Sheet 1. 3 Sheets.

Marsh, E & C. C. Shorkley & Beaver.

Mower

No. 37631

Patented Feb. 10, 1863.

Fig. 11.

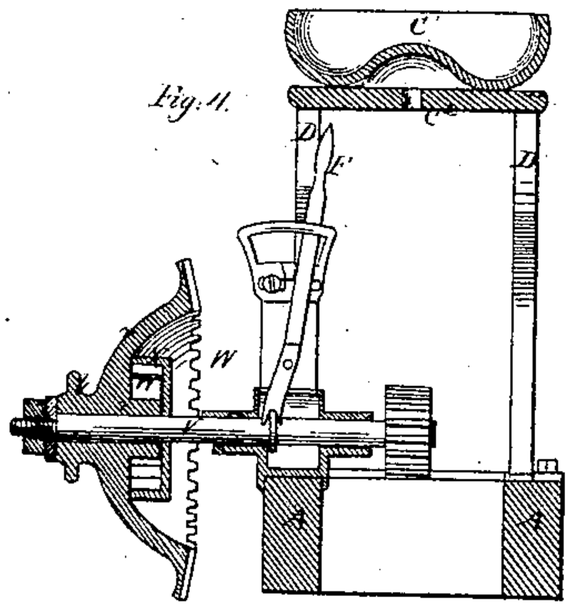


Fig. 9.

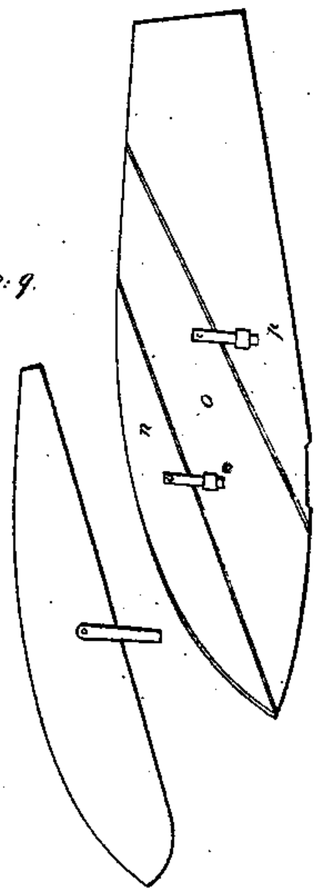


Fig. 5.

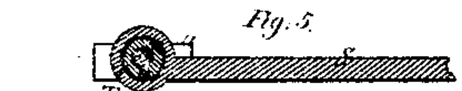
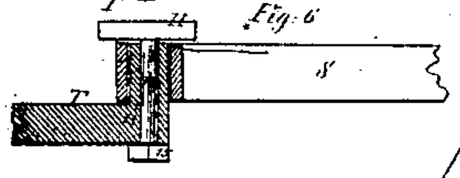
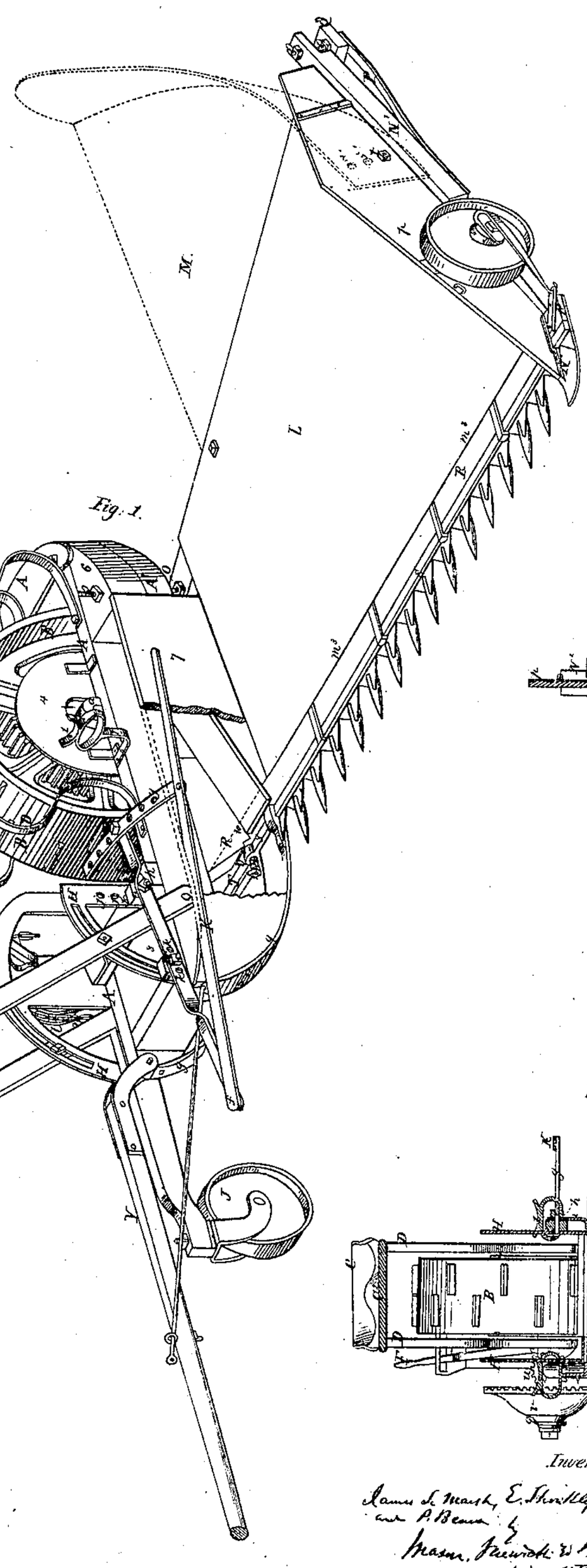


Fig. 6



Witnesses:
Gustave Dietrich
DC Lawrence
Wm. G. Bartlett

Fig. 1.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Marsh, E & C. C. Shorkley & Beaver.

Mower.

No 37691 Patented Feb. 10, 1863.

Fig: 11.

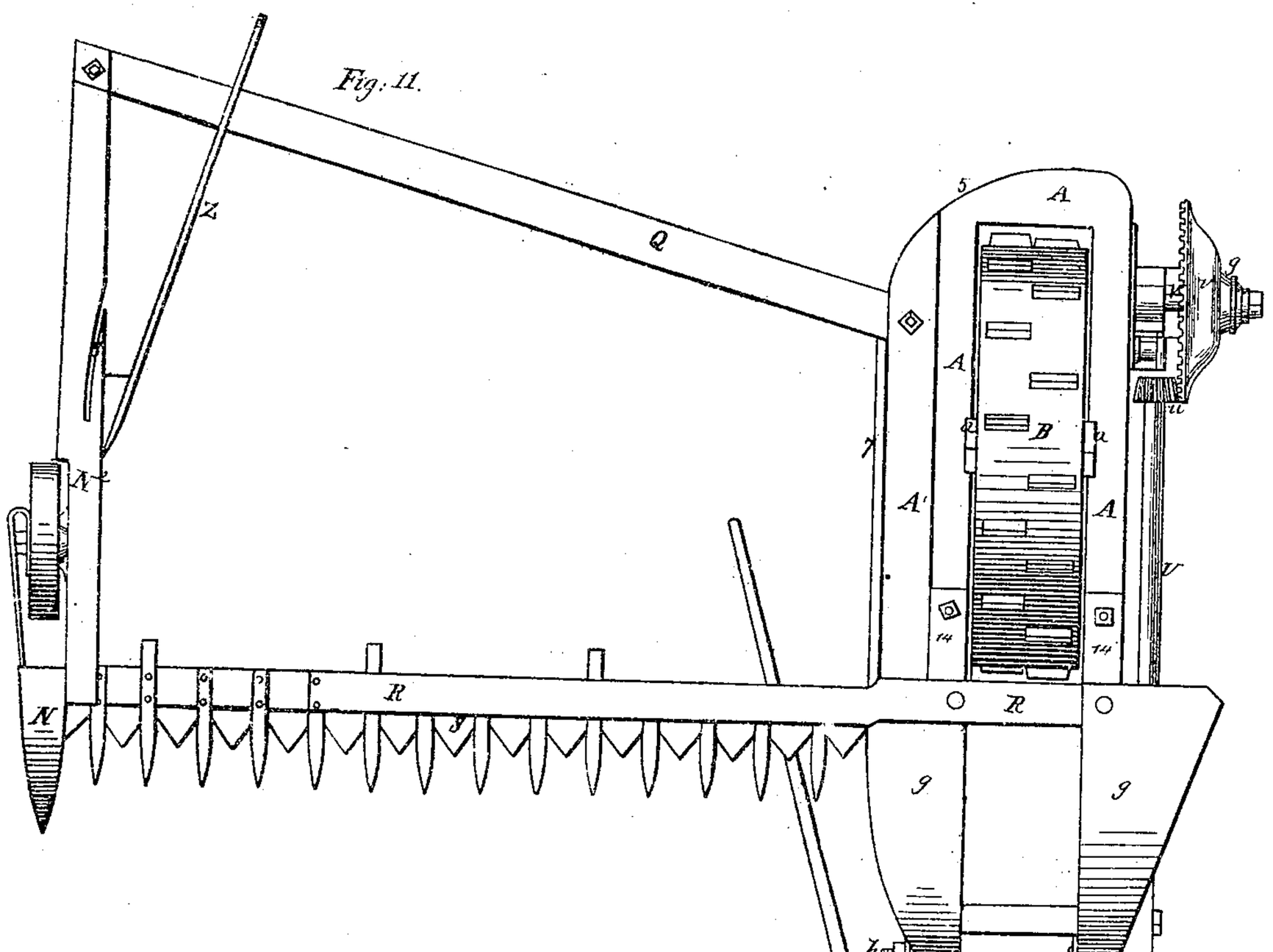


Fig: 12.

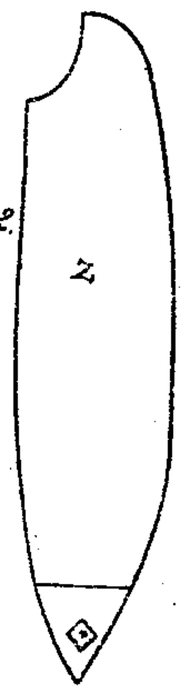


Fig: 8.

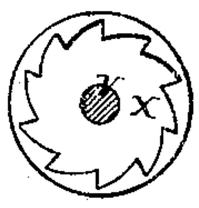


Fig: 7.

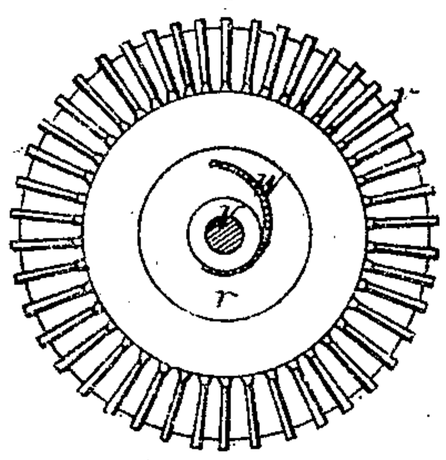
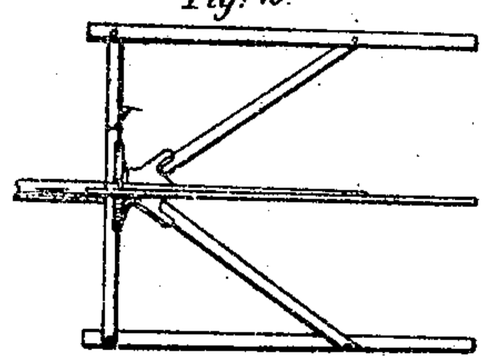


Fig: 10.



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D C Lawrence
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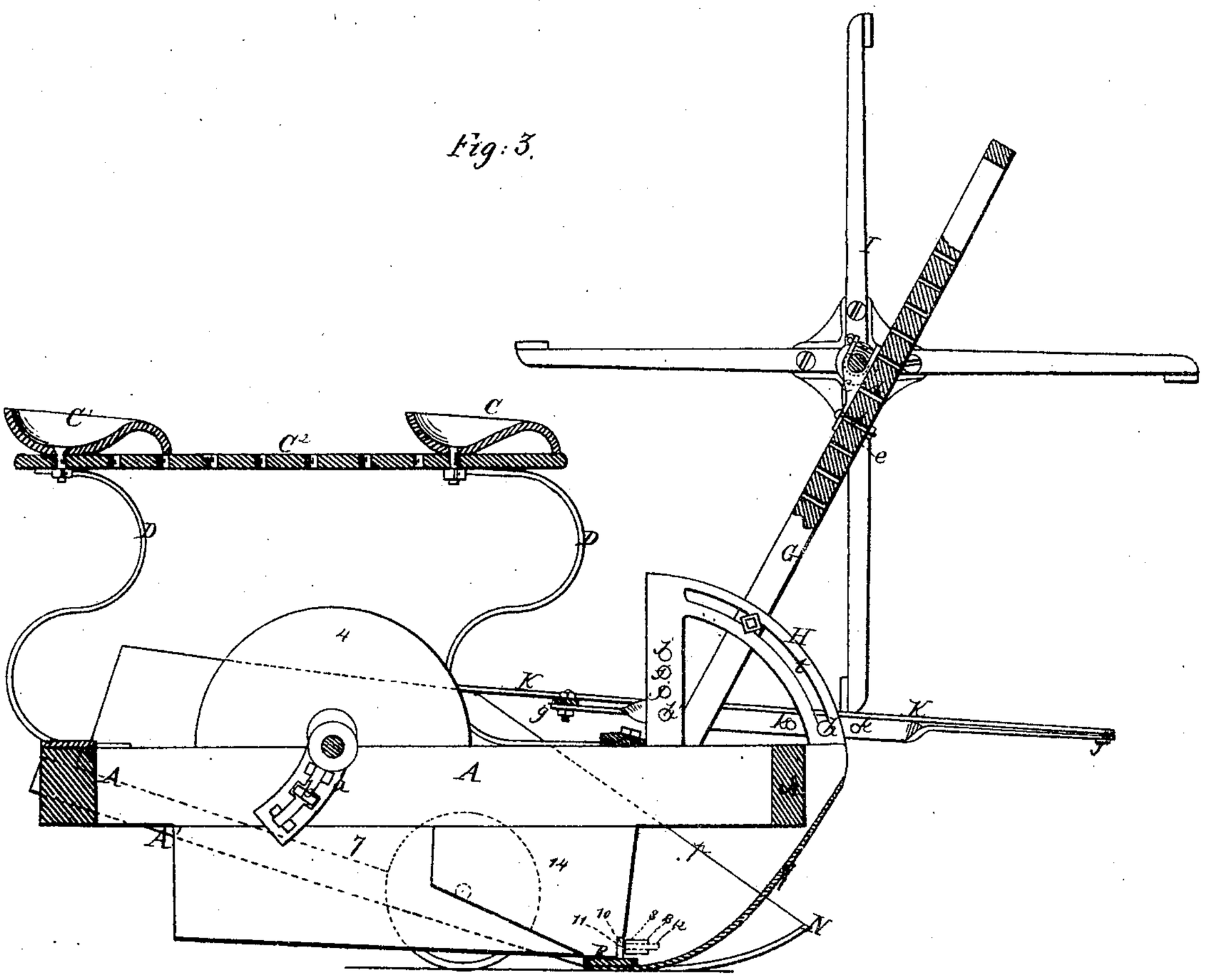
Marsh, E & C. C. Shorkley & Beaver.

Mower.

No 37631 Patented Feb. 10, 1863.

Fig: 3.



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Inventors:
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by
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their attys

UNITED STATES PATENT OFFICE.

C. C. SHORKLEY, PETER BEAVER, E. SHORKLEY, AND JAMES S. MARSH, OF LEWISBURG, PENNSYLVANIA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **37,631**, dated February 10, 1863.

To all whom it may concern:

Be it known that we, C. C. SHORKLEY, P. BEAVER, E. SHORKLEY, and JAMES S. MARSH, all of Lewisburg, in the county of Union and State of Pennsylvania, have invented certain new and useful Improvements in Harvesting-Machines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of our improved harvester, the reel being removed. Fig. 2 is a vertical cross-section in the line of the cutter-bar. Fig. 3 is a longitudinal section in the line *x x* of Fig. 2. Fig. 4 is a similar section in the line *y y* of Fig. 11. Figs. 5, 6, 7, 8, 9, and 10 are details of the machine. Fig. 11 is an inverted plan of our invention as adapted for mowing. Fig. 12 is a detached side view of the track-clearer shown in Fig. 11.

Similar letters of reference in the several figures indicate corresponding parts.

Our invention relates to a certain construction, adaptation, and arrangement of the parts constituting the harvester, whereby many of the objections heretofore urged against such machines are obviated.

A is the side-draft frame; B, the driving-wheel; C C′, the seats for the operators; D, the cyma-reversa springs on which the base of the seats is supported; E F, the levers by which the machine is controlled; G, the reel-support; H, the slotted segments on which it is adjusted; I, the reel; J, the caster-wheel for adjusting and steering purposes; K, the grain-guide; L M, the platform; N, the divider at the grain side of the machine; O P, guide and spring, and Q the back beam which supports the platform; R, the finger-beam; S, the cutter-bar; T, the pitman; U, the counter-shaft; V, the pinion-shaft; W X, the device for preventing motion of the cutting apparatus in backing, and Y the tongue or draft-pole.

The machine thus far referred to is used in reaping. To use it for mowing, the platform L M is removed and the back beam Q set on top of the grain-side beam and the left-hand timber of the draft-frame, as illustrated in Fig. 11, and a track-clearer, Z, is pivoted to the inner side of the grain-side beam, so as to stand oblique, as shown.

The first improvement we have made is the mounting of the raker-seat C′ and the driver's seat C on springs D D D D, these springs being placed on top of the draft-frame A, on opposite sides of the main drive-wheel B, and united together by a seat-base, C^2, which comes over the said wheel and has adjusting-holes through it, as shown. On this base the seats C C′ are adjustable toward and from one another, as may be desirable in the use of the machine for reaping and mowing. In reaping, the seats are both used in about the condition represented; but in mowing but one seat is used or occupied, and that seat should be adjusted nearly directly over the axis of the drive-wheel B. This arrangement of the seats on four springs secures a proper motion as the machine rides over obstructions, and it also locates two persons in convenient relation to the lever E, which adjusts the cutting apparatus to different heights, and to the lever F, which throws the bevel-wheel *v* of the pinion-shaft V out of gear with the bevel-pinion *u* of the counter-shaft U, and thus stops the motion of the cutting apparatus. This arrangement of seats also locates the raker at the proper point for raking off the grain from the platform—to wit, near the inner rear corner of the platform. In order to thus locate the seats and not endanger the legs of the operators, stirrups 1 2 are provided on opposite sides of the drive-wheel B, and shields 3 4 are placed about the toothed gearing, as shown. The stirrups and the shields have their support on the draft-frame, and the former are constructed with two foot places, so as to suit long and short legged persons.

The second improvement we have made is forming the rear end of the draft-frame A on a curve, as at 5, so that it shall conform to the curved form of the extension M (shown in red) of the grain-platform L. To effect this object the rear cross-timber of the draft-frame A is rounded off on its outer side, and a second inclined left-hand timber, A′, with a three-cornered or segment-shaped offset, 6, on its rear portion, is bolted to the outer side of the left-hand timber and to one of the blocks 14 of the draft-frame, as shown. To the timber A′

and the offset 6 a vertical convex board or platform-guard, 7, is fastened, and extends forward in the form of a sleigh-runner to the front end of the draft-frame. Both the right and left hand timbers of the draft-frame are provided with sleigh-runner-shaped metal shoes or guards 9 9, which bolt to the bottom of the extension-blocks 14 14 of the timbers of the draft-frame in a manner to leave room for the movement of the pitman between them and the said timbers. It is important to secure a curved passage for the grain to be raked off or discharged through, and it is also important to bring that passage in convenient relation to the raker's seat. These ends we have attained by having the draft-frame constructed as described and shown.

The third improvement we have made is the fitting of the cutter-bar S to the draft-frame and to the pitman by means of a jointless finger-bar, R, a slotted guide, 10, a nut, 11, a head-bolt, 12, and a perforated eye, 13, of the pitman T. The jointless finger-bar has its support upon or against two blocks, 14, extending down from the under edge of the side timbers of the draft-frame, it being extended from the left-hand timber to the right-hand timber for this purpose. In the front side of the left-hand block, at the base, the horizontal slot or guide 10 is provided, and in this slot the square nut of the bolt 12 fits, so as not to turn but to slide to the right and left on the top of the finger-beam R, as shown in Fig. 3. The jointing end of the pitman forms an angle, as at 15, so as to hook into the eye of the cutter-bar, and is bored through, so as to form the eye, as at 13, and through this eye the head-bolt 12 passes and screws into the nut 11, as shown in Fig. 6. By this arrangement the cutter-bar is supported in a true horizontal or parallel position with the finger-beam, while the pitman has every chance to turn in the eye of the cutter-bar and on the head-bolt 12, and besides this the pitman and cutter-bar are firmly connected against lateral play, and in case of wear the whole can be tightened up to obviate rattling and oblique bind. This is an important improvement in harvesters.

The fourth improvement which we have made is the adjustment of the harvester to the different kinds of grain or substances upon which it is to operate. To this end we have hung the main drive-wheel on segment slotted boxes *a* of the draft-frame, said boxes being socketed to receive the heads of permanent bolts *b*, and made adjustable in curved or segment-gains of the frame. We have pivoted the reel-support G to the side timbers of the draft-frame, and made it adjustable on slotted segment-standards H H, located on said frame, as shown. The hangers *c c* of the reel-support are made adjustable up and down on the support by means of holes *d d* and bolts *e e*. We further have provided the grain-guide K, made with a joint at *f* and a curved perforated adjusting-arm, *g*, and attached to the left slotted segment-standard by means of two adjusting-bolts, *h h'*, one of which fits in the segment-slot *i* of the standard, and the other in one or another of the adjusting-holes *j j*, also in said standard. This guide, when opened, as shown in Fig. 1, directs the grain toward the middle of the platform and enables the raker to reach it without bending over and raking close alongside the inner guard-board of the platform. It serves by its front end to straighten up the grain. If the grain is straight, it may be closed more or less. If the grain is very high, it may be raised in the slot *i* and fastened in one or another of the holes *j*. The holes *k* come into play when the guide is elevated or lowered, in order to compensate for decrease or increase of distance between the bolts *h h'*. We have also made the cutting apparatus adjustable on the drive-wheel axle, and the adjustment is effected by means of the caster-wheel J, operated by the lever E, segment-pulley *l*, and chain *m*. We likewise have provided a compound or adjustable grain-side guard, *n o p*, so that its height may be changed as the character of the grain being cut and the adjustments of the several parts of the machine described under this head may demand. In using reaping and mowing machines for the various kinds of harvesting it is found necessary to have a variable grain-side guard or dividing-board, sometimes a high one and sometimes a low one, and at other times one of medium height. We find that all demands may be answered by having a compound or sectional board such as shown in Fig. 9, the sections being detachable and attachable by means of hook and staple, as shown. We do not intend to be undestood as claiming to be the first who used the several elements named under the head "fourth improvement;" but we believe we are the first who have adapted these several elements to the one end of regulating the size and form of space on the platform and height of cut for the different kinds of grain. In this arrangement we dispense with an outer reel-support, and on the inner reel-supports we lower the reel as it is moved forward, and then, if desired, we can raise it to the proper height vertically, or lower it in like manner, independently of the motion of said support.

The fifth improvement which we have made is making the bevel-wheel *v* of bowl form across its web, and with a half-sheave, *q*, on its hub or around its eye, and then fitting the spring W around its inner hub, *r*, within its bowl-shaped portion, and encircling the spring with an internally-toothed ratchet-disk, X, said disk being on the shaft V, all as shown. This arrangement is to arrest the motion of the cutting apparatus as the machine is backed, and our improvement lies in the adaptation of the parts so that they may be located as shown, and thus allow the lever F to be brought into the position represented with respect to the raker's seat.

The sixth improvement that we have made is, in connection with the hinge-connection *m*³ of the platform L, bolting the extension M of

the platform to the grain-side board *p*, as at *t*, and providing a series of adjusting-holes, *t'*, in said board and a vertical slot, *s*, in the grain-side beam N', so that said extension of the platform may be adjusted, and also adjust itself to the motions of the platform L; and in connection with this we have arranged the back beam, Q, of the platform to rise and fall upon guide-rods or screw-bolts O O, said bolts being, one on the grain-side beam and the other on the curved offset of the draft-frame, as shown. Under the back beam, at the points where the bolts are located, springs P are placed, so that, although the beam is free to rise when it rides over obstructions, it shall be returned to its original position after having passed such obstruction. Gum springs of cylindric form, in lieu of the flat springs, might be placed on the bolts, between the beam and the timbers through which the guide-bolts pass. The nuts on the bolts serve to tighten up the springs when they become too pliable. The advantage of this improvement is this: When platforms are set inclined, considerable labor is expended by the raker in elevating the grain over the same. When platforms are horizontal, such labor is saved; but unless provision is made in the horizontal or nearly horizontal platforms for the rising and descending of the platform by means of springs and hinge-connections combined, there is danger, when the platform meets obstructions, of the machine being racked and twisted. Our arrangement yields gradually in passing over such obstructions, and then regains its position.

If it is desired to convert our machine into a mower, we remove the platform and employ a pivoted fish-shaped track-clearer, Z, which has an oblique set across the path of the machine equal to or greater than the width of the draft-frame. This track-clearer is attached to the inner side of the grain-side beam N², so as to play up and down as the machine moves over the field. This arrangement, in mowing, always insures a cleared track for the drive-wheel and runners of the draft-frame when the machine makes a return movement over the field, and thus the cut grass is not run upon, nor does the drive-wheel lose its hold upon the ground.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The joint of the pitman and sickle, constructed as described, in combination with the guide 10 or its equivalent, for the purpose set forth.

2. The combination of the grain guide or guard K and the standards of the reel, and the reel, substantially in the manner and for the purpose described.

3. The combination of the seat-base C², arranged over the drive-wheel, with the inner grain guard or guide, K, whereby the raker can conveniently reach and rake off the grain at the front inner corner of the platform, as set forth.

4. The arrangement and combination of the hollow bevel-wheel *v*, internally-toothed ratchet X, and spring W with the pinion-shaft V and lever F, the whole constructed as described, and for the purpose set forth.

5. The combination of the adjustable platform L M, bolt *t*, adjusting-apertures *t'*, and guide-slot *s*, and the adjustable back beam, Q, arranged on springs, substantially as and for the purpose set forth.

6. The springs P P, or their equivalents, applied substantially as described, and for the purposes herein set forth.

Witness our hands, in the matter of our application for a patent for improvement in harvesting-machines, this 17th day of October, A. D. 1862.

CHAS. C. SHORKLEY.
PETER BEAVER.
E. SHORKLEY.
JAMES S. MARSH.

Witnesses:
L. B. CHRIST,
JOHN P. MILLER.