

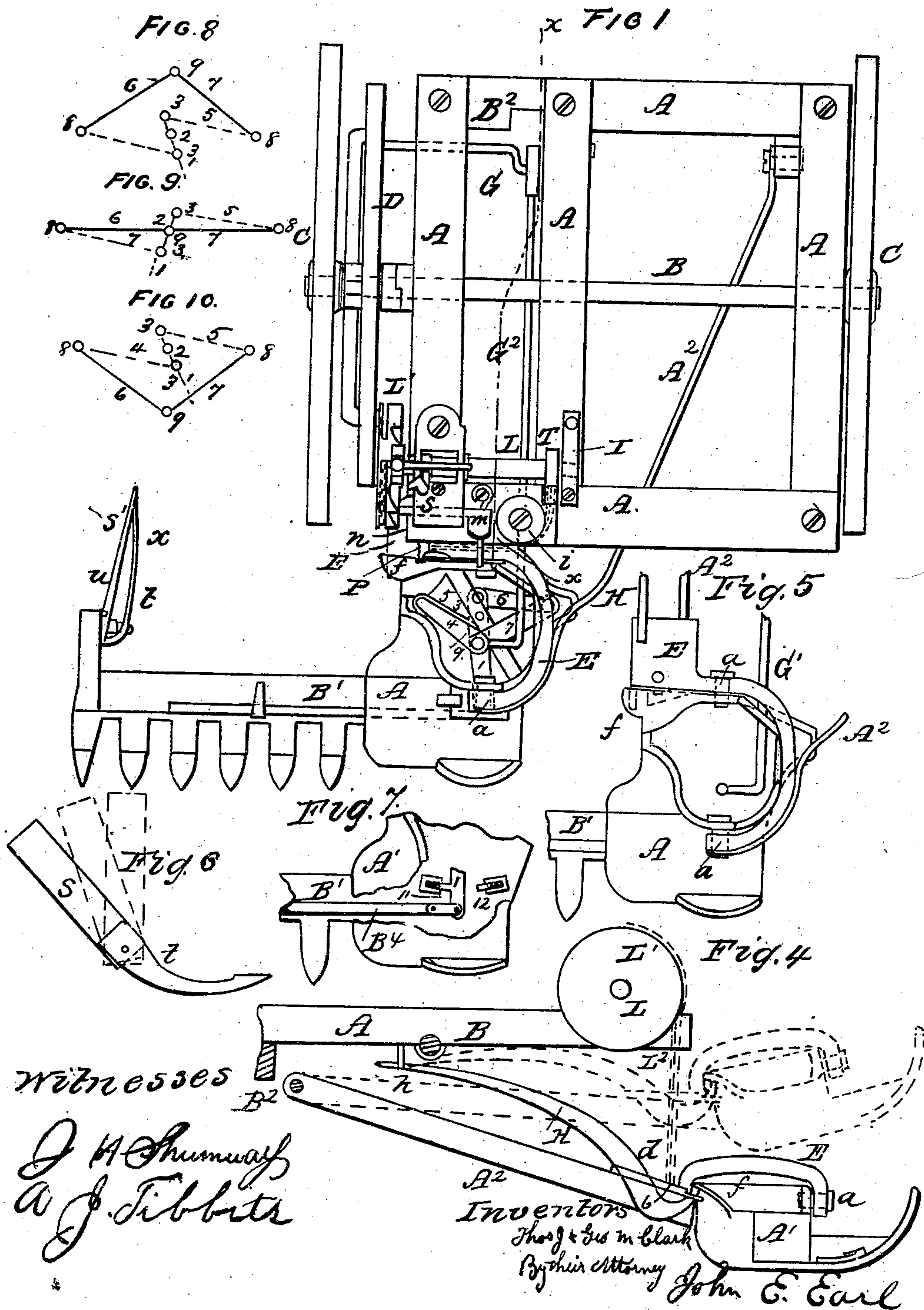
T. J. & G. M. CLARK.

2 Sheets—Sheet 1.

Mowing Machine.

No. 95,769.

Patented Oct. 12, 1869.



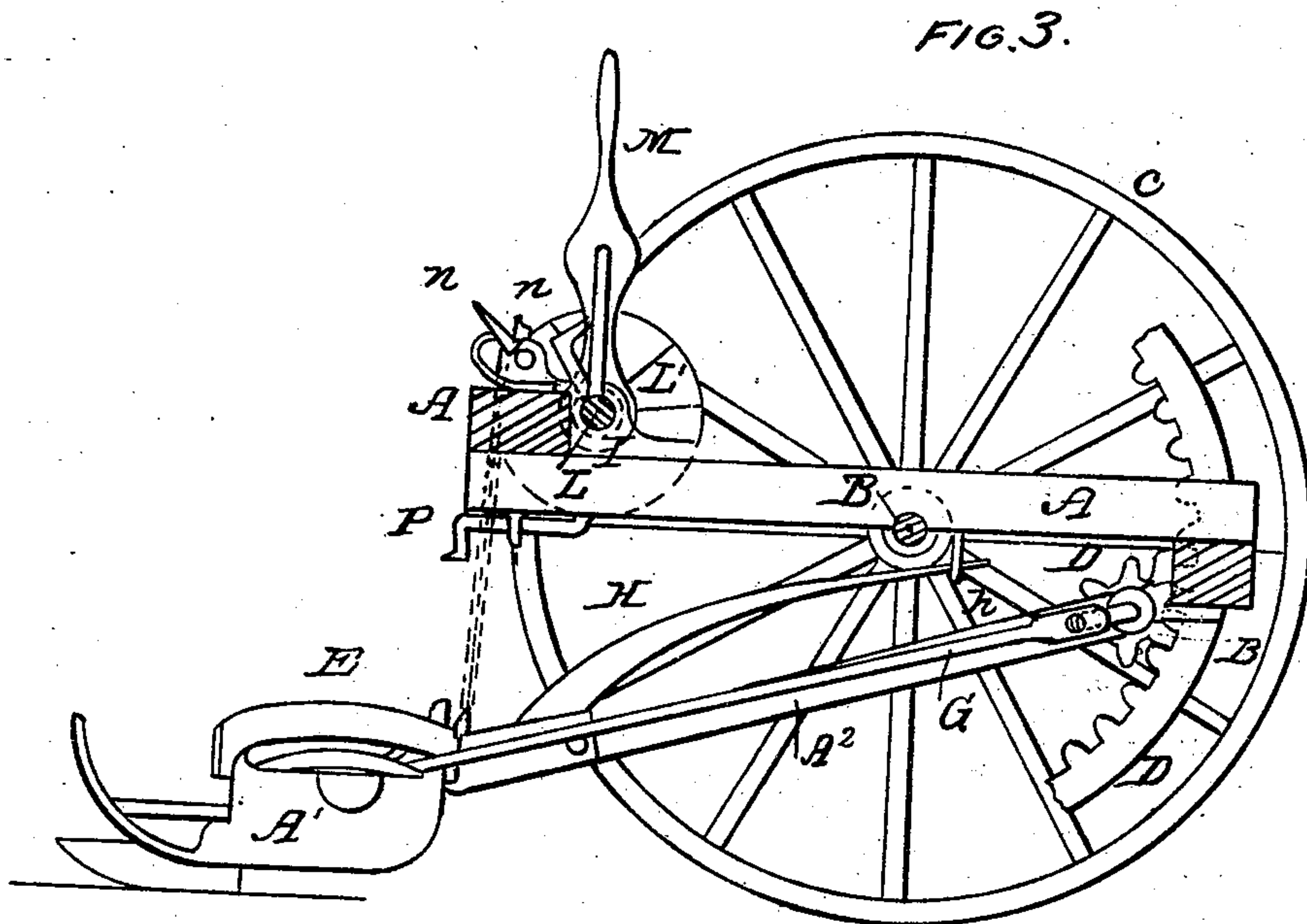
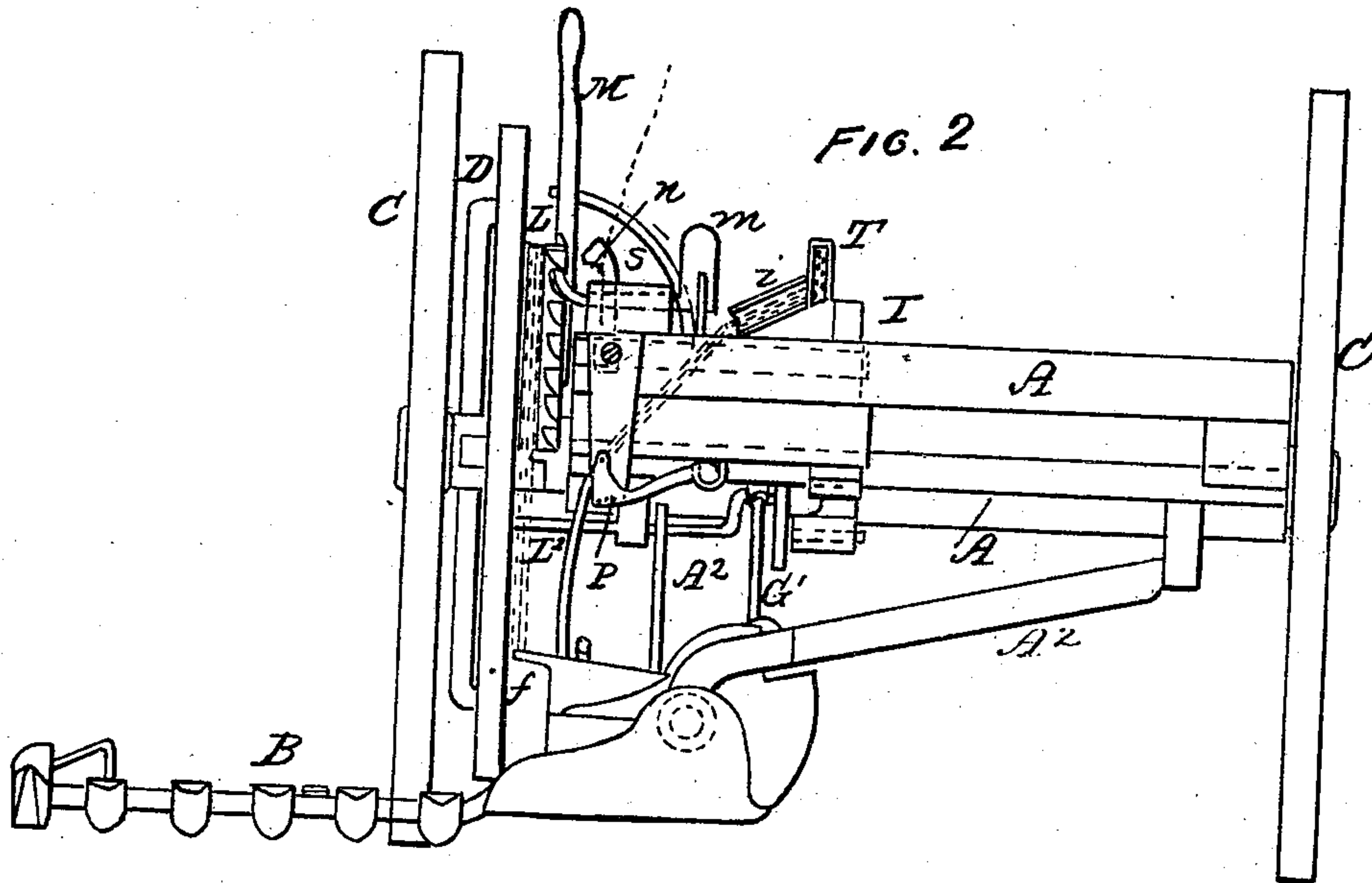
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WITNESSES

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THOMAS J. CLARK AND GEORGE M. CLARK, OF HIGGANUM, CONNECTICUT.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. 95,769, dated October 12, 1869.

To all whom it may concern:

Be it known that we, THOMAS J. CLARK and GEORGE M. CLARK, of Higganum, in the county of Middlesex and State of Connecticut, have invented a new Improvement in Mowing-Machines; and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a top view, looking from the right of the cutter-bar; Fig. 2, a front view; Fig. 3, a sectional view of the frame in line *xx* of Fig. 1, giving a side view of the cutter-bar head; Fig. 4, a partial side view, looking from the left, the wheel removed; Figs. 5, 6, 7, detached views for the purpose of illustrating the construction and operation; and in Figs. 8, 9, 10, diagrams illustrating the movement of the levers for operating the cutters.

This invention relates to an improvement in mowing-machines; and consists, first, in the peculiar construction whereby the finger-bar may be raised to a perpendicular position without in any way detaching the mechanism which operates the cutters; second, in a combination of levers with the operative mechanism, whereby two full movements are given to the cutters for each single movement of the crank; third, in the arrangement of springs to arrest the cutter-bar at its two extremes, relieving it to a great extent from the usual wear and tear; fourth, the combination of a lever with the frame to which the cutter-bar is attached, so that as the cutter-bar is raised the outer or extreme end rises faster than the inner; fifth, in a mechanism whereby the finger-bar is raised to a certain point for adjustment, then, by connection with another mechanism, from that point the finger-bar is turned completely up, causing the movement to be more easily made than in the construction as heretofore; sixth, in making the track or guard on the outer extremity of the cutter-bar adjustable, so as to be set at different elevations.

To enable others skilled in the art to construct and use our invention, we will proceed to describe the same, as illustrated in the accompanying drawings.

A is the frame, of the usual form, and at-

tached to the axle B, upon which, in the usual manner, the wheels C are fixed.

On the axle the internal toothed gear is arranged, so that by the forward movement of the machine the wheels C cause the gear D to revolve, but so that as the wheels turn backward the gear D will not revolve, all in the usual or any well known manner.

A¹ is the finger-bar head, to which the bar B¹, of the usual form, is attached.

At any convenient point on the frame a shaft, B², is arranged, upon which a pinion, D', is fixed, as seen in Fig. 3, into which the gear D works to cause the revolution of the shaft. On the said shaft a frame, A², is hung so as to swing freely thereon, the said frame carrying a yoke, E, as seen in Fig. 5, and into the said yoke, at points *a a*, the head A¹ is pivoted so as to turn upon the said points. In this head the mechanism for operating the cutter-bar is arranged as seen in Fig. 1, and more fully illustrated in diagrams, Figs. 8, 9, 10, which we will proceed to describe.

1 is a lever, arranged so as to turn freely on its fulcrum 2, as from the position in Fig. 8 to that in Fig. 9, and vice versa. At the points 3 3, equidistant from the fulcrum, we attach connecting-rods 4 5, extending each way from the lever; and to the connecting-rods, at or near the guide, we attach, respectively, other rods, 6 7—say at the point 8—and the two rods 6 7 are joined together at 9. At the said point 9 apply the power which is to give the reciprocating movement—that is, to move the jointed rods 6 7 from the position in Fig. 8 to that in Fig. 10, and return.

To more fully illustrate this operation, referring to diagrams, Figs. 8, 9, 10, and starting from the position in Fig. 8, by moving the point 9 to the position seen in Fig. 9 the lever 1 is moved to its full extent in one direction. Continuing the movement at the point 9 to its other extreme, which is to the position in Fig. 10, the lever 1 is returned, as in Fig. 10, to its first position, having passed from one extreme to the other. Now return the rods jointed at 9 to their first position, so as to complete the full movement; the lever 1 again passes from one extreme to the other, and returns.

For this peculiar mechanical movement we have applied for Letters Patent in even date herewith. To the lever 1 the arm B¹ (see Fig.

7) is attached, so that by the vibration of the lever the cutters are worked.

In order that the finger-bar may turn up freely on the pivots *a*, the connecting-rod *G'* is bent at its lower end to carry it in and attached to the lever 1 on a line with the axis of the said pivots, as seen in Fig. 5, the connecting-rod being constructed with a swivel or otherwise, so as to turn in the said swivel. The raising of the finger-bar in no way interferes with the operative mechanism of the cutters.

By the rapid reciprocating movement which is necessarily given to the cutters, the passing the dead-center is a very great strain upon the parts of the machine in immediate connection with the mechanism for operating the cutters. To avoid this, we arrange, at any convenient point at the extremes of movement, springs 11 12, so that the lever 1, or other parts, if preferred, may, at their extremes, strike the said springs, and the resistance offered by the springs eases them over the dead-center, so that the shock of the sudden change of movement of the cutter-bar is to a great extent removed.

As heretofore constructed, in raising the finger-bar, as for passing over obstacles, it has been the practice to raise the whole bar and its mechanism, so that it was very difficult for such machines, to cut over slightly-raised mounds or similar obstacles, to direct the level progress of the finger-bar; and in all cases where the finger-bar is raised it is desirable that the outer end should rise fastest. To do this, on the frame *A*², upon a fulcrum, *d*, we hang a lever, *H*, the shorter arm, as at *f*, bearing up against an ear upon the head *A*¹, the other arm of the lever supported, and so as to be retained in the position, as at *h*, on the frame *A*. Therefore, when the finger-bar is raised, as to the position in red, Fig. 4, the longer arm of the lever *H* closes down upon the frame *A*², causing the end *f* to rise, which carries with it the finger-bar, and, as the bearing-point *f* is outside of the pivots *a*, the outer end of the finger-bar will be raised, the bar turning upon its pivot. By this arrangement the raising of the frame to which the finger-bar is attached causes the outer end of the finger-bar to rise faster than the head.

Upon the frame, in suitable bearings *I*, a shaft, *L*, is arranged, upon the outer end of which a ratchet-wheel, *L*¹, is placed, but so as to revolve freely on the said shaft. From the said wheel a chain or band, *L*², extends down and is attached to the frame *A*², as seen in Fig. 4.

M is a lever, hung upon the said shaft *L* so

as to turn freely thereon, and is constructed so as to be moved forward and back by the hand of the operator, so as to connect with the teeth of the wheel *L*¹, to turn the said wheel and raise the frame *A*². The frame when so raised is supported by the pawl *n*, to which a treadle, *m*, is attached, so as to release the wheel from the pawl to permit the descent or lowering of the finger-bar frame.

This arrangement raises the frame and finger-bar directly up, acting upon the finger-bar only through the lever *H*, as before described, and when raised to its full height, as in red, Fig. 4, then the lip or projection *f* is brought into position to be caught by an arm, *P*. (See Figs. 2 and 3.) From the said arm a chain extends up around a guide-wheel, *i*, to a segment, *T*, (see Figs. 1 and 2,) the said segment being fixed to the shaft *L*.

Near the lever *M*, and on the shaft *L*, an arm, *S*, is also fixed, so that the said lever may be swung from the ratchet-wheel *L*¹ and connect to the said arm *S*, as in red, Fig. 2. Then, by drawing up the said lever, the segment *T* is turned to draw up the arm *P*, and thus turn up the finger-bar.

Upon the outer end of the finger-bar the usual track or guard *S'* is arranged; but, instead of being fixed in one position, we make it adjustable, so as to be turned at different angles, as in Fig. 6; and this we do by pivoting the said guard, as at *t*, and arranging upon it a spring, *X*, to bear it outward, and with a tooth or pin, *u*, to hold it in either position, and as many positions may be attained as there are holes for the introduction of the pin; or, instead of the pin, teeth may be arranged both upon the guard and bar corresponding.

Having fully described our invention, what we claim as new and useful, and desire to secure by Letters Patent, is—

1. In combination with the cutter-bar and its connecting-rod, the lever 1, with the rods 4 5 6 7, jointed together, and so as to operate as set forth.

2. In combination with the reciprocating cutters of a mowing-machine, the arrangement of the springs 11 12 to act at the extremes of movement, substantially as and for the purpose set forth.

3. In combination with the frame *A*² and finger-bar pivoted thereto, the lever *H*, constructed, arranged, and operating substantially as described.

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