E. C. West,
Mower.

No. 4092

Patented June 25, 1845

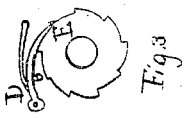

Fig. 3

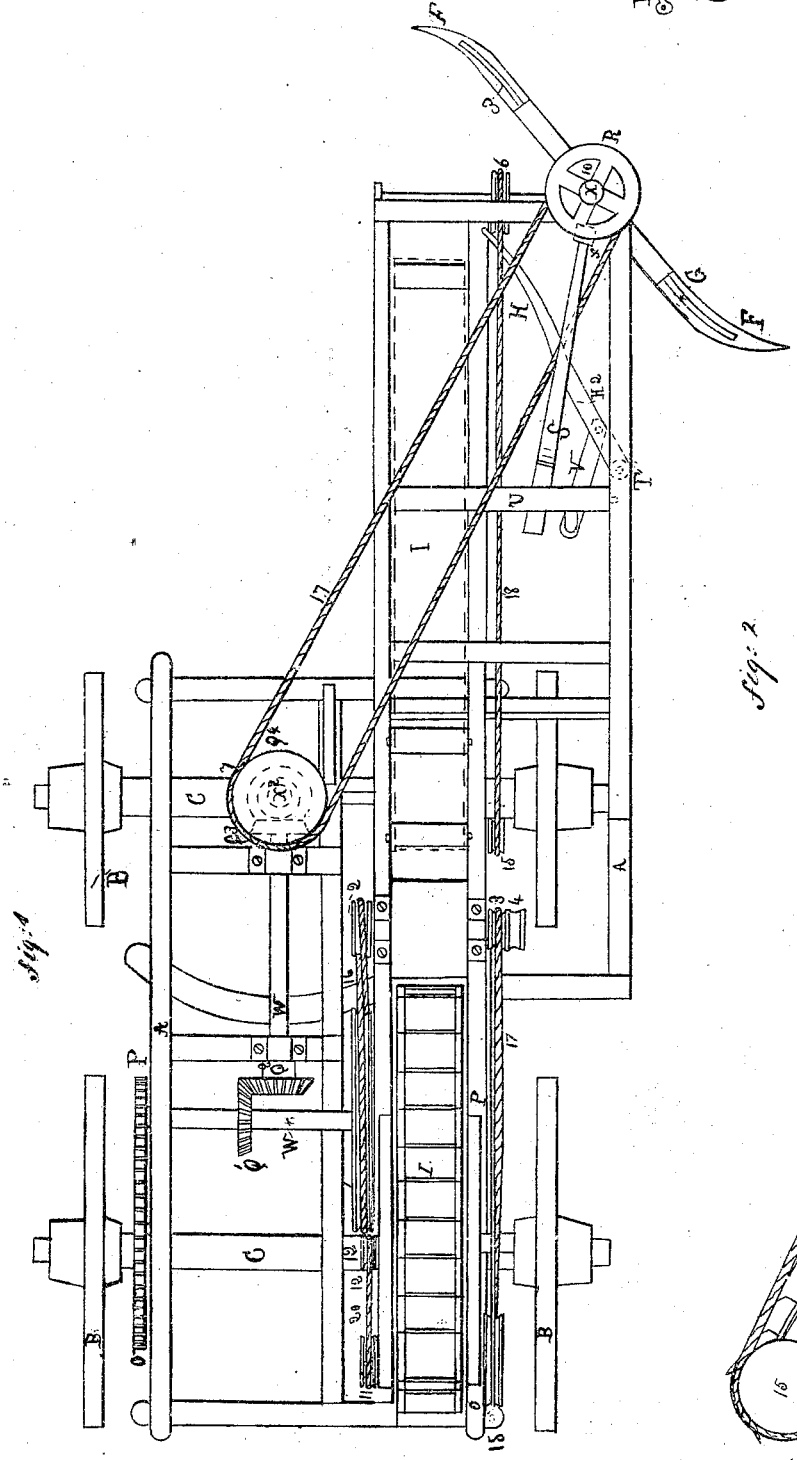

Fig. 1

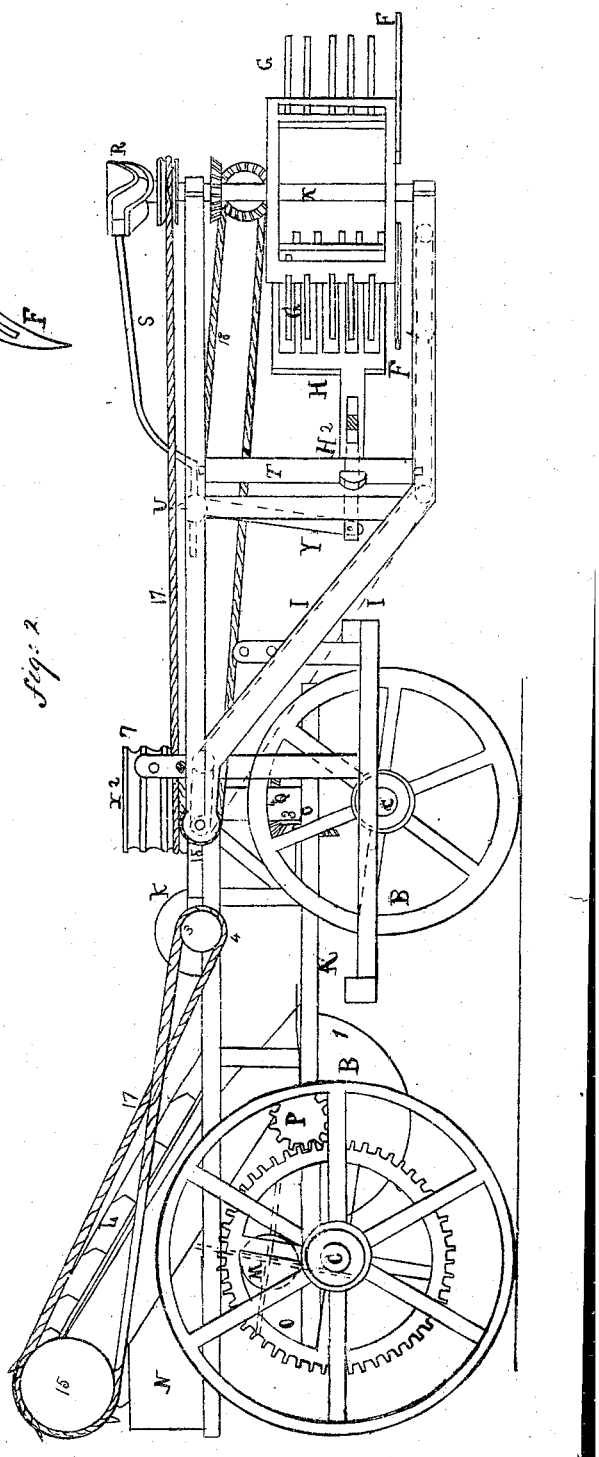

Fig. 2

UNITED STATES PATENT OFFICE.

ERASTUS C. WEST, OF BRADFORD, VERMONT.

IMPROVEMENT IN HARVESTING-MACHINES.

Specification forming part of Letters Patent No. **4,092**, dated June 25, 1845.

To all whom it may concern:

Be it known that I, ERASTUS H. WEST, of Bradford, in the county of Orange and State of Vermont, have invented a new and useful machine for reaping, thrashing, and winnowing grain by animal-power as the machine is drawn through the field, called "West's Improved Harvesting-Machine," which is described as follows, reference being had to the annexed drawings of the machine, making part of this specification.

Figure 1 is a top view of the machine. Fig. 2 is a side elevation. Fig. 3 is a section of the ratchet-wheel and pawl for gearing the wagon-wheels and cog-wheels together.

This machine consists of a suitable frame, A, drawn forward upon four wagon-wheels, B, on suitable axle-trees, C, having jointed dogs D attached to the hubs of the hind axle for gearing with ratchet wheels E, hereinafter described, for turning the gearing necessary to operate the several parts of the machine.

In the aforesaid frame are contained the revolving scythes F and cradles G for cutting and delivering the grain, a vibrating hand, H, for receiving the grain, an inclined endless apron, I, that receives the grain from the vibrating hand and conveys it to the thrashing-machine, the thrashing-machine K, and an inclined endless box-elevator, L, for conveying the thrashed grain to the winnowing-machine M, a common winnowing-machine, M, for separating the grain and chaff, a box, N, for receiving the grain, and the cog-wheels O, pinions P, bevels-wheels Q Q' Q^2 Q^3 Q^4 Q^5 Q^6, pulleys 1 2 3 4 5 6 7 10 11 12 15, and bands 16 17 18 19 20, cam-wheels R, levers S, vibrating bars U, connecting-rods V, horizontal shafts W, and vertical axles X.

The revolving cradle G is placed on a vertical axle, X, turning in suitable boxes at the forward or front end of the machine. It is turned by the two hind wheels B of the wagon in the following manner: As the machine is drawn forward the wagon-wheels B revolve upon the ground, and, being geared to two ratchet-wheels E, fixed to the hubs of the main cog-wheels O by pawls D and springs, they cause said cog-wheels to revolve, and these, meshing into two pinions, P, on a horizontal transverse shaft, W, lying beneath the elevator L, cause said shaft to revolve, and there being a bevel-wheel, Q', on said shaft meshing into a bevel-wheel, Q^2, on a longitudinal shaft, W', lying by the side of the thrashing-machine and turning in suitable boxes in the frame, causes it to revolve, and with it another bevel-wheel, Q^3, on its opposite end, and this bevel-wheel, meshing into another bevel-wheel, Q^4, on the lower part of a vertical shaft, X^2, or axle having on its upper end a pulley, 7, with three or more grooves in its periphery, which it turns, and an endless band, 17, leading from this triple-grooved pulley to a single-grooved pulley, 10, on the axle X of the cradle, causes it to revolve and cut the grain. The object of making use of the triple-grooved pulley is that when the fore part of the frame is raised or lowered to adapt the cradle for cutting high or low grain the band may be shifted to the groove corresponding to the change in position of the cradle, the movable part of the frame being held at the position required by pins or other fastenings.

The vibrating hand H for receiving the grain from the crade and depositing it upon the endless apron I, is inserted into a vertical vibrating roller, T, whose gudgeons turn in boxes in the frame behind the cradle, said roller being vibrated by an arm, V, inserted into the arm H^2 of the hand H, having a vertical rod, Y, Fig. 2, attached to it, projecting downward from a horizontal vibrating roller, U, moving on gudgeons in boxes in the top rails of the frame by means of a bent lever, S, inserted into it, whose outer extremity is provided with an anti-friction roller, *s*, placed in an eccentric groove *r*, in the periphery of a circular cam-plate, R, fixed on the upper end of the vertical shaft X of the cradle and made to revolve with it, by which the lever S is vibrated and the hand H moved back and forth. This cam-plate R appears to be circular in the bird's-eye view or plan, Fig. 1; but in Fig. 2 the side view shows it to be spiral or winding, the eccentric groove *r* aforesaid being formed in the edge thereof, in which the anti-friction roller *s* revolves as the cam-plate is turned horizontally. The rear end of said lever S may be made straight, and may be extended through U, as represented in the drawings, having a spring-bearing upon it inserted into the cross-bar of the frame or otherwise arranged. The endless apron I, that receives the grain from the hand H and conveys it to the thrashing-machine K, is turned

by a bevel cog-wheel, Q^5, on the axle of the cradle meshing into a bevel-wheel, Q^6, on a horizontal axle turning in hanging boxes of the frame, on which axle there is a pulley, 6, around which passes an endless band, 18, leading around a pulley, 15, on the upper roller of the inclined endless band or conveyer, by which it is put in motion.

The thrashing-machine K, which is of the ordinary cylinder and concave combination, is operated by a cross-band, 16, leading from a large pulley, 1, on the axle lying between the wagon-axles and parallel thereto, around a small pulley, 2, on the axle of the thrashing cylinder, by which it is turned, and by which the grain is separated from the straw, said axle of the large pulley being turned by the gearing on the main axle first described.

The inclined endless belt of boxes L or elevators for receiving the grain and straw from the thrashing-cylinder and conveying it above the winnowing-machine is turned by an endless band, 17, leading around a pulley, 15, on the axle of the roller at the top of the frame of the elevator and around a pulley, 3, on the axle of the thrashing-cylinder.

The boxes for receiving the grain and chaff, &c., are composed of two side pieces, shaped like the drawing at L, Fig. 2, placed parallel, and connected by two inclined boards standing at different angles one with the other, the longest inclined board overlapping the shortest, forming a deep box for the reception of the grain, &c. They are attached to the endless belt by bolts or screws or other suitable fastenings.

The winnowing-machine M for separating the chaff and straw from the grain is made in the usual manner and placed below the highest end of the elevator in a box, N, which serves as a receiver for the cleaned grain, being opened at the rear end, through which the blast from the revolving fan passes. The fan is turned by a pulley, 12, on its axle, around which is passed a band, 20, leading around a pulley, 11, on the end of the transverse axle at the top of the frame of the elevator, which is put in motion in the manner just described.

The grain, chaff, and straw, being carried up from the thrashing-cylinder K by the revolving elevator L, is discharged over its upper end, and being met by the blast from the fan M, (represented by dotted lines in Fig. 2,) the chaff and straw are blown away from the rear end of the machine in the usual manner, while the grain, being heavy, descends into the lower part of the box N, containing the fan M. The box N is open at the rear end to allow the chaff descending with the grain to be driven out of the box.

The thrashing-machine and the winnowing-machine may be constructed in any of the most approved modes. No claim is made to these.

The tongue to which the animals that draw the machine are attached or geared is connected to the front axle-tree in the usual manner.

When the machine is backed the hind wagon-wheels revolve loosely on the axle-tree without moving the gearing, the pawls of the wagon-wheels slipping over the teeth of the ratchet-wheels fixed to the cog-wheels without producing any effect on them.

What I claim as my invention, and which I desire to secure by Letters Patent, is—

The before-described arrangement of the vibrating hand H, in combination with the revolving cradles G, operated by the lever S, and eccentric grooved wheel or plate R at the head of the axle of the cradle.

ERASTUS C. WEST.

Witnesses:
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ALBERT E. JOHNSON.