(No Model.)

P. P. COLER.

CORD KNOTTER FOR GRAIN BINDERS.

No. 604,022. Patented May 17, 1898.

Fig. 1

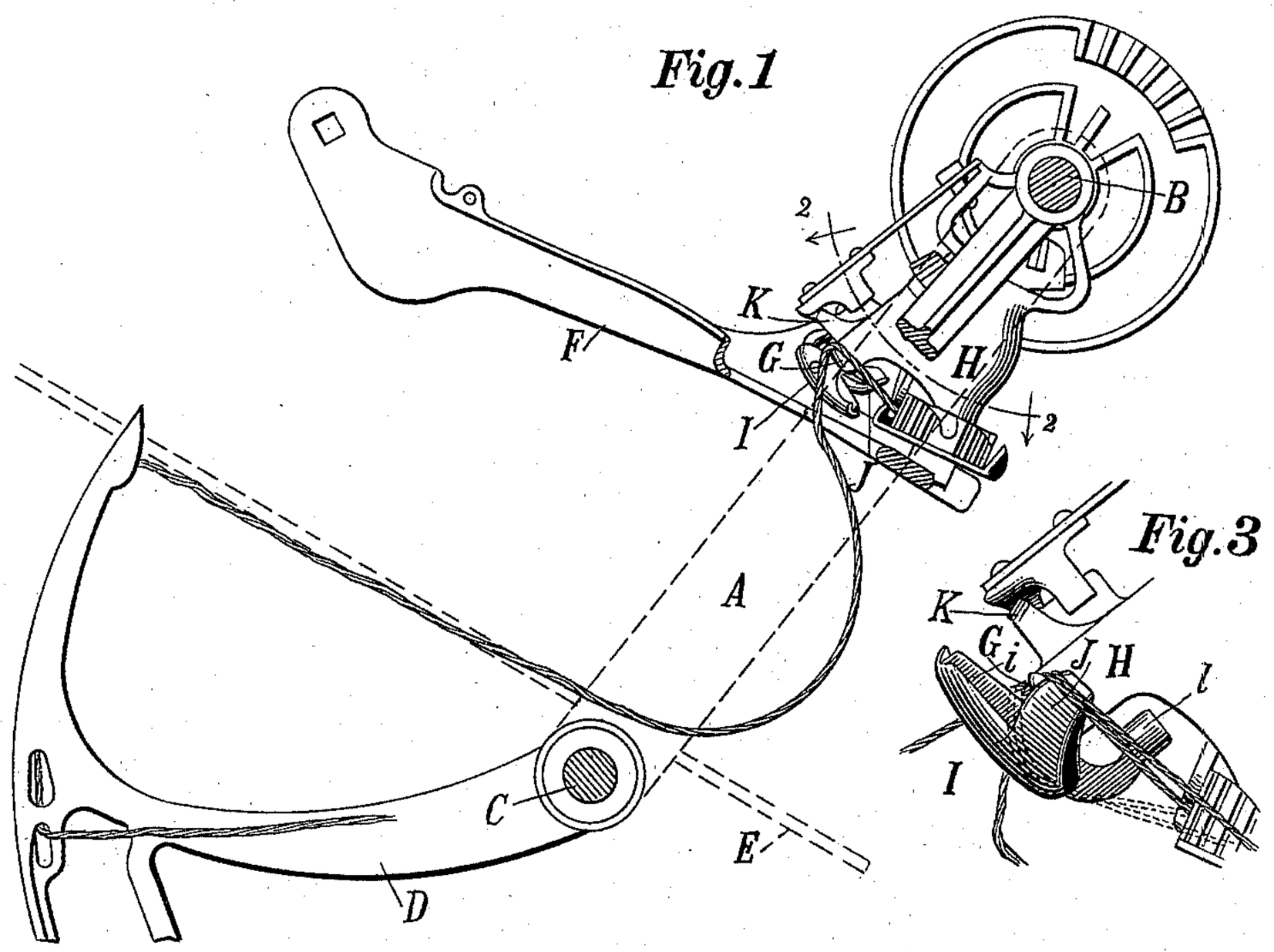


Fig. 3

Fig. 4

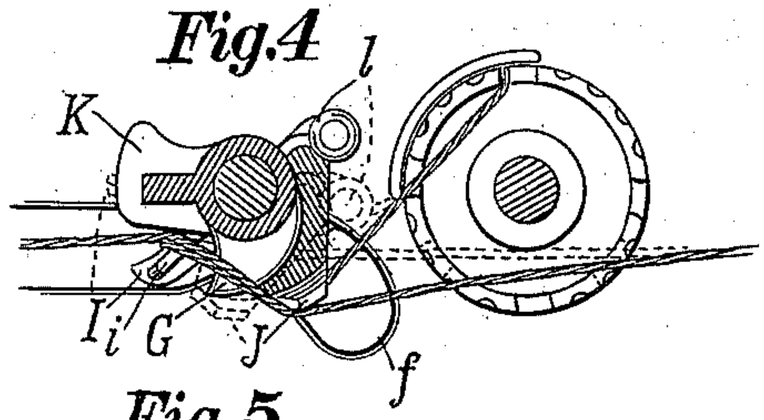


Fig. 5

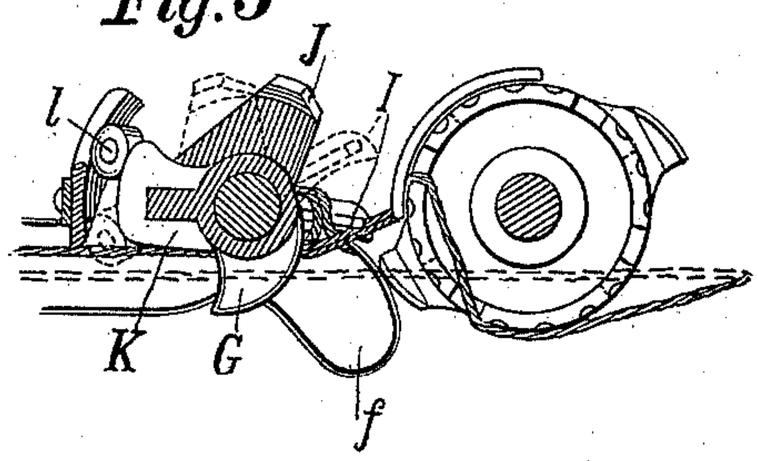
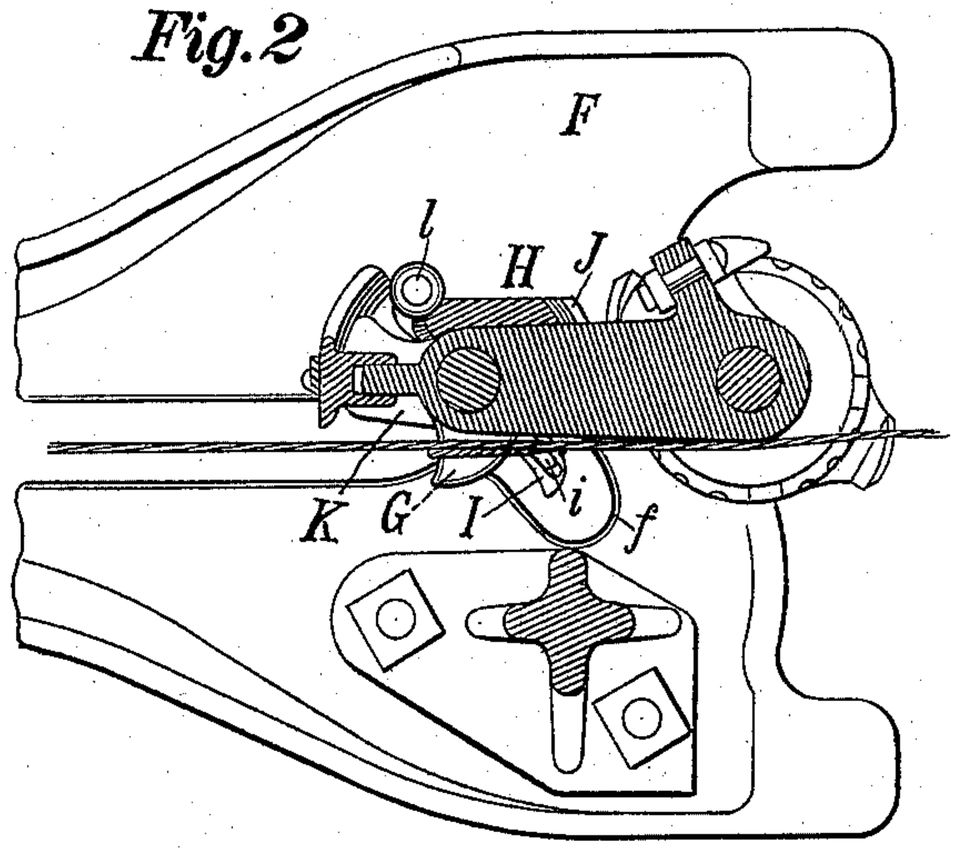


Fig. 2



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CORD-KNOTTER FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 604,022, dated May 17, 1898.

Application filed May 15, 1897. Serial No. 636,825. (No model.)

To all whom it may concern:

Be it known that I, PETER P. COLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cord-Knotters for Grain-Binders, of which the following is a specification.

This invention relates to a stop for the cord in the type of cord-knotters in which the knotter-hook is stopped at the end of the knotting movement with its hook trending outward in the direction of the extended cord-slot, so that the loop may be slipped therefrom and the ends wrenched from between the jaws by the direct strain on the sheaf as it is ejected by the discharge-arms of the binder; and its object is to support the cord at a point above the knotting-hook by a projection from a fixed part of the machine, from which projection the cords are carried by a revolving flange that is attached to the knotter-hook shaft and which projects into the path of the cords as it revolves.

In the drawings, Figure 1 is an end view of so much of the binding mechanism as is necessary to show the invention, the breastplate and part of the knotter-frame being broken away, so as to show more clearly the special feature that performs the function of a stop for the cord. Fig. 2 is a top view on line 2 2 of Fig. 1. Fig. 3 is a view of the knotting-hook at the stage where it has completed about one-quarter of a revolution and the flange upon it is lifting the cords from the stop. Fig. 4 is a top view just beneath the knotter-frame, showing the cord-holder, the stop, and the base of the revolving knotter-hook, the flange on the knotting-hook having reached a position where it is about to lift the cords from the stop; and Fig. 5 shows practically the same parts with the knotting-hook having nearly completed its revolution and in a position about to engage the cords, the needle end of the cord being shown in dotted lines.

Similar letters refer to similar parts throughout the several views.

The binder-frame A, the end of which is shown in dotted lines, is of the usual construction of binders and has in its upper member the knotter-shaft B and in its lower member the needle-shaft C, carrying the needle D. The deck E of the binder, down which the grain slides from the harvester, is represented by dotted lines in Fig. 1. The end of the cord is held in a holder. In the drawings a holder is shown of the Pridmore type described in Patent No. 442,544. In knotters in which the cord is stripped from the hook by the discharge-arm it is necessary that the needle-slot in the breastplate shall extend beyond the knotter-hook, so that there may be a direct pull of the cord from the knotting-hook.

In the drawings, F represents the breastplate, and its slot *f* extends below the point of the knotter-hook. In the Pridmore patent a finger projects from the side of the breastplate opposite the knotter-hook and prevents the cord from slipping past the knotter-hook as the bundle is forced by the packers into the bight of the cord.

The present invention consists in a stop G, that projects from the side of the knotter-frame H at a point above the knotting-hook and slightly toward the grain-receiving side, and this stop extends across the slot of the breastplate and is slightly hooked on its receiving edge to prevent the cord from slipping from it. It is located in a plane beneath that of the point of the needle in its reciprocations, so that the cord will be carried above it when the needle advances and retreats. With both cords upon the stop G, as shown in Fig. 2, the knotting-hook I advances, and the cords being held above it they are caught by the knotter-hook I and swung with the knotter-hook as it revolves. There must, however, be some means of getting the cords from the stop G, or when the loop is formed the stop would be within the loop and prevent the knot being tied. As a means for this purpose a flange J is projected from the knotter-hook I, standing out therefrom nearly at a right angle to the hook and so near to the top of the hook as not to prevent the hook from grasping the cord and forming the loop thereon, and the flange extends outwardly slightly beyond the stop G and turns upwardly, so as to extend into a plane above that of the stop. As the knotting-hook revolves it catches the cords and swings them to one side, as shown in Fig. 3, and the flange J strikes the cords

and swings them outwardly from the base of the stop G, and when the flange gets beyond the stop the downward and inward trend of the side of the flange J carries the cords onto the hub of the knotting-hook I and a loop is formed, and the open jaws of the knotting-hook grab the ends of the cord, as shown in Fig. 5.

In Fig. 4 the knotting-hook is shown in full lines when it has completed about one-quarter of the revolution and the flange J is encountering the cords. In dotted lines the flange is shown farther advanced, and it is plain that the cords would be by this means entirely removed from the stop.

It is plain that the cord must have an unobstructed path to the stop and that the part of the knotter-frame K that acts upon heel *l* of the bill *i* of the knotter-hook I to open the jaws must be positioned out of the path of the cord. It is necessary, therefore, to place this flange K farther around than is common, and in order that the bill *i* of the knotter be opened in time to grasp the cords the heel *l* of the bill is bent forward in the direction of its rotation, thus allowing the cord-slot to remain clear.

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

1. In combination with a knotting-hook, a breastplate having a slot extending past the hook, a stationary stop positioned above the hook and extending across the slot in the breastplate from the same side as the knotting-hook and means whereby the cords are carried from the stop by the revolution of the knotting-hook.

2. In combination with a knotting-hook that trends outwardly, a breastplate having a slot that extends past the hook, a stop positioned on the knotter-frame and that extends across the cord-slot from the side of the knotting-hook, and a flange rotated by the knotting-hook, whereby the cords are removed from the stop by the revolution of the hook.

3. In combination in a knotter for self-binding harvesters, a stop projecting across the cord-slot, in a plane above that of the knotter-hook, a breastplate having a cord-slot that extends past the knotter, a tying apparatus having a hook that trends outwardly, a cord-holder for holding the cord, a flange attached to the knotting-hook, and revolving therewith, that in its path sweeps around the stop, and means for actuating the parts, substantially as and for the purpose specified.

4. In combination in a tying apparatus for self-binding harvesters, a breastplate having a cord-slot that extends past the knotter-hook, a knotter-hook that trends outwardly, and has a heel extension curved in the direction of the rotation of the knotter-hook, and a flange on the knotter-frame in the path of the rotation of the heel of the knotter-hook, substantially as and for the purpose specified.

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