2 Sheets—Sheet 1.

R. CAMPBELL.

Mower.

No. 217,268. Patented July 8, 1879.

Fig. 1.

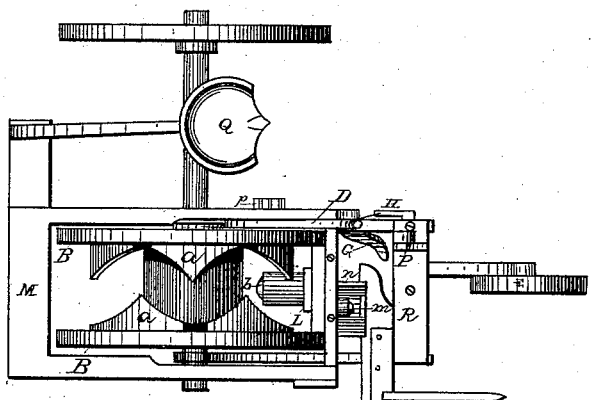


Fig. 2.

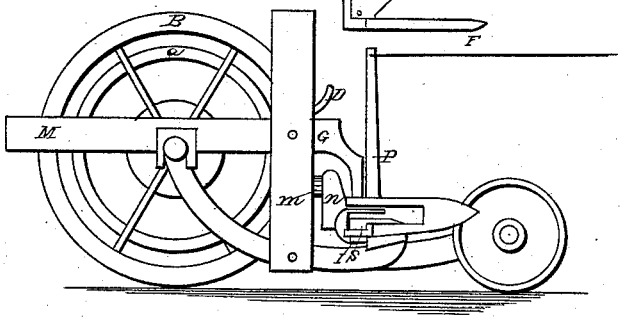
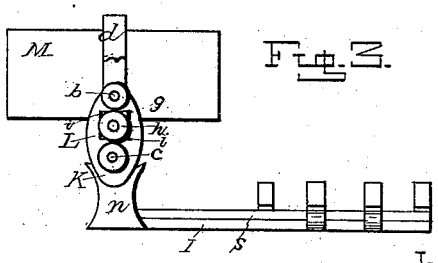


Fig. 3.



Witnesses:

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2 Sheets—Sheet 2.

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Fig. 4

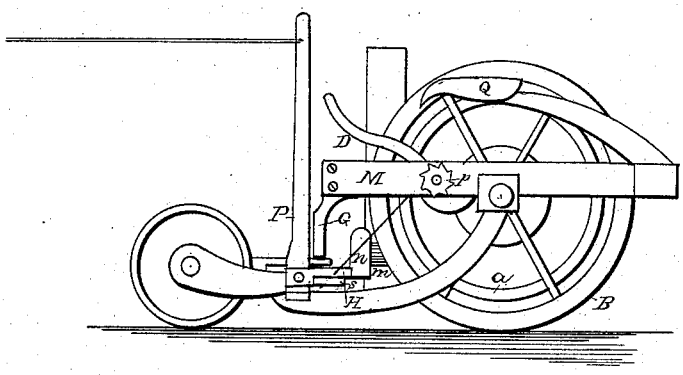


Fig. 5.

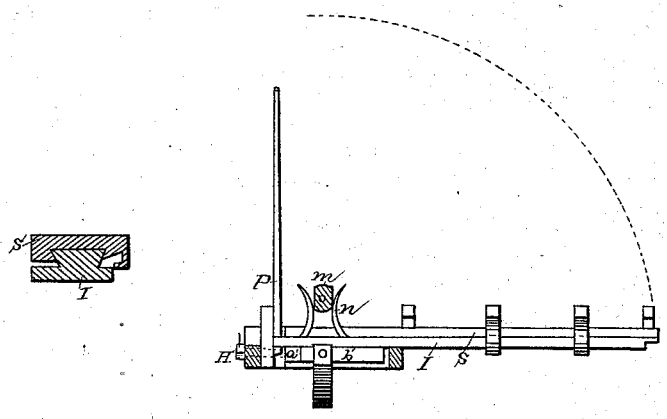
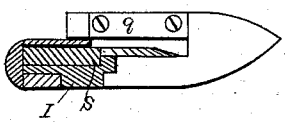


Fig. 6.



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UNITED STATES PATENT OFFICE.

ROBERT CAMPBELL, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN MOWERS.

Specification forming part of Letters Patent No. **217,268**, dated July 8, 1879; application filed November 25, 1878.

To all whom it may concern:

Be it known that I, ROBERT CAMPBELL, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in harvesters.

It consists in a combination and arrangement of devices hereinafter fully described.

The accompanying drawings represent my invention.

Figure 1 is a plan view of my machine. Figs. 2 and 4 are side elevations of the same. Figs. 3, 5, and 6 are detail views.

The motor-wheel B has a groove, *a*, within its periphery or tread in the plane of rotation, having indentations and projections formed upon epicycloidal curves terminating at the apices of the projections.

The curves of the indentations are sufficient to allow the free movement of friction rollers or wheels of from one and one-half to three inches in diameter. Said curves diminish their curvature to the apices of the projections formed between them.

This construction admits of all the velocity and power required and all the strength of material needed in the engaged and corresponding mechanism without undue friction.

The double lever L consists of a single bar so curved and furnished with two arms, *b* and *c*, that its curvature and arms will correspond, respectively, with the outer face of the groove *a* and its indentations and projections in such a manner as will place the arms in adjacent and opposite indentations within the groove.

The double lever L is pivoted upon a curved arm, *d*, affixed to the inner face of the front cross-bar of the motor-frame M. Said lever, having a square box, *g*, formed within or upon it at an equal distance from its arms *b c*, is fulcrumed by said box upon a collar, *h*, having square lateral faces neatly fitting two opposite sides of said box, but leaving a certain space, *i*, between said collar and the remaining sides of the box for lateral motion. This combined movement brings the arms of the double lever in contact with the projections on the opposite sides of the groove, allowing said arms to act simultaneously and with equal force when resistance is applied at the point K of the lever during the operation of cutting grass or grain.

In construction the point K must be below the second or following friction-wheel, *c*, in order to obtain the entire power of the said friction-wheel, or the combined power of both arms *b* and *c*, and the lateral throw of the cutters depends on the distance of the point K below the second friction roller or wheel, *c*.

At the point K is the arm *m*, that engages the slotted arm *n* of the scythe or cutter. It is furnished with a neatly-fitting collar with two parallel faces to fit the slotted arm *n* of the scythe and slide freely within it while in motion.

The lever D is pivoted to the motor-frame M and locked in position by a ratchet-wheel, *p*, said ratchet being detached by a pressure or movement of the attendant's foot when the frame of the cutter is lowered for operation, the attendant holding and placing the lever.

By slightly raising the lever D the points or guards F are depressed in order to gather lodged grass or grain; but by raising the lever to its highest position the cutter or scythe is disengaged from action and, in connection with the cutter-bar S, lifted into a secure position in front of the motor-wheel, resting against the curved arm G.

The depressing-lever H is connected with the elevating-lever D by a chain, and receives its movement from the latter. This movement is limited to a rolling motion that depresses the guards sufficiently for gathering up lodged grain or grass. This motion also precedes the elevation of the cutter-frame, to allow the cutter-bar to clear the motor-wheel in the act of elevation.

The cutter-bar I combines with the bar *a'*, operated by the lever H, and receives a rolling motion from it by being attached to a pivot-bar, *b'*, beneath its inner end, and which is in turn pivoted upon the bar *a'*, operated by the lever H. The said pivot-bar *b'* serves also as a pivot, which allows the cutter-bar to rise

or fall at its outer end, in order to accommodate the uneven surface of the ground during the operation of cutting. It also acts as a pivot for the horizontal movement of the cutter-bar when met by a serious obstruction, which causes the inner end of the cutter-bar to press upon the foot of the check-lever P and give a check to the team.

It furthermore allows the cutter-bar to rise in front of the motor-wheel by acting as a pivot while the lever D carries the cutter-frame R upward, bringing the inner end of the cutter-bar against the foot of the curved arm G of the motor-frame M, and by the same movement assists in disengaging the scythe from the arm *m*.

In its connection with the scythe the cutter-bar has bearings upon its upper surface, which enter slotted grooves on the under surface of the scythe, upon which the latter vibrates when in operation.

The cutter-bar is furnished with slotted guards F to receive the cutter-sections of the scythe. The guards are formed to receive steel bits *q* in a vertical or inclined position, so as to present their cutting-edges, in the manner of plane-bits, toward and nearly touching the faces of the cutter-sections of the scythe. Said steel bits are attached to the guards in any suitable manner.

The points of the guards F are fashioned to utilize the flexibility of the grass or grain by giving their tapering point a blade form on the under side and swelling it on the upper until within about an inch of the cutter-sections, where a depression will allow the grain or grass to feed freely.

The scythe S is furnished with slotted grooves on its under surface, which slide upon bearings on the upper surface of the cutter-bar. These are oiled from above through the scythe.

Along the front face of the scythe-bar is a slight flange or guard turned down. On the inner end of the scythe is a slotted arm, *n*, which receives the arm *m* of the double lever L and the motion of the same.

The scythe S is armed with cutter-sections, so arranged and constructed as to act in concert with the steel bits on the guards during the operation of cutting. The cutter-sections are double, triple, or more fold, and each twin section faces its cutting-edges in an opposite direction from its fellow section.

The curved arm G, supported by the motor-frame M, projects forward and down sufficiently to meet and bear upon the inner end of the cutter-bar, to turn it on the pivot, and cause it to rise into a secure position in front of the motor-wheel supported by said curved arm in an inclined position.

The check-lever P is pivoted to either the front inner end or the side of the cutter-frame, and leans toward the team, being held in this position by check-lines connecting it with the team. The lower end of this lever is arranged and placed to receive an impulse from the inner end of the cutter-bar, which will draw its upper end backward toward the motor-wheel, drawing the reins and checking the team.

The seat Q for the driver is supported by the rear cross-bar of the motor-frame and its spring flexes forward. This gives greater firmness to the driver's feet and a better poise to his body than when the spring flexes backward.

Between the projections in the groove of the motor-wheel at the bottom of the curves a recess is formed, and a cushion of gutta-percha or other suitable material inserted to receive the recoil of the friction-wheel when it is transferred from the opposite side of the groove; and similarly in the sides of the square box in lever L, against which the collar is forced right and left, is a cushion of suitable elastic material.

Having thus described my invention, I claim—

1. The motor-wheel B, with groove *a*, with cushions in its curves, adapted to and in combination with the double lever L, having arms *b* and *c*, and scythe S, with arm *n*, for engaging the lever L, substantially as shown and described.

2. A double lever, L, having its fulcrum on a square-faced collar, working upon an arm, and adapted to slide right and left against cushions and engage the arms *b* and *c* simultaneously, substantially as set forth.

3. The combination of the lever D and ratchet-wheel with the lever H, operating a rolling bar connected with the cutter-frame, and a pivot-bar, in connection with a cutter-bar, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of November, 1878.

ROBERT CAMPBELL.

Witnesses:
T. F. LEHMANN,
ALEX. C. HERRON.