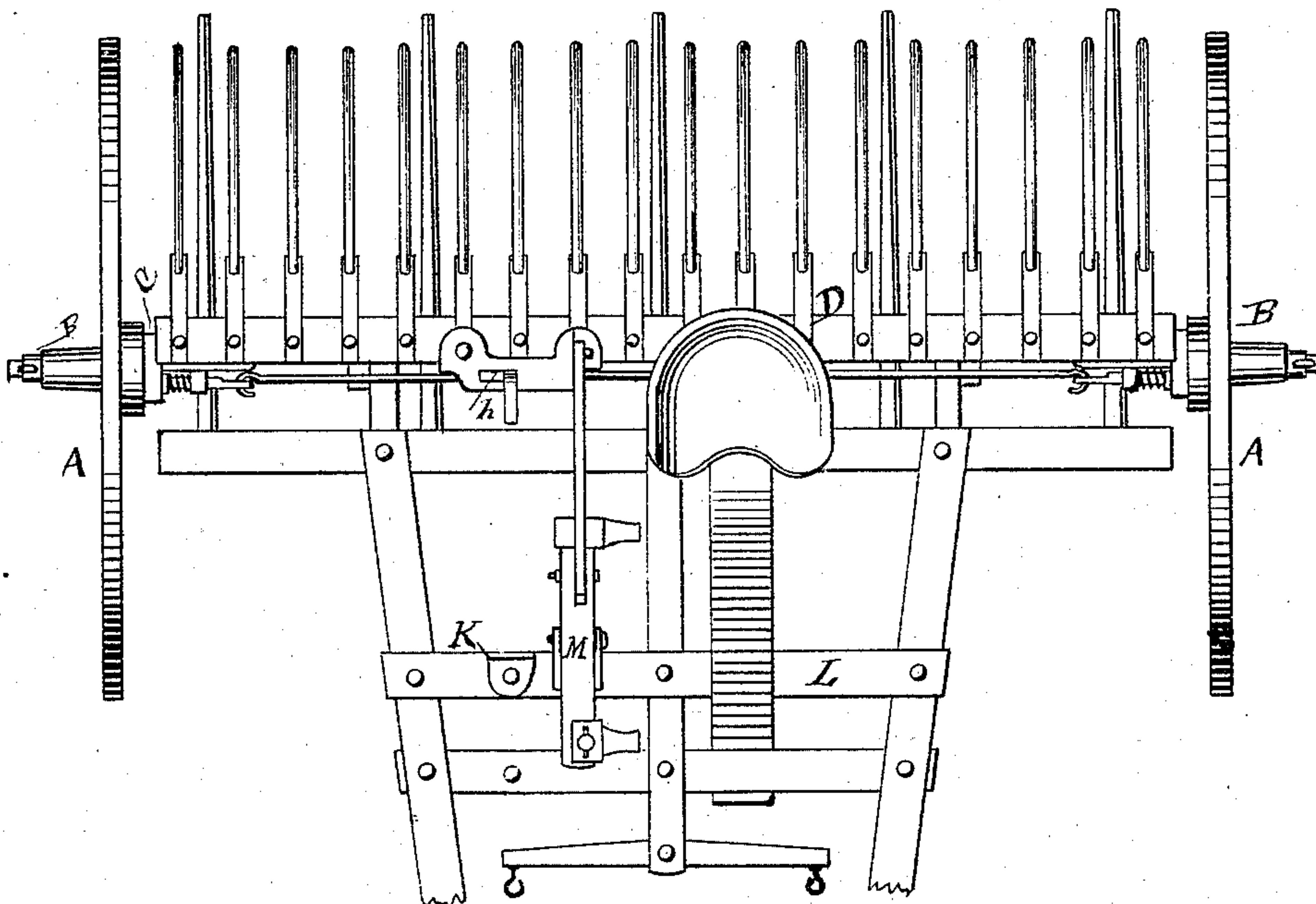


**C. C. BRADLEY.**  
**Horse Hay-Rakes.**

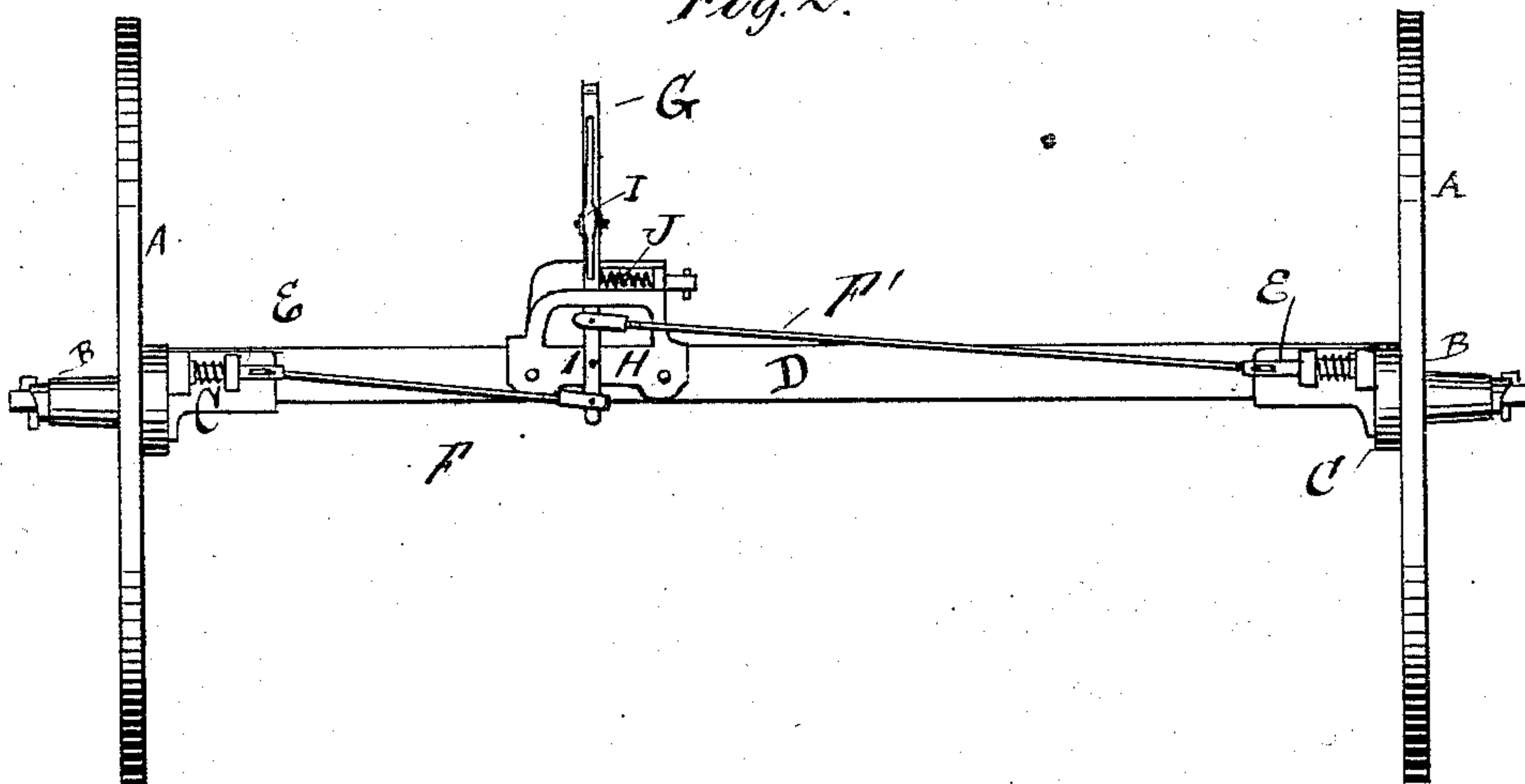
No. 152,893.

Patented July 14, 1874.

*Fig. 1.*



*Fig. 2.*



Witnesses:

John, C. Butterfield  
J. C. Clayton

Inventor:

Christopher C. Bradley

C. C. BRADLEY.  
Horse Hay-Rakes.

No. 152,893.

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Fig. 3.

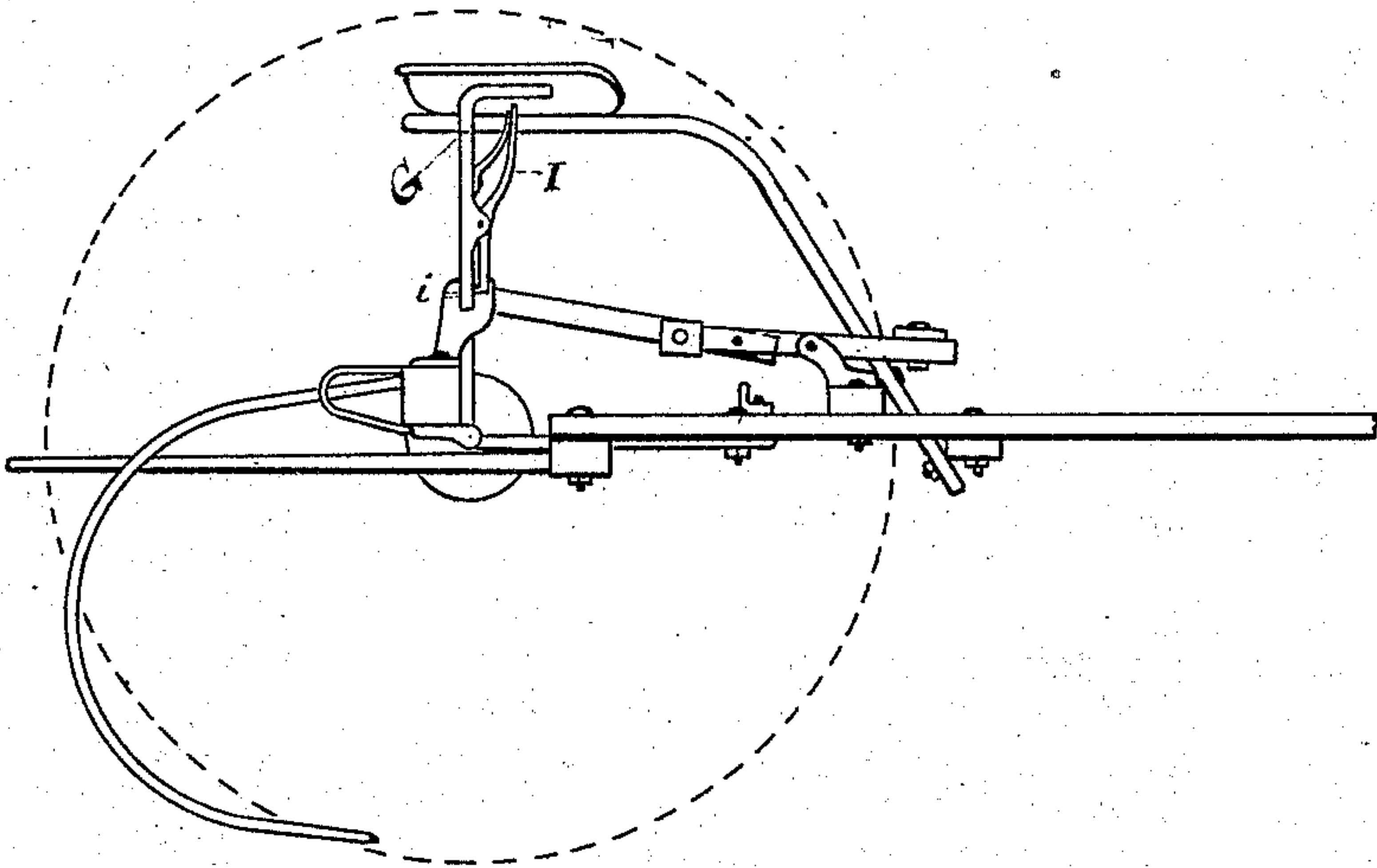


Fig. 5.

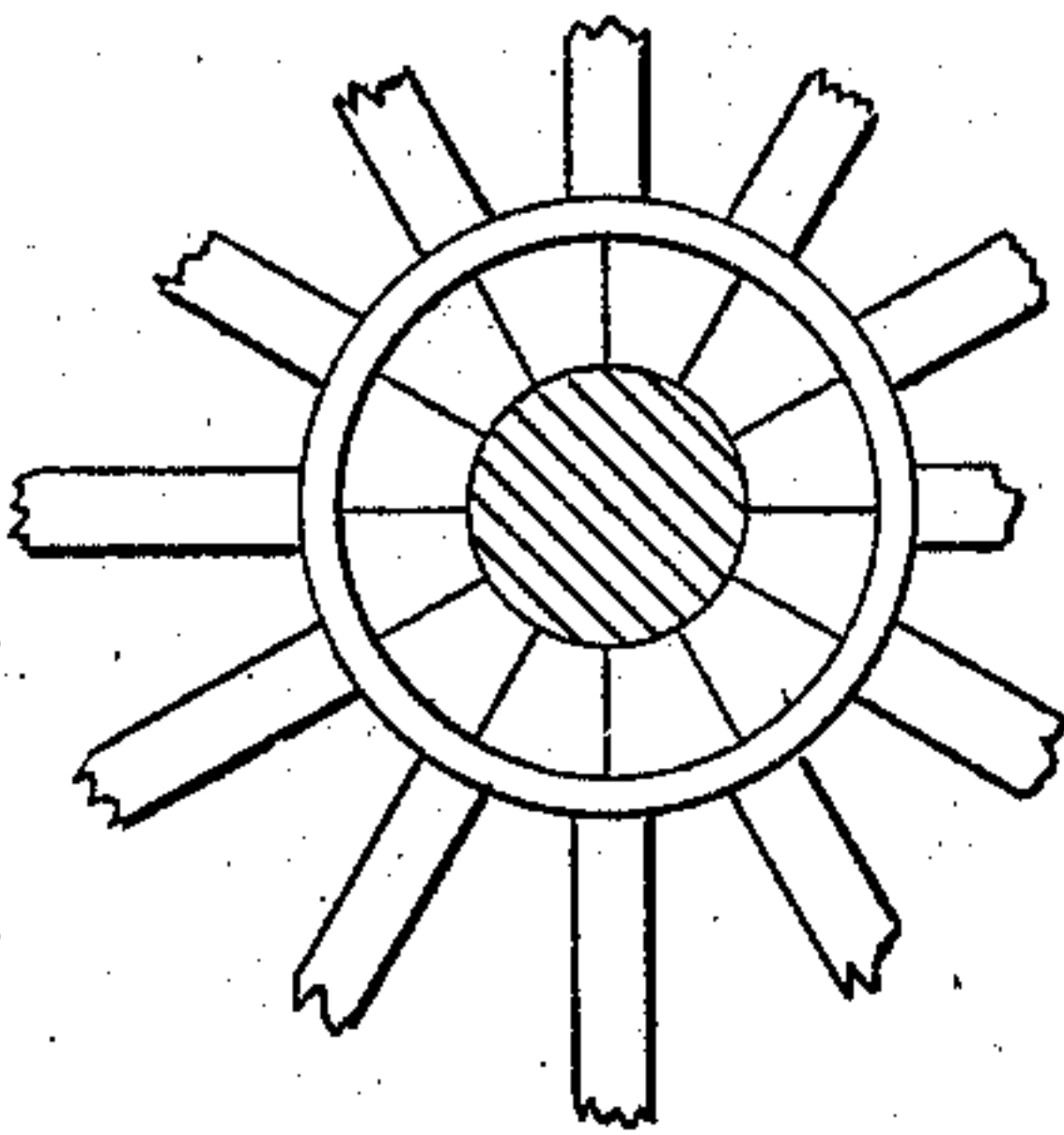
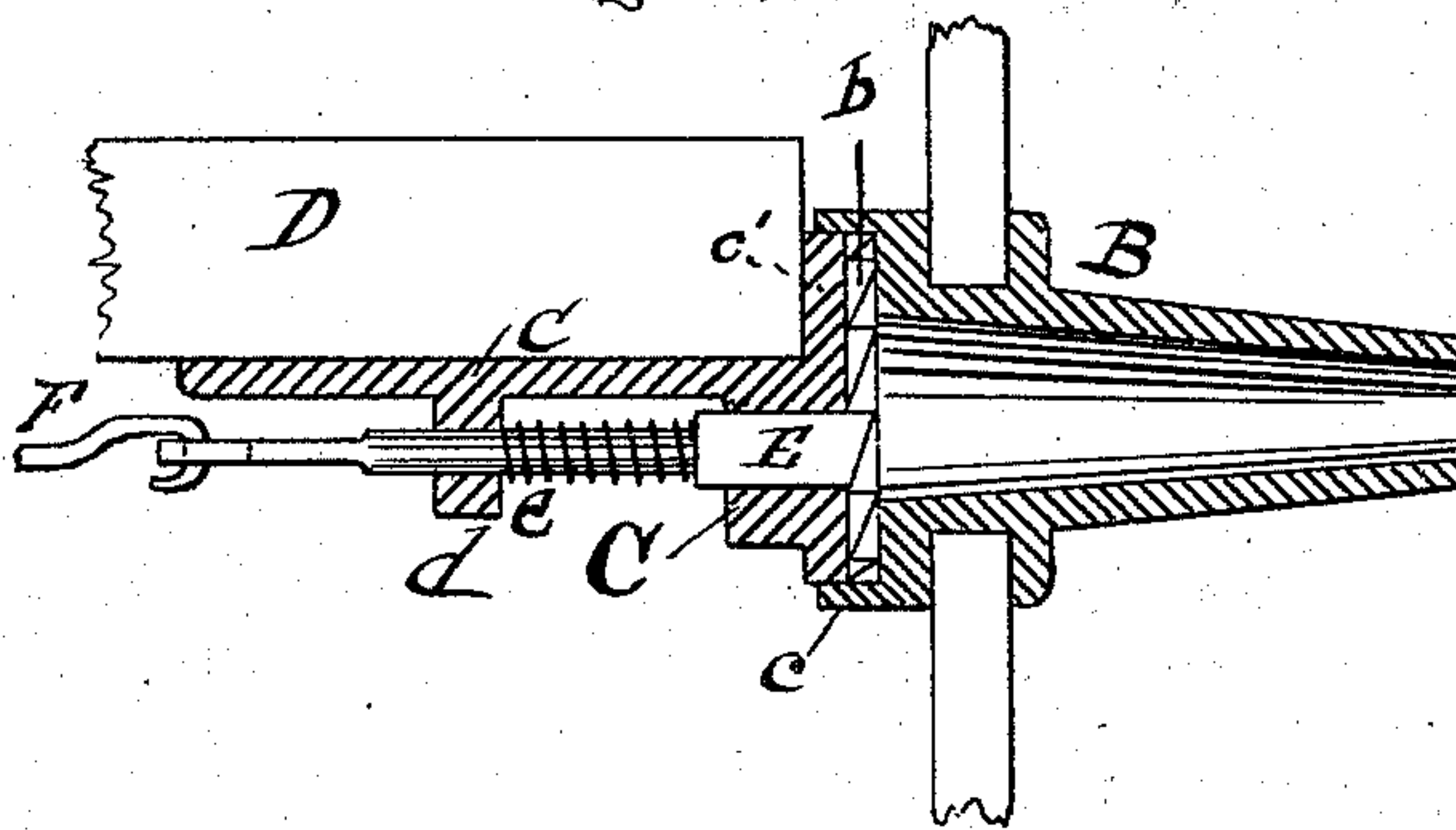


Fig. 4.



Witnesses.

John C. Butterfield

J. C. Clayton

Inventor.

Christopher C. Bradley



# UNITED STATES PATENT OFFICE.

CHRISTOPHER C. BRADLEY, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **152,893**, dated July 14, 1874; application filed June 16, 1874.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER C. BRADLEY, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Horse-Rakes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings forming a part of this specification.

Similar letters refer to like parts in the several figures.

Figure 1 is a plan view. Fig. 2 is a detail, showing the sliding dogs and the devices for operating them. Fig. 3 is a detail, showing, by end view, the tooth-bar or axle, the draft-frame, and the tilting-levers. Fig. 4 is a vertical section, showing the hub of the main wheels, the axle-arm and seat, with the projecting disk, and the sliding dog. Fig. 5 is a face view of the hub, showing its ratchets.

My invention has for its object the improved efficiency of horse-rakes; and consists in the construction and combination of parts, whereby the ratchet-teeth on the face of the hubs are effectually protected from dust, &c.; also, in the manner of arranging the levers for engaging and disengaging the main wheels, as hereinafter set forth.

A represents the main wheels; B, the cast hubs, provided at their face with ratchet-teeth *b* and protecting-rim *c*. (See Figs. 4 and 5.) C is a cast or wrought metal combined axle-arm and seat, the arm or spindle passing through hub B, while the seat receives and is secured to the end of the tooth-bar D, so that the tooth-bar shall be eccentric to the axis of the wheels. At the under side of the piece C are the staples or lugs *d*, in which the sliding dogs move and engage the ratchet-teeth *b*. There is also formed upon the seat C a disk, *c'*, at the base of the axle-arm, and concentric therewith. This disk fits within the rim *c* when the wheel is in position, and, while permitting the free operation of the sliding dogs, serves to inclose the ratchet-teeth and protect them from obstructing matter. The dogs E are slotted at the point of connection with rods F F', allowing a slight play of the dogs in case the machine is backed when in the locked position, the spiral springs *e* serving to keep the dogs in bite with the ratchet.

It will be seen, from the foregoing, that the position of the ratchet-teeth *b* in relation to the hubs B, seat C, disk *c'*, and protecting-rim *c*, secures them from entrance of dust or other clogging substances, and yet the dogs E can readily and promptly engage or disengage with them. (See Fig. 4.) It is obvious that this mode of inclosing the ratchet-teeth from obstructing matter might be adapted to rakes where the tooth-head and main axle are not placed eccentrically to each other.

F F' are the connecting-rods between the inner ends of the dogs E and the hand-lever G. H is a yoke attached to the tooth-bar D, and having a recess, *h*, in which hand-lever G has play. The hand-lever G passes through recess *h*, and is pivoted to the yoke at 1, and at equal distances above and below this pivot the ends of connecting-rods F F' are pivoted to the hand-lever. I is a spring-lever pivoted to the front of hand-lever G, and when the wheels and the tooth-bar are in the locked position the lever G stands vertically, so that the lower end of the spring-lever I catches into a hole, *i*, in the yoke, and locks in this position. J is a spiral spring in the recess in the yoke, operating against the lever G, so that when it is disengaged its action upon the lever G shall serve to disengage the dogs from the ratchets, and allow the wheels to revolve without lifting the teeth. K is a stop on the main frame, against which the spring-lever I strikes at the instant when the teeth have been lifted to their highest point and are ready to drop the load. L represents the draft-frame; M, the lifting foot-lever.

In using my rake in its normal position, the wheels turn freely on the axle, the dogs E being disengaged from the hubs. When the driver sees that a proper load is on the teeth he pulls the hand-lever G toward him until by means of its spring-lever it is locked. This operates the connecting-rods F F', so that the dogs E engage with the ratchets of the hubs, thus locking the wheels and the tooth-axle together. In this position, as the horse moves and the wheels turn on the ground, the teeth are lifted and turned up until they make about a quarter-turn and dump the load. At this instant the end of the spring-lever descends and strikes against the stop K. When this takes place,



the opposite end of the lever is disengaged from the lock-hole *i*, and the spring *J* forces it to one side, so as to disengage the dogs from the wheels and leave them in the unlocked position. At the instant this is done, the teeth fall back again into the raking position. The tooth-bar being arranged eccentrically, it falls quicker than it would if arranged concentrically.

The spring-lever *I*, pivoted in front of the hand-lever *G*, not only serves to lock the hand-lever in position, but acts also as a buffer to relieve the shock whenever the rake is lifted. If desired, the rake may be lifted by the operator pressing with his foot upon the lever *M*. In such cases the spring-lever *I* has a yielding contact with stop *K*, and by its rebound insures the quick return of the rake to its working position.

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

1. The hub *B*, provided with rim *c* and ratchet-teeth *b*, in combination with the combined arm and seat *C c'* and sliding dogs *E*, substantially in the manner and for the purposes set forth.

2. The combination of the ratchet-hubs *B*, sliding dogs *E*, connecting-rods *F F'*, spring hand-lever *G*, pivoted upon the rake-head, the slotted yoke *H*, attached to the rake-head, the spring locking-lever *I*, pivoted to the front of the hand-lever, and the stop *K* on the draft-frame, substantially as described.

In testimony that I claim the above-described improvements in horse-rakes I have hereunto signed my name this 15th day of June, 1874.

CHRISTOPHER C. BRADLEY.

Witnesses:

JOHN C. BUTTERFIELD,  
J. C. CLAYTON.