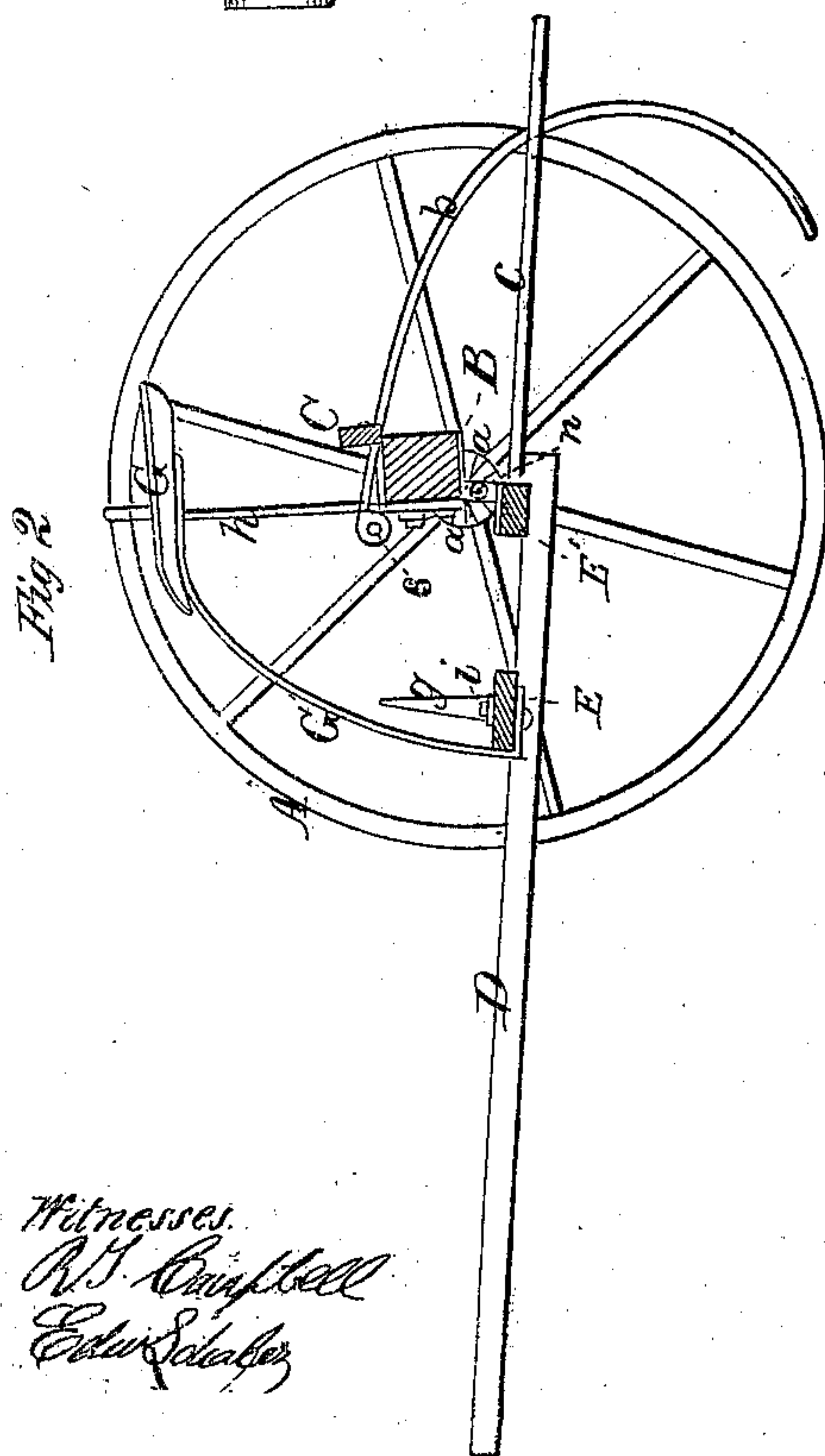
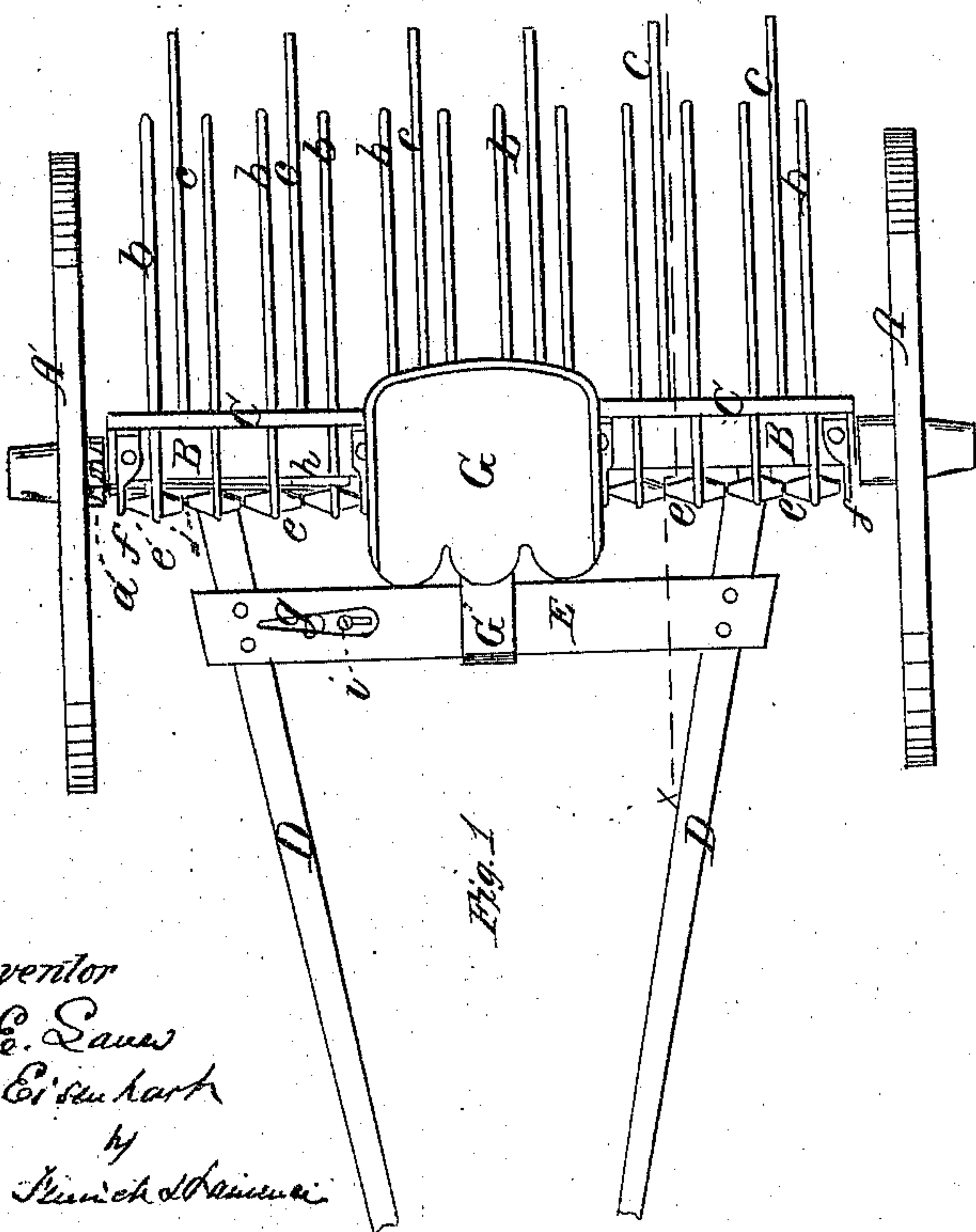
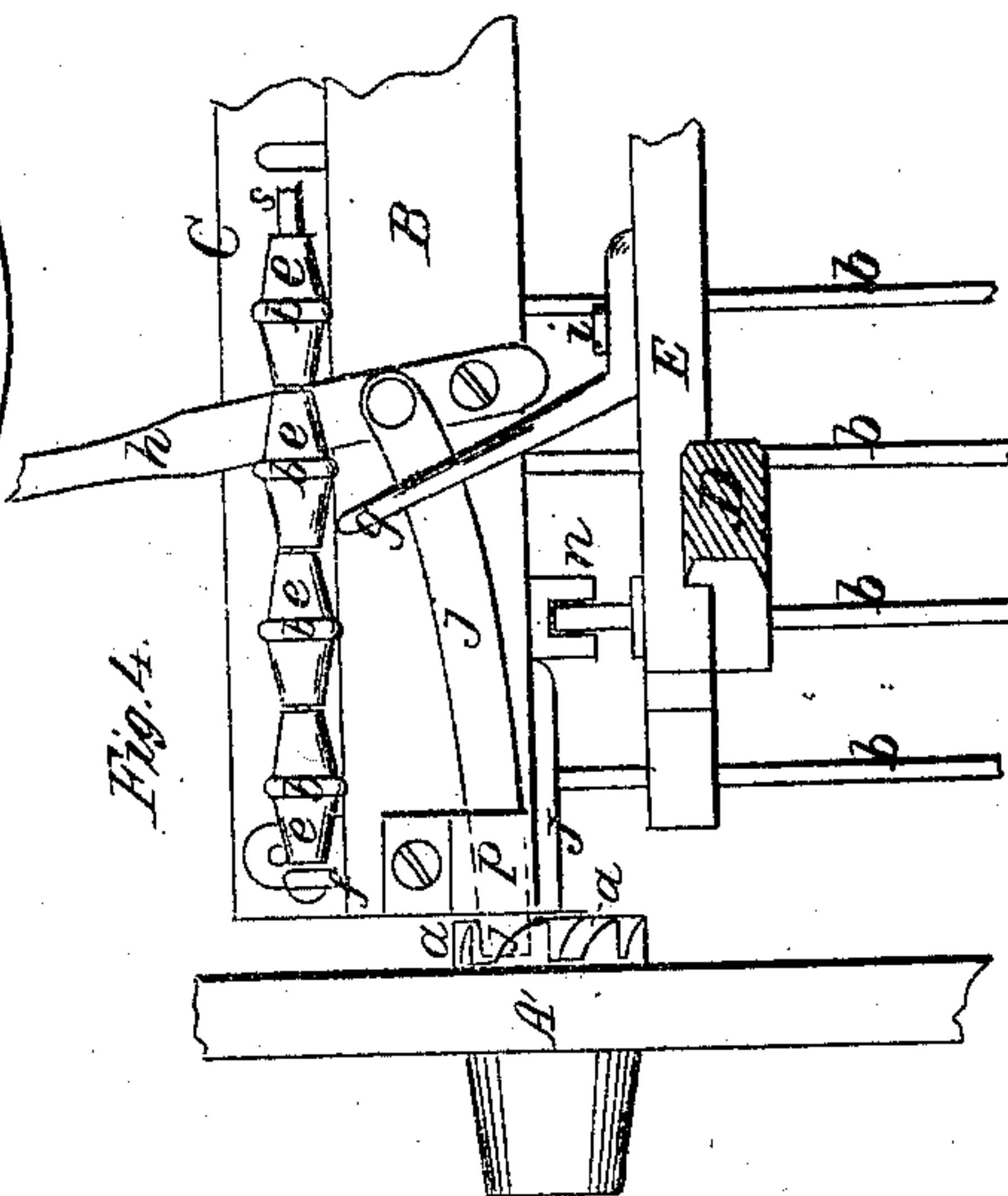
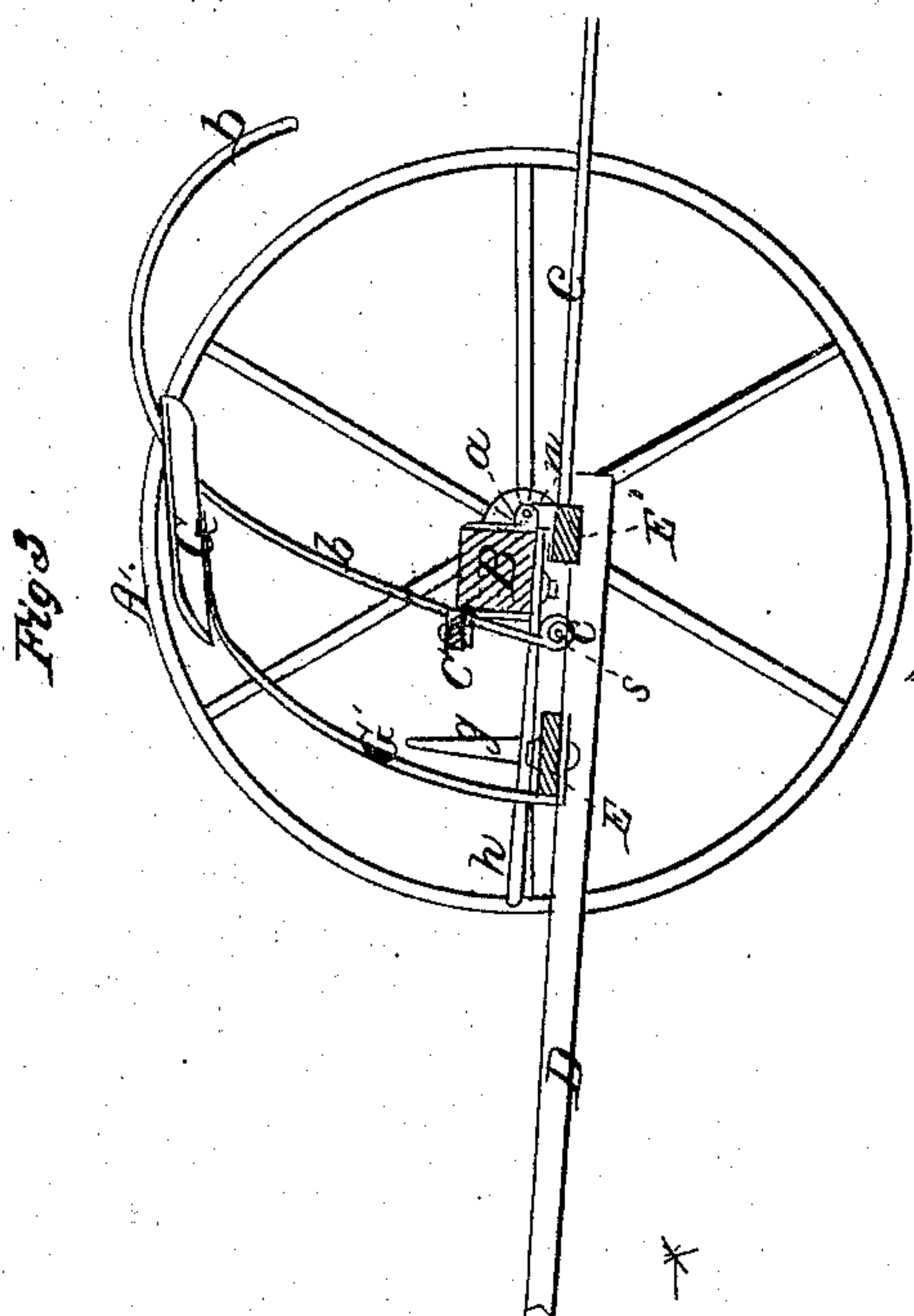


*Lauer & Eisenhart,
Horse Rake.*

No. 87345.

Patented Mar 2 1869.



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EDMUND E. LAUER AND HENRY W. EISENHART, OF YORK, PENN
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Letters Patent No. 87,345, dated March 2, 1869.

IMPROVEMENT IN HORSE-RAKES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we EDMUND E. LAUER and HENRY W. EISENHART, of York, in the county of York, and State of Pennsylvania, have invented certain new and useful Improvements in Horse Hay-Rakes; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the improved rake.

Figure 2 is a vertical longitudinal section, taken in the planes indicated by the course of red line *xx* in fig. 1.

Figure 3 is a similar view of the same parts shown in fig. 2, representing the rake-teeth thrown up to their full height.

Figure 4 is an enlarged front view of parts of the machine, showing the devices for throwing up the rake-teeth, and also for allowing them to fall back again into raking-position.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on that class of horse hay-rakes wherein the rake-teeth are pivoted to a head, or bar, which is mounted upon wheels, and provided with certain contrivances whereby a person riding upon the machine can cause the rakes to discharge their gathered load by the draught of the team, and then automatically return to a position for raking again.

The nature of our invention consists in so constructing a rake of the above-mentioned class, that the weight of the driver mounted upon the machine shall operate, to some extent, to keep the points of the rake-teeth down in raking-position, and also operate to return the rake to a raking-position, after every discharge of a gathered load, as will be hereinafter explained.

It also consists in applying pivoted spring-rake teeth, and the guides, or lateral stays for these teeth, upon an oscillating axle-tree of the transporting-wheels, and in applying to said axle-tree a lever-latch, by which a person mounted upon the machine can engage the axle-tree with teeth formed upon one of the transporting-wheels, and thereby cause the rake-teeth to discharge their load by the draught of the team, as will be hereinafter explained.

It also consists in applying the driver's seat or stand upon thills, which are hung by joints below an oscillating axle-tree of a horse-rake, which is constructed with independently-pivoted spring-metal rake-teeth, with lateral stays and guides for such teeth, and also with a device which will enable a person riding upon the machine, to effect the discharge of a gathered load, at pleasure, by the draught of the horse, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, *A A'* represent two transporting-wheels, which are applied upon short axles, *J*, which are secured rigidly to the bottom side of an axle-tree, *B*, so that this axle-tree is allowed to turn freely in the hubs of said wheels.

To the bottom side of this axle-tree, *B*, and at points, *n*, below the axis of motion thereof, the thills *D D* are hung, as shown in figs. 2, 3, and 4, so that a weight upon said thills, near the axle-tree, will have a tendency to keep it in the position shown in fig. 2.

Said jointed attachments are secured to a cross-bar, *E'*, of the thills, from which bar rods or teeth, *c*, project back, and form a fork, for clearing the rake-teeth of hay when said teeth are raised to discharge the gathered loads.

In front of the bar *E'*, and in front of the axle-tree *B*, is another cross-bar, *E*, which has secured to it the standard *G'* of the driver's seat *G*, which seat is arranged over or above the axle-tree, as shown in the drawings, figs. 1, 2, and 3.

On one side of said seat-standard, and secured to the bar *E*, by means of a set-screw, *i*, is a laterally-inclined shifting-arm, *g*, which is adjustable laterally, and designed to serve a purpose which will be further explained hereinafter.

On top of the axle-tree *B*, and securely bolted thereto, is a number of eye-bearings, *ff*, which extend forward, and serve as a support for the rod *s*, to which the elongated tubes *e*, carrying rake-teeth *b*, are applied.

These tubes *e* are made long enough to properly space the rake-teeth, and they are allowed to oscillate freely upon their rod *s*, so as to form pivots or joints for the rake-teeth.

The front ends of the teeth are shrunk around said tubes *e*, and thus rigidly secured to them, and these teeth extend back over the axle-tree, and pass through vertical slots, which are made through a piece, *O*, secured to the axle-tree, as shown in the drawings.

The rake-teeth are made of spring-metal, and are curved in any suitable manner for raking up scattered hay or grass. They extend down between the fork-teeth *c*, so that these latter teeth will clear them of loose hay, which might not otherwise be discharged.

The slotted bar *O* serves as a means for staying the teeth against lateral thrust, and allows any one or more of them to rise, independently of the others, sufficiently far to pass unobstructedly over objects which might be in their way.

On one side of the driver's seat *G*, and applied to the front side of the axle-tree *B*, is a laterally-vibrating hand-lever, *h*, to which a latch-rod, *j*, is pivoted.

This rod passes through a guard or guide-plate, *p*,

seen in fig. 4, and when the lever *h* is moved in the position shown in fig. 4, the outer extremity of this rod *j* will engage with teeth *a*, upon the hub of wheel *A'*.

When the axle-tree *B* is thus engaged with the wheel *A'*, the forward movement of the horse will cause the axle to turn with said wheel a sufficient distance to raise the rake-teeth *b* to the position shown in fig. 3, when the shifting-arm *g* will act upon lever *h*, and release the latch *j* from the teeth *a* of wheel *A'*, thereby allowing the rake and axle to fall back to the position shown in fig. 2, for gathering another load.

When the rake-teeth are in raking-position, the hand-lever *h* will be in a position alongside of the driver's seat, which is convenient to the hand of the driver, who can use this lever, when necessary, for pressing the points of the rake-teeth down to their work, and also for raising all the rake-teeth, should any one or more of them meet with an obstruction in their path.

The pivotal attachments *n*, of the thills *D*, being located below the axis-motion of the axle-tree *B*, as described, it will be seen that the weight of the driver will operate, to a certain extent, to keep these teeth down in raking-position. Such pivotal attachment will also allow the axle-tree, with its teeth, to turn forward, in the operation of discharging the loads of hay, as described.

Having described our invention,

What we claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the driver's seat *G* upon

thills, which are hinged to the bottom edge of the eccentric-oscillating axle-tree *B*, and the teeth *b*, upon independent bearings located forward of the axle, on a shaft which is supported by said axle, and the slotted guides *C*, on the rear upper edge of said axle, all for joint operation, substantially in the manner and for the purpose described.

2. The arrangement of the eccentric-oscillating axle-tree *B*, independently-pivoted teeth *b*, guides *C*, thills *D*, hinged at *n* to said axle, lever *h*, latch *j*, tripping or shifting-arm *g*, and the catches *a*, upon the transporting-wheel *A'*, substantially in the manner and for the purpose herein described.

3. The arrangement of the adjusting-arm *g*, thills *D*, joints *n*, and eccentric-oscillating axle-tree *B*, substantially in the manner and for the purpose described.

4. The arrangement of the fork-teeth, or rake-clearers, *c*, thills *D*, joints *n*, and eccentric-oscillating axle-tree *B*, substantially in the manner and for the purpose described.

5. The horse hay-rake, with its axle, its teeth, its thills, its seat, its guides, its clearers, and its discharging-devices, all constructed and combined substantially as described.

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H. W. EISENHART.

Witnesses:

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