(No Model.) 2 Sheets—Sheet 1.

E. F. STODDARD & W. H. NAUMAN.

SEEDING MACHINE.

No. 266,656. Patented Oct. 31, 1882.

Fig. 1

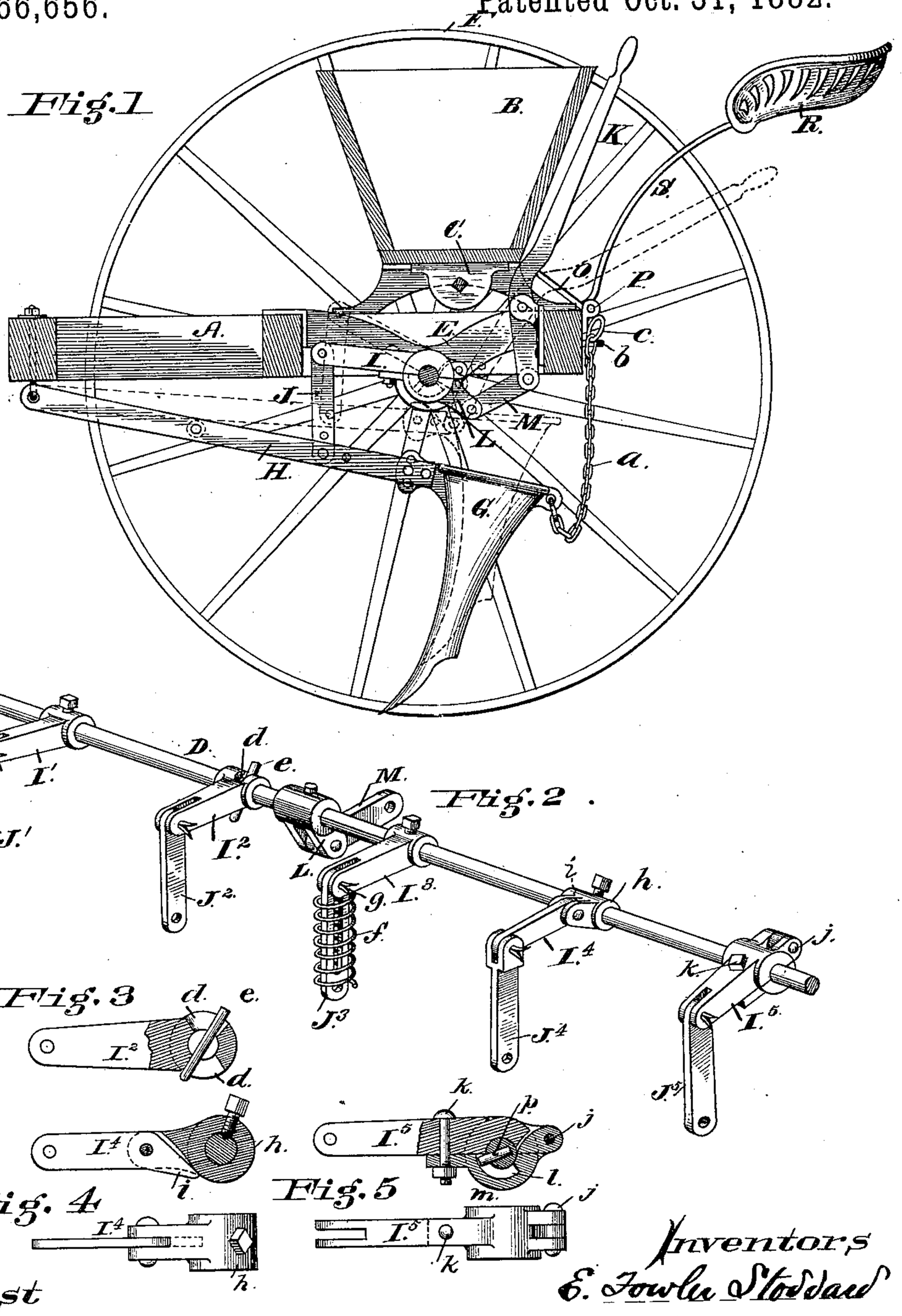

Fig. 2.

Fig. 3

Fig. 4

Fig. 5

Attest

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(No Model.) 2 Sheets—Sheet 2.

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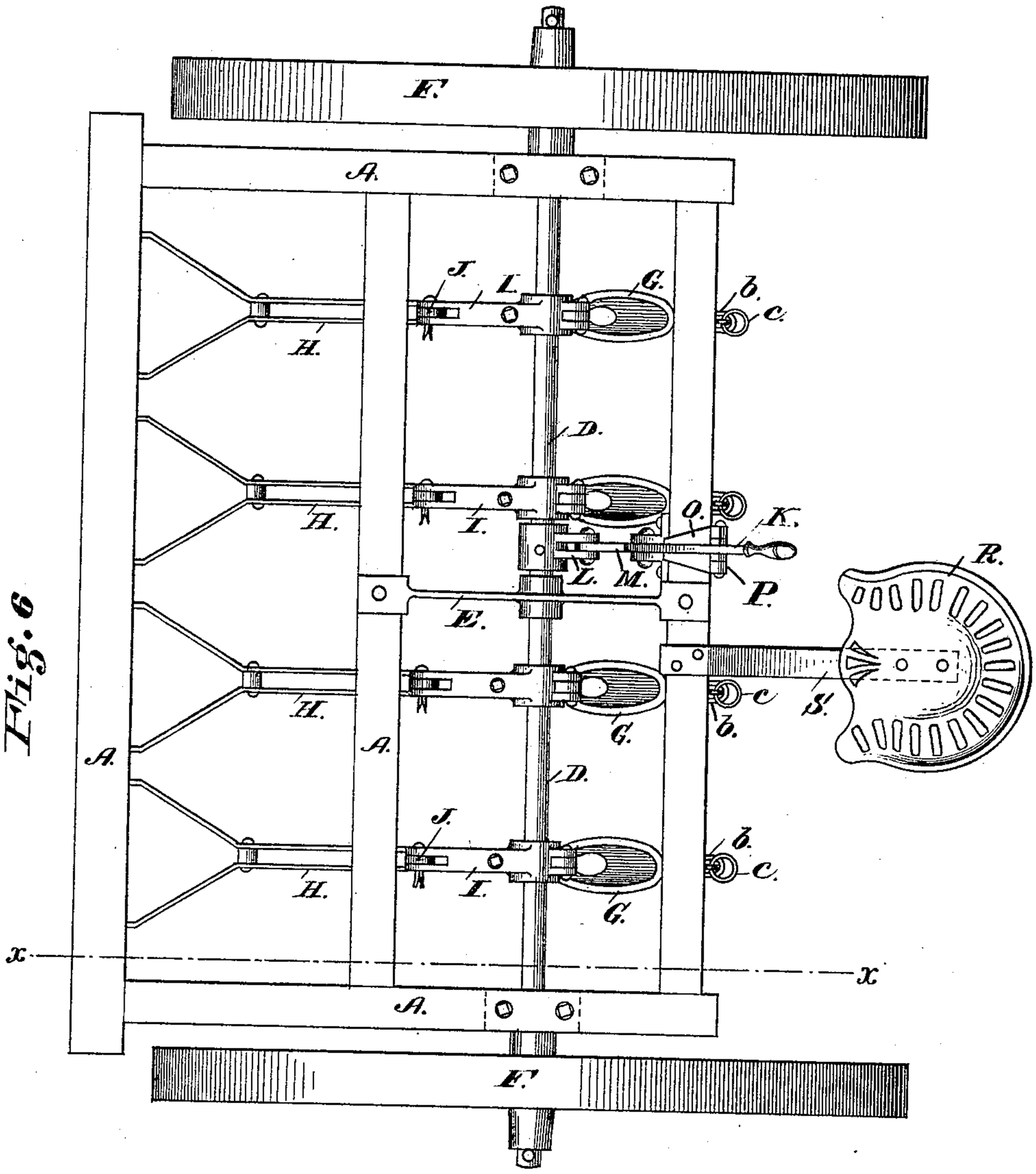

Fig. 6

Witnesses

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UNITED STATES PATENT OFFICE.

E. FOWLER STODDARD AND WILLIAM H. NAUMAN, OF DAYTON, OHIO.

SEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,656, dated October 31, 1882.

Application filed February 23, 1882. (No model.)

To all whom it may concern:

Be it known that we, E. FOWLER STODDARD and WILLIAM H. NAUMAN, citizens of the United States, and residing at Dayton, Montgomery county, Ohio, have invented certain new and useful Improvements in Seeding-Machines, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in seeding-machines of any class which employ tubes or hoes for conducting the grain to the ground, or cultivators for covering the grain with earth when sown broadcast upon the ground, and in which it is desirable to raise or lower the tubes or hoes or cultivators, either separately or collectively.

The essential novelty of our invention consists in the combination, in a seeding-machine, of the following instrumentalities, to wit: a hopper for containing the material to be sown, a through-shaft or axle journaled under said hopper, and upon which the carriage-wheels revolve, the hoes supported by pivoted drag-bars, with connecting mechanism, whereby upon oscillating the axle or through-shaft the hoes are simultaneously raised or lowered, and this aside from the construction of the devices entering into the combination.

The novelty also consists in the construction, arrangement, and combination of the parts, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1, Sheet 1, is a side elevation of a seeding-machine in section through the line X X of Fig. 6, Sheet 2. Fig. 2, Sheet 1, is a perspective view of a portion of the axle with lifting-arms and links attached. Figs. 3, 4, 5, Sheet 1, are respective elevations and plans of the lifting-arms partly in section, and showing modifications in the construction. Fig. 6, Sheet 2, is a plan view of the machine with the hopper removed.

The frame-work and general structure of the machine, with its hopper and feeding mechanism, may be of the ordinary or any desired construction. In this instance A is the frame of the machine, B the hopper, and C the seed-cups.

D is the axle—a metal bar—preferably round in cross-section, though it might be square or polygonal, so long as the bearing portions were round, secured by journals to the frame and supported against flexure by one or more bracket-journals, E, secured to the cross-beams of the frame, as seen in Fig. 6.

F F are the usual supporting-wheels revolving loose upon the ends of the axle D.

The hoes G are attached, in the usual or any suitable manner, to the rear ends of the customary drag-bars, H, whose forward ends may be permanently connected to the frame, as indicated in this instance, or may be so connected to one or more shifting rails or devices as to enable the hoes to be shifted from a straight to a zigzag rank, or vice versa. The usual conducting-tubes (not here shown) are employed to convey the grain or material to be sown from the feed-cups to the hoes or scattering-tubes when the grain is sown broadcast upon the ground.

As is well known, it is desirable often to raise the hoes from the ground, either collectively or separately, for the purpose of transporting the machine from place to place, of freeing the hoes of accumulated rubbish, and to avoid obstacles, such as stumps or stones. Hitherto this has been done by connecting the rear ends of the hoes by chains to revolving or rolling lifting-bars, usually in the rear of the machine, so that by revolving said bars the chains would be wound up and the hoes thereby lifted. We propose to accomplish this result in a simpler, better, and more labor-saving manner. To this end we therefore secure to the axle D of the machine forwardly-projecting arms I, Figs. 1 and 6, one over each drag-bar, whose outer extremities are connected to their corresponding drag-bars by links J. Now, it will be readily understood that by oscillating the axle D the arms I will be swung through the arc of a circle, and the drag-bars, with their hoes attached, thus be raised or lowered, as the case may be.

We do not propose to limit ourselves to the construction of the devices which may be employed to oscillate the axle, as a variety of devices which would be readily suggested to a skilled mechanic when the problem was put before him could be used; but perhaps the simplest device for the purpose is that which we have illustrated, and which can be described as follows: Pivoted to lugs or bearing-ears upon the rear bar of the frame is a hand-lever, K, extending up along the rear side of the hopper. A rearwardly-projecting arm, L, secured to the axle, is connected to the lower end of the lever K by a link, M, the arrangement

of parts being such that when the upper end of the lever is drawn back the link M will push the arm L down and forward, thus oscillating the axle and causing the elevation of the hoes, as shown by the dotted lines in Fig. 1.

To lock the axle so that it cannot oscillate it is only necessary to prevent the lever K from moving forward or backward, and this may be accomplished by a number of well-known simple devices. We employ a prop-plate, O, which is hinged in a bracket-plate, P, secured to the rear frame-beam. With this prop-plate the lever K may be locked in an upright position, and the axle thereby locked so that it cannot oscillate, and thereby raise the hoes or cultivators from the ground.

In the use of some forms of the arms I and connecting-links J it may be an advantage to hold or lock the axle in other positions than when at its extreme limit of oscillation, as done by the prop-plate O. This may be accomplished by locking the lever K at various points or positions in its throw by any of the well-known devices used for this purpose upon levers of similar devices. For the convenience of the driver and operator we have mounted a seat, R, upon a suitable standard, S, secured to the frame in any convenient manner, so that sitting in the seat he may drive the horses, have control of the lever K to raise or lower the hoes, and see that the feed mechanism is working properly.

To raise any of the hoes separately we have attached chains *a* to lugs on the hoes, which chains extend up through staples *b* in the rear beam, and are supported by rings *c* to prevent their slipping through. Now, the driver in his seat can reach down, and by grasping any of the rings can raise any of the hoes to avoid an obstacle.

Various modifications in the construction of the links J and modes of attachment of the arms I can be employed to enable the hoes to be raised separately without raising the whole series. Some of these we have represented in Figs. 2, 3, 4, and 5, Sheet 1, where I represents the arm rigidly secured to the axle D by means of a set-screw, and the connection in the drag-bar is effected by a chain, J′. I^2 represents an arm whose sleeve encompassing the axle is slotted above and below, as at *d*, Fig. 3, and is held by a pin, *e*, inserted through the axle. This arrangement permits a vertical play of the arm on the axle, limited by the length of the slots *d*. In this instance the link J^2 is a rigid bar. The arm I^3 is rigidly secured to the axle, like the arm I′, and to permit the vertical play of the drag-bar and hoe the link J^3 is slotted longitudinally, with its pivotal pin *g* passing through this slot. In this construction a spiral spring, *f*, may encircle the link to hold the drag-bar down yieldingly for the purpose of pressing the hoes or cultivators into the ground when their own weight is not sufficient to hold them down to the proper depth. As already stated, the axle may be locked at various points in its oscillation, and thereby the arm J^3 held in various positions nearer to and farther from the ground, as desired, and thereby the pressure to force the hoes or cultivators into the ground varied at the will of the operator. I^4 represents the arm pivoted between ears projecting from its sleeve *h*, which is rigidly fastened to the axle, and a rear extension, *i*, of the arm, Fig. 4, forms a knuckle-joint which limits the downward movement of the arm. In this instance the link J^4 is rigid. The arm I^5, which is the one we prefer, has its sleeve in two parts hinged together in the rear, as at *j*, (see also Fig. 5,) and clamped over the axle by a bolt, *k*. A slot, *l*, in the lower portion, *m*, of the sleeve serves as a guide for the projecting end of a pin, *p*, which is inserted into the axle, as clearly seen in Fig. 5. By this arrangement the arm can be readily attached or detached without disturbing the other arms, and the slot limits the play of the arm on the axle. The link J^5 in this case is rigid.

In all the above modifications it will be seen that any one of the hoes and drag-bars can be raised without raising or disturbing the others.

As before stated, we do not propose to limit ourselves to the devices employed; but,

Having thus fully described our invention, we claim—

1. In a seeding-machine, the combination, with the hopper, the hoes, and drag-bars and connecting mechanism, of an oscillating axle, whereby upon oscillating the axle the hoes are raised or lowered simultaneously.

2. In a seeding-machine, the combination, with the hopper, the hoes, and drag-bars, of an oscillating axle upon which the supporting-wheels revolve, and connecting mechanism, whereby upon oscillating the axle the hoes are simultaneously raised or lowered, and whereby any hoe can be raised independently of the others.

3. In a seeding-machine, the combination, with the hopper, the hoes, and drag-bars, and an oscillating axle connected to the drag-bars by lifting-arms and links, of means whereby said axle may be oscillated to raise or lower the hoes.

4. In a seeding-machine provided with the hopper and an oscillating axle upon which the supporting-wheels revolve, and by the oscillation of which axle the hoes are raised and lowered, the combination, with said axle, of a lever and connecting-links, whereby said axle is oscillated for the purpose described.

5. In a seeding-machine provided with an oscillating lifting-axle, the lifting-arms I and links J, or their equivalents, substantially as described.

6. The construction of the lifting-arm I^5 with hinged and clamped sleeve, one portion of which is slotted to receive the end of a pin projecting from the axle, substantially as described.

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