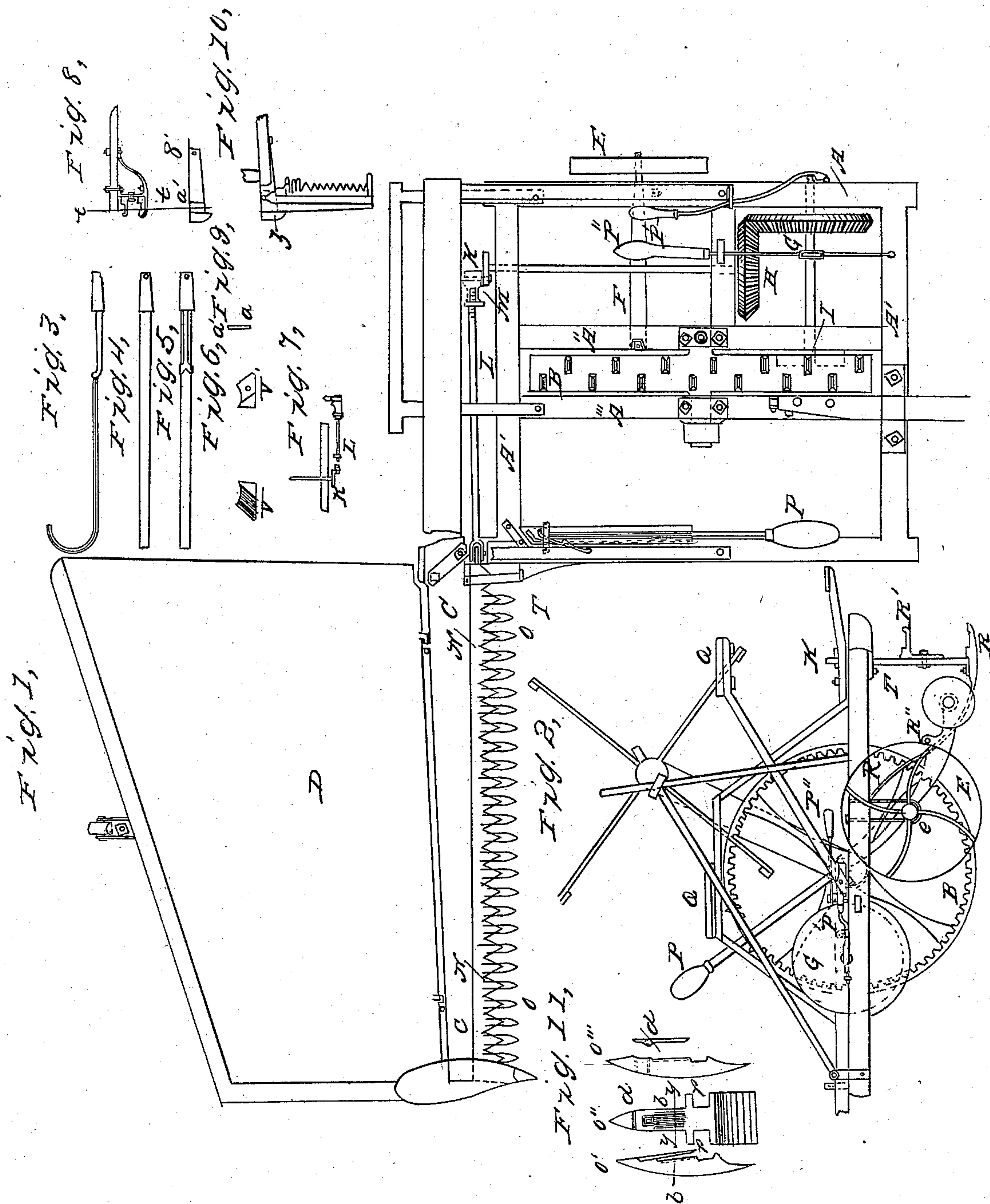


R. L. ALLEN.

Harvester.

No. 21,401.

Patented Sept. 7, 1858.



UNITED STATES PATENT OFFICE.

R. L. ALLEN, OF NEW YORK, N. Y.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 21,401, dated September 7, 1858.

To all whom it may concern:

Be it known that I, R. L. ALLEN, of the city of New York, N. Y., have invented a new and improved harvester capable of being adapted to cut grain or grass, flax, hemp, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and references marked thereon.

The nature of the invention is embraced in the several points noted below: first, the construction of the spring bearing-axle and fastened to the frame in a particular way; and, secondly, in a method of operating or balancing the machine by means of a very long raker's and driver's seat, in combination with a lever, enabling the driver, by change of position, to counterbalance the inclination of the machine in any direction; thirdly, the construction of the socket-piece for receiving the ends of the spring-standard for the raker's and driver's seat; fourthly, the construction of the double shoe and standard, put together in a particular way, and making the shoe thinner under the mortise at edge *a* and thicker at edge *a'*, so as to give additional strength to the finger-board.

In the accompanying drawings, Figure 1 is a vertical view of the machine, the cap of the driving-wheel, the reel, and reel-standards being removed to exhibit the cutters and finger-bar, with the platform attached, the driving-wheel, and the gear connecting it with the cutters. Fig. 2 is an elevation of the machine, seen on its left side; Figs. 3, 4, and 5, views of the spring-axle; Fig. 6, the form of the socket-piece for the standards of the raker's and driver's seat; Fig. 7, separate view of the connecting-rod in two pieces; Fig. 8, detached double shoe and standard for the same in three pieces, bolted together; Fig. 8', separate vertical view of the shoe, showing flange *z*; Fig. 9, a section of the shoe where the finger-board is attached, showing the comparative thickness of each edge; Fig. 10, the flange-projection behind the heel of the finger-board; Fig. 11, the manner of putting together the upper and lower half of the finger.

The main frame of the machine is comparatively high and narrow, and therefore seems to require some balancing force to keep it *in equilibrio*. This force is obtained by the use of the spring-axle *F* and wheel *E*, guided in

its vertical movement by the staple *e*. This combination of spring-axle and wheel gives a prominent character to the machine. It not only brings it to an equilibrium after it has been thrown out, but it causes the machine to readily yield to the effort of the driver, who throws his weight upon this side or that to carry the cutters of the machine safely over obstructions or along hillsides, after which the force of the spring-axle comes into play and restores again the equilibrium.

The general construction of the frame presents no special feature of novelty. The side pieces, *A A*, end pieces, *A'*, driving-wheel *B*, finger-board *C*, platform *D*, spring balance-wheel *E*, and gearing apparatus *I G H K L M*, communicating motion from the driving-wheel to the cutters *N*, are all obvious arrangements in harvesters and require no description. They are fairly exhibited in Figs. 1 and 2, in which is also seen lever *P*, the lower part of which terminates in wheel *S*, and is pivoted on the upper face of shoe *R''*, as seen in Fig. 2. This device, used with the long raker's and driver's seat in the act of mowing, is designed to elevate the cutting apparatus and the anterior part of the platform to pass over stones, stumps, or other low obstructions without injury. It is done in the following manner: The handle *P* being on the right side of the driver, who sits on seat *Q'*, he pulls the handle backward, pressing wheel *S* against the ground, and raises shoe *R* and the cutting apparatus at the same time; but to accomplish this result practically and easily the driver's seat is made to extend to the left beyond the driving-wheel, so that the driver, while in the act of attempting to raise the cutters by means of lever *P* in his right hand, throws his weight upon that part of the seat beyond the wheel, so that by the compound action of the driver's weight, the use of long seat, and lever *P* the cutters are raised and depressed at will and with great ease. In this operation the spring-axle participates, slightly yielding when the driver throws himself on that part of the seat beyond the driving-wheel and allowing the cutters to rise, and as soon as the obstruction is passed the spring acts to assume its normal position, and the cutters are depressed to the ground and cut the grass as before the obstruction was met.

In very rough ground, where the wheel *E* is liable to sink into holes, the spring-axle and

wheel E are generally removed, as it is safer to work without them. This axle is formed of three pieces, riveted together and clamped by the shank-piece seen in Figs. 3, 4, and 5. Fig. 3 shows the number of pieces in the spring, also the bearing part received into the wheel, where the three are united into one solid piece of iron. Fig. 4 shows the manner in which the thumbs *r* of the clamp grasp the two other plates of the spring. Fig. 5 shows the rear or under face of the spring-axle. This axle, when put in place, has the appearance shown in Fig. 1, being fastened in place by bolt X, and having a vertical movement under the side timber, A, and at the same time is controlled in its lateral movements by the staple-guide *e*, Figs. 1 and 2.

Immediately in the rear, and on a level with the top of the driving-wheel, is arranged the long raker's and driver's seat Q', made reversible, so as to look backward, as in the cutting of grain, when the raker occupies it, or to look forward and be occupied by the driver when the machine is used for cutting grass. This change is made by fastening the seat to the standards by pins or screw-bolts, which are easily removed and the seat part taken up and reversed as occasion requires. The method of using this seat to raise the cutters has been already described.

The construction of socket-piece *v* is shown in Fig. 2 and separately in Fig. 6, used to avoid the splitting of the spring-standards of seat Q', which often occurs when the standard is fastened in the usual way by a simple bolt. Fig. 6 exhibits a side elevation of the casting of the socket-piece, and also a reversed view of the same. The force required in the use of this seat, already named, has suggested this socket.

Fig. 7 represents the connecting-rod *m* L in two parts, with the adjusting-nut I, and the attachment of this part to the cutting apparatus, while *m* part is attached to the crank-piece. The rod is made with the screw and set-nut, capable of varying the length thereby, so as to adapt the length of the stroke to the exact relative position of the fingers.

Fig. 8 represents a detached view of the double shoe and standard of the same. (Seen also in Fig. 2.) T forms the body of the standard, bolted to frame A above and to shoe R below, and to second shoe, R', on the opposite side of said standard. This standard and double shoe therefore constitute a special device, consisting of three pieces put together in a specific way. The shoe as thus constructed forms a permanent part of the machine. When used for cutting grass the finger-board rests

in the mortise cut in the lower shoe, R, and when used for cutting grain it rests in the corresponding part of R'. The changes required to convert the one machine into the other have been already stated. The arrangement required for grain-cutting is adapted to cutting flax and hemp.

Fig. 9 is a cross-section of Figs. 8 and 8' on the line *t t*, showing the relative thickness of the metal on the edge *a* of said mortise toward the finger-board, and on the edge *a'* toward the connecting-rod and crank. The edge *a* is beveled or thinned off on the upper surface to allow more space for the wooden finger-board, because the heel part of the finger-board, where it is fastened to the shoe, suffers great strain, and, being generally made of wood, for the sake of lightness, requires all the strength that can be saved for it. The projection *z* was also made for strengthening the heel part of the finger-board. This device is shown in Fig. 10, also in Fig. 8'.

The construction of the fingers is shown in Fig. 11, by the several forms represented, sufficiently plain as to obviate the necessity of detailed description.

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

1. Elevating the cutting apparatus and balancing the machine in going over stones, stumps, and other obstructions, and traversing hillsides, by means of the long raker's and driver's seat, in combination with lever *p*, as set forth in the specification.

2. Constructing the spring-axle of three several pieces, clamped and riveted in the manner set forth, and for the purpose set forth.

3. The position of said axle F, the same being at right angles with the line of draft, and performing the office of spring and axle and fastened by bolt *x*, as described.

4. The form of the socket-piece for receiving the ends of the spring-standard to support the raker's and driver's seat Q'.

5. The construction of the double shoe and standard, adaptable to the cutting of grain or grass, as set forth, the same being in three pieces, the pieces being put together in a particular way.

6. Making the shoe under the mortise thick at edge *a'* and thinner at *a*, in order to give greater thickness and strength to the finger-board along *a a*, as set forth.

R. L. ALLEN.

Witnesses:

S. D. GALE,

J. W. MANKIN,

J. H. WISE.