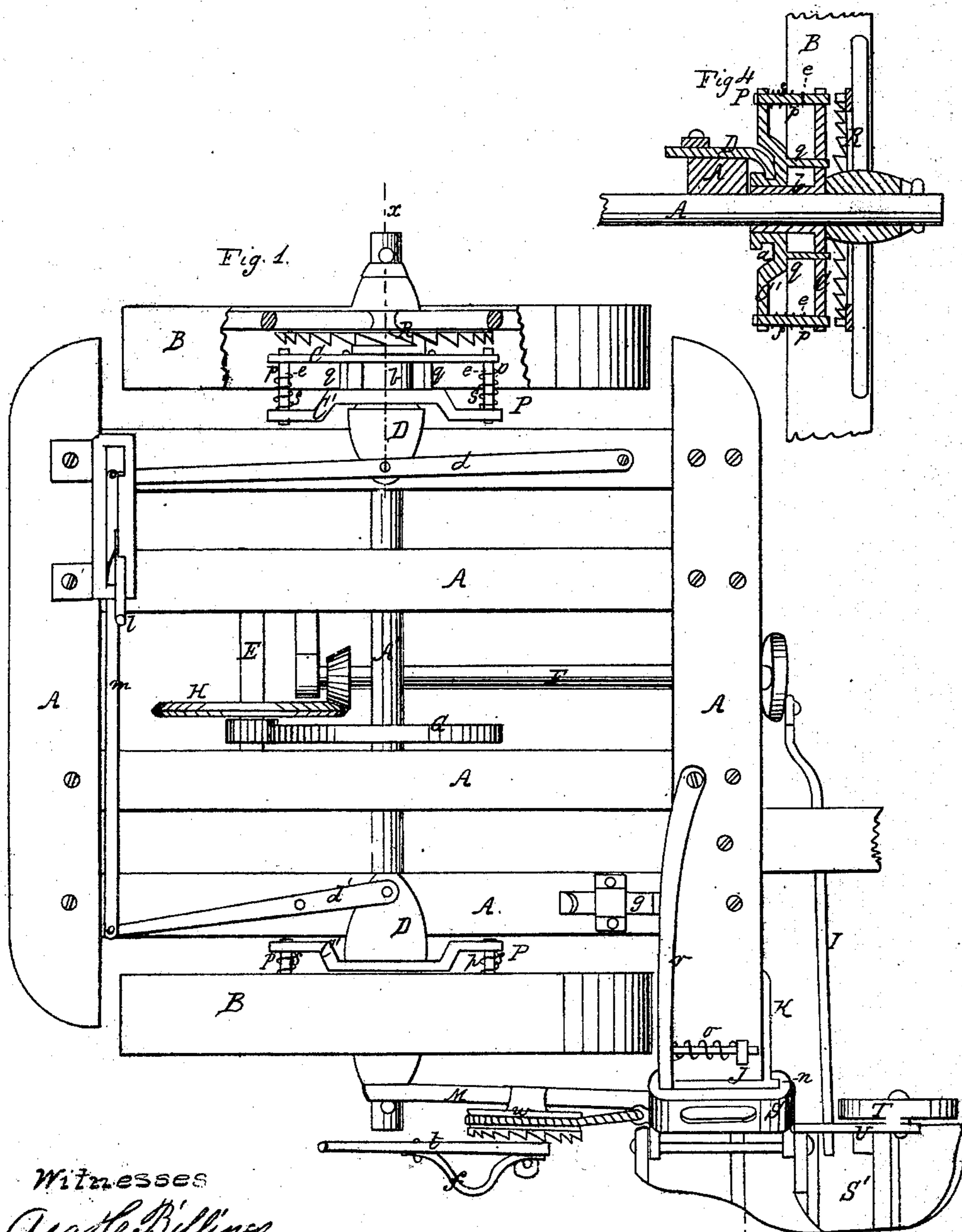


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N^o 49184

Patented Aug. 1, 1865.



Witnesses

Asa C. Billings
Wm. S. Loughborough

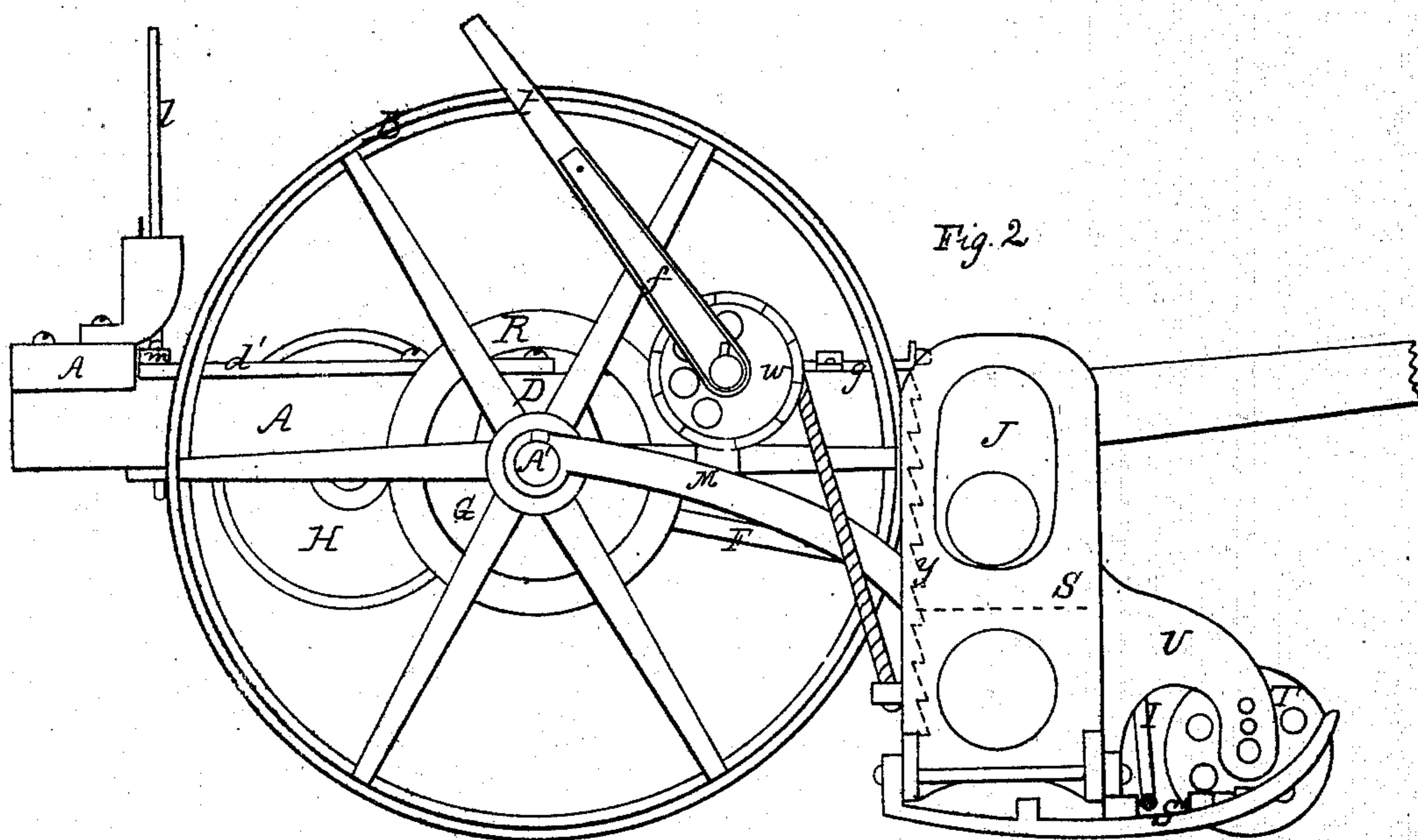
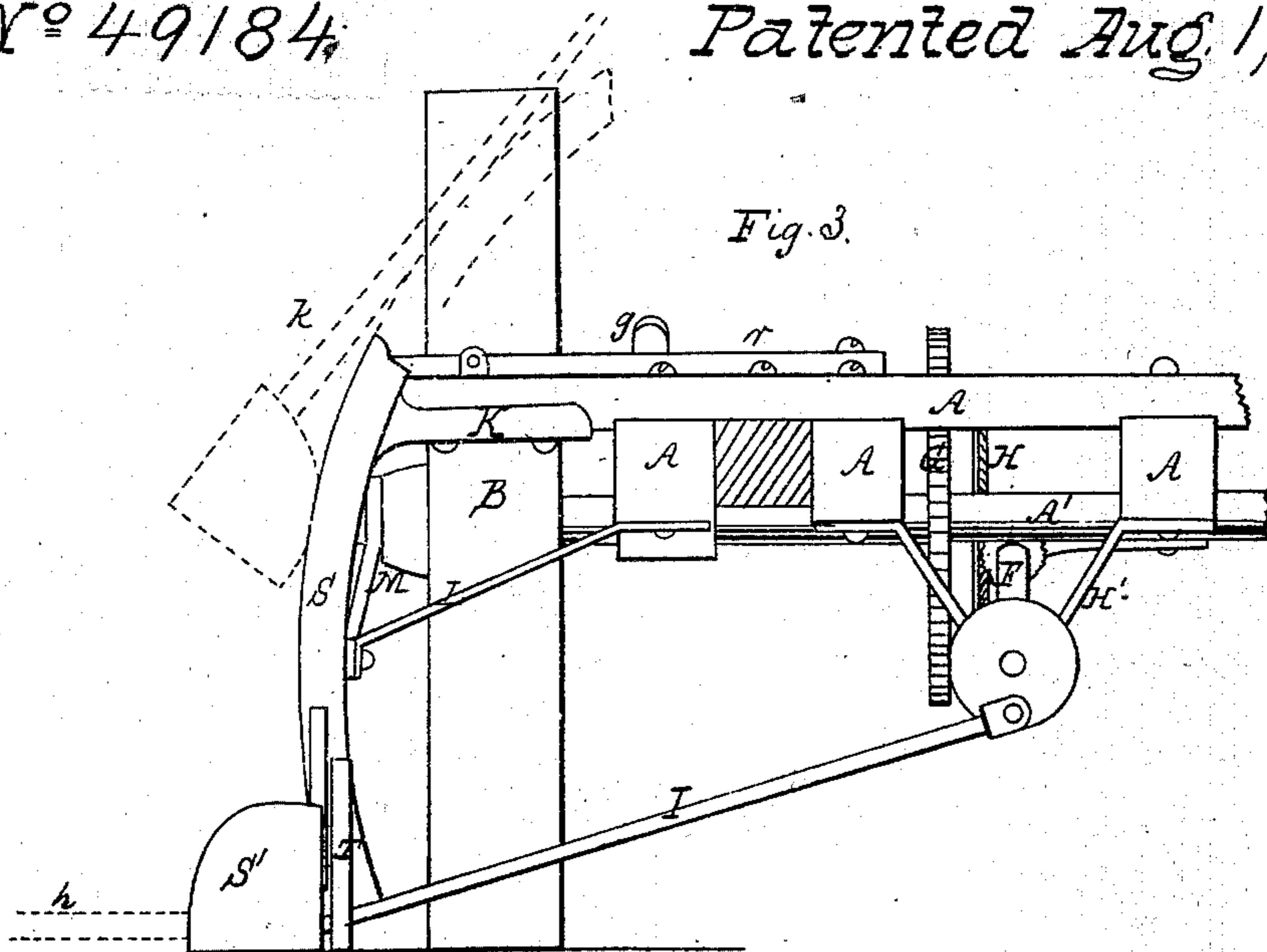
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UNITED STATES PATENT OFFICE.

THOMAS WELCH, OF CHURCHVILLE, NEW YORK.

IMPROVEMENT IN REAPING AND MOWING MACHINES.

Specification forming part of Letters Patent No. 49,184, dated August 1, 1865.

To all whom it may concern:

Be it known that I, THOMAS WELCH, of Churchville, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Grain and Grass Harvesters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of my invention, a portion of the top of one ground-wheel being broken away so as to show the spring-pawls and ratchets. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation of the right-hand portion of the machine. Fig. 4 is a vertical section of the left-hand ground-wheel and its spring-pawl and ratchet, taken in the plane indicated by the red line *x* in Fig. 1, the pawls being turned in a vertical position.

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

This invention relates to that class of reapers and mowers which are provided with two ground-wheels that operate the axle by means of pawls and ratchets, and in which the cutter-bar is attached to a vertically-adjustable slide; and it consists, mainly, in perfecting the construction, arrangement, and operation of these parts of the machine.

I construct a suitable frame, A, which is mounted upon the axle A', and it is supported by two ground or driving wheels, B. They are hung loosely to the axle, and are each provided with a fixed ratchet, R. The spring-pawl P of each ground-wheel is made as shown in Figs. 1 and 4. The hub *b* of the inner bar, C, is rigidly fixed to the axle A', and the sliding bar C' is bored to fit loosely over that hub, and is furnished at each end with clutching pawls or pins *p*, and on each side, near the hub, with a guide or steady pin, *q*. These all pass loosely through the bar C, and the pawls *p* also pass loosely through the bar C', they being square at that end and headed, so as not to draw through. There is a spiral spring, *s*, encircling each pawl or locking-bolt, as seen in Figs. 1 and 4, one end of the springs resting against the bar C' and the other against the stop *e* in the pawl. This permits the pawls to slip over the teeth of the ratchets if either wheel B happens to turn backward, as while turning around,

&c., while they are set in gear. The hub of C' has a groove, *a*, Fig. 4, turned in it to receive the fork or setting collar D, which latter is attached to the levers *d* and *d'*. They are connected together by rod *m*, and by that to the hand-lever *l*, which is secured in either position by the ordinary locking plate and spring, as shown in Figs. 1 and 2.

The driving-gears are all arranged centrally between the ground-wheels, and the counter-shaft E is hung parallel to the main driving shaft or axle A'. By this arrangement of the large spur and bevel wheels G and H, as will be seen, their line of rotation is with that of the travel of the machine, and therefore they offer less obstruction to its progress than when arranged in the ordinary way.

The front end of the pitman-shaft F is supported by the hanger H', as seen in Fig. 3, which should reach low enough to allow this shaft to pass under the shaft A', and to provide an easy-working angle between the pitman or connecting-rod I and the cutters.

The stock J, to which the slide S is hung, has a socket or clasp shank, K, Figs. 1 and 3, which is bolted to the end of the front cross-bar of the machine, and its lower end is kept in position laterally by the brace L, Fig. 3, and is supported in the line of travel of the machine by the brace M. This brace also supports the ratchet-wheel *w* and its lever *t*, used for raising the cutter-bar. The stock J and the slide S are segments of a circle which is struck from the axis of the pitman-shaft. This slide, to which the shoe S' of the cutter-bar is hinged, is made to clasp the edges of the stock J, as seen at *n*, Fig. 1, and the clasping-edge of the rear side of the slide is provided with a ratched toothed rack, (shown by the dotted lines *y*, Fig. 2,) in which the locking-latch *r* is made to catch by the spring *o*.

The traverse-roller T is hung to the arm U, which is cast to the slide S, to the left of the shoe S', and forward of its point of contact with the ground, as seen in Figs. 1 and 2. By this arrangement the shoe also acts as a gatherer, and the wheel revolving upon the cut grass prevents the shoe from becoming clogged by it, which is so annoying in other machines.

The spring *f* keeps the lever *t* in gear with the ratchet-wheel *w*.

The driver's seat is arranged over the right-hand rear corner of the machine, and this ren-

ders the hand-levers *l* and *t* conveniently accessible to him, and he can operate the slide *g* with his foot when he wishes to drop the cutter bar or beam. The ratchet-wheel is only used as such when the slide is to be raised clear up, it being held in its raised position by the latch *r*; but the lever *t* is used in lock with it to raise the cutters temporarily, as while passing over obstructions.

The cutter beam or bar is attached to the shoe at the point indicated by the dotted lines *h*, Figs. 1 and 3, and it may be folded over the machine for transportation from one field to another, &c., by raising the slide to its extreme upper position and placing the outer end of the cutter-beam over in the position represented by the dotted lines *k* in Fig. 3.

It will be seen that when the ratchets are in their present position all the machinery will remain at rest, the two ground-wheels simply turning upon the axle similar to a cart, and the ratchets may be set either way by the driver without leaving his seat or stopping the team. In other machines of this class in which the working parts of the machinery may all be thrown out of gear it is necessary to stop the team before the change can be made to start or stop the whole of the gearing, &c.

The object of making the slide *S* circular and hanging the pitman-shaft in its axial center is that the distance between the shoe *S'* and the shaft *F* shall always remain the same, whether the slide *S* is raised or lowered, and thereby avoid all such changes, and adapt the length of the pitman or connecting rod *I* to the otherwise ever-varying distance between the shaft and the shoe, which changes are unavoidable when the ordinary straight slide is used or the double-jointed bars.

The machine as herein shown and described is for mowing; but it is very readily converted into a reaper.

It will be seen that when the elevating-lever *t* and wheel *w*, which constitute an elevating-jack, are arranged on the brace *M*, as shown, the weight of the driver and of the slide and cutter-bar is thrown back upon the axle while the driver is in the act of raising the slide, and thereby relieving the necks of the team of that amount of weight.

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

1. The arrangement of the ratchets *R*, fixed to the ground-wheels *B*, in combination with the adjustable spring-pawls *P*, rigidly attached to the main axle *A'*, substantially as and for the purposes described.

2. The primary pawl-bar *C*, rigidly attached to the main axle *A'*, in combination with the adjustable or sliding auxiliary bar *C'*, the independent spring-pawls *p*, and steady-pins *q*, constructed, arranged, and operating in the manner and for the purposes shown and described.

3. The employment or use of the circular stock *J* and its slide *S*, the latter having a ratchet-edge, and both being arranged and operating in the manner shown, and for the purposes specified.

4. The roller *T*, in combination with the circular slide *S*, as shown, and for the purposes set forth.

5. In combination with the stock *J* and brace *L*, the brace-bar *M*, arranged in the manner and for the purposes set forth.

6. The lever *t* and ratchet-wheel *w*, constructed and arranged as shown, in combination with the circular ratcheted slide *S* and locking-latch *r*.

THOMAS WELCH.

Witnesses:

ASA H. BILLINGS,
WM. S. LOUGHBOROUGH.