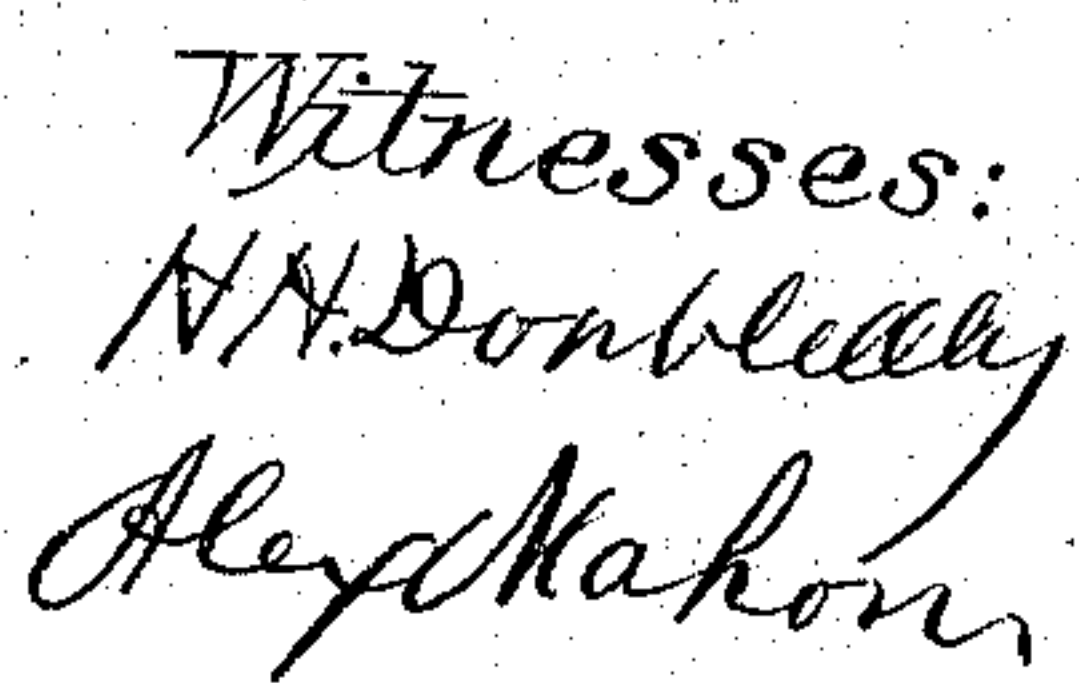


Harvester.

Patented May 4, 1869.



Inventor:
Henry Brackets
by his atty Aug Smith

UNITED STATES PATENT OFFICE.

HENRY BRACKETT, OF VALLEY FALLS, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 89,730, dated May 4, 1869.

To all whom it may concern:

Be it known that I, HENRY BRACKETT, of Valley Falls, Rensselaer county, State of New York, have invented certain new and useful Improvements in Harvesting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of a harvesting-machine embracing my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a detached view of the adjustable carrying-wheels attached to the inner shoe. Figs. 4 and 5 represent detached views of the shipping clutch-lever and eccentric and spring for operating the same. Fig. 6 is a similar view of the heel-clip. Fig. 7 shows a vertical section through the finger-bar and one of the fingers enlarged, and Fig. 8 represents a vertical section through the main shoe-box.

Similar letters denote corresponding parts of the machine wherever used.

The invention has for its object the improvement of what is known as the "Eagle machine," and for which Letters Patent were granted to E. F. and J. Herrington, April 9, 1861.

The nature and scope of the invention will be best understood from the following detailed description, with reference to the drawings, in which A represents the main axle; B B, the main driving and carrying wheels mounted thereon; C, the main frame, supported by the axle between the driving-wheels; D, the seat and tongue frame or plate, also connected through perforated arm $d d$ with the axle A; and E, the main shoe, hinged at its rear end to a pendent support, F, attached to the rear end of the main frame, and carrying at its forward end, rigidly connected to it at a point in advance of a line drawn in front of the drive-wheels, the finger-bar G.

A hinged coupling rod or brace, E', connects the forward end of main shoe E with the outer front corner of frame C at a point in line, or nearly in line, with the crank-shaft, in such manner as to permit said end of the shoe to freely rise and fall, independently of the movements of frame C.

The frame C moves or is adjusted upon the

axle A as a center, and carries the counter or bevel wheel and pinion-shaft, pinions upon the opposite ends of which, and connected thereto by backing-ratchets, engage with and are driven by internally-cogged rims attached to the main drive-wheels B.

A bevel-wheel, b , mounted on said shaft meshes with and drives a bevel-wheel on the rear end of a crank-shaft, also mounted upon frame C, and serving, through the crank and pitman connection at its forward end, to give the necessary reciprocating movement to the cutters.

The seat and tongue frame or plate D has the tongue D' attached to it and seat D mounted upon it in any usual manner, and is perforated near its forward edge and provided with perforated ears or standards $d^1 d^1$, between which, and through the perforation in plate D, a curved perforated standard, c' , on the main frame C passes, and by means of which the angle of relation of the main and seat and tongue frames may be adjusted as desired, a pin passing through the perforations in standard c' and ears d serving to maintain them at the desired adjustment.

H is a vertical rack, hinged to an arm attached to the main shoe E. Said arm passes up through a second perforation in the tongue frame or plate D, and serves to regulate the adjustment of the cutting apparatus when operated upon by the lever I, controlled by the driver in seat D².

The machine, so far as above described in its general construction and arrangement, resembles the machine of Herrington referred to, except in points hereinafter noted.

The outer longitudinal bar of frame C extends farther forward than the inner bar, and the forward ends of said bars are connected by an obliquely-arranged transverse bar, as represented in dotted lines at $c^x c^x$, Fig. 1, in such manner as to afford a proper support for the forward end of the crank-shaft and the outer end of the coupling-bar E', while at the same time the inner end of said bar E' is permitted freely to pass the inner corner of frame C, thereby allowing the cutting apparatus to rise above or fall below the plane of frame C, as may be required.

The construction of the main shoe-box J is

shown in Fig. 8, said box consisting of two parts, j^1 , each provided with a semi-cylindrical or semi-spherical recess, matching over a wrist or hub, e' , of corresponding shape formed on the rear end of shoe E.

The inner part, j , of box J is pivoted, by bolt j^2 , to pendent support F, and has the part j^1 bolted to it, securing in place between them the wrist e' on the end of the main shoe in such manner as to permit the shoe to rock or roll freely therein in a direction at right angles to the movement of box J on its pivot j^2 .

The axle A is made adjustable on frame C toward or away from the pinion or bevel-wheel shaft, for the purpose of varying the size of the pinions on said shaft, and the consequent speed of the cutters, in the following manner: The boxes a , in which the main axle is mounted on frame C, are provided on their lower faces each with a spur or rib, a' , which fits into one or two, or more, notches, a'' , in bearing-plates a^* , and which may be changed from one to another of said notches for varying the distance apart of the main and pinion shaft to permit the removable pinions on the latter to be replaced by others of the required size. The axle-boxes a are held, when properly adjusted, by bolts and nuts in the usual manner.

The parts of the bevel-wheel and bevel-pinion which project above the frame are covered by a shield or cap, consisting of the longitudinal vertical center K, covering the toothed face and periphery of said wheels, and with the arched angular arms k k' , through which the shield is secured to the outer longitudinal bar of frame C, and one of which, k , serves as a cap to the bevel-pinion on the rear end of the crank-shaft.

The vertical rack H, which serves to regulate the adjustment of the cutters by holding the heel thereof at any desired point, at the option of the driver, when not held in lock with the frame-plate D by the driver's foot, is held out of lock by means of a spring-follower, h , operated by a coil-spring inclosed in a box, h' , on frame-plate D, in front of the vertical rack, as shown in Figs. 1 and 2.

The seat and tongue plate or frame D is provided with arms d and lugs d^1 , with a stiffening outer flange or rim, with ribs, forming a socket or recess for the tongue D^1 , and with a seat, d^2 , for the box h' of spring-follower h , all cast in one piece with said plate.

The small carrying-wheel G' (shown in Fig. 3) is connected to the forward end, E' , of the main shoe E through the medium of a slotted adjustable plate, g . Said plate is provided with two or more perforated ears, g^1 , matching between and connected with corresponding ears g^1 on the shoe, and hinged therewith by means of a through-pivot, g^2 . By withdrawing the pin the plate g may be withdrawn and adjusted vertically relatively to the shoe.

The wheel G is connected by a through-bolt or axle with the slotted swiveling plate g , and by loosening the nut which secures the wheel

in place the bolt or axle may be adjusted up or down in the slot in plate g , as desired.

By this construction the cutters may be set to run with any desired pressure upon or in the required proximity to the surface of the ground, while at the same time the swiveling wheel will be found to add materially to the ease with which the machine will turn the corners in cutting around a field of grass or grain.

A feather on the shaft and a sliding clutch, b' , serve to connect the bevel-wheel b with or to disconnect it from the movement of the pinion or counter-shaft.

The clutch b' is operated by means of a forked lever, L, pivoted centrally in an arm, m , of a circular box-plate, M. (See Fig. 4.)

A spring, l' , mounted in a suitable recess or pocket in box M, serves to hold the lever L with the clutch engaged with the bevel-wheel when not thrown out by the attendant.

Box M has a central hub or pivot, forming a bearing for a cap or disk-cover, M' , to the box M, (shown inverted in Fig. 5,) provided with a crescent-shaped cam, N, (shown in red, Fig. 4,) which acts upon a shoulder on lever L.

The cap is secured to box M, incasing the crescent cam-spring and rear end of lever L, and is connected by a through bolt or screw with the central hub in box M, which serves as a pivot to the cap-plate M' .

An arm, m' , of the cap-plate is connected, by a link or rod, i , with a shipping-lever, I' , arranged within reach of the driver.

When the driver wishes to disengage the bevel-wheel and stop the action of the cutters, the lever I is moved forward, thereby rotating the cap-plate M' and crescent cam N, and the latter, acting upon the shoulder of the forked lever, overcomes the resistance of the spring l' and vibrates the lever sufficiently to disengage the driving-clutch from the bevel-wheel b . A reverse movement of the cam releases the lever L and allows the spring l' again to act upon it for throwing the parts into gear.

O is the heel-clip, (shown detached in Fig. 6,) provided with a sickle-guide arm or spur, o , on its forward edge, and on its rear edge with spurs o^1 o^2 , which rest against the vertical face of the finger-beam socket in shoe E, and serve to strengthen the finger-beam against the backward strain to which said bar is subjected. A vertical spur, O^2 , on the heel end of the clip serves to prevent the sickle-bar from dropping out of place when the cutting apparatus is turned up into a vertical position for passing an obstruction or for transportation. These several spurs are cast with the clip or otherwise suitably connected therewith, and the clip is secured in place by the same bolt which unites the heel end of the finger-bar with the main shoe E.

The construction of the guard-fingers and the manner of applying the leger-plates or fixed cutters thereto are represented in the detached views, Figs. 7, 7^a. The guard P is cast hollow

to give it the requisite lightness and strength, together with the proper dimensions, and a steel cap-plate, *p*, provided with a tongue on its forward end, fitting a corresponding recess in the guard, is used for covering the concavity in the guard and for furnishing the necessary cutting-edges to oppose the reciprocating cutters. This plate rests upon the sides of the guard, and is bent at its heel end to an angle of forty-five degrees, more or less, said angular heel end resting in a recess in the inclined face of the guard, against which the forward beveled edge of the finger-bar rests, and terminating at the lower face or lower forward angle of said bar.

A single bolt, *P'*, which secures the guard to the finger-bar, serves, in connection with the tongue and recess at the forward end, to also firmly confine the leger-plate in its place in said guard by clamping its inclined heel end against the inclined recessed face thereof. *Q* is a curved shield or guard, attached to the front outer corner of the machine, and serving to protect the crank-wheel and pitman from obstructing matter.

I have now described my invention so far as it relates to the improvement of the machine as a mower. Other parts of my invention, designed to adapt the machine for use as a reaper, are described in another application of even date herewith, and need not be again described here.

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

1. The oblique arrangement of the forward transverse bar to the main frame, in combina-

tion with the main shoe and coupling-brace, for connecting the finger-bar to said frame, substantially as and for the purpose described.

2. The carrying-wheel *G'*, attached to the main shoe by means of a horizontal swiveling plate or arm, for the purpose set forth.

3. The adjustable swiveling carrying-wheel *G'*, in combination with the main shoe, substantially as described.

4. The main clip *O*, provided with the spurs *o*¹ *o*² and guide-arms *o*, operating as described.

5. The arrangement of the spring head or plunger, which holds the vertical rack *H* disengaged except when the same is held in lock by the foot or hand of the driver.

6. The adjustment of the distance apart of the main and pinion shafts through the spurred or tongued-and-grooved boxes, supporting plates for effecting a change of pinions and change of speed of the cutters, as set forth.

7. The vibrating eccentric *N*, for operating the shipping-lever, as described.

8. The eccentric or shifting box *M*, inclosing the shipping-cam and spring, substantially as described.

9. The swiveling main shoe-box *j j'*, constructed and operating as described.

10. The flanged seat and tongue-plate *D*, provided with perforated arms *d*, lugs *d*¹, and flanged seat *d*², all cast in one piece, substantially as and for the purpose described.

HENRY BRACKETT.

Witnesses:

E. F. FROST,

B. ALLEN.