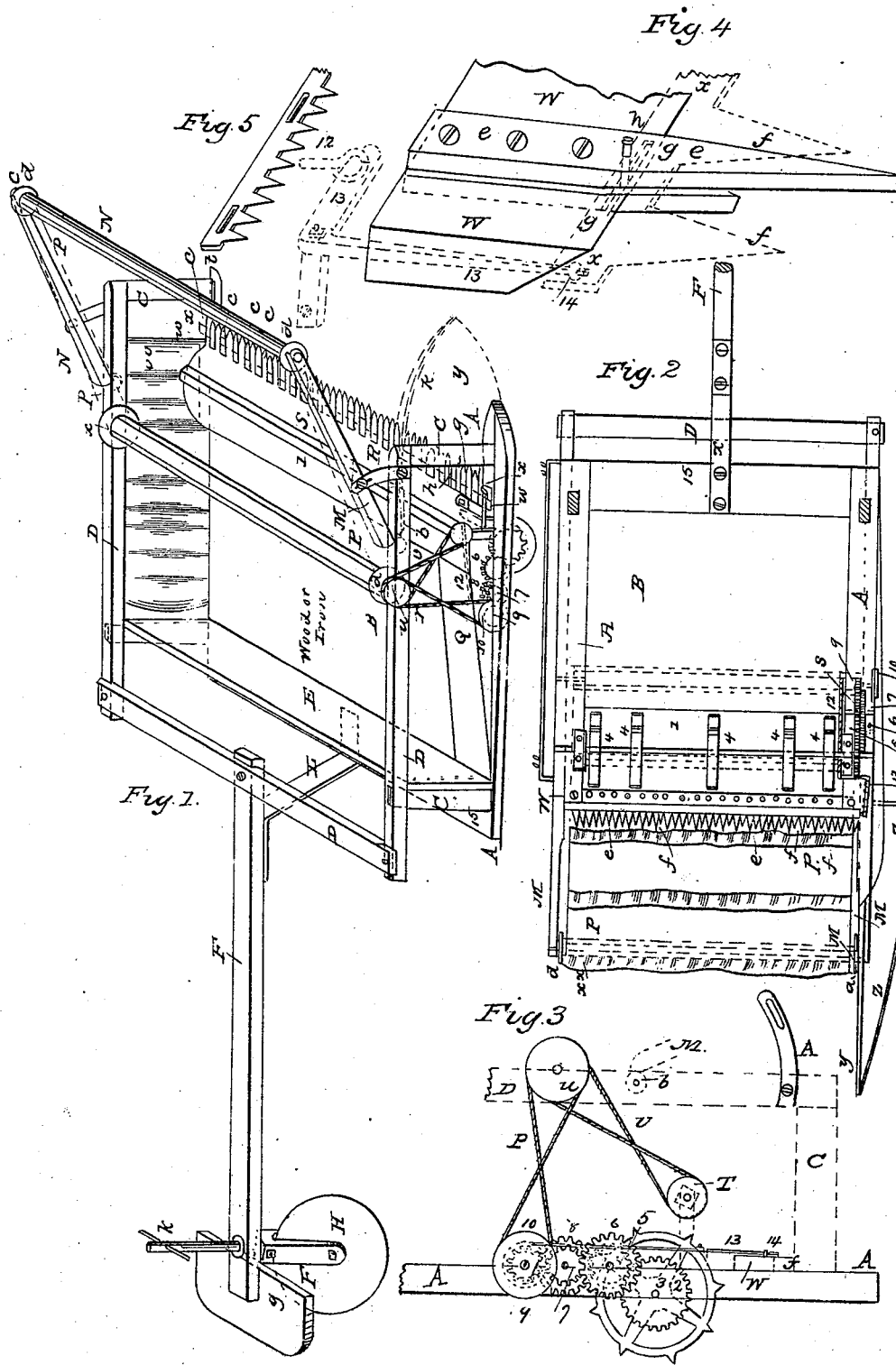


W. F. KETCHUM.

Reaping Machine.

No. 4,401.

Patented March 7, 1846.



# UNITED STATES PATENT OFFICE.

WM. F. KETCHUM, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN REAPING-MACHINES.

Specification forming part of Letters Patent No. 4,401, dated March 7, 1846.

*To all whom it may concern:*

Be it known that I, WM. F. KETCHUM, of Buffalo city, county of Erie, State of New York, have invented a new and Improved Machine to Reap Grain; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in a reaping-machine constructed of a simple frame-work of about six feet square, on which is placed a platform of wood or iron. At the fore part are stationary pointed projections or prongs of steel, having, between two projections a space left, between which the knives play. The prongs by themselves are slit or cleft horizontally in the projecting part, so as to divide said projecting part in two, of which the lower one is made considerably shorter, but leaving still a part of the slit through which in the whole width of the machine; a movable blade of steel, with proper knives, (cut out,) is inserted. The knives are sharp both ways, and in correspondence with the width of the prongs. The blade and knives are set in motion by elbow-levers, so that they move from side to side in quick succession, and through the said slit. The grain that approaches the knives between the prongs is cut from both sides. The grain is previously to cutting brought to lean over the knives by a revolving apron with hanging projections. As soon as the grain is cut by the said knives it falls on a square rolling shaft, which carries the grain to a platform where an attendant provided with rake pushes the grain from the platform against a loose-hanging cloth, from where it falls on the ground in good order for binding. The reaping-machine is set in motion by horse-power, which is attached on a beam connected with the rear part of the upper and lower frame-work of said machine, so that the machine is pushed before the horses. At the extremity of said beam is a single wheel on an upright shaft, the shaft going through a hole in the beam. At the upper part of the shaft is a cross-piece fixed, by which the driver may direct the machine at pleasure, in sitting or standing on a small platform fastened to said beam, the fore part of the machine resting on a revolving shaft, this shaft reaching the whole width of the machine from side to side. On said shaft are fixed several wheels of a proper diameter, these wheels having projections on their surface to prevent them slip-

ping on the ground when in motion. At the one end of the shaft is fixed a cog-wheel, which gives to a series of other cog-wheels and the revolving apron and the knives the desired motion, &c.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, and refer for illustration to the accompanying drawings, being a part of this specification.

Figure 1 represents a perspective view of the reaping-machine. A A A represent the lower frame; B, the platform on which the grain falls; C C, upright posts; D D D', the upper frame-work; E, the back plank, behind which the attendant takes his stand; F, the beam; G, a platform for the driver; H, the direction-wheel; I, the upright shaft; J, the cross-piece for directing the wheels and machine; L, a brace for beam T and the lower frame-work, A; M M, a movable frame connected by hinges *b b* to the frame D'; *o o*, the hanging cloth against which the grain is raked from the platform B; N, a roller moving on pivots *c c* between the movable frame M M; O, another roller of a larger diameter, moving also on pivots between the upper frame, D D, both these rollers having projecting flanges *d d d* at their extremities to prevent the revolving apron, which is between them expanded, from slipping sideways, the dotted line P P showing the revolving apron; Q, a plank to cover the wheel-work; R R, iron braces with screws to fix the movable frame M M to its proper place; S', a revolving square shaft with sharp edge for the purpose of carrying the grain after being cut from the knives to the platform B; T, an iron grooved pulley to receive the strap or string from the pulley U, which is on the shaft O; V, the strap or string of the pulleys T and U; W W, the fore piece of wood, fastened to the lower frame in front of the machine. In this piece are inserted and fixed the prongs *e e e e*. X X X is the movable steel knife-blade and the knives *f f f*; *g g*, clefts in the steel blade to keep said blade in its proper position by the pins *h h h*; Y, a fender with a wire, Z, to divide the grain before the machine; 1, a cover over the main shaft and the driving-wheels, (shaft and driving-wheels are shown in Fig. 2 at 3 and 4;) 2, a cog-wheel on the axle or shaft 3, Fig. 2, which meshes in the next wheel, 5, (5 and 6

being on one axle,) 6 meshing into 7, (7 and 8 being on one axle,) and 8 meshing into 9. At the axle of this wheel is the pulley 10 fixed, which communicates motion by the strap *g* to the pulley U on the shaft O and the revolving apron P P, the pulley U giving also motion to the square-edged shaft S' by the string V. At the shaft of the pinion 9, opposite to the pulley 10, is a plate or crank, 11, fixed. To this crank is a rod, 12, connected at the one end, and at the other end of the rod is an elbow-lever attached, 13, the other end of the elbow-lever, but by a staple, 14, to the steel blade X X. 15 is the small platform or stand for the attendant, who has to remove the cut grain from the platform B.

Fig. 2 shows the reaping-machine in view from the under side. The same letters are used at the same parts of the machine through all figures. Therefore a repetition of the same in Fig. 2 may be omitted. *x x x x* represent the hanging projection on the revolving apron.

Fig. 3 represents the arrangements of the cog-wheels, pulleys, mainshaft 3, and the driving-wheels 4, and partly the rod and lever connected at 14 with the knife-blade; *x, x, x, Y, and V*, the straps or strings which connect the pulleys 10, U, and T.

Fig. 4 shows one of the prongs *e* inserted into the fore piece, W, on a large scale of actual size, the dotted lines *x* showing the knife-blade, and *f f* the knives; *g g*, the cleft, and *h* the pin through the cleft; 14, the staple to receive the one end of the elbow-lever 13, and 12 is a part of the rod from the crank 11.

Fig. 5 shows the steel blade, knives, and the cleft together.

The operation of the said reaping-machine may be described as follows: The horses being attached to the beam F, the driver takes his station on the little platform *g*, and the attendant stands on the plank or platform 15. In driving on the horses the machine is put in motion, the driver directing the machine by turning the direction-wheel H by the handle K. The driving-wheel 4 being rolled on the ground, by which the main axle or shaft 3 and

the cog-wheels 5, 6, 7, 8, and 9 are set in motion, the pulleys 10 and the strap T move the pulley U and the strap of the revolving apron P P. The square-eyed shaft S' is set in motion from the straps *v* and pulley T. The axle of the cog-wheel *g*, to which is fixed the crank 11, moves the rod 12 forward and backward. Their motion is communicated to the steel blade and knives through the elbow-lever 13. The revolving apron being in motion, and having the hanging projections *x x x x* striking the standing grain and bending the stems or straw in the progress of motion over the knives toward the platform B, the knives, being in quick successive motion from side to side, cut the grain as fast as it approaches the fore piece W. The grain so cut will fall on the square roller S'. The roller, being in quick motion, also carries the grain in regular order on the platform B, from where the said attendant with his rake shoves the grain from the platform B toward the hanging cloth *o o o o* to the ground alongside of the track, where it will fall in good order for binding. The fender *y* and wire *z* divide the grain in passing on before it reaches the machine, and prevent grain or straw from arresting the operation by entering into or between the wheels, &c.

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

1. The manner of constructing the rack-teeth, the same consisting of two plates of unequal length, and each set being made separate and not as a whole plate as heretofore.

2. The arrangements of having the operating parts—as the driving-wheels—under the platform on which the cut grain falls, as illustrated in the specification and drawings.

3. Using one or more revolving sharp-edged shafts, S', for the purpose of carrying the cut grain from the knife-blade to the platform B, in the manner set forth.

W. F. KETCHUM.

Witnesses:

PETER VON SCHMIDT,  
T. C. DOWN.