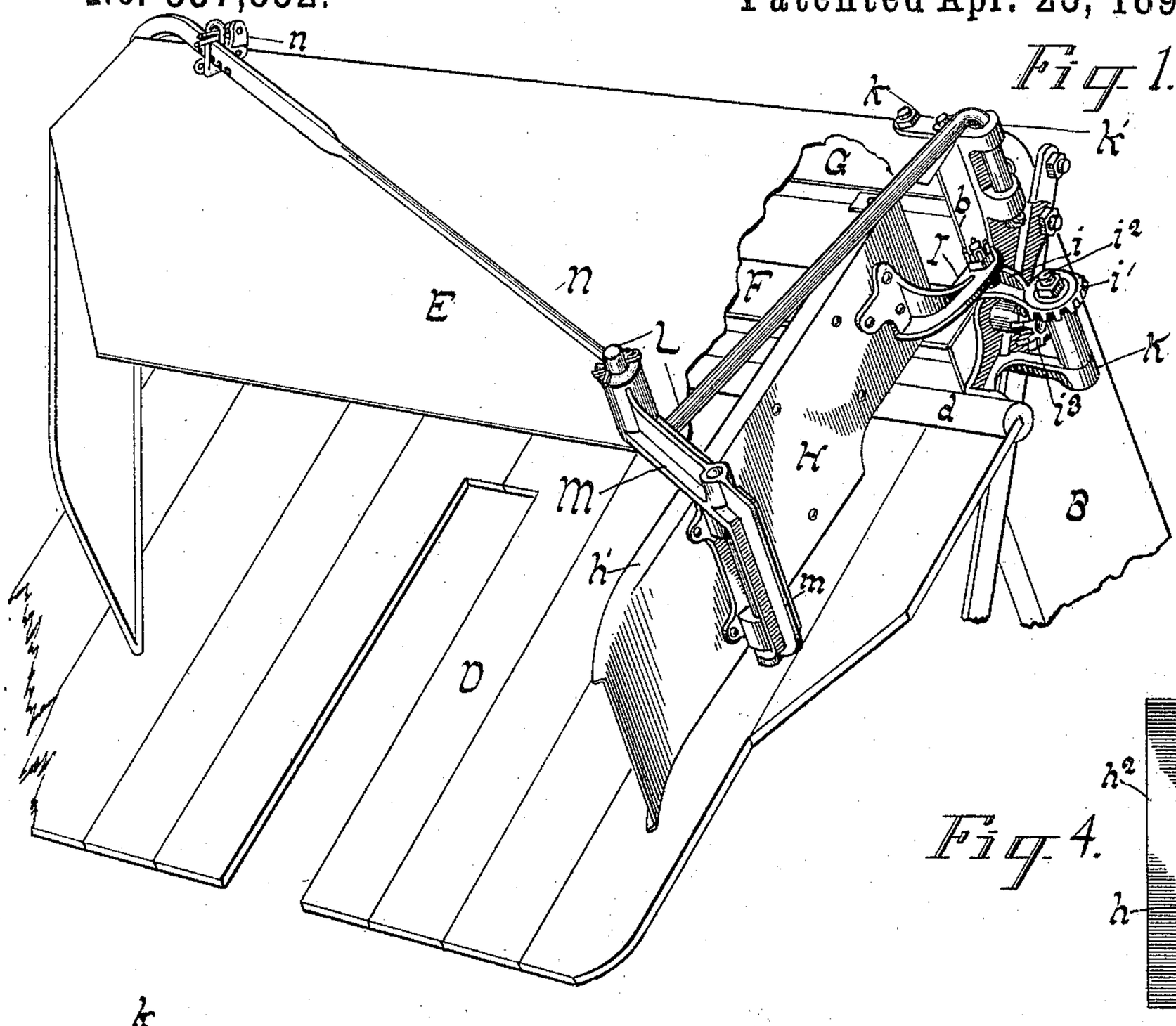
(No Model.)

# H. E. PRIDMORE.

## GRAIN ADJUSTER.

No. 537,852. Patented Apr. 23, 1895.

Fig. 1.



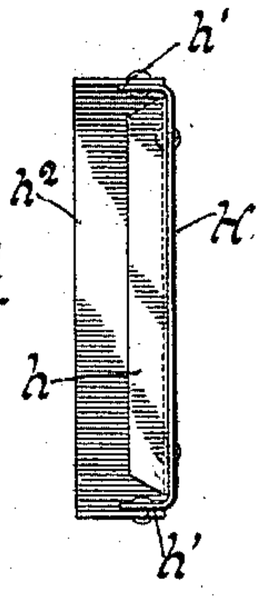




Fig. 4.

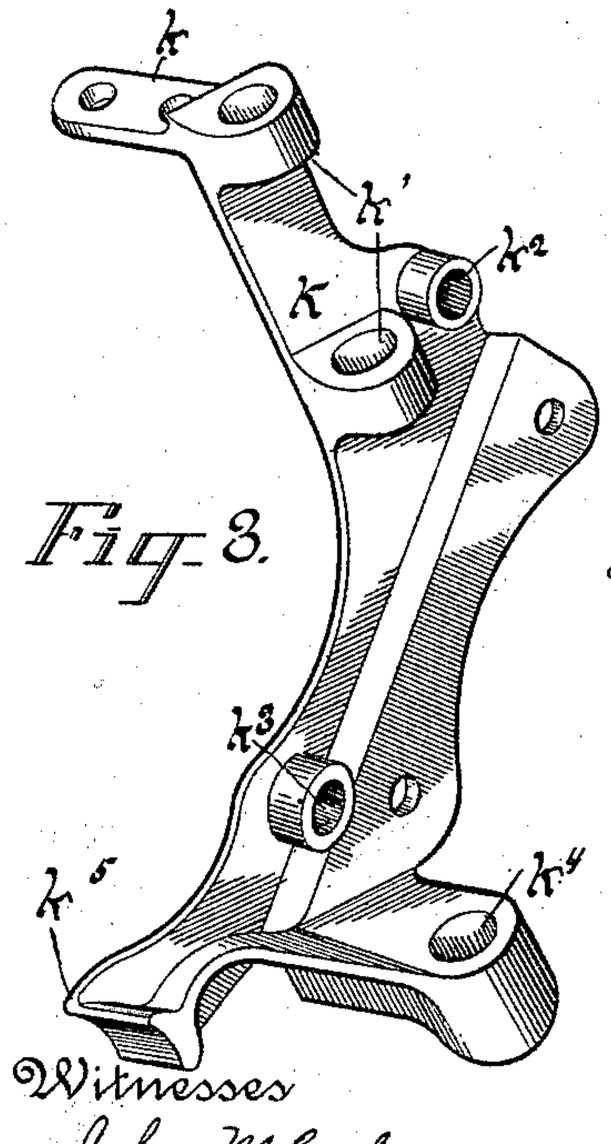



Fig. 3.

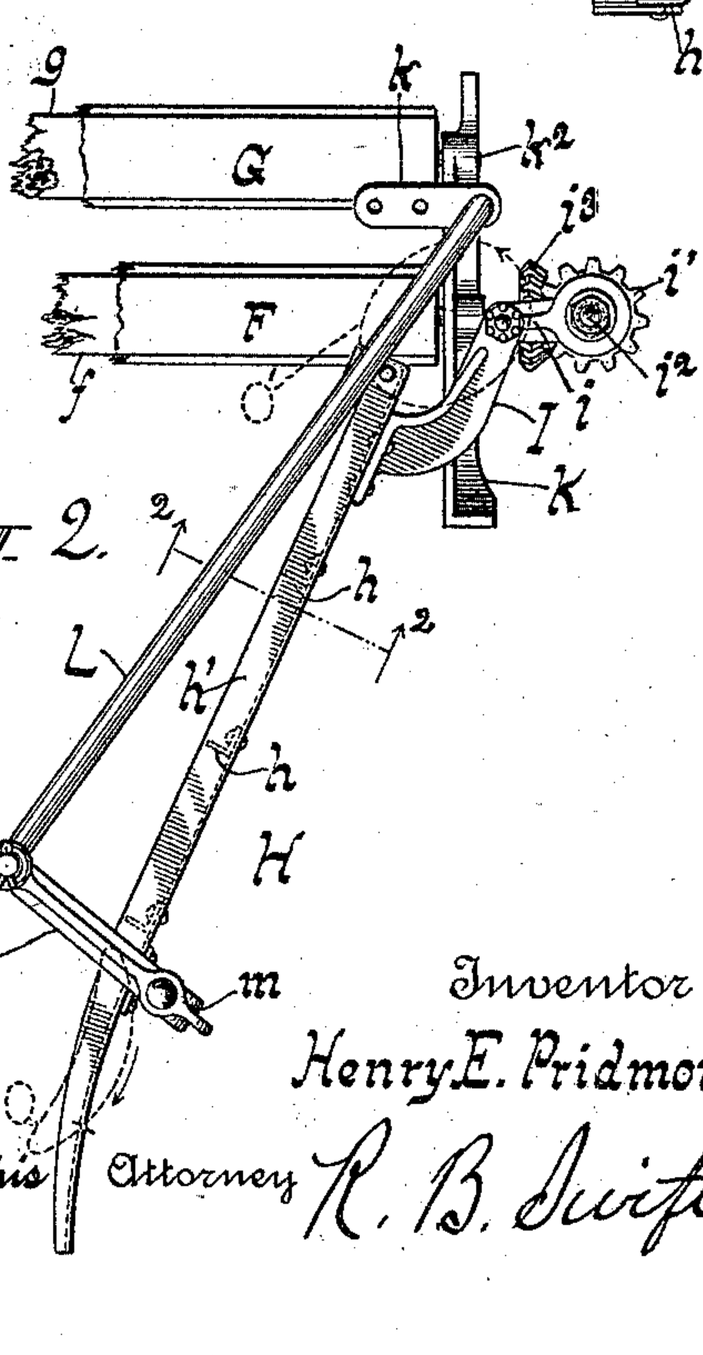



Fig. 2.

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# UNITED STATES PATENT OFFICE.

HENRY E. PRIDMORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCORMICK HARVESTING MACHINE COMPANY.

## GRAIN-ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 537,852, dated April 23, 1895.

Application filed November 15, 1890. Serial No. 371,539. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY E. PRIDMORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Grain-Adjusters, of which the following is a specification.

It has been found necessary to the successful operation of the modern grain binder, that the stream of grain, at some point in its path, be positively acted upon and moved toward the binding receptacle. For this purpose, C. L. Travis invented a device consisting of a rotating-vibrating board to act upon the butts of grain, and obtained a patent therefor on May 10, 1881, No. 241,451. It is to the improvement of this Travis form of a grain adjuster that my invention relates and more particularly to the method of giving motion to the board; to the form and construction of the board itself; to the attachment of the board to the harvester in the best manner, and in such a way that its path of movement shall be the best one for the moving of the stream of grain forward, and the leaving of it in the receptacle with the butts even, so that when a bite is bound and ejected from the machine, the bundle shall be in the best shape. I attain these objects by the mechanisms illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of so much of the frame, elevator and binder deck of an automatic self-binder as is necessary to show the attachment of my invention, when used on an elevator harvester, and its mode of operation. Fig. 2 is a top view of my grain adjuster, and the supporting and operating parts. Fig. 3 is a perspective view of the frame casting that furnishes the bearings for the upper front ends of the elevator rollers, the supporting arm, and also for the stud upon which the cranked bevel wheel is mounted that gives motion to the board, while Fig. 4 is an end view of the receiving end of the board on line 2—2 of Fig. 2.

B represents the elevator frame, D the binder deck, and E the deflector of an automatic self-binder. The grain after being cut, falls upon an endless moving apron, and is brought up the elevator between the elevator aprons F and G, where its course is deflected by the hood, or deflector, E, and it drops upon the binder deck D. The butts of the stream generally lag, and it also frequently happens that the grain will be filled with weeds at its roots, or that it will be tangled and become lodged, when the direction of its flow is changed, between the deck D and the deflector E. The grain will thus back up against the aprons G and F and be carried by them on their backward path, and clog the machine, It therefore becomes necessary to catch the grain as it leaves the elevator, and to rapidly and positively move it forward, which I do with the board H that is fitted with the cleats, *h*, on its operating face. From its upper end, an outwardly, upwardly extending arm I is mounted upon the crank arm *i* of the bevel pinion *i'*, which is in turn mounted upon the stud $i^2$ that is set in the piece K rigidly fastened to the elevator. Motion is communicated to bevel pinion *i'*, by the bevel pinion $i^3$, which is actuated by a moving part of the harvester.

The lower end of the board H is supported by a double cranked arm, L, that extends from the top of the elevator downward over the deck, D. The upper crank of this arm has bearings in the piece K, and upon the lower crank of the arm L the arm M is pivotally mounted with a long bearing to prevent sagging, while the board H is pivoted in a downwardly extending bracket *m*, from the arm M. A handle N, attached to the lower crank of the arm L, extends convenient to the driver, and serves to adjust the board backward and forward along the binder deck, so that the stream of grain can be deflected centrally to the binding mechanism. A lock, *n*, serves to retain the board, H, in any position in which it may be placed.

The upper horizontal arm *k*, of the piece K, furnishes a bearing for the deflector board, E, and binds together the sides of the elevator. One crank of the supporting arm, L, has bearings in the holes *k'* while the front end of the upper elevator roller has a bearing in the hole $k^2$, and the front end of the upper roller of the lower elevator has a bearing in

the hole $k^3$. The hole $k^4$ furnishes a seat for the short stud $i^2$, while the downwardly extending arm $k^5$ makes a stop for the guide $d$ of the binder deck D. It is necessary in rough ground, where the binding mechanism has a tendency to jump, that this guide $d$, be firmly supported, or it will be thrown out of position, and allow the decks to slip from it, or so bind the upper edge of the deck that the binder cannot be easily adjusted back and forth along the harvester.

While the board, H, may be formed from any material, it has been found that metal is more preferable than wood. A piece of sheet iron of the requisite width and length is therefore used. Its edges, $h'$, are bent at a right angle to its face, which not only stiffens the board, but also prevents the stream of grain from spreading beyond its path and thus not be acted upon. The receiving end, $h^2$, of the sheet of metal is bent at a right angle to its face, and as its path of rotation is large so that it can retreat from the stream of grain when on its return movement, the bent portion is extended thus catching a better hold on the grain. The cleats, $h$, are of such a width that they will not carry the grain back when the board is on its return path, and are cut away at their extremities so that the straw will not catch and hang between them and the edges of the board.

The necessity of having some device to quickly grasp the flow of grain as it comes from the elevators has been spoken of, and the elevator side board is cut away at $b$, and the piece K is so hollowed out that the board H in its movement may extend above the lower elevator, and strike into the flow of grain at once as it leaves the elevator rollers. The cleats upon the face of the board engage with the butts of the grain as the board starts in its movement toward the stream and are carried rearward and outward as the board continues its movement. It will be noticed that the path of the discharge end of the board is at first outward (see dotted line, O, in Fig. 2) as the receiving end in the first quarter of its rotation moves rearward and outward, while as the receiving end in the second quarter moves forward and outward, the discharge end moves rearward and outward. In the return movement of the board, the path of the receiving end is a curved one forward and inward, while the path of the discharge end is a curved one away from the place where the stream of grain has been left by the board when on the last quarter of its outward path. It has been found, after repeated experiments in the field, that the bundles are much more even, and more squarely butted when the board is mounted, so as to have this path in its movement. If the discharge end is supported upon a slide, or if the supporting arm L, is at the front of the board H, and the arm M extends rearwardly, the outer extremity of the board will strike into the flow of grain in such a way that the grain will not leave the board, but will hang upon it, and when the bundle is bound and discharged, it will have a long tail end caused by the grain which hung upon the board. The outward path of the discharge end of the board, at the time of the rearward, outward, aggressive movement upon the stream of grain during the first quarter of its rotation by the receiving end of the board, leaves a clear space for the grain near the end of the board to move on in its outward path, while the outward, rearward movement of the discharge end of the board moves the stream of grain backward and leaves it in line with that which has gone before. The movement of the board away from the stream when on its inward path leaves the grain, and a square butted bundle will thus be formed.

The action of an adjuster, with the movements of the one just described, upon the stream of grain at any point of its journey to the binding receptacle, will be valuable in the formation of a good bundle, and I therefore do not limit myself to the attachment of the board at the delivery end of the elevator, but claim as my invention, any adjuster acting upon the stream of grain in the same way as I have described.

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

1. In combination with the grain passage of an automatic self-binding harvester, a rotating vibrating butt-board so situated as to engage the butts of the stream of grain, its receiving end actuated by a crank and the path of movement of its discharge end controlled by a link pivoted to the machine at a point that is on the same side of the board as the stream of grain, with connections whereby the discharge end may be adjusted to and from the stream of grain without changing the form or size of the orbit described by the point upon the discharge end of the board.

2. In combination with the deck of an automatic binder, a butt board so situated thereon as to engage the butts of the stream of grain, its receiving end actuated by a crank, its discharge end connected by a link with and supported by an overhanging arm that is pivoted to the frame of the harvester practically concentric with the receiving end of the board, with means for adjusting the outer end of the supporting arm, substantially as shown and described.

3. The piece K, with the arm $k$, the bearings $k'$, $k^2$, and $k^3$, the stud supporting arm $k^4$, and brace arm $k^5$, substantially as shown and described.

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Witnesses:
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