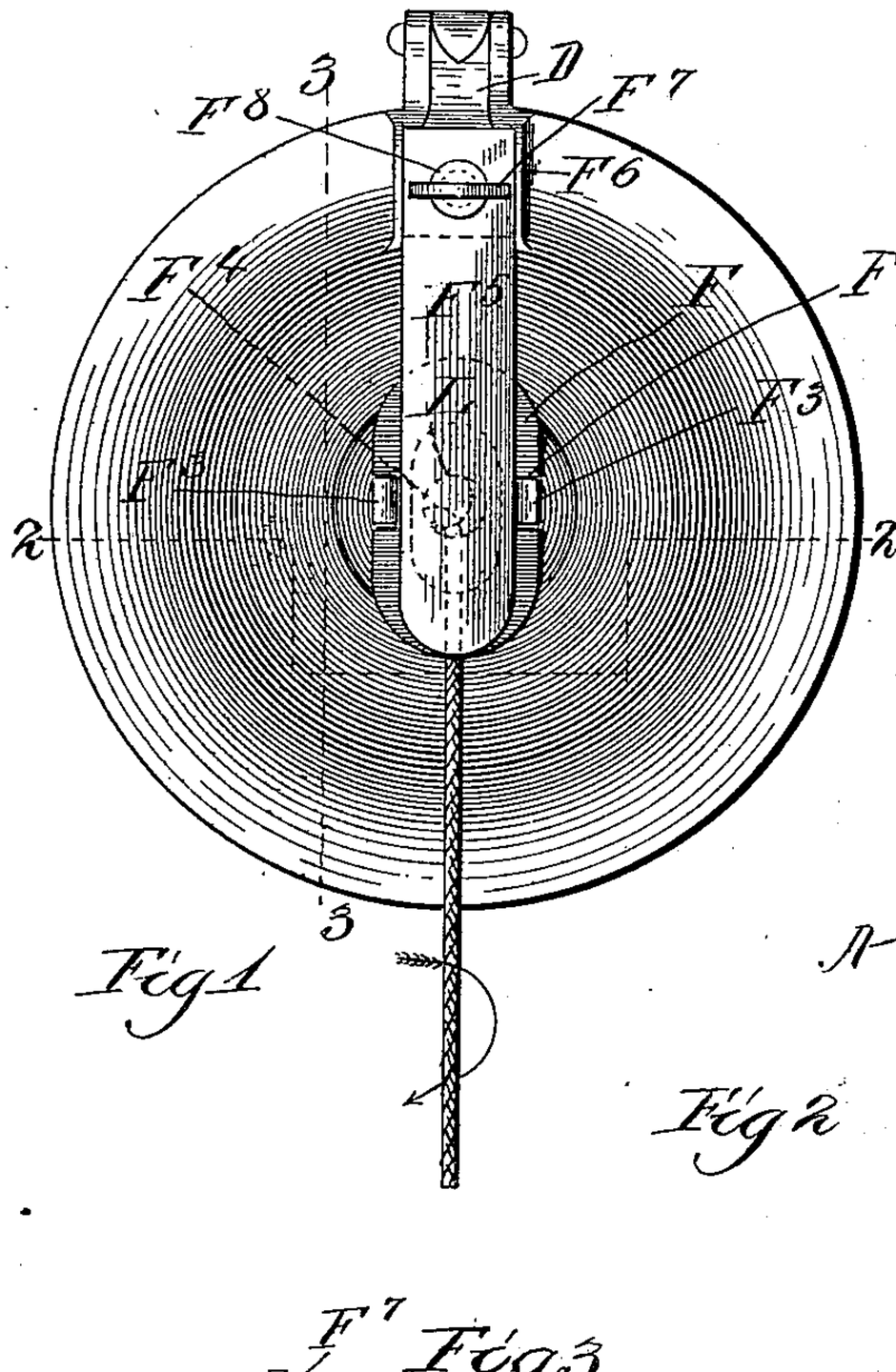


Fig 1

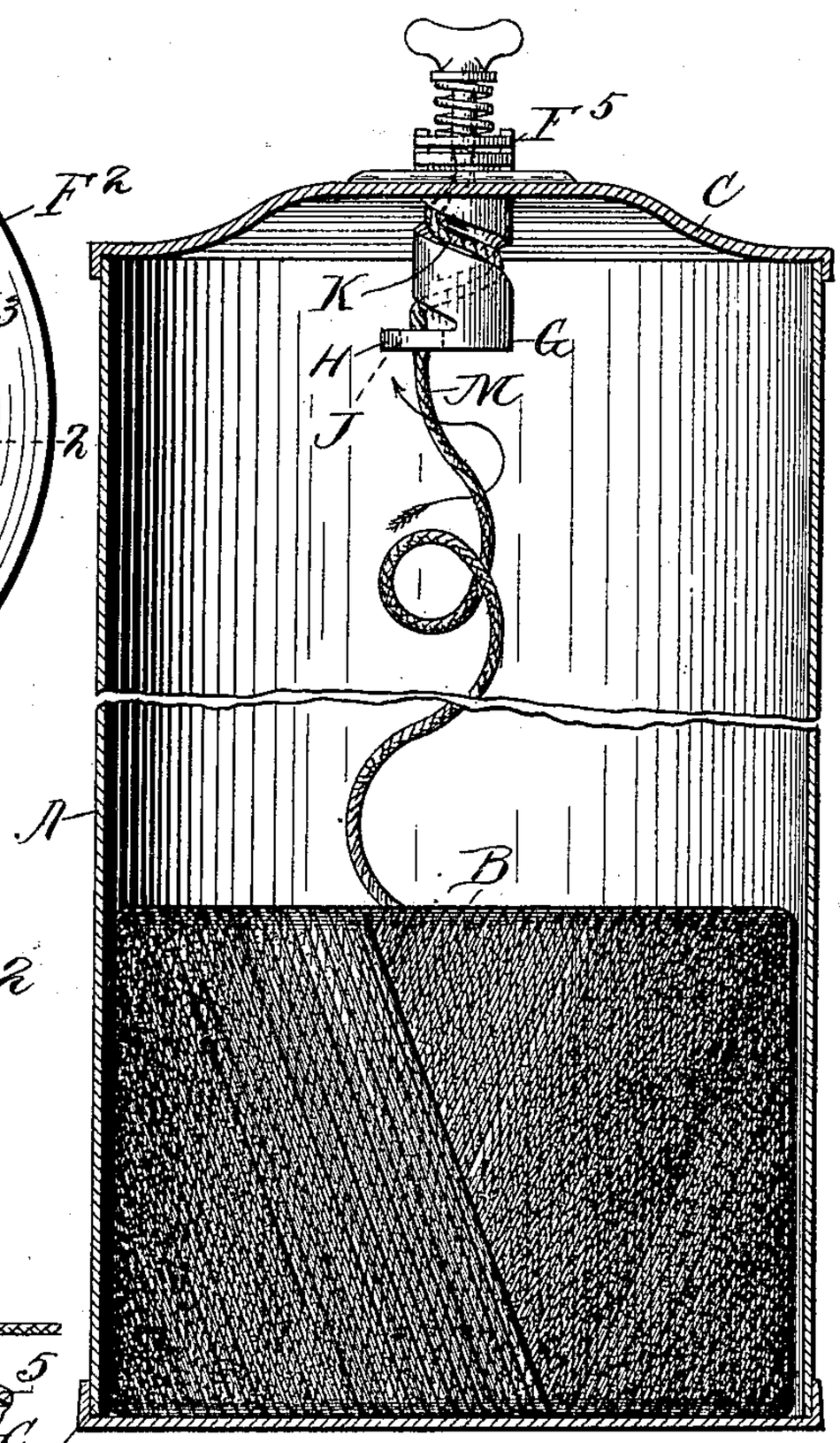


Fig 2

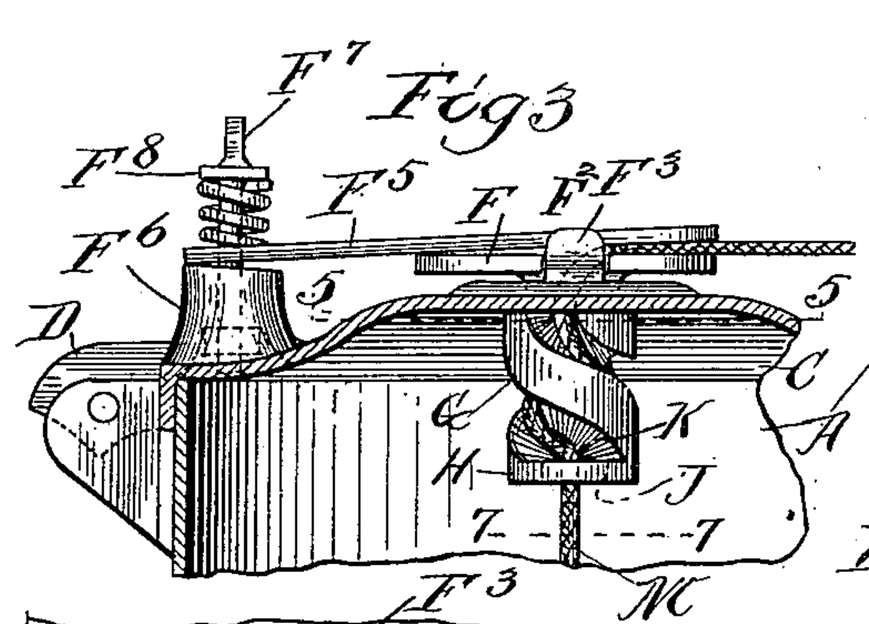
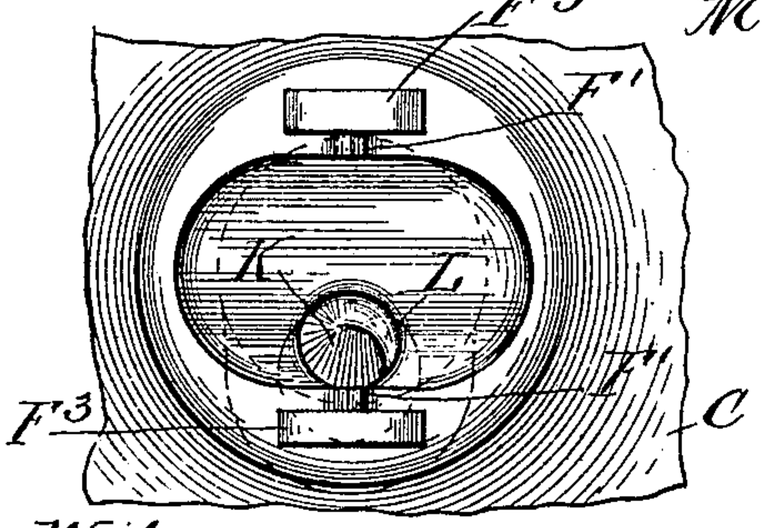


Fig 3



Witnesses
W. C. Coles
W. H. Colton.

Fig 4

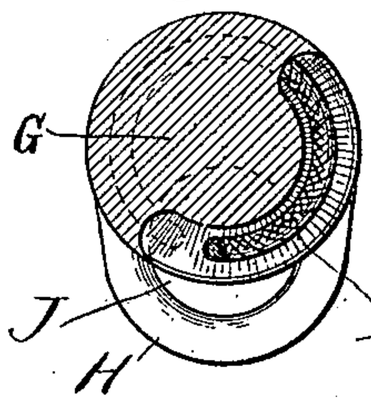


Fig 5

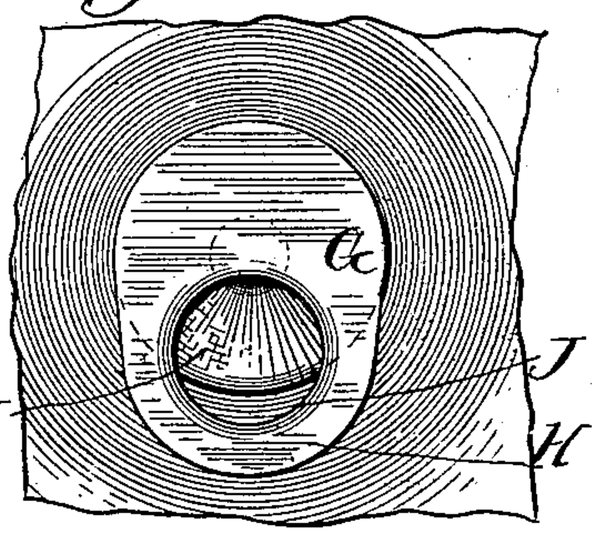


Fig 6

Fig 7

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UNITED STATES PATENT OFFICE.

SAMUEL K. DENNIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PLANO MANUFACTURING COMPANY, OF SAME PLACE.

TWINE-BOX.

SPECIFICATION forming part of Letters Patent No. 667,197, dated February 5, 1901.

Application filed April 16, 1900. Serial No. 13,133. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL K. DENNIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have made certain new and useful Improvements in Twine-Boxes, of which the following is a specification.

My invention relates, primarily, to that class of twine-boxes or cord-holders which are used in connection with self-binding harvesters, although it may be employed in connection with any apparatus for delivering a twisted strand or cord from a cop or bundle. In the ordinary construction of these twine-boxes the cord, which is unwound from the center of a cop, is taken directly through an ordinary aperture to the tension device, which is ordinarily located on the outside of the box in connection with said aperture. The tendency of this construction, on account of the unwinding of the cop or bundle from the center, is to increase the necessary twist given to the cord in forming it from its separate fibers, and this increased twist given to the cord causes it to loop up, and before the bundle is completely exhausted it becomes so looped up and tangled as to catch and prevent the delivery of the latter portion of the bundle. It frequently happens that as much as two hundred feet of the cord is thus wasted, as no effort is made to untangle the matted mass thus formed, but it is cut off and a fresh bundle inserted. My invention is designed to overcome this waste and difficulty, and it is embodied in an apparatus used in connection with the twine-box which tends to untwist the cord as it passes it. This action upon the cord is not sufficient to untwist it so as to loosen the strands, but is aimed to be just sufficient to neutralize the tendency to twist harder and to knot and tangle.

I have shown and will describe one form of my invention, which is illustrated in the accompanying sheet of drawings, in which the same letters of reference are used to designate identical parts in all the figures, of which—

Figure 1 is a plan view of the twine-box containing my invention. Fig. 2 is a central section on the line 2 2 of Fig. 1. Fig. 3 is a partial view in section on the line 3 3 of Fig. 1. Fig. 4 is an enlarged plan view of the top of the box with the tension apparatus removed to illustrate more clearly the essential features of my invention. Fig. 5 is a sectional view through the uncoiling helical groove on the line 5 5 of Fig. 3. Fig. 6 is an inverted plan view of the central portion of the lid or cap of the box, showing an inverted plan view of the uncoiling apparatus; and Fig. 7 is a section, on enlarged scale, through the twine.

A is a twine box or can which is of the usual construction and contains the customary cop or bundle B of twine. The box A is provided with the customary removable cap C, which may be pivotally connected to the can by the hinge at D and which has the tension device consisting of the rocking plate F, pivotally mounted upon the bearing edges or lugs F′, formed upon the top of the cap, as shown in Fig. 4, and held in position by the notches F^2, embracing the lugs F^3, projecting upward from the cap of the box. The twine after passing through the uncoiling device, to be described, passes up through the central aperture F^4 in the plate F and over the end thereof, the tension being secured by the bar F^5, which has its free end bearing thereon, its other end being held in position upon a stud F^6 by the set screw or bolt F^7, screwed into said stud and having the flange F^8 thereon coöperating with a helically-coiled expanding spring interposed between said flange and the bar F^5 in order to regulate the tension thereby placed upon the twine delivered between the plate F and the bar F^5. The details of this construction alone forms no portion of my present invention except that a tension device is necessary to hold the cord with sufficient firmness, so that the untwisting effect of the apparatus may be utilized, as the tension device furnishes a point at which the cord is held from any rotary movement, thus permitting the untwisting action to be effective. The action of the tension device in this regard is the same as holding one portion of the strand between the thumb and fingers and preventing this movement at that point, while the untwisting device operates upon the twine up to the point where the tension holds it.

The untwisting apparatus which I prefer-

ably employ consists of a block G, which is preferably cast or otherwise formed integral with the under side of the central portion of the can-top C. This block is of a general cylindrical shape, except that it has a flange H projecting laterally from its bottom portion, and in the bottom portion in this flange is formed an aperture, preferably circular, which serves principally as a guide and which is continued my means of a helical groove K, formed in the surfaces of the block G and preferably substantially semicircular in cross-section. This groove K is formed extending through an angle as great as may be necessary to secure the desired untwisting effect, herein shown as substantially three hundred and sixty degrees, and terminating in the aperture L, leading through the top of the cap and to the tension device. Of course it will be understood that the two apertures J and L represent the ends of a helical bore, but that for actual operation the bore is not essential, as the groove actually employed serves the same purpose.

The operation of the device will now be apparent. The cord, the uncoiled portion of which is lettered M, is drawn upward by the action of the machine from the cop B, and passes through the aperture J and is drawn more or less firmly over the inner surface of the groove K, passing through the aperture L through the tension device, which operates upon it in the customary manner. The action of this helical channel upon the cord held by the tension device is to untwist its strands to an extent sufficient to overcome the increased tendency to knot given it by the unwinding of the cord from the cop.

While I have shown my invention as embodied in the form and structure which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of variation and modification and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

I am aware of the structure shown in the patent to Lauritsen, No. 609,106, August 16, 1898, which by itself is intended to operate as a tension device, and I do not claim the same as my invention, as a structure made in accordance with my invention to be operative must have combined with the helical groove a tension device to hold the twine while being acted upon by the surfaces of the groove.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class described, a twine-box with a tension device, and means for slightly untwisting the twine as it passes from the cop to the tension device comprising a block containing a helical groove in which the cord moves interposed between the cop and tension device.

2. A twine-box having a helical groove formed in connection therewith through which the cord passes as it is delivered, in combination with a tension device located outside of the box and beyond the groove and operating to prevent the cord from rotating at the point held thereby.

3. In a device of the class described, a twine-box having the block G secured thereto, said block having the helical groove K formed therein, an aperture leading through said box and opening into the groove K, and a tension device secured on the box just outside of the aperture, substantially as and for the purpose described.

SAMUEL K. DENNIS.

Witnesses:
E. J. TAYLOR,
J. F. ADAMS.