(No Model.)

N. J. JOHNSON.

SEED DRILL.

No. 450,513. Patented Apr. 14, 1891.

Fig. 1.

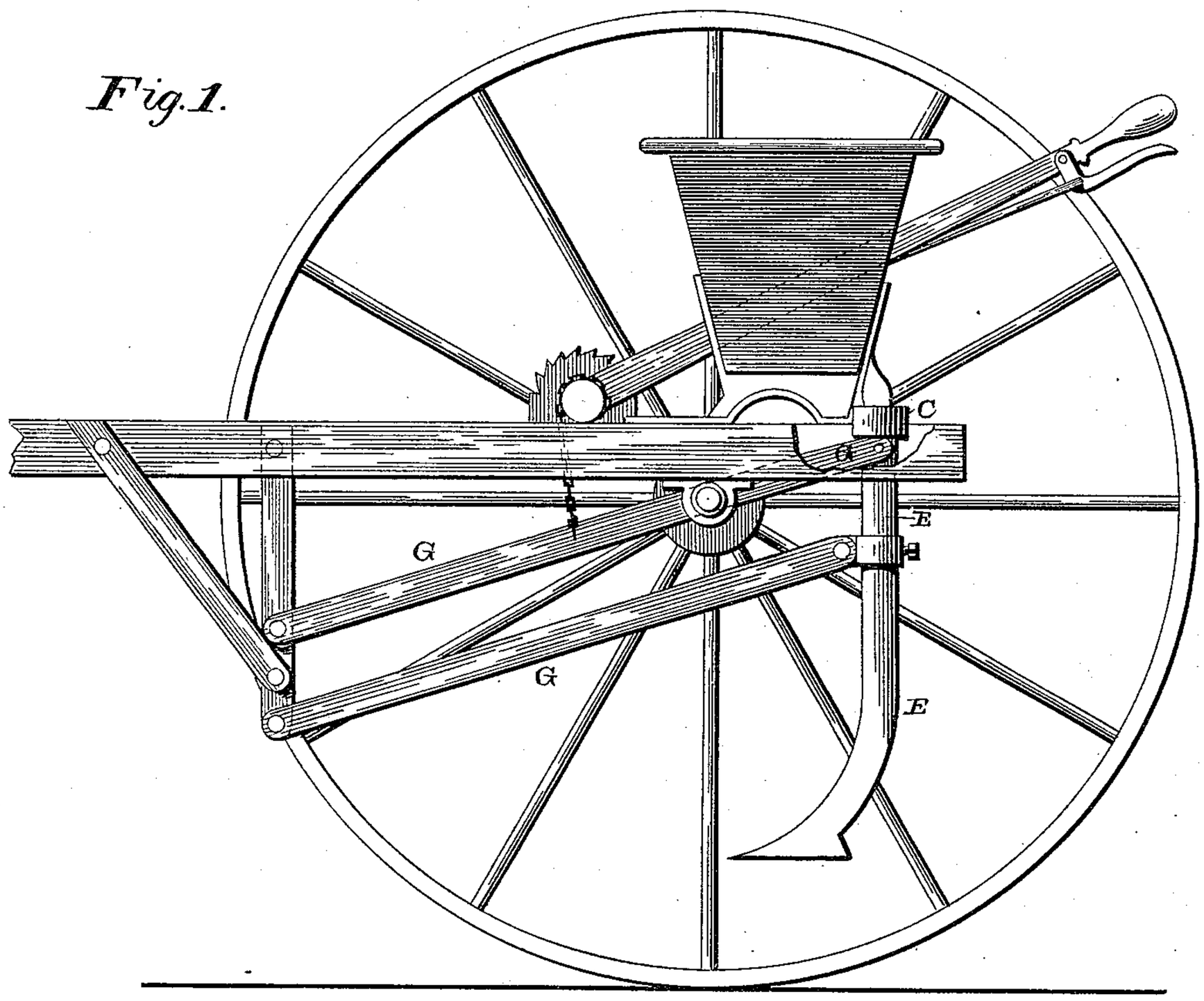


Fig. 2.

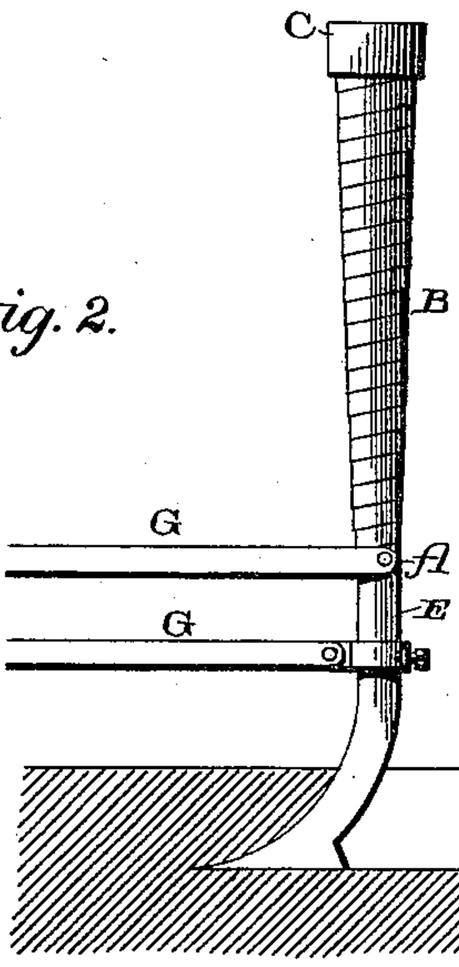
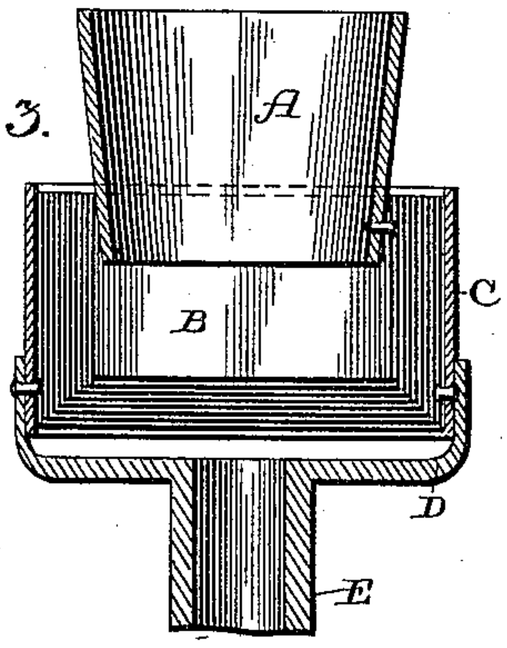


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

NELS J. JOHNSON, OF GRAFTON, NORTH DAKOTA.

SEED-DRILL.

SPECIFICATION forming part of Letters Patent No. 450,513, dated April 14, 1891.

Application filed December 6, 1890. Serial No. 373,770. (No model.)

To all whom it may concern:

Be it known that I, NELS J. JOHNSON, of Grafton, in the county of Walsh and State of North Dakota, have invented certain new and useful Improvements in Seed-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in tubes for seed-drills; and it consists in the special construction hereinafter fully described, and pointed out in the claims.

The object of my invention is to form the seed-tubes of a seeding-machine out of coil-springs which automatically close when the drills are raised, and which exert an upward pull or lifting movement upon the drills, and which automatically lengthen out and form the tube as the drills are lowered into position.

Figure 1 represents a side elevation of a seed-drill to which my invention is applied, the drill being raised and the tube closed. Fig. 2 is an enlarged detail view showing the drill lowered and the tube extended. Fig. 3 is an enlarged view showing the tube in its normal position and the large end down.

A represents a small ring or tube, to the lower outer side of which one end of the spring B, composed, preferably, of steel, is secured, and C a larger ring or tube, inside of which the opposite end of the spring is secured.

The spring B is preferably tapering from end to end, but may be made of the same size from end to end, if desired, and is coiled like an ordinary clock-spring. When closed, the spring coils up inside of the larger ring or tube C, as shown in Fig. 3. Either one of these rings or tubes may be fastened to the seed-box and the other to the upper end of the drill, according as it is desired to have the tube large at its upper end and small at its lower one, or small at its upper end and large at its lower one. The lower ring is secured to a cup or socket D in some instances, as shown in Fig. 3, which is formed upon the upper end of the tube E, which carries an opener F at its lower end, and to this tube E the elevating bars or levers G are secured. As the drills are lowered their weight automatically falls and lengthens out the tubes, and when the drills are raised the springs in returning to their normal position exert a lifting-tension upon the drills for the purpose of assisting in raising them. When the drills are raised, the whole of the spring disappears inside of the larger ring or tube C; but when the drills are lowered a tapering perfectly-formed tube is produced.

Heretofore a tapering spring or strip has been used which is spirally coiled, and this I disclaim. My invention differs from this in using a spring which is either tapering or made the same width from end to end, as preferred, and which is coiled like a clock-spring, and which in closing exerts a lifting strain upon the drills for the purpose of assisting in lifting it.

The method of forming the collapsible tube B is to take either a tapering or straight piece of steel band and form it into a coil-spring, whereby it is made normally contracting and lifts itself into the large tube C and assists in raising the tubes E, which are connected thereto. This construction is very desirable, for the reason that a seed-drill has from twelve to sixteen drag-bars and tubes, all of which must be raised at once. Where a spirally-wound spring is used, a constant downward pressure is exerted and it requires a very strong person to raise all of the drills at once, and in the course of a day is extremely laborious and has made the invention above referred to impractical; but where the tube is formed of a coiled spring the normal position of which is closed a very slight pressure upon the operating-lever will raise all of the tubes, which enables a drill to be used by a boy, where heretofore only a very strong man could operate it.

Having thus described my invention, I claim—

1. A drill-tube consisting of a normally-coiled spring, a large tube, to the inner side of which the outer end of the spring is con-

nected, a small tube, to the outer side of which the inner end of the spring is connected, and an opener connected to the lower tube, whereby the spring-tube is normally closed, for the purposes set forth, substantially as shown.

2. A seed-drill consisting of a coiled spring which normally closes, the upper end of which is connected to the frame, and an opener connected to its lower end, whereby the tube lifts the opener, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

NELS J. JOHNSON.

Witnesses:
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