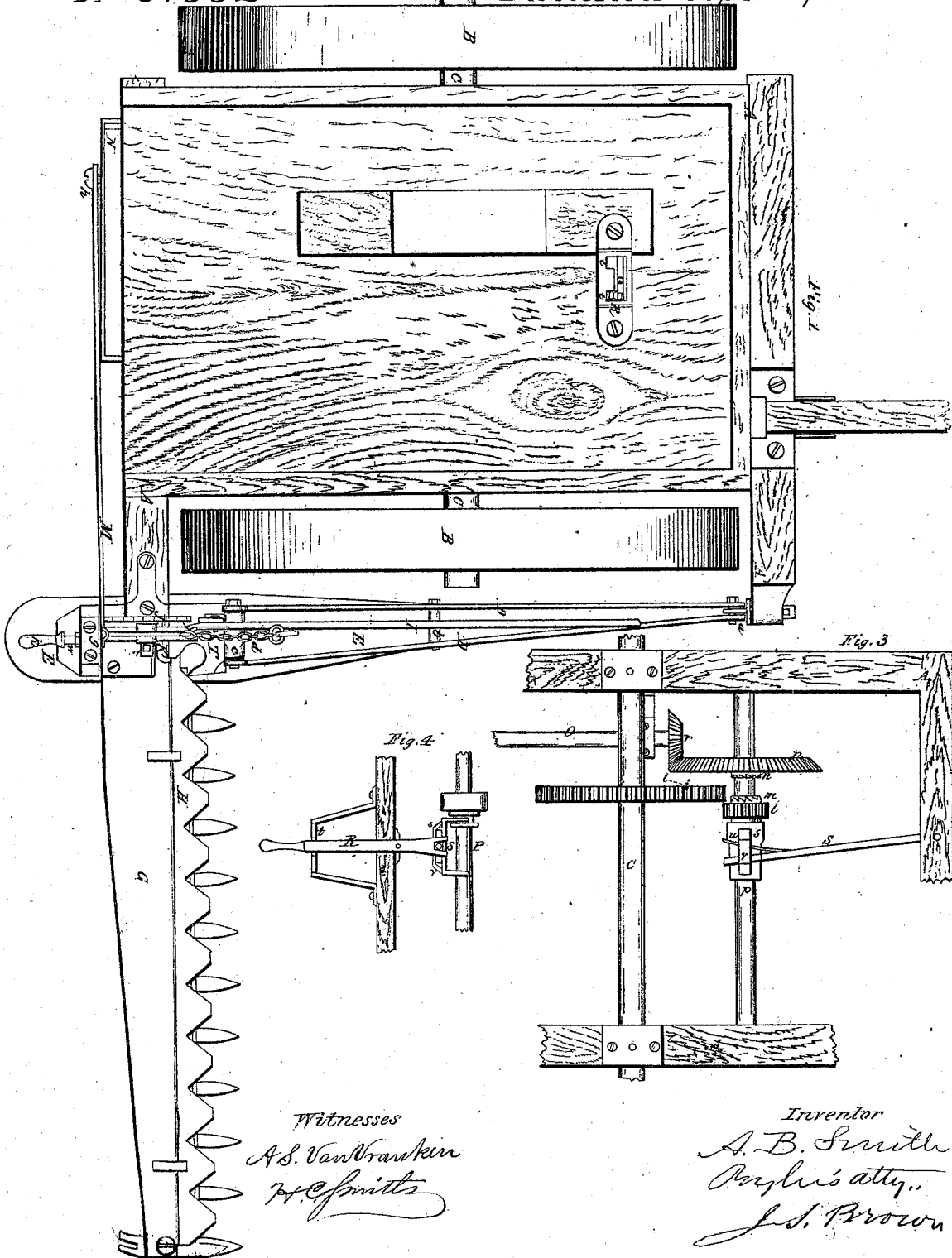


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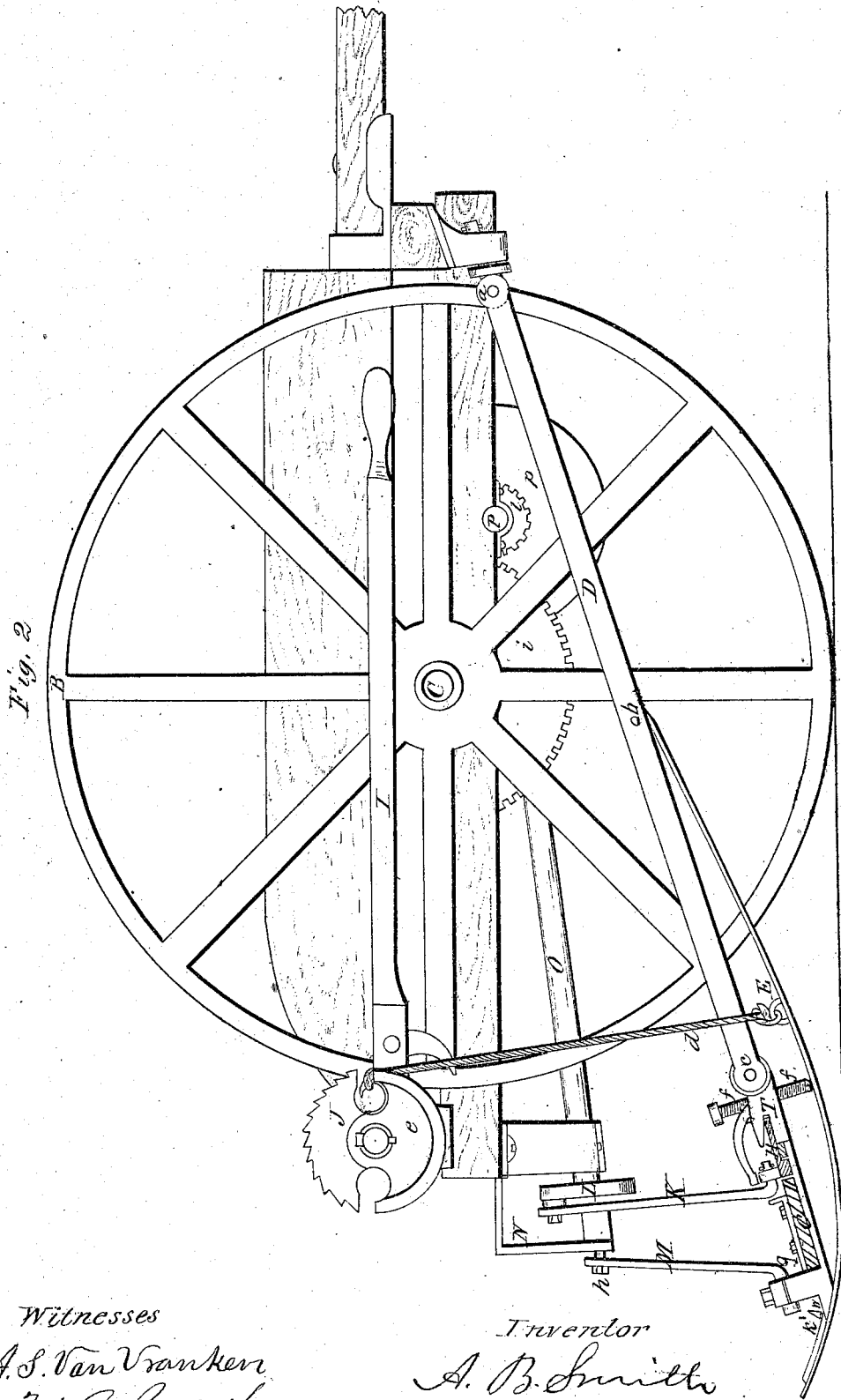
Patented Sept. 1, 1868.



A. B. Smith.
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N^o 81832

Patented Sept. 1, 1868.



Witnesses
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H. C. Smith

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By his atty.
J. S. Brown

UNITED STATES PATENT OFFICE.

A. B. SMITH, OF ROCHESTER, PENNSYLVANIA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 81,832, dated September 1, 1868.

To all whom it may concern:

Be it known that I, A. B. SMITH, of Rochester, in the county of Beaver and State of Pennsylvania, have invented an Improved Mowing-Machine; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of a mowing-machine constructed with my improvements; Fig. 2, a side elevation thereof, with a cross-section of the cutter-bar and finger-bar; Figs. 3 and 4, views of parts detached.

Like letters designate corresponding parts in all of the figures.

My improvements relate to various parts of the machine, to be particularized in succession.

Instead of the usual heavy rigid connecting-bar between the front part of the frame and the shoe, I employ two light rods or bars, D D, united at the forward joint *a*, also at *b*, near the middle, and at *c*, at the rear end, where they are pivoted to the shoe T, forward of the finger-bar G, thereby allowing a much freer movement to the finger-bar, and more perfect adaptability to the uneven surface of the ground. This construction also lightens this part of the machine many pounds. In connection with this light double construction of the connecting-bar, and pivoting it to the shoe T in front of the finger-bar, I employ what I have termed a "false shoe," E, of thin flexible material, situated under the rear portion of the connecting-bar and under the shoe T. It is attached at its forward end by a pivot-joint at *b* to the connecting-bars D D, and has a keeper, *w*, at the rear end, fitting into a notch or slot in the rear end of the shoe T. Its rear end turns up, so that it will run over the ground without encountering obstructions when the machine is backed, and in running over the ground it supports the parts above it. Being flexible, it allows a free movement of the finger-bar above it, and of the joint-connection between the shoe T and connecting-bars D D. An adjusting-screw, *f*, extends down through the shoe T, close to the joint *c* with the connecting-bars, so as to bear on the false shoe E, and thereby adjust the height at which the finger-bar rests above the ground. In raising the cutting apparatus by the lever I and ratchet-holder J, the lifting

chain or cord *d* is attached to the false shoe, which, bearing under the adjusting-screw *f*, supports the shoe T and connecting-bars D D upon it rigidly.

Instead of the usual plan of locating the brace-bar M in front of the pitman K and of the finger-bar G, I place it to the rear thereof, as shown, and pivot it to the shoe T, back of the finger-bar, while its upper end is secured by a joint, (preferably a ball-and-socket joint,) as at *h*, which is in line with the axis of the crank-shaft O of the pitman, and which allows a free movement of the lower end of the bar with the shoe. This arrangement of the brace-bar gives it greater leverage for support, and hence greater firmness to, and allows a freer movement of, the shoe and cutting apparatus than the ordinary arrangement. It has a wrist-bearing, *g*, at its lower end, so constructed as to be tightened at pleasure.

The brace-bar M at its upper end is hinged to a projecting or arched brace, N, secured to the supporting-bracket of the crank-shaft of the machine, and behind the pitman. This arch-brace is strong and firm, though adding but little weight to the machine.

To give motion to the pitman crank-shaft O, a driving-wheel, *i*, on the axle-shaft C, gears into a pinion, *l*, located on a stationary axis, P, and this pinion, when coupled to another wheel, *p*, on the same axis, which matches into a pinion, *r*, on the crank-shaft, turns said shaft.

To couple the pinion *l* to the cog-wheel *p*, two notched wheels or disks, *m n*, attached to said pinion and wheel, respectively, are brought together; and to uncouple, they are separated by sliding the pinion away, as indicated in Fig. 3, and in the act of sliding away from the wheel *p* the said pinion becomes unmatched from the wheel *i*.

Difficulty is ordinarily experienced in again matching the pinion into the wheel *i* when the machine is in motion, often rendering it necessary to stop the machine for the purpose. My improvement in this device consists in adding a spring, *u*, to one side of the lever-arm S, by which the pinion is moved, and allowing the lever to move in a slot, mortise, or loop of the pinion-yoke *s*, substantially as shown in Figs. 3 and 4, so that the lever can be moved from one notch, *t*, Fig. 1, to the other, even without

moving the pinion *i*, the spring *u* yielding and allowing the lever its movement. Then, when the machine moves, as soon as the teeth of the wheel *i* are brought into the proper relation to the teeth of the pinion *l*, the spring *u* automatically matches them together, and couples the pinion to the wheel *p*.

This spring is applicable, for a like purpose, to other arrangements for matching cog-wheels together.

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

1. The construction of the drag-bar of two light bars, *D D*, connected by bolts *a b c*, which also serve as pivot-connections, respectively, with the frame *A*, false shoe *E*, and shoe *T*, substantially as and for the purpose herein specified.

2. Pivoting the drag-bar to the shoe *T*, forward of the finger-bar *G*, the forward end of the shoe being adjustable in height by the screw *f* or its equivalent, while the rear end

has a free sliding movement on the false shoe *E*, under the keeper *w*, substantially as herein set forth.

3. The false shoe *E*, constructed and arranged as set forth, in combination with the drag-bar *D D*, shoe *T*, and the finger-bar *G*, substantially as and for the purpose herein specified.

4. The spring *u*, in combination with the lever *R*, vibratory arm *S*, sliding pinion *l*, and the clutch-wheels *m n*, or their equivalents, substantially as and for the purpose herein specified.

5. The spring *u* applied to the coupling-bar, substantially as and for the purpose specified.

The above specification of my improved mowing-machine signed by me this 19th day of March, 1868.

A. B. SMITH.

Witnesses:

J. S. BROWN,

EDM. F. BROWN.