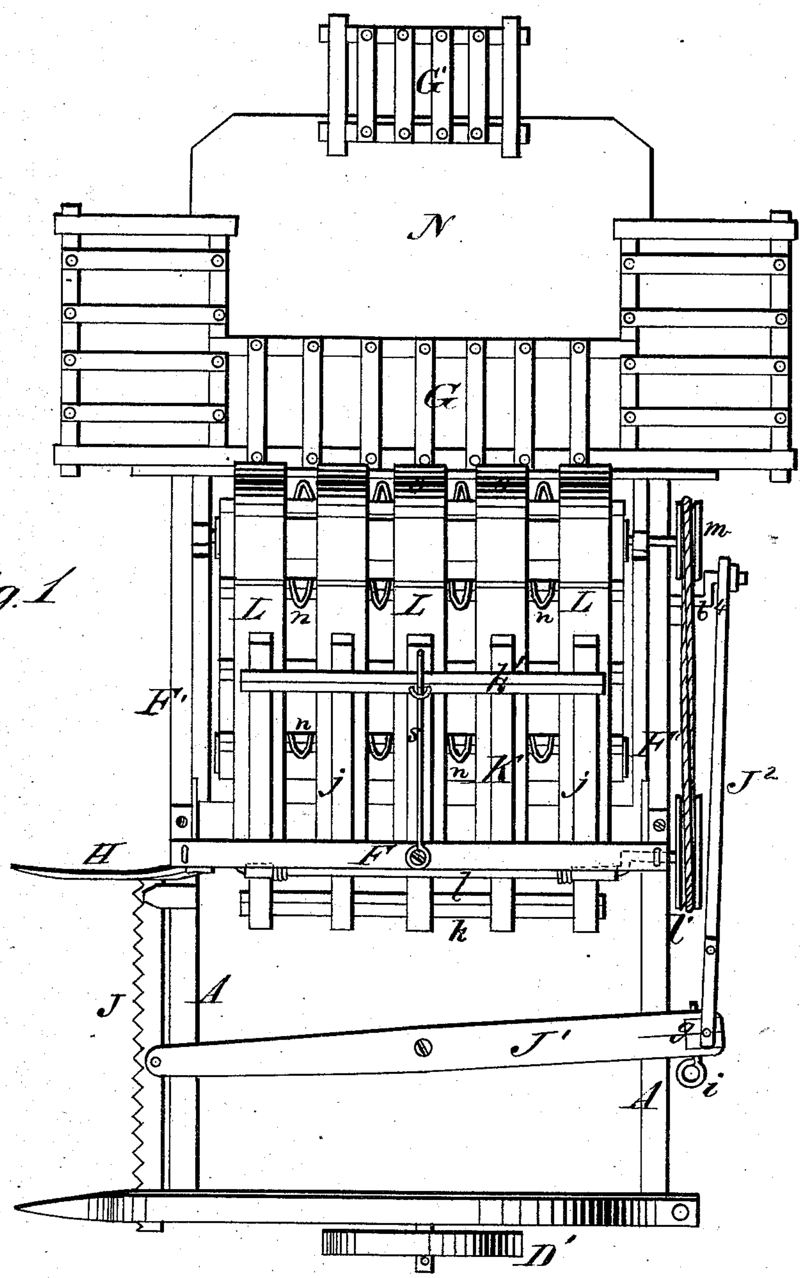
H. PORTER.
Harvester.

No. 162,858. Patented May 4, 1875.

Fig. 1



WITNESSES
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4 Sheets--Sheet 2.

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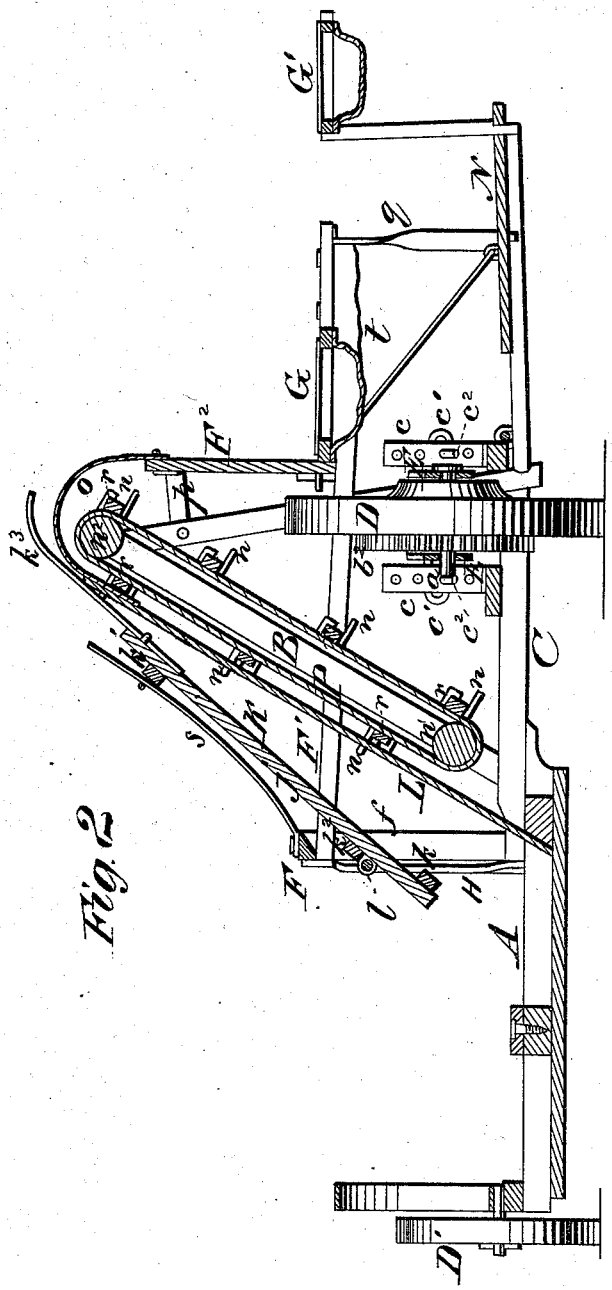

Fig. 2

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H. PORTER.
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Fig. 3

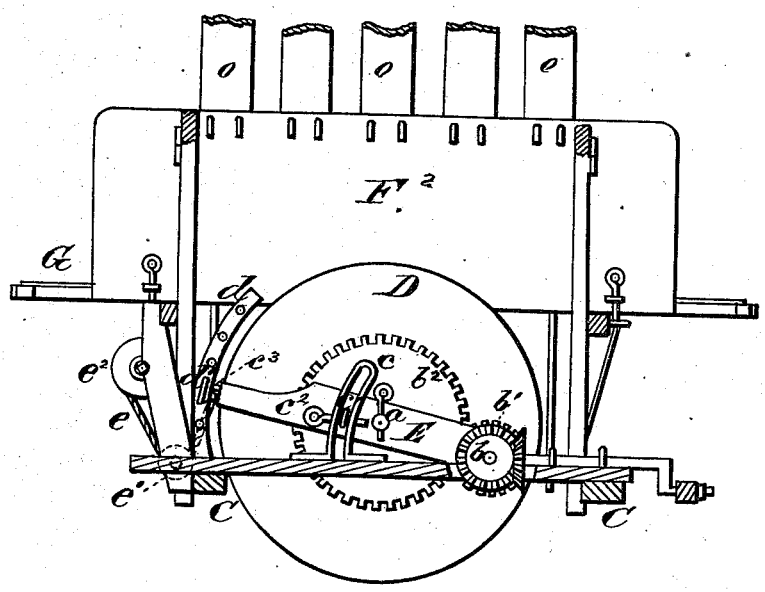

Fig. 5

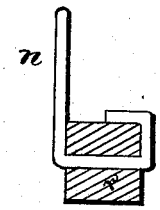

Fig. 4

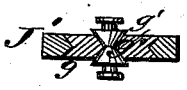

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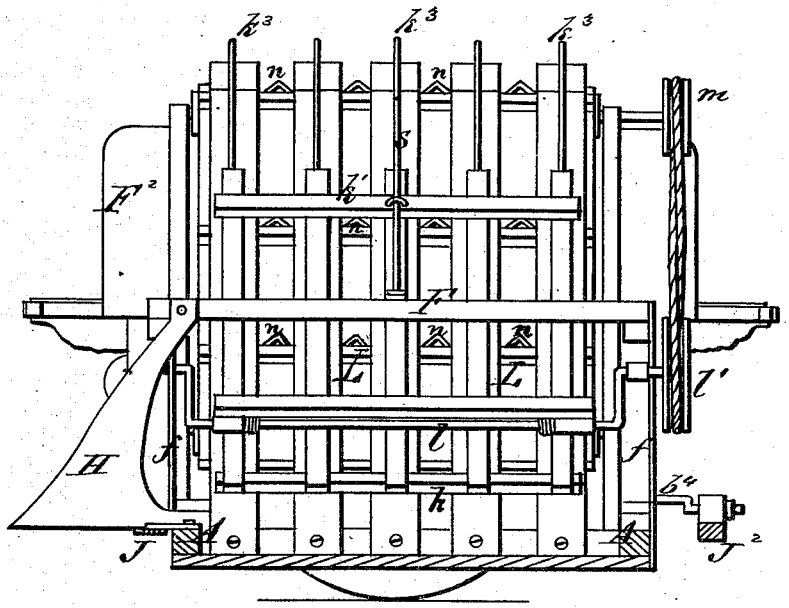
Fig. 6



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UNITED STATES PATENT OFFICE.

HENRY PORTER, OF POLO, ILLINOIS.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **162,858**, dated May 4, 1875; application filed December 26, 1874.

To all whom it may concern:

Be it known that I, HENRY PORTER, of Polo, in the county of Ogle and State of Illinois, have invented a new and valuable Improvement in Harvesters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a plan view of my harvester. Fig. 2 is a vertical longitudinal sectional view of the same, and Figs. 3, 4, and 5, are detail views. Fig. 6 is an end view of the same.

The object of my invention is to improve grain-harvesters, first, by the employment, in combination with inclined stationary slats and an endless elevator, of a grain-rack, which receives motion from a long rotating crank applied to its lower end, and which is acted on by a spring-arm that holds its upper curved tines against the upper ends of the said inclined slats, as will be hereinafter more fully explained; and, finally, my object is to connect the rear end of the lever which actuates the sickle to the pitman-rod, by means of an annularly-grooved coupling-pin and a centrally-divided and grooved block, which is received into a recess in the said lever and held therein by means of a removable pin, as will be more fully explained hereinafter.

In the annexed drawings, A designates the platform-frame of my harvester, to which I shall apply an endless carrier for removing the cut grain to the elevating apparatus. B designates an inclined frame, which is erected on the draft-frame sills C, at one end of the frame A. D designates the main driving and transporting wheel, and D′ is the grain-wheel, or that wheel which runs next to the standing grain. The wheel D turns around an axle, *a*, which is rigidly secured to a bifurcated lever, E, which has its fulcrum on the shaft *b* of a pinion spur-wheel, b^1, which latter engages with a large spur-wheel, b^2, on one side of the wheel D. It will thus be seen that the front end of the lever E can be raised and depressed for regulating the height of cut without disengaging the wheels b^1 b^2. On opposite sides of the lever E, and rising from the sills C, are two standard arcs, *c*, which are concentric to the pinion shaft *b*, and which receive through them loops c^1 that are fixed to the two limbs of lever E. The standard-arcs *c* are perforated to receive pins c^2 that pass through the loops c^1, and rigidly hold the parts after adjustment. A loop, c^3, projects from the front end of the lever E, and enters an arc, *d*, which rises from the front sill C and, with the aid of a pin, *d′*, holds the parts firmly after adjustment. A chain, *e*, is attached to the loop c^3, which chain passes under a grooved pulley, e^1, and over a pulley, e^2, to which latter the chain is secured. A square enlargement on the shaft of pulley e^2 is designed for receiving a lever, by means of which the cutting apparatus can be adjusted higher or lower, as may be required. F designates the seat-beam, which is supported on the ends of two beams, F^1 F^1, which ends are sustained by standards *f* rising from the frame A. The outer ends of the two beams F^1 support a vertical guard-board, F^2, to which a binder's table, G, is hinged, as will be hereinafter explained. H designates a divider of triangular form, the lower end of which is secured to the front-sill beam C, and the upper end is secured to the seat-beam F. I am thus able to use a divider of considerable height, and to secure it firmly in place, at the same time making it serve as as a means for tying the frame C to the beams F and F^1. J designates the sickle, to the middle of the length of which the front end of a lever, J^1, is pivoted, which lever has its fulcrum on the platform-frame A. The rear end of this lever J^1 is quite broad, and is bifurcated to receive a centrally-divided block, *g*, the parallel outer edges of which are V-grooved, and receive the inner correspondingly-beveled edges of the forks on the lever, as shown in Fig. 4. The block *g* is perforated and the hole adapted to receive a pin, *g′*, having an annular V-shaped groove in its periphery, which pin connects the inner end of a pitman-rod, J^2, to lever J^1. When the two pieces which form the block *g* are inserted in their places, they are retained therein by means of a pin, *i*. The outer end of pitman-rod J^2 is applied

on a crank, which is formed on the rear end of a shaft, b^4, carrying a wheel which engages with another wheel on the pinion-shaft. K designates a retaining rack, which is composed of longitudinal bars *j* and cross-bars *k* k^1 k^2 and curved rods k^3. This rack K is pivoted to a long cranked shaft, *l*, which has its bearings in the standards which support the inner ends of beams F^1 F^1, and which carries on one end a pulley, l', belted on a pulley, *m*. The lower end of the rack K receives a reciprocating rising and falling motion from the crank-shaft *l*, and the cross-bar *k*, which is underneath of this rack, operates to feed the grain upwardly and, at the same time, gather it in and deliver it to loop-shaped fingers *n*, which carry it up and discharge it on the binders' table. The upper ends of the rigid bars *j* have the flexible fingers or rods k^3 secured to them, which fingers are held down by means of a spring-arm, *s*, rising from the seat-beam F and bearing on the cross-bar k^1. This rack K not only serves as a feeder, but it also holds the grain down upon inclined parallel slats L, between which the fingers *n* extend. The slats L afford a support for the grain while it is being elevated, and their lower ends are rigidly secured to a longitudinal beam of frame A, and their upper ends are secured to arched metallic strips *o*, the lower ends of which are secured to the board F^2. The strips *o* are curved in such manner that the fingers *n* leave the grain at the proper point for allowing it to drop on the binders' table, G. In addition to the supporting-beams F^1 F^1 for sustaining the guard-board F^2, this board is rigidly secured to the elevator-frame B, by means of straps *p*. Beneath the strips or slats L are a number of endless belts, P, which are made of leather, or other flexible material, and which are applied around rollers n^1 n^2, having their bearings in the frame B. These belts are driven by means of the pulleys l' and *m*, which receive rotation from the main wheel D, through the medium of suitable driving mechanism. To all of the belts P narrow strips *r* are secured, into which the looped fingers *n* are secured. These fingers are made of wire, bent as shown in Fig. 5, and the ends passed through the strips *r* and clinched. These fingers converge from the strips *r*, and their ends are rounded so as to enter the grain and leave it readily. The table G is connected to the guard-board F^2 by hinges, so that it can be closed up against this board out of the way. When this table is down, as shown in Fig. 2, it is supported partly by the beams F^1 and partly by props *q*, which latter rest on a binders' platform, N. The table G is an open frame, having elastic strips fastened across it and provided with a sack, *t*, beneath the strips for catching any grain which is shaken out of the straw while binding it. The rectangular end portions of the table G will afford supports for the heads of the grain. I employ another table, G′, for a third binder, and arrange it up on the platform N, so that the person working at it will not be in the way of the persons working at the table G. This small table G′ is removable for the purpose of folding up the platform N, and it is provided with elastic strips and a sack like the larger table.

What I claim as new, and desire to secure by Letters Patent, is—

1. The grain rack or guard K, constructed as described, and operated by means of a long crank, *l*, and a spring, *s*, in the manner and for the purposes specified.

2. In combination with the reciprocating rising and falling rack K, actuated as described, the fixed strips L and elevating-fingers *n*, operated as specified.

3. The pitman-rod J^2, having the grooved connecting-pin *g′*, in combination with the removable lever J^1 and divided block *g*, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HENRY PORTER.

Witnesses:

JAMES C. LUCKEY,

JOHN MICKLER.