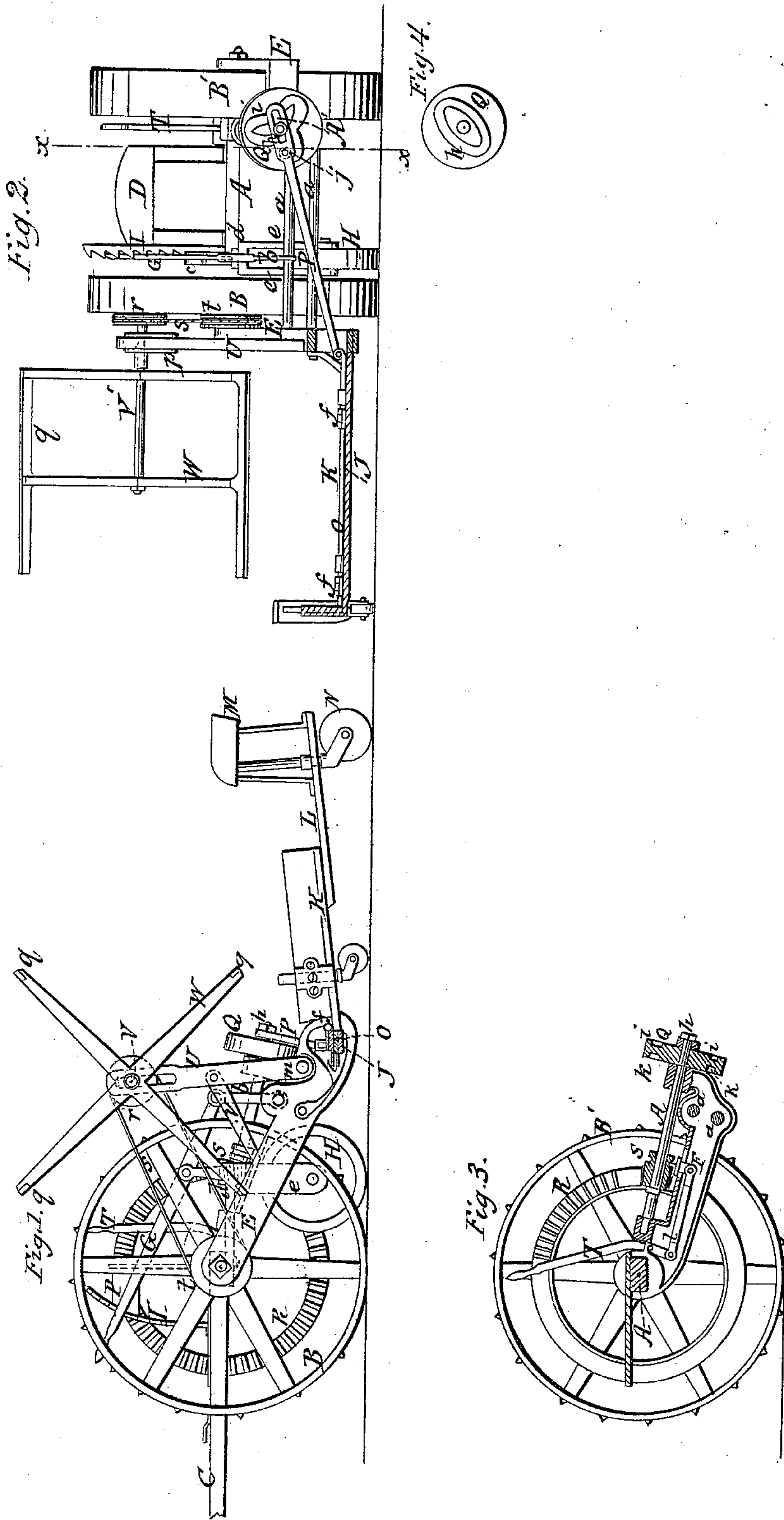


J. S. BUTTERFIELD.

Mowing Machine.

No. 19,483.

Patented March 2, 1858.



UNITED STATES PATENT OFFICE.

J. S. BUTTERFIELD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 19,483, dated March 2, 1858.

To all whom it may concern:

Be it known that I, J. S. BUTTERFIELD, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Reaping and Mowing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of a reaper with my improvement attached. Fig. 2 is a front view of the same. Fig. 3 is a transverse vertical section of the same, taken in the line *x x*, Fig. 2. Fig. 4 is a detached view of one side of the cam which drives the sickle.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the means employed for raising and lowering the sickle, and also in the device employed for driving the same, as hereinafter described, whereby the machine is rendered very efficient in its operation, simple in construction, and the speed of the sickle rendered capable of being graduated as circumstances may require.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents an axle; B B', the wheels, which are placed loosely thereon. C is the draft-pole, which is attached to the center of the axle A, and D is the driver's seat, which is placed over the axle.

To each end of the axle A, at the outer sides of the wheels, a bar, E, is attached, and to one end of the axle A, at the inner side of the wheel B, a bar, F is attached. These bars E E F are placed loosely on the axle, so that their lower or back ends may be raised or lowered without affecting either the axle A or its wheels. The lower or back ends of the bars E E F are connected by rods *a a*, one of which is connected by a link, *b*, to a lever, G, which has its fulcrum at *c* in the upper part of a small upright, which is attached to a bar, *d*, projecting back a certain distance at right angles from the axle A, and having two pendants, *e e*, attached to its outer end, between which a wheel, H, is fitted or placed. The front end of the lever G traverses over a rack, I, at one side of the seat D, and the front end of said

lever may be retained at any desired point by placing it under the proper tooth of rack I.

To the innermost bar E the finger-bar J is permanently attached, and a platform, K, is attached to the finger-bar J by hinges *f f*.

To the back part of the platform K a projecting board or bar, L, is attached, on which the raker's or attendant's seat M is placed, and underneath which a caster-wheel, N, is placed, said wheel supporting the back part of the platform, as shown clearly in Fig. 1.

The sickle-bar O is placed on the finger-bar J, as usual, and the inner end of the sickle-bar is pivoted to one end of a connecting-rod, P, the opposite end of which is slotted longitudinally for a certain distance, and is fitted on the back end of a shaft, A', which is placed on the outermost bar E, and is secured thereon by a nut, *h*. On the shaft A' a circular disk, Q, is placed, said disk being at the inner side of the rod P. The disk Q is a cam, and in one side a serpentine groove, *i*, is made. This groove may be described as being formed of three grooves, of parabolic form, united at their inner ends so as to radiate at equal distances from the center of the disk Q, and a pin or friction-roller, *j*, which is attached to the rod P, fits in said groove *i*. In the opposite side of the disk Q an oval or elliptical groove, *k*, is made, as shown clearly in Fig. 4.

To the inner side of the wheel B', and concentrically with it, a bevel annular-toothed rim, R, is attached, and on the shaft A' a sliding bevel-pinion, S, is placed, said pinion being connected by a bar, *l*, with the lower end of a lever, T, as shown clearly in Fig. 3.

To the innermost bar E a bar, U, is attached at its lower end by a pivot, *m*. This bar has a support, V, pivoted to it, as shown at *n*; and the lower end of said support may be fitted in either of a series of notches in the bar E to give the bar U a greater or less inclination, as may be desired. The upper end of the bar U is slotted longitudinally for a short distance, and the bearing *o* of a shaft, V', is fitted thereon and secured at any desired point by a set-screw, *p*. On the shaft V' the reel W is placed. The shaft V' has but the one bearing *o*, and its length is equal to about one-half the length of the platform. The beaters *q* of the reel, however, are about equal in length to the platform. (See Fig. 2.) On

the inner end of the shaft *V'* a pulley, *r*, is placed, and a belt, *s*, passes around said pulley, and also around a pulley, *t*, on the hub of the wheel *B*.

As the machine is drawn along the toothed rim *R* gives motion to the shaft *A* through the medium of the pinion *S*, and as the cam *Q* rotates it gives a reciprocating motion to the sickle-bar *O*. When the groove *i* actuates the sickle-bar it has three vibrations or strokes to every revolution of the cam; but if the cam be reversed on the shaft *A*, so that the groove *k* will actuate the sickle-bar, only two vibrations or strokes will be given the sickle to every revolution of the cam. By reversing, therefore, the cam *Q* the speed of the sickle may be regulated as desired, a quick movement being necessary for cutting grass, and a slower movement required for cutting grain.

The bars *E E F*, and consequently the platform *K* and sickle, may be raised, and as occasion may require, and also retained at any desired height, by operating or adjusting the lever *G*, the wheel *H* serving as a bearing or support for the lever *G*.

The reel *W*, in consequence of being hung

as described—viz., its shaft having but one bearing, and that bearing fitted in an adjustable bar—may be readily regulated or adjusted relatively with the sickle as circumstances may require.

By the above improvements the machine as a whole is rendered extremely simple, efficient, and economical to construct.

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

1. The reversible cam *Q*, constructed as shown—viz., with the grooves *i k* in opposite sides—so that the sickle may be driven with either of two different speeds for the cutting of either grass or grain, as may be desired.

2. The bars *E E F*, with finger-bar *J* and platform *K* attached, in connection with the lever *G* and wheel *H*, the whole being constructed as described, and arranged relatively with each other and the axle *A* as shown, for the purpose set forth.

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Witnesses:

GEORGE I. CHAPMAN,
JOSEPH L. CHAPMAN.