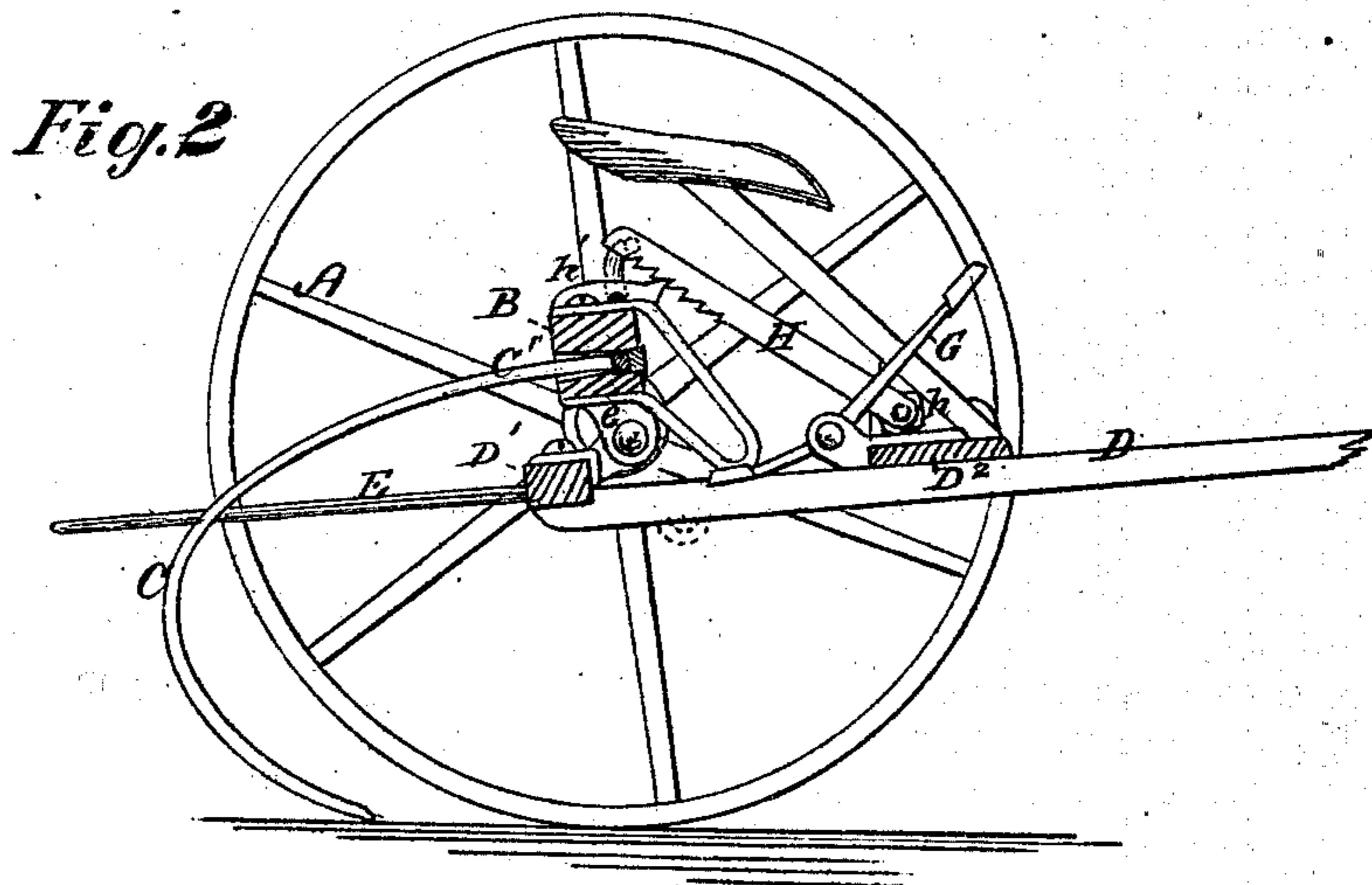
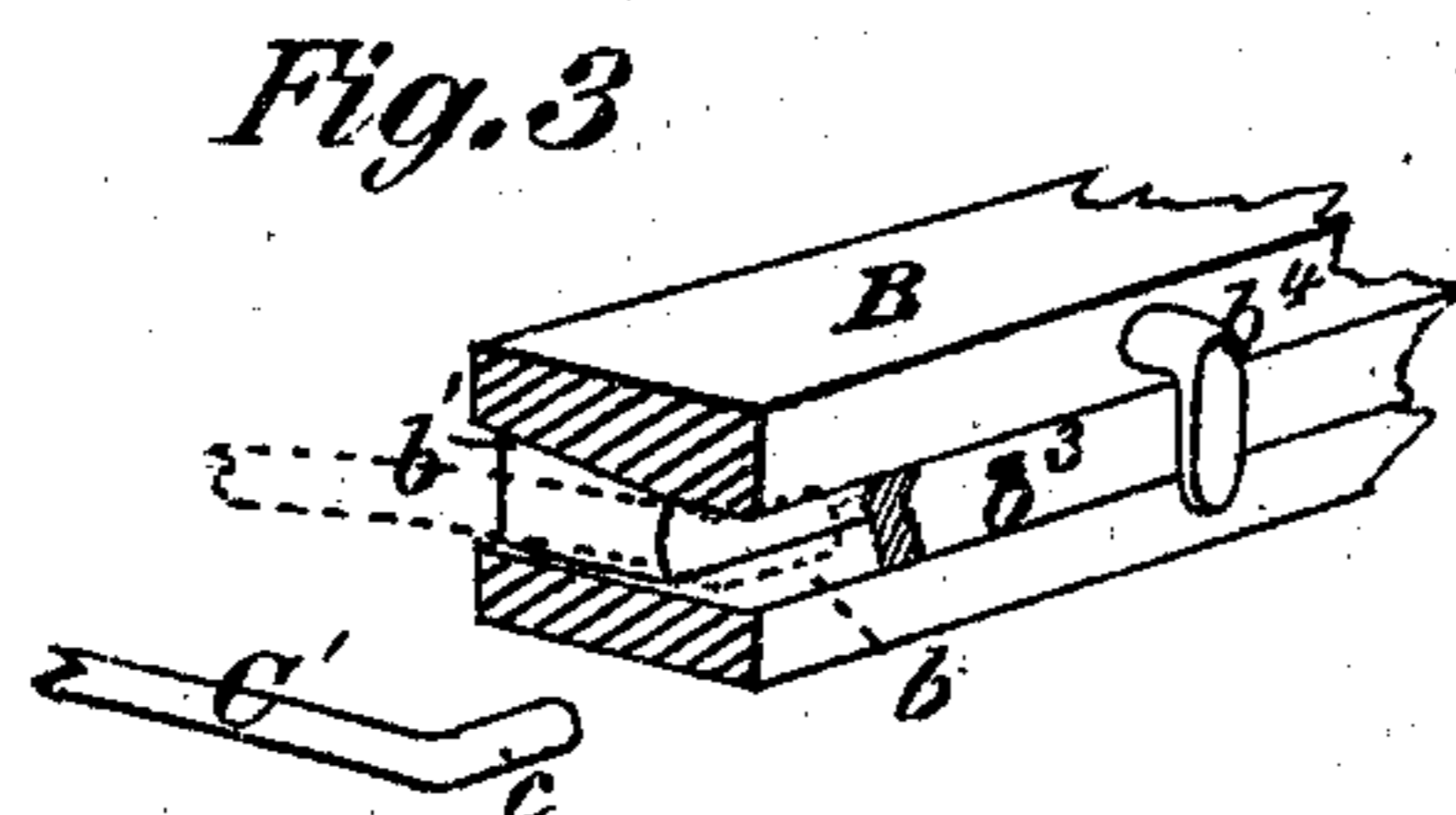
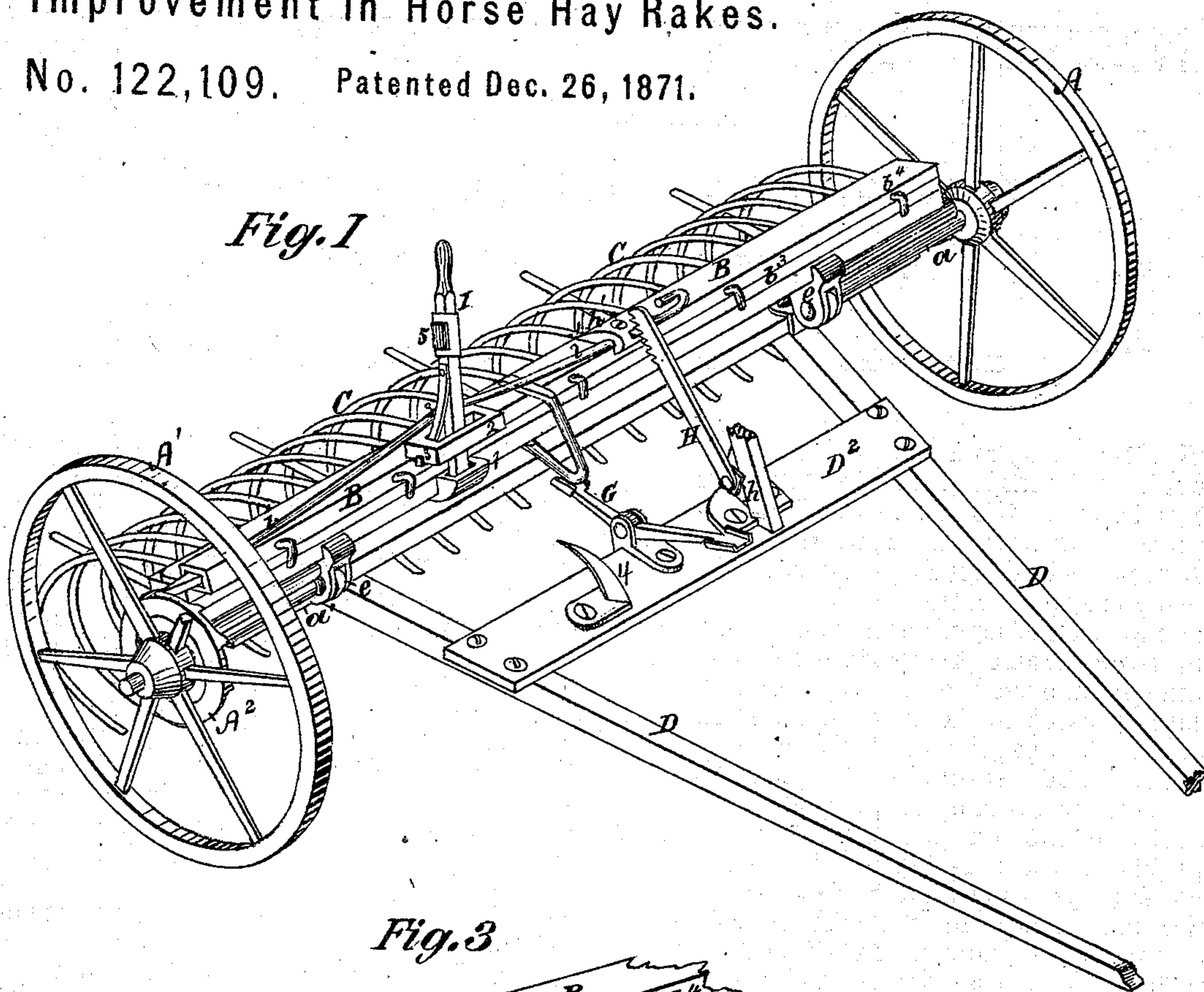


(77.) JAMES COMLY.

Improvement in Horse Hay Rakes.

No. 122,109. Patented Dec. 26, 1871.



Witnesses:-
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UNITED STATES PATENT OFFICE.

JAMES COMLY, OF YORK, PENNSYLVANIA.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. 122,109, dated December 26, 1871.

To all whom it may concern:

Be it known that I, JAMES COMLY, of the borough and county of York, in the State of Pennsylvania, have invented certain new and useful Improvements in Horse Hay-Rakes, of which the following is a specification:

The first part of my invention consists in combining a draft-frame pivoted to the under side of the axle or rake-head, a laterally-moving swinging latch pivoted to the frame or rake-head, and a spur which engages with the latch and thereby regulates and insures the pressure of the rake-teeth upon the ground, as hereinafter set forth. The object of the next part of my invention is to adapt this automatic locking device to a machine which employs a mechanism operated upon by the driving-wheel to lift the rake-teeth from the ground in such manner that the two devices are never locked at the same time; and the improvement consists in combining a ratchet-ring on the driving-wheel, a rake-head, a locking-lever moving parallel with the axle, a sliding bolt, a swinging latch disconnected from but moved in one direction by the locking-bolt, and a draft-frame pivoted beneath the axle in such manner that the locking-lever serves to disconnect the latch and rake-head, when it connects the rake-head with the ratchet-wheel of the driving-wheel, as hereinafter set forth. My invention further consists in combining the lever which throws the rake in to or out of operation with a socket in which it works, a guide to keep it in place, and a spring which serves not only to retain the lever in its socket and guide, but to hold it out of gear with the ratchet-ring by which the rake is lifted.

In the accompanying drawing, Figure 1 is a perspective view of my improved machine; Fig. 2, a vertical transverse section thereof; and Fig. 3, a detail view, showing the mode of securing the teeth to the rake-head.

The wheels A A' turn on stud-axles *a a'* secured to a rake-head, B. A longitudinal groove, *b*, is formed in the front side of the rake-head, and a series of transverse slots, *b'*, extend through the rake-head. The rake-teeth C are bent horizontally at their upper ends, as at *c*, Fig. 3, their shanks C' passing through the transverse holes *b'* and their bent ends *c* resting snugly in the longitudinal groove of the rake-head. The slots *b'* flare vertically from the groove *b* to the rear side of the beam, so that the teeth are allowed a slight

vertical movement in their sockets independently of each other, but are supported against lateral strains. A bar, *b³*, fits snugly in the longitudinal groove *b* of the rake-head, and is held in place by suitable stops or buttons, *b⁴*, by which mode of construction the teeth can readily be removed or replaced, and yet are securely fastened in place. The draft-frame is composed of two shafts, D D, united in rear of the rake-head by a cross-brace, D¹, and in front by a similar brace, D². This frame is pivoted to the lugs *e* on the under side of the rake-head eccentrically to the axis of the wheels. Cleaning-teeth E are secured to and project backward from the rear brace of the draft-frame. A foot-lever, G, may be used to regulate the pressure of the teeth upon the ground when the locking-latch, hereinafter described, is not employed. The latch H, in this instance, is formed with ratchet-teeth on the under side of its upper end, and is pivoted at its lower end to the draft-frame by a joint, *h*, having a rubber washer on the pivot of the latch between the latch and its support, so as to allow the latch to yield laterally to release it from its stud to permit the teeth to rise. This stud or spur-plate *h'* on the rake-head engages with the ratchet-teeth of the latch, and thus serves to lock the draft-frame and rake-head together, when desired, to keep the rake-teeth down to their work. The latch might be made like a pawl and engage with a ratchet-plate on the rake-head; or the pawl might be on the rake-head and the ratchet on the draft-frame. A toothed ratchet-ring, A², is secured to the driving-wheel A¹ in a suitable manner. A locking-lever, I, rests loosely in a socket, 1, on the rake-head and plays parallel with the front side thereof in a guide, 2. A spring, 3, on this lever embraces one side of this guide and serves to hold the lever in its socket, as well as to hold it out of gear with the lifting-ratchet. A sliding bolt, *i*, pivoted to this lever, serves to lock the rake-head and ratchet together when the rake is to be lifted. A similar sliding link, *i'*, serves to disconnect the locking-pawl from the stud-plate by moving the latch H laterally as the locking-bolt *i* is thrown into gear.

In operation the rake-teeth, while supported laterally by the walls of the slots through which they pass, are free to play vertically, independently each of the other, within certain limits. The locking-latch holds the teeth down upon the

ground. To lift the teeth the driver shifts the lever I so as to lock the rake-head and ratchet-wheel together, at the same time disconnecting the locking-latch H by pressing it sidewise. The teeth are then lifted by the ratchet-wheel A² and their load dropped. As the load is discharged the lever strikes an incline, 4, on the draft-frame, which retracts said lever and throws the ratchet-wheel out of gear, thus allowing the rake to drop by its own weight, and the operation above described is repeated. As the rake drops the latch H locks the rake-head and draft-frame together. A roller, 5, is used on the lever to run on the incline 4 and diminish friction.

I do not broadly claim automatically lifting the rake-teeth, nor every mode of holding down the rake-teeth.

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

1. The combination of the swinging draft-frame, the oscillating rake-head, and the sliding locking-bolt with the swinging laterally-yielding latch dis-

connected from but released by the locking-bolt, substantially as hereinbefore described.

2. The combination of the driving-wheel, the ratchet-ring thereon, the oscillating rake-head, the locking-lever moving parallel with the axle, the sliding bolt, the laterally-yielding swinging-latch moved by the locking-bolt, and the pivoted draft-frame, all these members being constructed and operating substantially as described, so that the locking-lever serves to disconnect the latch and rake-head at the same time—that is, connects the rake-head and toothed ring of the driving-wheel.

3. The combination of the locking-lever, its socket, guide, and retaining-spring, all constructed and operating as and for the purpose described.

In testimony whereof I have hereunto subscribed my name.

JAMES COMLY.

Witnesses:

GEO. A. HECKERT,
E. H. WEISER.

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