

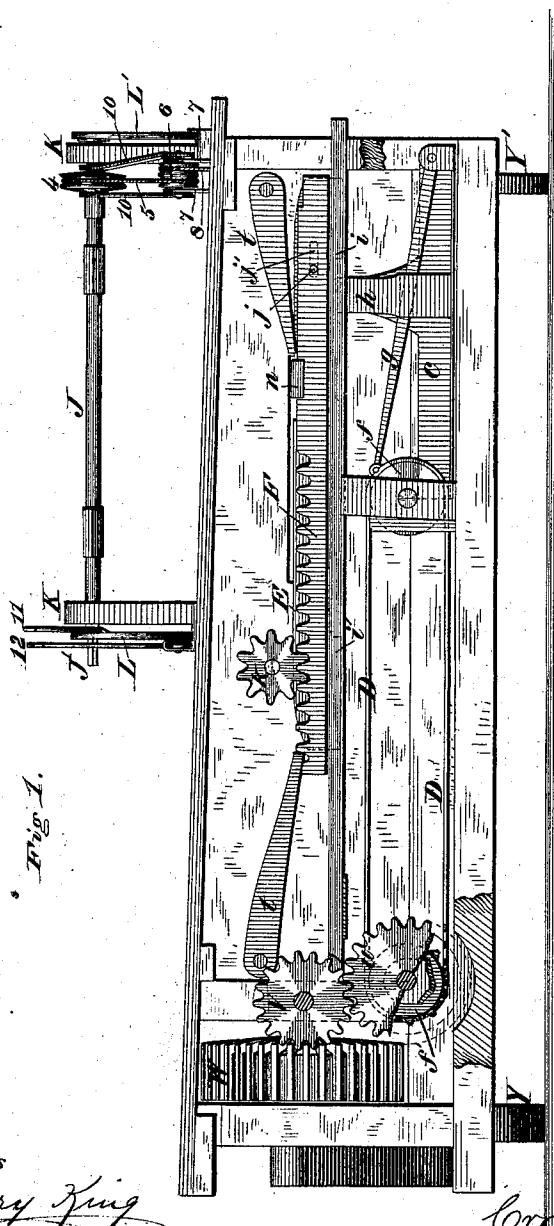
C. McGREGORY.

3 Sheets—Sheet 1.

Harvester.

No. 207,128.

Patented Aug. 20, 1878.



Witnesses

*Harry King*  
*J. M. Miller*

Inventor

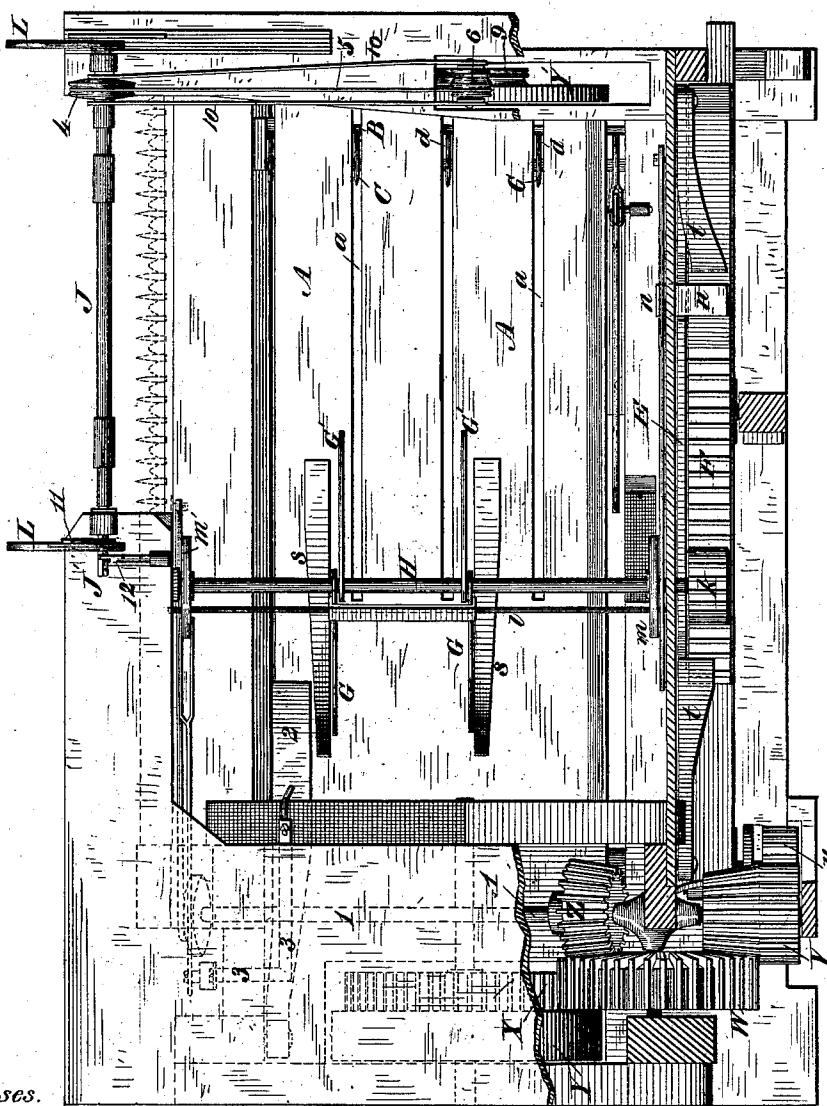
*Crawford M'Gregory*  
By his Attorneys,  
*Stansbury & Munn*

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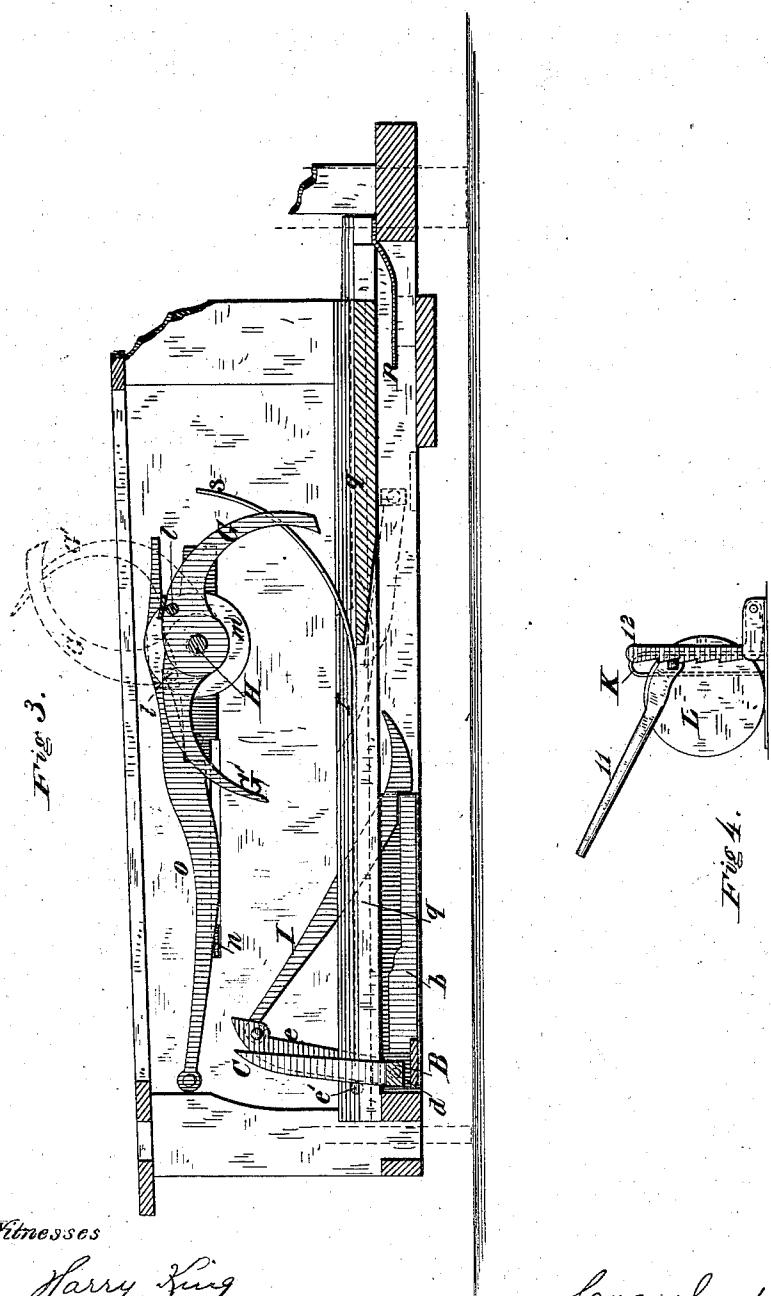
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# UNITED STATES PATENT OFFICE.

CRAWFORD MCGREGORY, OF DIXON, ILLINOIS, ASSIGNOR OF ONE-HALF HIS  
RIGHT TO JOHN D. CRABTREE, OF SAME PLACE.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 207,128, dated August 20, 1878; application filed  
August 10, 1878.

*To all whom it may concern:*

Be it known that I, CRAWFORD MCGREGORY, of Dixon, in the county of Lee and State of Illinois, have invented certain new and useful Improvements in Harvesters; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a rear elevation of my improved machine. Fig. 2, Sheet 2, is a plan or top view thereof. Fig. 3, Sheet 3, is a vertical longitudinal section with a portion of the elevated frame broken away. Fig. 4, same sheet, is a detached side view of the vertically-adjusting mechanism attached to the reel-shaft-supporting bar.

Corresponding parts in the several figures are denoted by like letters.

This invention relates to certain improvements in harvesters; and it consists in elevating and depressing the rake-teeth simultaneously with opening and closing the gavel-arms by means of mechanism, as hereinafter described, and in vertically-adjusting mechanism for the reel, consisting substantially of eccentric slotted uprights and a rack, as hereinafter set forth.

In the annexed drawings, A marks a platform which receives the grain as it is cut. In the bottom of this platform are longitudinal slots *a a*, within which the rake-teeth travel when elevated. The rake consists of the transverse bar or head B, one end of which rests upon a flange or plate extending from the inner side of the platform support or frame, and the other end is secured to a block or carriage, *b*, connected to a plate or slide, *c*, resting upon the upper surface of the said support, and which will be further referred to hereinafter. Bearing in one end of the head or bar B and in block *b* is an axis, *d*, to which the rake-teeth C C are fastened. To this axis is also attached a cam-arm, *e*, which, as the rake-teeth reach the end of their return movement, ascends a transverse projection or pin, *e'*, in a longitudinal slot in the platform A, to operate said axis and elevate the rake-teeth as they commence their forward movement.

The plate or slide *c* is driven or operated by

the endless belt D, encompassing a roller, *f*, and a sprocket-wheel, *f'*, and a connecting bar or arm, *g*, connecting the plate to the belt. The plate or slide *c* is provided with a projection or arm, *h*, which extends up to the lower side of the slide E and strikes projections *i i'* (dotted lines, Fig. 1) upon said slide, striking one as the rake-teeth begin to ascend, and moving the slide E with the rack-bar F, to which it is connected by a pin, *j*, entering a slot, *j'*, same figure, in the said rack-bar, until the rake-teeth have been elevated, the rack-bar, simultaneously with this movement of the rake-teeth, opening the arms G G', which receive and form the cut grain as it is moved forward by the rake-teeth into a gavel. The arm *h* strikes the other projection, *i*, as the teeth of the rake, which has completed its forward movement, begin to descend, and moves the slide E, and the latter the rack-bar F, until the teeth have been completely depressed below the upper surface of the platform A, the rack-bar F at the same time closing the open arms G G' and turning them in their closed position with the inclosed gavel upwardly.

When the rake has returned to the other end of the platform and its teeth are beginning to ascend, the arms G G' will open and permit the removal of their gavel or contents.

The arms G G', of which there are four or more, and which are curved, so as to grasp the raked grain, are attached rigidly, two to a shaft, H, driven by a pinion, *k*, gearing with the rack-bar F, and two to a second shaft, *l*, operated by disks *m m'* or other means upon the shaft H, by which each set of arms is allowed to have an independent motion, and also to move at certain intervals together—i. e., be spread apart, closed, or brought together and turned upwardly for the purposes above stated.

The arms G G' are liberated when elevated, and at the desired interval, by a plate or projection, *n*, of the moving rack-bar F striking and elevating a pawl, *o*, engaging a projection upon one of the disks *m*.

I is a notched curved arm pivoted to the cam-arm *e*, which, as the said cam-arm and the rake-teeth ascend, drops down at its free or notched end below, and catches upon the

forward lower edge of the sliding block *b*, and holds the rake-teeth in their elevated position.

As the block *b* moves forward with the arm *I*, the upwardly-curved end of said arm will strike an elevated plate or obstruction, *p*, which will disengage the lever or arm *I* from the block *b*, and consequently allow the rake-teeth to be depressed and pass below the upper surface of the platform as they are brought against the ends of the slots therein, while the descending or falling teeth will draw the notched or curved end of the lever or arm *I* forward into a slot or recess in the upper surface of the approaching block *b*.

The return of the block will carry with it the arm or lever *I* in readiness to undergo a similar operation, the pivot connecting it to the arm *e* extending into a groove, *q*, in the edge of the platform-supporting frame, and retaining it in position while the block *b* and rake-teeth are making their return movement.

It will be noticed, also, that there is an opening or slot, *r*, to permit of the passage to the groove *q* below of the projecting ends of the pivot or guide upon the arm *e* as the rake-teeth descend, and the notched arm or lever *I* is freed from the forwardly-moving block *b*.

*s s* are upwardly-curved bars secured to the platform *A*, and so disposed with reference to the gavel-arms *G G'* as to assist them in the performance of their work.

*t t* are pawls suitably pivoted in place, and for the purpose of retaining the rack-bar *F* at either end in position until the beveled or sloping portions or ends of the sliding bar *E* are moved beneath the pawls, one end being moved under one pawl at the commencement of the forward movement of the rack-bar *F*, and the other moved under the other pawl as it begins its return movement, the slide *E* having a limited independent motion, by means of its pin *j* and the slot *j'*, in the rack-bar above referred to, for that purpose. After the projecting of the end or ends of the slide *E* under the pawl or pawls *t* the latter will be elevated and the rack-bar *F* liberated therefrom, and the slide and rack-bar allowed to move together.

*u* is a pinion upon the axis of the sprocket-wheel *f'*, which drives the endless belt *D*, operating the rack-bar *F*. With this pinion engages a gear-wheel, *V*, having beveled cogs gearing with a second gear-wheel, *W*, driven by the cogged face *X* of the driving and transporting wheel *Y*.

*Z* is a beveled gear-wheel upon the opposite end of the axis of the wheel *V*, so arranged for convenience and to economize space, and driving a shaft, *1*, which operates the cutter-bar. (See dotted lines, Fig. 2.)

*2* is a foot lever or treadle connected to and

for operating a crank-shaft, *3*, (seen in dotted lines, Fig. 2,) suitably connected to one of the gavel arm-operating disks. The object of this mechanism is to assist the operation of said arms in the event of the failure of their operating mechanism to properly perform that work.

*J* is the reel shaft or axis, made hollow for the passage through it of a supporting-bar, *J'*. The reel-shaft *J* is provided with a pulley, *4*, driven by a belt, *5*, passing around a double-grooved pulley, *6*, suitably journaled in position in supports *7*, fulcrumed upon the axis of the driving and transporting wheel *Y'*. A belt, *8*, passing around or over the other groove of the pulley *6* and around a pulley, *9*, upon the wheel *Y'*, drives the pulley *6*. The upper ends of the pulley-supports *7* are connected to the reel shaft or axis *J*, and so as to permit of the said shaft having a limited vertical movement by bars or plates *10*.

*K K* are slotted uprights or guides, which receive the projecting ends of the reel-axis-supporting bar *J'*, and guide and limit the movement of the latter. To the said ends of the bar *J'* are attached eccentrics *L L'*, the faces of which bear upon the elevated frame of the machine. To one of these eccentrics is attached an arm or lever, *11*, for rotating said eccentrics, by which the reel and its shaft will be raised or lowered, as desired, to cause the reel to strike the grain at the desired point in knocking it, as cut, upon the platform.

*12* is a rack suitably secured upon the elevated frame, and so as to support one end of the bar *J'* and reel-axis *J* at any desired elevation.

I claim—

1. In a harvester, the combination of the carriage *b*, cam-arm *e*, projection *e'*, notched lever *I*, elevated obstruction *p*, plate *c h*, arm *g*, connected to a belt driven by suitable mechanism, slide *E*, rack-bar *F*, pinion *k*, pawls *t t*, shafts *H l*, cams *m m'*, pawl-releasing projection *n*, and pawl *o*, for raising and lowering the rake-teeth simultaneously with opening and closing the gavel-arms, substantially as specified.

2. The reel-shaft *J* and eccentrics *L L'*, having a common axis, *J'*, the said axis engaging and in combination with slotted guides *K K*, a rack, *12*, and operating-lever *11*, substantially as shown and described.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

his  
CRAWFORD X McGREGORY.  
mark.

Witnesses:

F. E. STEVENS,  
PERRY WALKER.