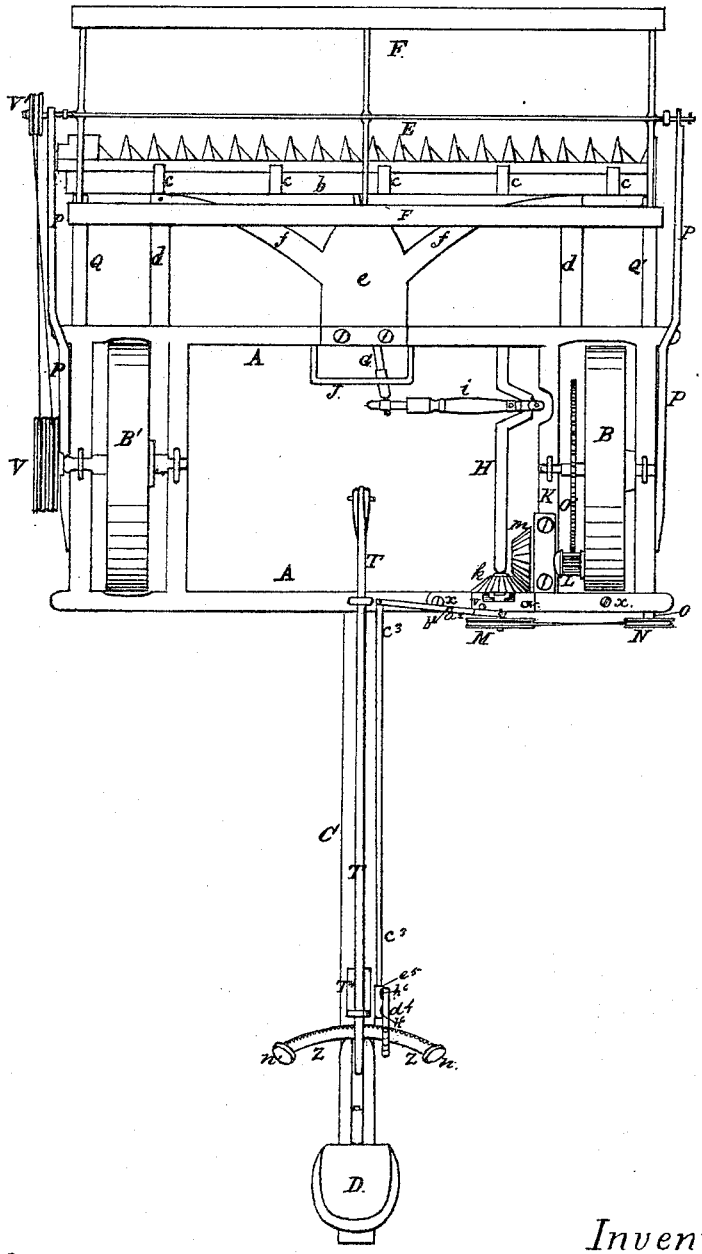
2 Sheets--Sheet 1.

BENJAMIN G. TURNER.

Improvement in Harvesters.

No. 114,493. Patented May 2, 1871.

Fig, 1.



Witnesses
A. Burris
H. a. Daniels

Inventor,
Benjamin G. Turner.
By G. B. Fowles. Attorney.

BENJAMIN G. TURNER.

2 Sheets--Sheet 2.

Improvement in Harvesters.

No. 114,493.

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Fig. 2.

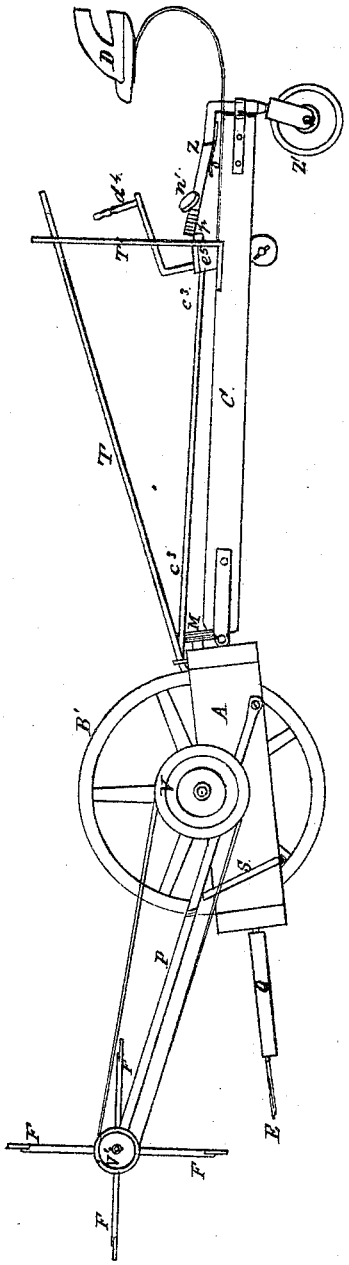
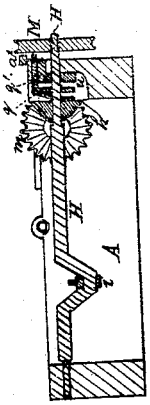


Fig. 3.



Figs. 5.

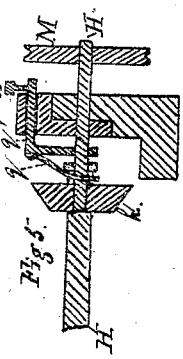
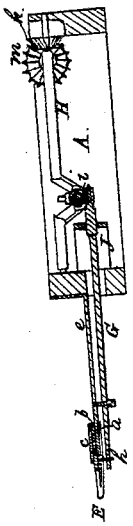


Fig. 4.



Witnesses,

W. B. Burris

H. A. Daniels

Inventor,

Benjamin G. Turner

By G. B. Fowle Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN G. TURNER, OF FREMONT, NEBRASKA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **114,493**, dated May 2, 1871.

To all whom it may concern:

Be it known that I, BENJAMIN G. TURNER, of Fremont, in the county of Dodge and State of Nebraska, have invented certain new and useful Improvements 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 accompanying drawing, making a part of this specification, in which—

Figure 1 of Sheet 1 is a plan view. Fig. 2 of Sheet 2 is a side elevation. Fig. 3 is a sectional view in detail of spring device for throwing machine in and out of gear. Fig. 4 is a sectional view in detail of lever, showing its arrangement with pin of sickle-bar. Fig. 5 is an enlarged view of spring device.

Like letters in the different figures of the drawing indicate like parts.

My invention relates to a combination and arrangement of devices, as will be hereinafter fully explained.

A is the frame of the harvester; B B′, the wheels; C, the tongue; D, the driver's seat; E, the sickle-bar, and F the reel.

The sickle-bar consists of knives or cutters, arranged and attached, in the usual manner, to a bar having its bearing in the bed of plate *a*, formed by a plate, *b*, being attached to the back part thereof, guides *c* being secured to and across plate *b* at intervals, and made to lap over the bar, so as to hold it in place, thus preventing an up-and-down vibration of it, and consequently facilitating the operation of the knives.

The finger-bars are arranged and attached as ordinarily to the under side of the bed-plate *a*.

The sickle-bar is supported by two plates, *d d*, extending out from the side of the beam, one near each end. These plates are riveted to the under side of the bed-plate, and the whole strengthened by a brace, *e*, consisting of a plate attached centrally to the front beam of the frame, the plate being depressed downwardly, so as to form a shoulder for it to come against the side of the beam and let in the upper edge, as well as on the side thereof, the said plate being so made as to have an arm, *f*, extend out on either side and embrace the plates *d d* next to the edge of the bed-plate.

G is a lever, having its fulcrum attached to the under side of the plate part of brace *e*, and connecting at one end with a pin, *h*, projecting down centrally from the sickle-bar through a slot in the bed-plate, and at the other to an arm, *i*, connecting with the crank of shaft H. The relative positions of each will be seen clearly in Figs. 1 and 4. This lever G, in order to connect it properly with the arm *i*, is extended through a slot in the front beam, and thence through a slot in the metallic box J, attached to the inner side of the beam, the latter-named slot affording a proper bearing for the lever to work in, the slot in the bed-plate being made so as to give play enough for the pin *h* to work in when operating the sickle-bar.

Suitable bearings are made in the front and back beams, and fastenings provided to receive and hold the ends of the crank-shaft H properly therein.

The end of the shaft next to the back beam has a beveled gear-wheel, *k*, arranged and attached thereon so as to be movable, the object of which will be hereinafter described, the said gear-wheel *k* meshing with another and larger beveled gear-wheel, *m*, attached to a short shaft, which has its bearing in the cross-beam K, a proper fastening being provided to secure it therein. On the opposite end of said shaft is a pinion, L, into which meshes the spur-gear wheel O′, which is attached rigidly to the shaft of the driving-wheel B, and which latter wheel, on the machine being drawn forward, operates the sickle-bar through the gearing just described.

The arrangement of the lever G, by which the power is imparted to the center of the sickle-bar instead of at the end, as in most of harvesters, enables it to be operated more easily and with less power.

The crank-shaft H is made to extend through and out from the rear beam sufficiently to receive the double-flanged wheel or pulley M on its end, the said wheel or pulley connecting, by a band or chain, with a smaller one, N, attached to a rod, O, which latter extends through and has its bearings in the projecting ends of the front and back beams, and also in a groove made in the side of the end cross-beam, so as to have the rod come flush with

the surface thereof, and thus admit of the standard P, supporting the reel, to be properly pivoted to the side of the end beam below the rod, without interfering with its operation, and the standard, by its being across the rod, will, at the same time, keep it from springing out.

The rod O extends out from the front beam as far as the inner edge of the bed-plate, and has a roller, Q′, attached rigidly to it, the roller occupying the space between the front beam and bed-plate *a*, and turning with the rod when it turns.

At the opposite end is another roller, Q, but which turns on a rod permanently fastened in the side of the front beam.

To these rollers will be attached, in practice, an endless carrier or apron, (not shown in the drawing,) the object of which will be to carry off the straw, the carrier being operated by the rod O, receiving its motion from the gearing through the double-flanged wheels or pulleys M N and band or chain connecting them together in the manner above explained.

The reel is supported by standards P P, pivoted to the ends of the frame. The standards are provided, on their under edges, with a suitable number of notches. Supports S S are placed under them, and suitably hinged to the lower edges of the ends of the frame, by which the standards are made to adjust and hold the reel at any position desired, by the ends of the supports being inserted in the proper notch of the standards.

The reel is operated by a double-flanged wheel or pulley, V′, on the end of the shaft thereof, connecting, by a band or chain, with a larger one, V, on the end of the shaft of the driving-wheel B′, the revolution of both wheels, when the machine is put in motion, operating the reel and the sickle-bar at the same time, as well as the endless carrier.

The tongue is hinged in any suitable manner to the side of the rear beam, and is provided, as ordinarily, with a guide or tiller wheel, Z′, which is so attached to the front end as to have a swivel motion, the guide or tiller Z, by which the wheel is operated, being arranged in a position convenient to the feet of the driver, whose seat is supported by a spring attached to the top of the tongue.

The segment of the tiller or guide is provided with teeth on its outer edge, and foot-rests *n′ n* on each end, on which the driver puts his feet when operating the tiller.

The arm of the segment is made in two pieces and hinged together near the part attached to the post of the wheel, and has a flat spring, *o*, so arranged and attached to the under side across the joint of the hinge as to keep the tiller or guide slightly elevated to an inclined position, so that when the driver desires to hold the wheel in a fixed position, he, by placing his feet on the foot-rests *n′ n* and pushing the tiller down, causes the teeth of the segment thereof to fasten onto catch *p* on the upright rack T′, attached to the tongue near by, thus holding the tiller, and preventing the wheel from turning so long as the driver keeps his feet on the foot-rests; but the moment he removes his feet the spring releases the tiller by throwing it up to its original position.

Secured to the center of the rear beam by a staple, hinge, or other suitable device is a rod, T, the end of which is pivoted to a short lever suitably arranged and projecting forward from the inner side of the rear beam. This rod T is for the purpose of raising and lowering the machine, either while in motion or not, as occasion may require, and is held by the driver placing it in the teeth of the rack T′ without removing from his seat.

The machine is thrown in and out of gear by a spring device and lever, arranged to connect with a rod and crank within convenient range of the driver, the spring device consisting of a slide, *q′*, arranged to encompass the shaft and connect with the beveled gear *k*, a spring, *q*, being interposed between the slide and gear to give the latter a yielding connection with gear *m*, so that any unevenness of bearing caused by the shifting of gear *k* will be compensated by the spring, a part of the slide being so constructed as to fit and work in a groove of the casting *u*, which casting is let down in the edge of the rear beam, and through which passes the end of the crank-shaft H, this end of the shaft having its bearing therein, the said slide being held in the groove by a plate placed across it and fastened down to the casting by set-screws *v v*, the casting having projecting arms, by which it is fastened to the edge of the beam by the screws *x x*. Pivoted to the slide is a lever, *a′*, which has its fulcrum at b^2. This lever connects by a pivot with the end of rod c^3, which latter extends back and connects by a pivot with the crank-lever d^4, the latter lever having its fulcrum at the lower end of the plate e^5, which plate is attached to the side of the tongue, and has a slight projection at its upper end, in which are two notches, h^6 h^6. Thus, to throw the machine out of gear, the driver pushes the crank-lever d^4 forward, which, by its connections, just described, with the lever *a′* of the slide *q*, causes the latter to move the beveled-gear wheel *h* back, hence releasing it from the beveled-gear wheel *m*, the crank-lever being held by placing it in the forward notch of plate e^5.

To throw the machine in gear the crank-lever is, of course, pulled back by placing the gear-wheel *m* back where it was before, the crank-lever, in that case, being held in the notch nearest to the driver.

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

1. The tiller-guide Z, consisting of a segment with teeth, and foot-rests *n′ n*, and an arm made with a hinge-joint near the post of the tiller, and spring *o*, arranged with the joint, as described, in combination with a catch, *p*, and

driver's seat J, all constructed and attached to the front end of the tongue, as shown and described.

2. The spring device consisting of slide and spring, plate and casting u, and lever a', all arranged to connect with the beveled-gear wheel k, as described, for throwing the machine in and out of gear, in combination with the rod c^3 and operating crank-lever d^4, and the plate provided with notches for holding the latter, all as shown and set forth.

As evidence that I claim the foregoing as my invention I have hereunto set my hand and seal in the presence of two witnesses.

BENJAMIN G. TURNER. [L. S.]

Witnesses:

WILLIAM MARTIN,

ANDREW G. NORD.