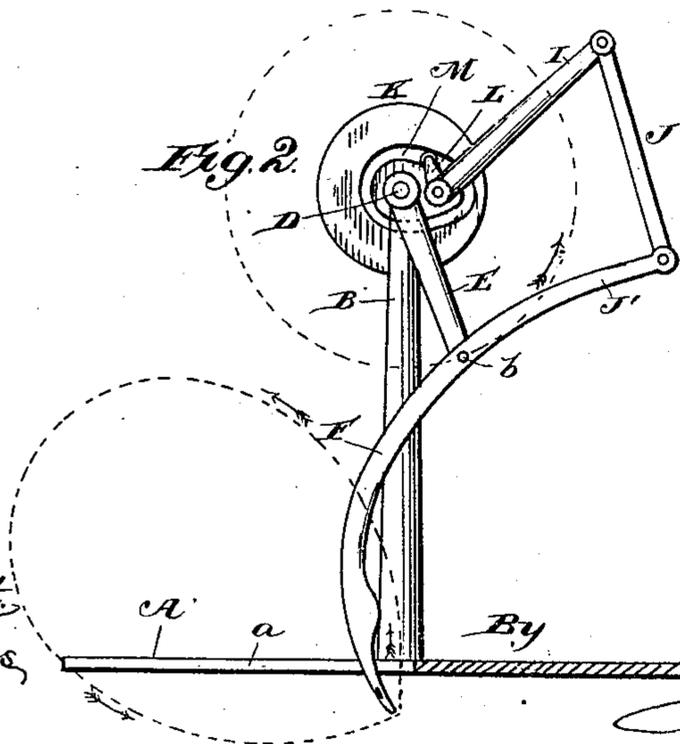
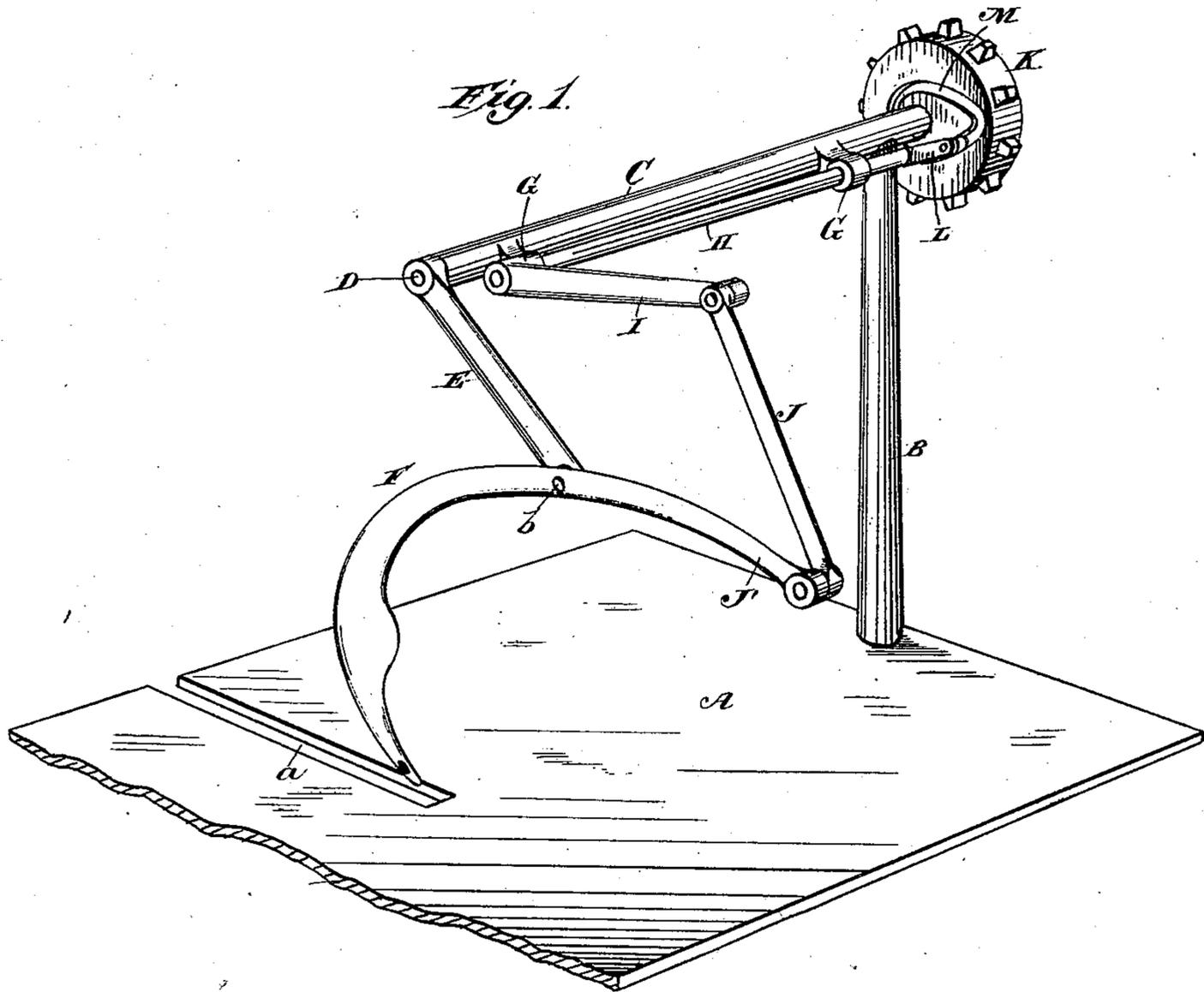


(No Model.)

P. F. HODGES.  
GRAIN BINDER.

No. 255,985.

Patented Apr. 4, 1882.



Witnesses,  
*Robert Guatt,*  
*Vinton Coombs,*

Inventor,  
*Pliny F. Hodges,*

By

*James L. Norris,*  
Atty.

# UNITED STATES PATENT OFFICE.

PLINY F. HODGES, OF DAVENPORT, IOWA.

## GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 255,985, dated April 4, 1882.

Application filed October 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, PLINY F. HODGES, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Grain-Binders, of which the following is a specification.

This invention has for its object to provide simple and effective means for controlling the free end of the binder-arm when driven by a rotary crank-arm, all in such manner that the binder-arm will be elevated vertically at the proper moment, so as not to strike the knotting or tying mechanism located below the slotted binding-table or obstruct the perfect operation of the same.

The invention consists essentially in the combination, with a binder-arm connected with a crank-arm which vibrates it, of an oscillating arm and a connecting-link, which operate to arrest the backward sweep of the binder-arm and swing or rock the latter on its pivotal connection with the crank-arm, thereby imparting an upward rising movement to the free end of the binder-arm to withdraw it at the proper moment from the slot in the binding-table.

In the accompanying drawings, Figure 1 is a perspective view, illustrating a portion of a binding-table, a binder-arm, and the mechanism for operating the same; and Fig. 2, an end elevation, the binding-table being in section on the line of its slot, in which the binder-arm moves.

I have only illustrated sufficient of a binding mechanism to illustrate my invention.

The binding-arm will be of any preferred or well-known construction to carry the cord, wire, or band around the gavel, and the knotting or tying mechanism may also be of any preferred or ordinary construction, and in practice will be located under the binding-table A, adjacent to the inner end of the slot *a* therein. At one end of the said table is arranged a standard, B, sustaining at its upper portion a tubular bearing, C, for the shaft D, which carries and operates the crank-arm E, to which the binder-arm F is pivoted, as at *b*.

Upon the bearing C are provided bearings G G, in which is arranged a rocking shaft, H, connected with and oscillating an arm, I, which is pivoted at its outer end to a link, J, pivot-

ally connected with an extension, J', of the binder-arm.

The shaft which drives the crank-arm to vibrate the binder-arm in a circulatory path around the gavel to be bound is rotated by a chain or other wheel, K, and the shaft H has a rocking movement imparted to it through the medium of a short crank-arm, L, having a stud or roller on its outer end arranged in a cam-groove, M, on or in the face of the chain or other wheel K.

In operation, when the shaft D is revolved the crank-arm E will be rotated and carry the binder-arm F in a circulatory path in a vertical plane, and when the binder-arm has carried the cord around the gavel and assumes the position shown in Fig. 2—that is, when the lower end of the binder-arm is at or near the inner end of the slot *a*, adjacent to the point where the knotting or tying mechanism is located, it will have an upward rising motion imparted to it through the instrumentality of the cam-groove M, acting on the rocking shaft H, to cause the arm I to move downward and operate on the upper end of the binder-arm through the connecting-link, thereby depressing the upper end of the binder-arm and lifting the lower end, the crank-arm E and pivot *b* serving as a fulcrum on which the binder-arm swings. The continued action of the cam-groove on the rocking shaft serves to impart a rising movement to the oscillating arm I, thereby depressing the free end of the binder-arm as the latter moves around the gavel. These movements of the binder-arm effectually avoid the possibility of the free end of the binder-arm in its lowest position coming in contact with and thereby obstructing or disturbing the perfect operation of the mechanism which knots or ties the cord, wire, or band around the gavel to form a sheaf.

I do not limit myself to the means herein described and illustrated for imparting motion to the oscillating arm, as other mechanical devices could be substituted for effecting the same mode of operation without departing from the essential features of my invention.

What I claim is—

1. The oscillating arm I and mechanism acting to positively oscillate the same, in combination with the crank-arm E, the binding-arm

F, and the link J, connecting the oscillating arm with the extension J' of the binding-arm, for arresting the rearward sweep of the latter and positively raising it, substantially as described.

5 2. The rock-shaft H, oscillating arm I connected therewith, and mechanism acting to rock said shaft and oscillate the arm in a positive manner, in combination with the crank-  
10 arm E, the binding-arm F, and the link J, con-

necting the oscillating arm to the extension J' of the binding-arm, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

PLINY F. HODGES.

Witnesses:

ALBERT H. NORRIS,  
J. A. RUTHERFORD.