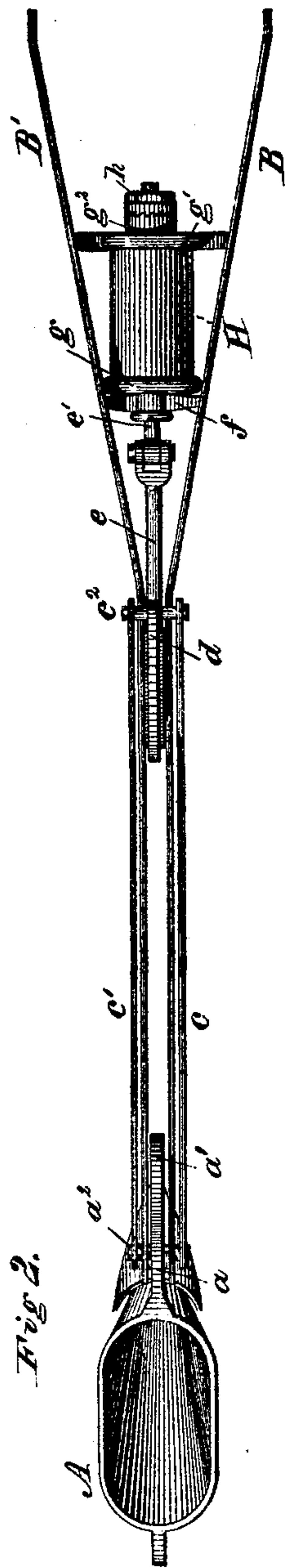
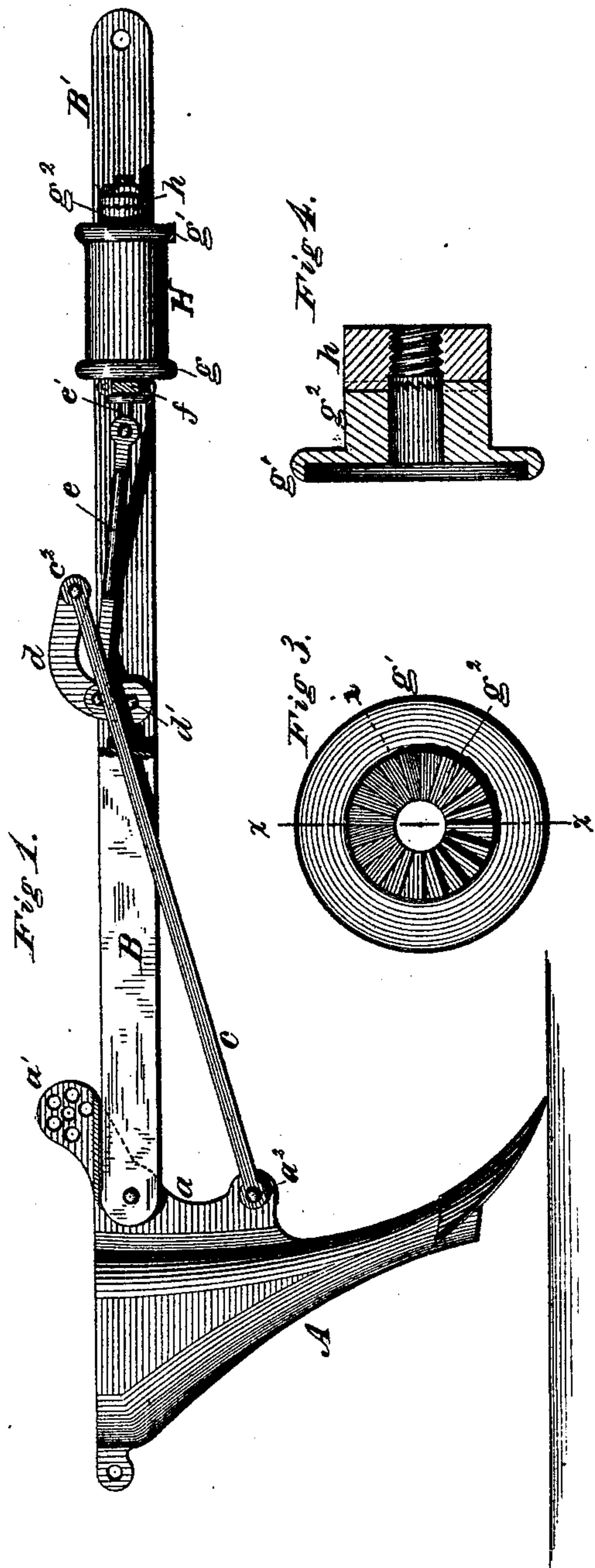


J. S. BOGLE.

SPRING HOES, OR TEETH FOR GRAIN DRILLS.

No. 183,892.

Patented Oct. 31, 1876.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES S. BOGLE, OF SPRINGFIELD, OHIO.

## IMPROVEMENT IN SPRING HOES OR TEETH FOR GRAIN-DRILLS.

Specification forming part of Letters Patent No. **183,892**, dated October 31, 1876; application filed October 10, 1876.

*To all whom it may concern:*

Be it known that I, JAMES S. BOGLE, of Springfield, county of Clarke, and State of Ohio, have invented certain new and useful Improvements in Spring Hoes or Teeth for Grain-Drills and Seeding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a side elevation of a grain-drill hoe and drag-bar, the latter being partly broken away for the purpose of showing my improvements. Fig. 2 is a plan or top view of the same. Fig. 3 is a front elevation of the adjustable disk which acts upon the spring. Fig. 4 is a longitudinal section through said disk and its adjusting-nut, and Fig. 5 is a plan view of the link connecting the locking stud or link with the sliding spring-rod.

Similar letters of reference denote corresponding parts wherever used.

My invention consists in a novel arrangement of jointed-link connection between the locking stud or lever and its retaining-spring, whereby a direct reciprocating movement is given to that part of the link which is connected with the spring; second, in connecting the link with the curved locking stud or lever at a point above the pivotal point of said stud or lever, and in the same or nearly the same vertical plane therewith, thereby giving the spring its greatest leverage when the stud is locked and the hoe is in working position; and, third, in a novel construction of ratchet-disk and lock-nut for adjusting the tension of the spring, as hereinafter explained.

In the accompanying drawings, A is a drill tooth or hoe, which may be of any of the usual or preferred forms in use either in grain-drills or in broadcast seeding, that shown being in the form of a drill-tube. It is provided on its forward face with a vertical rib or flange, *a*, through which it is pivoted to the rear end of a drag-bar, composed of two bars or straps, B B', parallel at their rear ends, and clasping the flange *a* between them, but diverging at their forward ends, as shown in Fig. 2, to give them a lateral bracing connection with the main frame. The flange *a* extends forward of and above its pivotal connec-

tion with the drag-bar, and is provided with a series of perforations at *a*<sup>1</sup>, in any one of which a break-pin may be inserted, if at any time it may be desirable. At a point some distance below the pivotal connection between the hoe and drag-bar, the flange *a* has the rear end of a link-brace connected with it, said brace consisting of two parallel straps, C C', which embrace the flange *a* between them, and, passing thence forward and upward, have their forward ends connected at *c*<sup>2</sup> with the upper forward end of a locking stud or lever, *d*, which, at its lower rear end, is pivoted, at *d*', between the drag-bars B B', the relation of the joints being such that when the hoe is locked in working position by the stud or lever *d*, the link C C', extending from the joint *c*<sup>2</sup> to the joint *a*<sup>2</sup>, in passing the joint *d*', descends very nearly to the horizontal plane of said joint, thus bringing the lever *d* nearly but not entirely to a dead-center, and, by the aid of the spring hereinafter described, effecting the locking of the hoe in working position. The locking stud or lever *d*, at a point near about vertically above its pivotal point *d*', has connected with it the rear forked end of a jointed-link rod, *e e*<sup>1</sup>, the portion *e* of said rod being shown detached in Fig. 5, the forked rear end *e*<sup>2</sup> of said link clasping the locking stud or lever *d*, and providing for its free vibration therein. The part *e*<sup>1</sup> passes through a guiding bracket or bar, *f*, extending across between and connecting the bars B B', and through a disk, *g*, either cast with and made a part of said bar *f*, or separate therefrom, as preferred. The forward face of this disk *g*, by preference, has a peripheral flange, forming a socket for the reception of a spring, H, surrounding the rod or part *e*<sup>1</sup> of the jointed link, and in front of said spring is a disk, *g*<sup>1</sup>, which is secured in place upon the rod *e*<sup>1</sup> by a nut, *h*. The disk *g*<sup>1</sup> is recessed on its rear face, as shown in Fig. 4, for holding the forward end of the spring, and has a sleeve, *g*<sup>2</sup>, on its forward face, the forward end of which is provided with a series of radial ratchet-teeth, forming a clutch-face, *i*. The nut *h* is provided with a corresponding clutch-face, the construction being such that as the nut is screwed upon the rod *e*<sup>1</sup> the spring yields to allow the inclined planes of



the clutch-nut to ride or pass over the corresponding faces on the disk or sleeve  $g^2$  until the desired compression and tension of the spring is obtained, when the abrupt shoulders of the clutch-faces, aided by the tension of the spring, serve to resist any tendency of the nut to back away from the compressing-disk  $g^1$ . A jam-nut may be employed in addition to the nut  $h$ , if desired.

It will be seen that by this arrangement any desired adjustment can be given to the disk  $g$ , for increasing or diminishing the tension of the spring on the jointed rod  $e e^1$ , which holds the locking stud or lever  $d$ , and through said lever the hoe itself, in working position. By connecting the link  $e$  with the stud or lever  $d$  at a point near about or directly over the pivotal point of the latter when in position for holding the hoe to its work, it will be seen that when said locking stud or lever is in said position the spring exerts its greatest leverage, while, when the lock is released and the lever moves backward, the leverage is diminished; also, that after the first backward movement of said lever, and as the pivotal point between it and the rod  $e$  begins its downward movement, the compressing action of the rod on the spring diminishes, so that its tension is not correspondingly increased, the leverage of the hoe upon the spring after the lock is released being constantly and rapidly increased, thereby greatly facilitating its passage over obstructions.

The joint in the link  $e e^1$  permits the part  $e$ , connected with the spring, to move in right

lines, thereby increasing the efficiency of the spring and avoiding the cramping of any of the parts. The location of the spring  $H$  relative to the drag-bars and the locking-lever facilitates this jointing of the link by avoiding any abrupt angles between the parts, while by being placed between the diverging bars  $B B'$  it is protected by said bars from injury, is entirely out of the way, and gives a neat and compact arrangement of parts.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the drag-bar of a seeding-machine, of the jointed link  $e e^1$ , connecting the locking stud or lever  $d$  and spring  $H$ , adapting the part connected with the spring to move in right lines, as described.

2. The combination, with the drag-bar of a seeding-machine, of the jointed link  $e e^1$ , curved locking-stud  $d$ , and spring  $H$ , the link being attached to the locking-stud at a point at or nearly vertical above the pivotal point of said stud, and operating as a draft-rod on the hoe-sustaining spring, substantially as and for the purpose set forth.

3. The combination, with the drag-bar of a seeding-machine, of the spring-compressing disk  $g^1$  and its adjusting-nut  $h$ , provided with the clutch-faces, arranged and operating as described.

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Witnesses:

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