

H. A. ADAMS.
Grain-Binder.

No. 214,980.

Patented May 6, 1879.

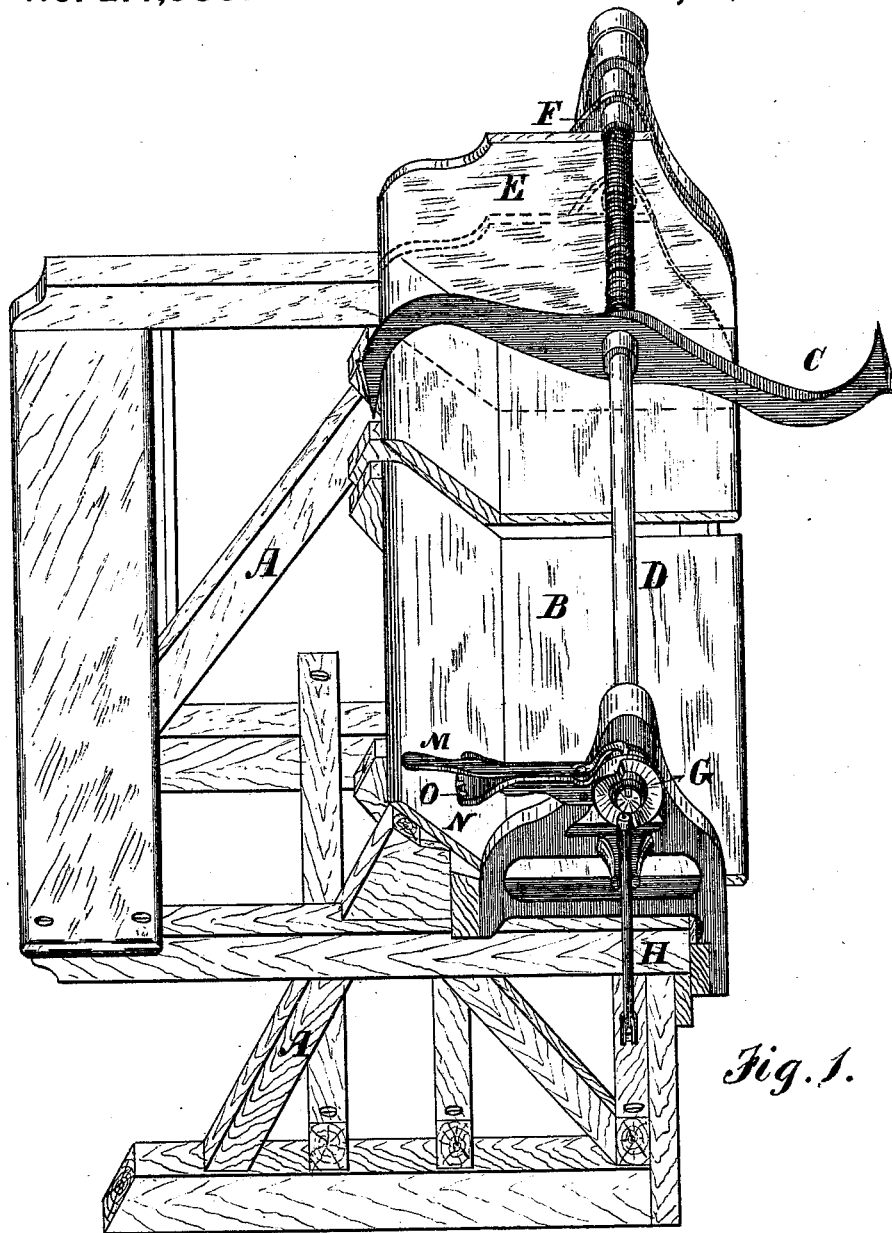


Fig. 1.

Witnesses

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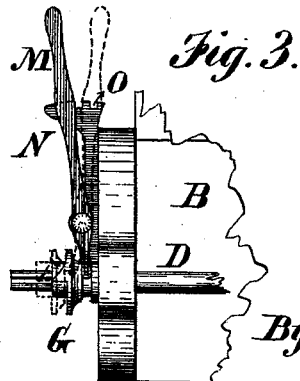
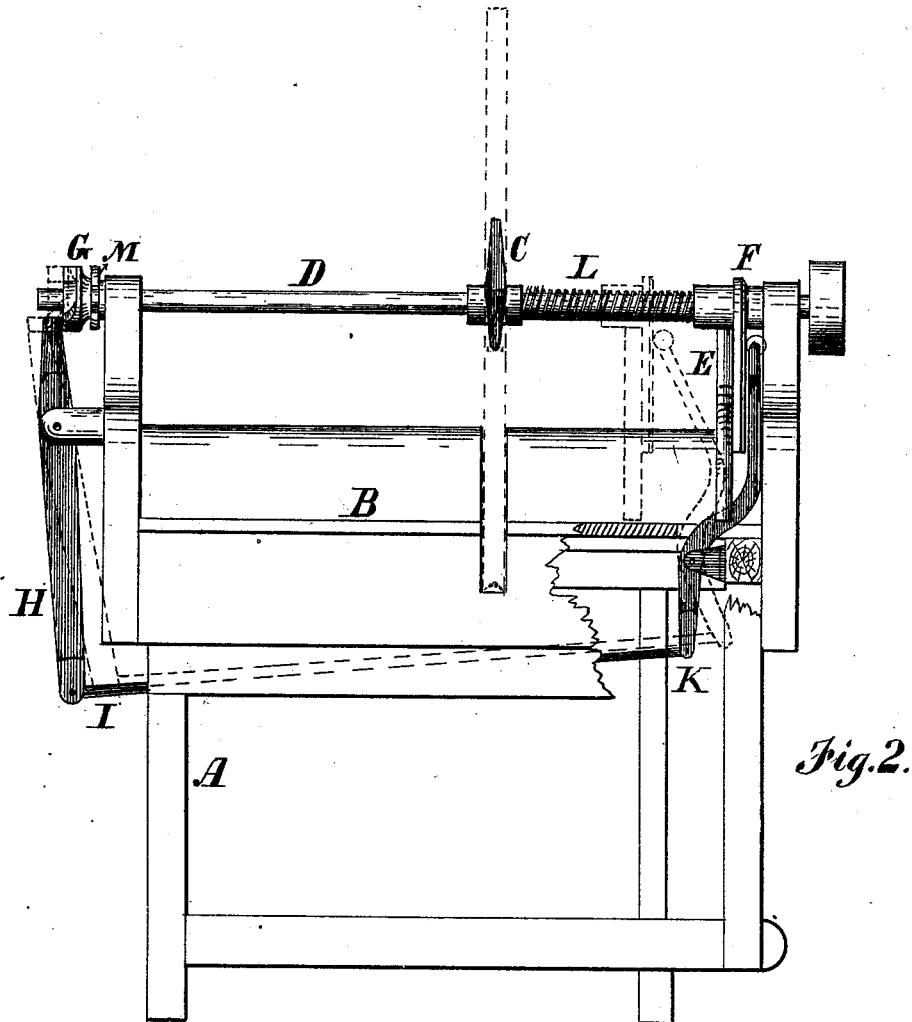
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **214,980**, dated May 6, 1879; application filed October 25, 1877.

To all whom it may concern:

Be it known that I, HENRY A. ADAMS, of Sandwich, in the county of De Kalb and State of Illinois, have invented a new and useful Improvement in Grain-Binders, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of a binding attachment for harvesters embodying my improvement; Fig. 2, an elevation of the same at the binding end of the harvester; and Fig. 3, a plan view, in detail, of the regulating device.

My invention relates to an improvement in automatic grain-binders, by means of which the gavel is adjusted, after it is delivered upon the receiver and before it is bound, to suit different lengths of grain, so that the band may be placed around the bundle at the proper distance from the butts.

The invention consists in special mechanism for vibrating and regulating the adjuster, all of which will be hereinafter more fully set forth.

The length of the straw varies more or less in the same field of grain, and as it is impracticable to adjust the elevating device in harvesters by means of which the grain is delivered to the binding apparatus, the gavel or bundle will always be delivered upon the receiver in the same relation to the binding-arm of the automatic binder, and therefore if there is no adjustment the band will be placed around the bundle either too near the heads in short grain or too near the butts in the long grain. It is scarcely practicable to make the binding-arm adjustable, as it is connected with mechanism more or less complicated, the movements and operation of which must be effected with great nicety and certainty.

The desired adjustment of the bundle and binding-arm relatively to each other has therefore been effected by the movement of the bundle; but this movement has been obtained heretofore by the adjustment of the entire table or receiver upon which the bundle is delivered, and on which it lies as the band is put around it. This necessitates the adjustment of parts which are heavy and more or less difficult to be moved, requiring considerable expense of

power, and sometimes resulting in unsteadiness of the table. In my invention the table remains fixed and stationary, as in an ordinary harvester, while by a light and simple device, easily operated, the bundle itself is moved on the table to effect the necessary adjustment.

In the drawings, A represents the frame-work which supports the elevator and binding apparatus, and B the grain table or receiver, upon which the grain is delivered before being bound, at the back of which is a short incline. The binding-arm C (illustrated by the drawings) is rotary, being attached to a revolving shaft, D.

At the forward end of the table B is a strip of board or other suitable material, E, which extends across the table, and is supported by a bearing, F, loosely mounted on the shaft D, and provided with arms, to which the board is fastened. It is evident, therefore, that this board may be moved laterally, with its support, upon the shaft D, and as it is located at the forward end of the table, it will be just in front of the butts of the grain received thereon to form a bundle, so that when moved laterally it will strike against the butts of the bundle and move the bundle along on the table.

For the purpose of imparting the necessary movement to the adjusting device above described, I mount upon the rear end of the shaft D a suitable cam, G, which acts upon the upper end of a pivoted arm or lever, H, the lower end of which is connected to one end of a rod, I, which extends forward, and is connected, at its forward end to the lower end of a second pivoted lever, K, the upper end of which rests against the adjusting-board. Each of the levers may be provided with an anti-friction roller at its upper end, if desired, and for convenience these levers are extended down so as to bring the connecting-rod somewhat below the grain-table, the pivots of the two levers being so arranged with reference to each other that a slight movement of the upper end of the lever H will produce a much greater movement of the upper end of the lever K. The lever H is vibrated by the wings or projections on the cam G coming in contact with the upper end thereof, thus giving a quick, sharp movement to the lever K,

by means of which the adjusting-board E is pushed forward quickly against the butts of the bundle lying on the table. The cam projections are short, so as to release the lever H almost instantly, and a spring, L, is coiled upon the shaft D in front of the bearing F, whereby the latter, with the adjusting-board, is thrown back instantly when the operating-lever is released by the cam.

As it is not necessary to operate the adjuster continuously, the mechanism is arranged so as to be readily thrown out of gear; and to effect this, I attach the cam G to the shaft by means of a spline and groove, so that it may easily slide thereon; and a forked lever, M, is pivoted to a supporting bracket, N, by means of which the driver can throw the cam out of contact with the lever H whenever desired.

The outer end of the bracket N is provided with a notched segment, O, with which a pin on the lever M engages, so as to set the lever in different positions, and by this means, when the mechanism for reciprocating the adjusting-board is thrown into operation, the cam may be set up toward the operating-lever a greater or less distance, thereby regulating the movement of the latter, and the consequent movement of the lever K, which regulates the distance through which the adjusting-board is moved. It is evident, therefore, that by the devices above described the mechanism may be arranged to operate so as to slide the bundle along under the binding-arm a greater or less distance, to suit the length of the grain.

I have described the adjuster or regulator in connection with a rotary binding-arm; but it is evident that its use is not restricted to this particular device, as it can be employed for the same purpose, and with the same result, with reciprocating or vibrating arms.

As I have shown and described the device, the arm gathers and places the band around a bundle with every half-revolution, and therefore the cam is provided with the projections arranged relatively to the binding-arm so that the adjusting-board will be operated just the moment before the arm comes down to gather the bundle and place the band around it. If, however, an arm is used which gathers and binds a bundle only at every revolution, it will be necessary to slightly change the construction of the mechanism, so as to operate the bundle-adjuster at the proper moment.

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

1. The reciprocating board E, mounted loosely on the shaft D, in combination with the levers H K, connecting-rod I, cam G, and spring F, substantially as and for the purpose set forth.

2. The sliding cam G, in combination with the lever M, notched segment O, levers H and K, and reciprocating bundle-adjuster E, substantially as and for the purpose set forth.

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Witnesses:

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