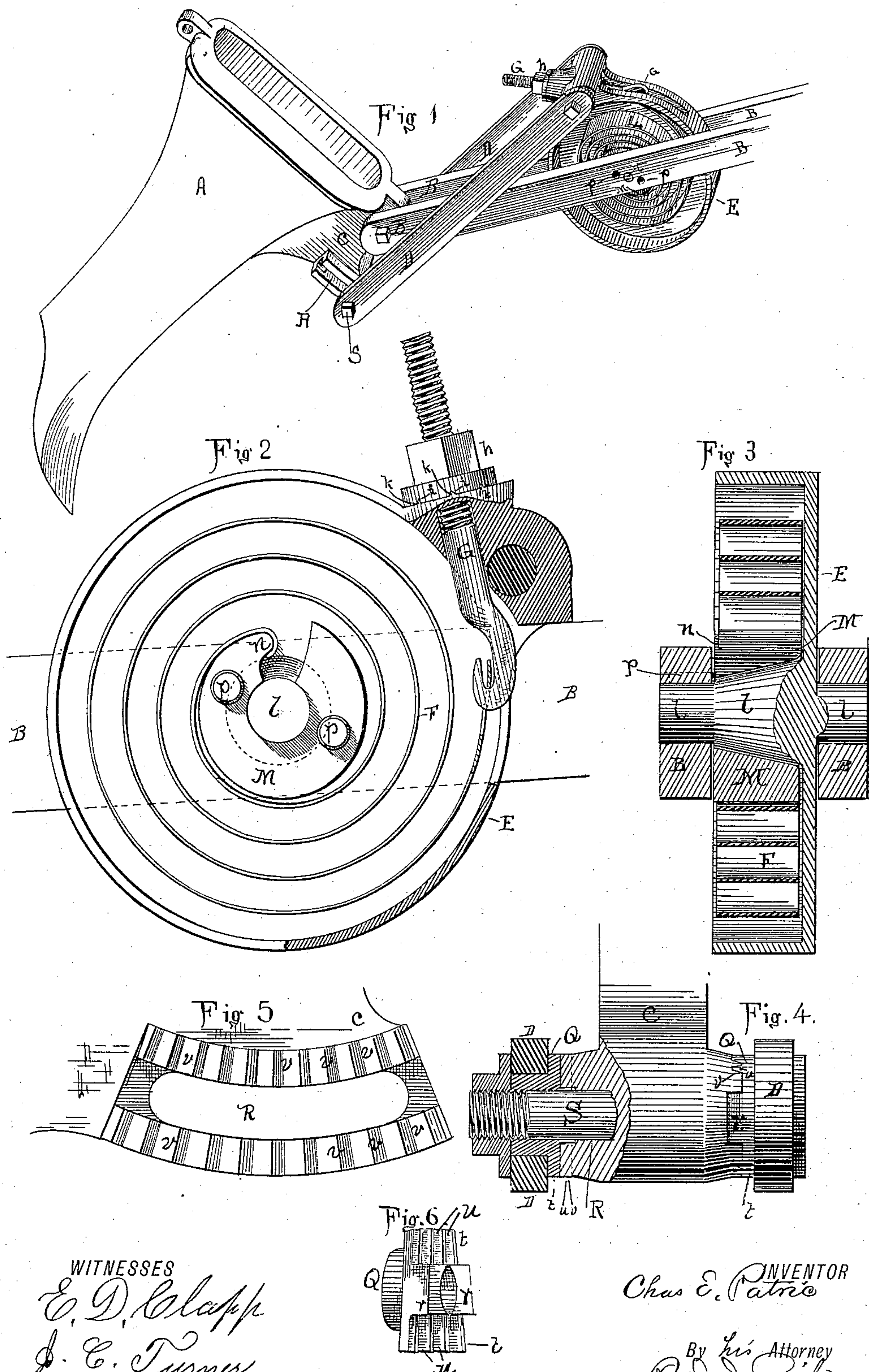


(No Model.)

C. E. PATRIC.  
SPRING HOE SEED DRILL.

No. 316,387.

Patented Apr. 21, 1885.



WITNESSES  
E. D. Clapp  
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INVENTOR  
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# UNITED STATES PATENT OFFICE.

CHARLES E. PATRIC, OF SPRINGFIELD, OHIO.

## SPRING-HOE SEED-DRILL.

SPECIFICATION forming part of Letters Patent No. 316,387, dated April 21, 1885.

Application filed December 20, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. PATRIC, of Springfield, in the county of Clark and State of Ohio, have invented a new and useful Improvement in Spring-Hoe Seed-Drills; and I do hereby declare that the following is a full and accurate description of the same.

This invention is an improvement on the invention for which Letters Patent No. 204,365 were granted to me May 28, 1878; and it consists, first, in a tension hook-bolt with a screw-nut, whereby the outer end of the coiled spring may be drawn out or relaxed to regulate the tensional resistance of said spring to displacement of the drill-hoe; second, in the hub, whereby the inner end of said spring is attached to the drag-bar; third, in the serrated adjusting-coupler, whereby the tension links are attached to the drill-hoe.

In my said patent the outer end of the coiled spring is secured by a set-screw, which clamps the end of the spring against an inner ledge of the spring-case. This arrangement was found to be objectionable, because it did not admit of easy adjustment of the spring as to tension after the parts were all in place, and because the inner ledge reduced the interior space of the spring-case and prevented a full expansion of the spring.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a perspective view of my improvement in action. Fig. 2 is a side elevation of my spring-case with hook, &c., in position. Fig. 3 is a vertical central transverse section of the same. Fig. 4 is an elevation, partly in section, of the adjusting device on the hoe. Fig. 5 is an elevation of the ratchet-slot for said adjusting device. Fig. 6 is a perspective view of the adjusting-coupler for the same.

A is an ordinary hoe of a grain-drill, pivoted at its front upper corner or edge to the drag-bars B B, which in turn are at their front ends pivoted to the frame of the machine, not, however, shown herein, because it is not involved in this invention. The lug *c*, to which the drag-bars are jointed is extended down-

ward to form a hinge-joint for the rear ends of tension-links D D also.

The front ends of the tension-links D are jointed to the periphery of a spring-case, E, within which the coiled spring F is fastened at its outer end to said spring-case, and at its inner end to a hub which is axially pivoted within said case, but is fastened to one of said drag-bars, so that it cannot rotate. This arrangement of the hoe, drag-bars, tension-links, and spring-case to control the hoe and hold it firmly in position as against all ordinary strains in use is like my invention shown and described in my Patent No. 204,365, above mentioned.

Instead of being fastened by a set-screw, I now attach the outer end of spring F to a hook or screw bolt, G, which passes up through a proper boss on the spring-case, and is provided with a screw-nut, *h*, provided with retaining ribs and notches *i k*, to prevent it from working back after being once screwed up to position. The elasticity of the spring F is sufficient to permit the nut *h* to turn easily over said ribs and notches, but, being a constant pressure upon the nut, will prevent any accidental movement out of position. By means of this tension-screw the spring F may be pulled out and its tension regulated with ease after all the parts have been put together. This is necessary, because no two springs will have the same elastic force, and from slight difference in location of centers and in dimensions no two hoes will work exactly alike with springs of equal resistance. With the tension-bolt G the spring may be regulated exactly to suit each hoe after it is in working condition. It is also possible to vary tensional resistance from time to time, if it is desirable to do so.

The spring-case E is provided with an axial trunnion, *l*, which enters holes in the drag-bars B, to center said spring, and there is also provided a scroll-shaped hub, M, which fits over and works on said trunnion, and the inner end of the spring F hooks over one end of said hub or a shoulder formed thereon, as at *n*.

The hub M is provided on one end with one or more studs, *p*, which enter holes in one of the drag-bars B, and said hub is thereby



joined and locked to said drag-bar, so that rotation of the spring-case merely pulls around the outer end of the spring. The hub M is preferably scroll-shaped, and thereby conforms to the configuration of the spring and properly supports it.

At their rear ends the tension-links pass around and are pivoted upon movable hubs or coupling-plates Q, which are adjustable back and forth along a slot, R, in the web *c*, so that the point of hoe may be adjusted and set forward or backward, as desired, and be securely held in position by the tie-bolt S, which passes through said slot R and binds the plates Q firmly to the web *c*. Each coupler-plate Q is provided with a ridge, *r*, which fits into said slot, and is therefore a guide to keep said couplers in position. It is also provided with lateral plates *t*, provided with ribs or serrations *u*, which engage with similar ribs or serrations, *v*, in the margins of the slot R, whereby the hubs Q, which form the bearings for the rear ends of the tension-links, may be moved back and forth, as desired, and firmly bound to the web by a bolt, S, which is therefore relieved of all strains except tensional strains.

Having described my improvement, I claim as new in spring-tooth seed-drills—

1. A drill-hoe, drag-bars jointed to said hoe at their rear ends, a flat coiled tension-spring, a cylindrical spring-case therefor, pivoted to said side bars, and tension-links connecting said spring-case with said drill-hoe below its hinge-joint with the drag-bar, combined with a

tension-hook, and a screw-bolt seated in the periphery of the spring-case, and connected with the outer end of the spring, whereby it may be drawn out or relaxed to adjust its tension, as set forth.

2. The coiled spring attached at its outer end to the tension-hook bolt provided with a screw-thread and a radially-serrated nut, combined with the spring-case, provided with a radially-serrated seat for said nut, whereby said nut may be freely turned to adjust the tension of said spring, but securely held from turning backward under the action of the drill-hoe.

3. The flat coiled spring and the cylindrical spring-case provided with an interior axial pivotal hub or stud, combined with the loose spiral hub provided with locking-studs, whereby it is connected with the drag-bar, as set forth.

4. The drill-hoe having the slot provided with transverse serrations on its margins, combined with the coupling-plates, each of which is provided with a central rib adapted to enter and fit said slot, marginal ribs adapted to enter and engage said serrations, and a hollow stud adapted to form a bearing or joint with the tension-link and admit an axial clamping-bolt which binds the whole together at any point of adjustment desired.

CHARLES E. PATRIC.

In presence of—

A. P. LINN COCHRAN,  
ROBT. C. RODGERS.