

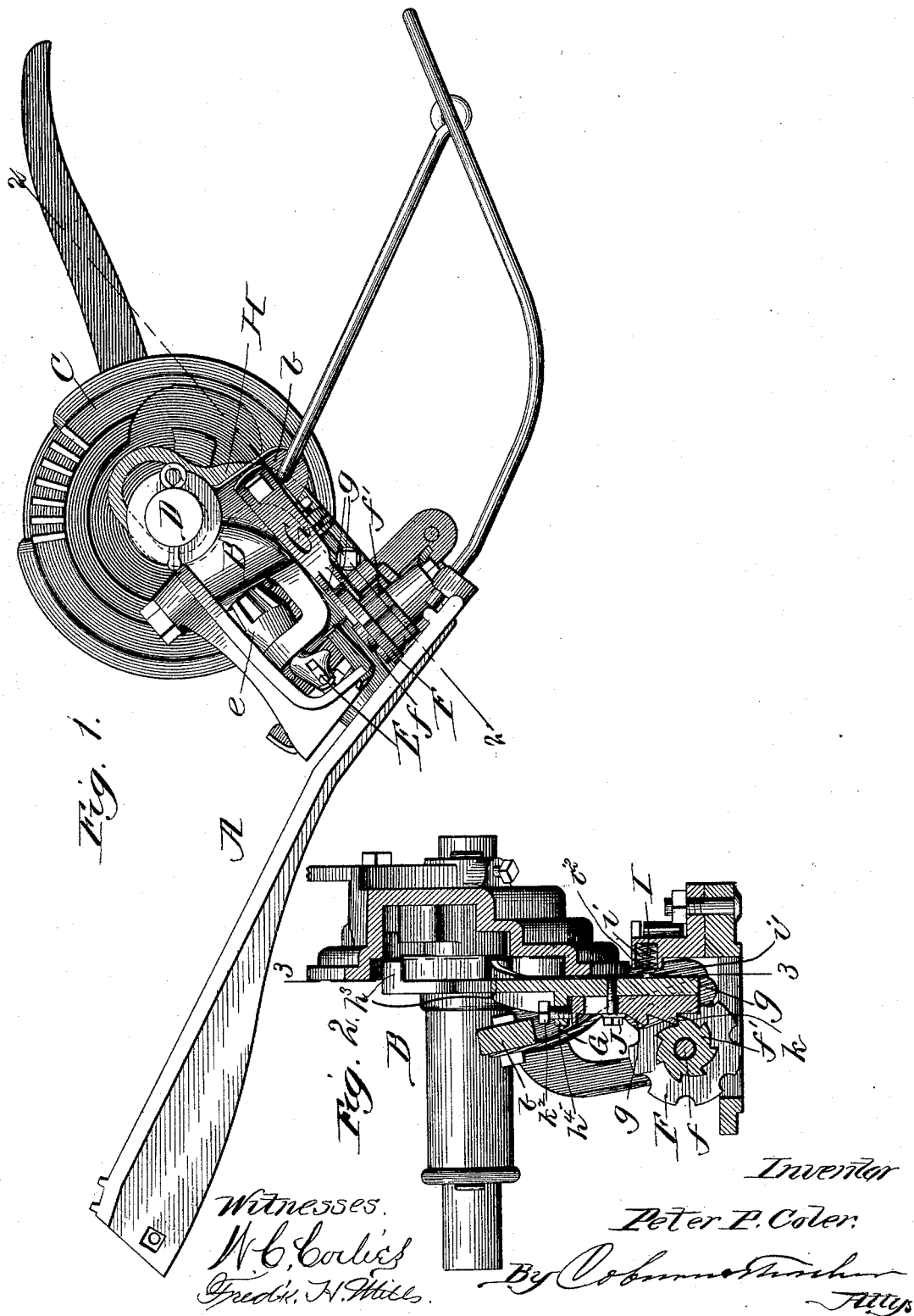
(No Model.)

2 Sheets—Sheet 1.

P. P. COLER.
GRAIN BINDER.

No. 489,219.

Patented Jan. 3, 1893.



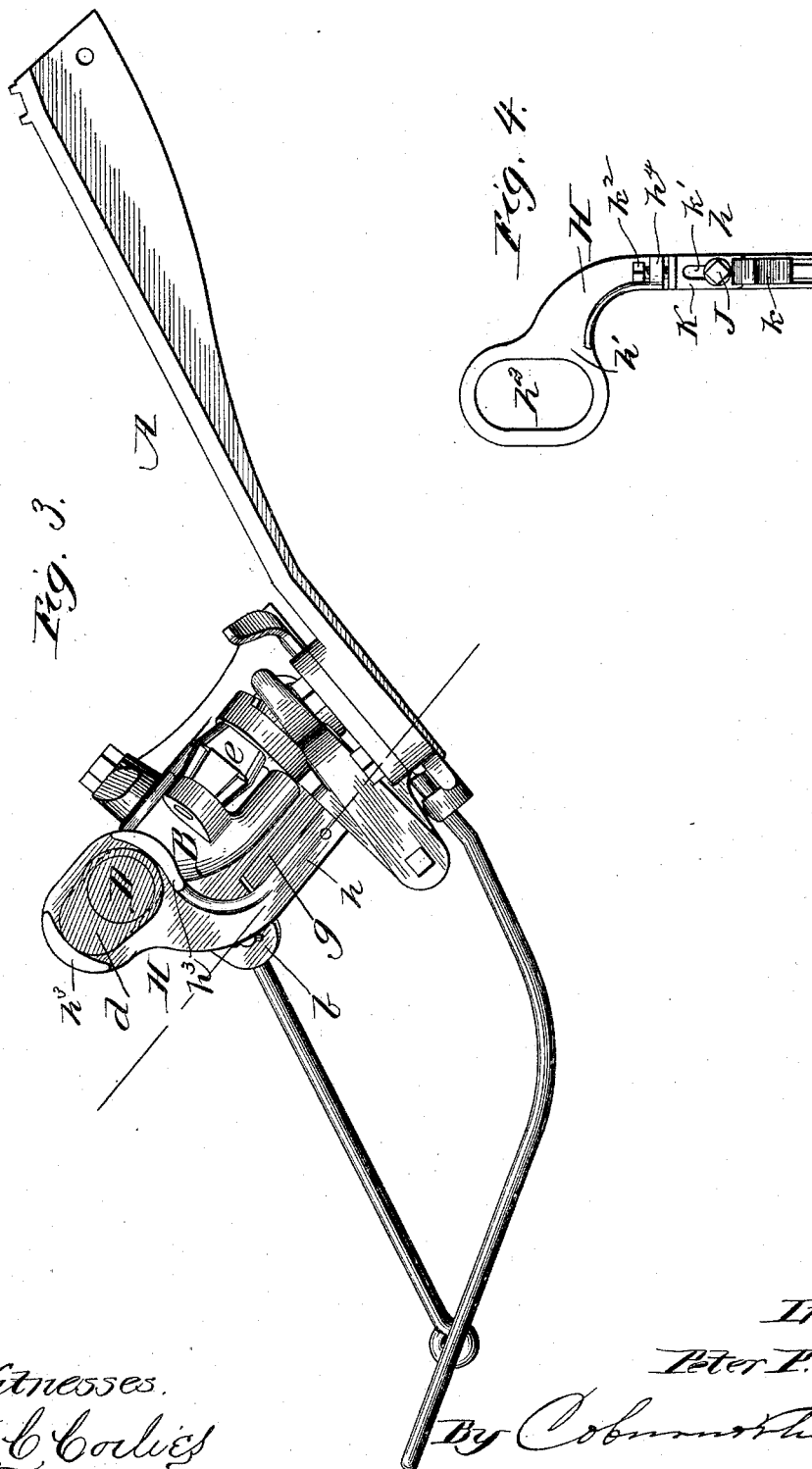
(No Model.)

2 Sheets—Sheet 2.

P. P. COLER.
GRAIN BINDER.

No. 489,219.

Patented Jan. 3, 1893.



Witnesses.
W. C. Collier
Fredk. N. Mills.

Inventor:
Peter P. Coler.

By *Coburn & Thacher*
Attys.

UNITED STATES PATENT OFFICE.

PETER P. COLER, OF PLANO, ASSIGNOR OF ONE-HALF TO THE PLANO
MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 489,219, dated January 3, 1893.

Application filed October 10, 1891. Serial No. 408,339. (No model.)

To all whom it may concern:

Be it known that I, PETER P. COLER, a citizen of the United States, residing at Plano, in the county of Kendall and State of Illinois, have invented certain new and useful Improvements in Grain-Binders, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of the breast plate and knotting devices mounted thereon, looking from the rear of the machine; Fig. 2, a section of the same, taken on the line 2—2—, of Fig. 1; Fig. 3, a sectional view of the same, looking from the front of the machine, taken on the broken line 3—3, of Fig. 2; and Fig. 4, a detail elevation of the cord holder pawl, detached.

My invention relates to automatic grain binders for harvesters and consists in certain improvements in the devices for actuating the cord holder and also in the clamp used in connection with the well-known notched disk.

I will describe in detail the construction and operation of so much of the binding mechanism as is necessary to illustrate my invention and will then point out more definitely in claims the particular improvements which I believe to be new and wish to secure by Letters Patent.

In the drawings, A represents the breast plate of the binder, and, B, the knotter frame which is mounted thereon. The usual cam and gear-wheel, C, is fixed on the shaft, D, which has a journal bearing on the knotter-frame. The knotter, E, as shown in the drawings, is of the bill-hook type and is provided with the usual pinion, e, through which it is rotated by the gear on the wheel C. These parts are of any ordinary construction and do not require more special description herein.

The cord holder is of the well-known notched disk type. The notched disk, F, is mounted loosely on a short shaft, f, which, in turn, is mounted in suitable supports in the usual way; and the disk is provided on its outer face with a small ratchet-wheel, f', preferably cast in one piece with the disk. The spring clamp, which is to operate with this disk to hold the cord as usual, is a single piece. It consists of a long flat spring, G, which is fastened at

its upper end to a lug, b, of the knotter frame, from which it depends down by one edge of the notched disk and at its lower end is constructed to form the usual flange-fork, g, which embraces the edge of the notched disk. There is thus provided a clamp which is elastic in itself, yielding bodily as required for the ordinary operation of this type of cord holder. It is a simple and cheap construction not easily deranged and at the same time efficient in operation.

The device for imparting the necessary intermittent movement to the cord holding disk, is a single piece, H. This device is a kind of pawl consisting of a straight arm, h, which is arranged to drop down by the outer face of the disk and at one edge of the ratchet thereof, as seen in Fig. 2 of the drawings. The upper end of this piece is bent inward toward the gear-wheel shaft D, so that this upper section, h', stands nearly at right angles to the depending arm. The extremity of this upper section or neck of the pawl is constructed with a loop or elongated slot, h², the elongation being vertical as seen in Fig. 4, and the shaft D is passed through this slot in setting up the devices for work, so that when the machine is in working order the said shaft is embraced by the slot.

On the shaft D is a cam, d, which may be arranged to work within the slot at the upper end of the pawl, thus giving the latter a positive reciprocation vertically. As a preferable construction, however, the slotted end of the pawl may be provided with short lips, h³, extending out laterally from one side thereof, as seen in Figs. 2 and 3, and the cam may be arranged to work between these lips, as seen in the said Fig. 3. The pawl H is provided at its lower end and on its inner face, next to the ratchet, with teeth adapted to engage with the teeth of the latter, so that when the pawl is depressed by the action of the cam on its upper end, it will turn the holding disk one notch. This action will be clearly understood from an inspection of Fig. 2 of the drawings, where the pawl is represented in its elevated position and in engagement with the ratchet. A spring is arranged on the back side of the pawl opposite to its teeth for the purpose of holding the latter up into engagement with

the ratchet and at the same time permitting the lower end of the pawl to yield outward from the ratchet, so as to pass the teeth on the latter in its upward movement. This spring may be arranged in any suitable way; in the drawings I have shown a short spring coil, I, arranged in a suitable horizontal socket, i , in an arm of the knotter frame and adapted to press the lower end of the pawl inward toward the ratchet, the outer end of the coil resting against the back of the pawl. A button washer, i' , may be applied to the outer end of the spring, the outer face of which makes the contact with the pawl, being provided with a stem, i'' , which is inserted in the coil at the outer end thereof. The socket must, of course, stand back far enough from the pawl to permit the required vibration of the latter in its upward movement. The teeth on the pawl may be rigid and an integral part thereof, but I prefer to make them on a separate piece, so as to provide for adjustment. To this end a small plate, K, is constructed to fit the inside face of the lower end of the pawl and the pawl teeth, k , are made upon the outer face of this separate plate, while the inner face is flat to fit the corresponding face of the pawl. This plate has a slot, k' , near its upper end through which a screw-bolt, J, passes into the body of the pawl, thereby fastening the toothed plate to the latter, as seen in Fig. 3. A short lateral lug, h^4 , is provided on the inside of the pawl and the toothed plate is arranged just underneath this lug. A set-screw, k^2 , passes down through this lug and works upon the upper end of the plate. By this means of fastening the independent toothed plate to the pawl, it is made adjustable so that the proper movement of the cord holding disk

may be regulated with great nicety. It will be seen, however, that as the toothed plate is rigidly fastened to the body of the pawl, it is operatively an integral part thereof, so that the pawl consists practically of a single piece. This makes a simple and efficient device for operating the cord holder and with the cam device described the pawl receives a positive and direct movement in both directions and in straight lines.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a grain binder, the cord holding disk provided with ratchet f' , in combination with the single pawl H and the cam d on the shaft D arranged to act directly upon said pawl to reciprocate it positively in both directions, substantially as described.

2. In a grain binder, the cam and gear-wheel shaft D, provided with a pawl cam d thereon, in combination with the toothed pawl H, provided with a loop at its upper end embracing said shaft and having lips at one side thereof embracing said cam, the cord holding disk provided with a suitable ratchet and a spring arranged at the back of the pawl to cause the latter to engage with said ratchet, substantially as described.

3. In a grain binder, the cord holding disk provided with suitable ratchet, in combination with the pawl H arranged to reciprocate in straight lines at one edge of the ratchet, the separate toothed plate K provided with slot k' , the fastening bolt J and the set screw k^2 , substantially as described.

PETER P. COLER.

Witnesses:

G. H. CARVER,
E. J. TAYLOR.