

(No Model.)

3 Sheets—Sheet 1.

R. W. DIXON.
RAKE.

No. 386,301.

Patented July 17, 1888.

Fig. 1

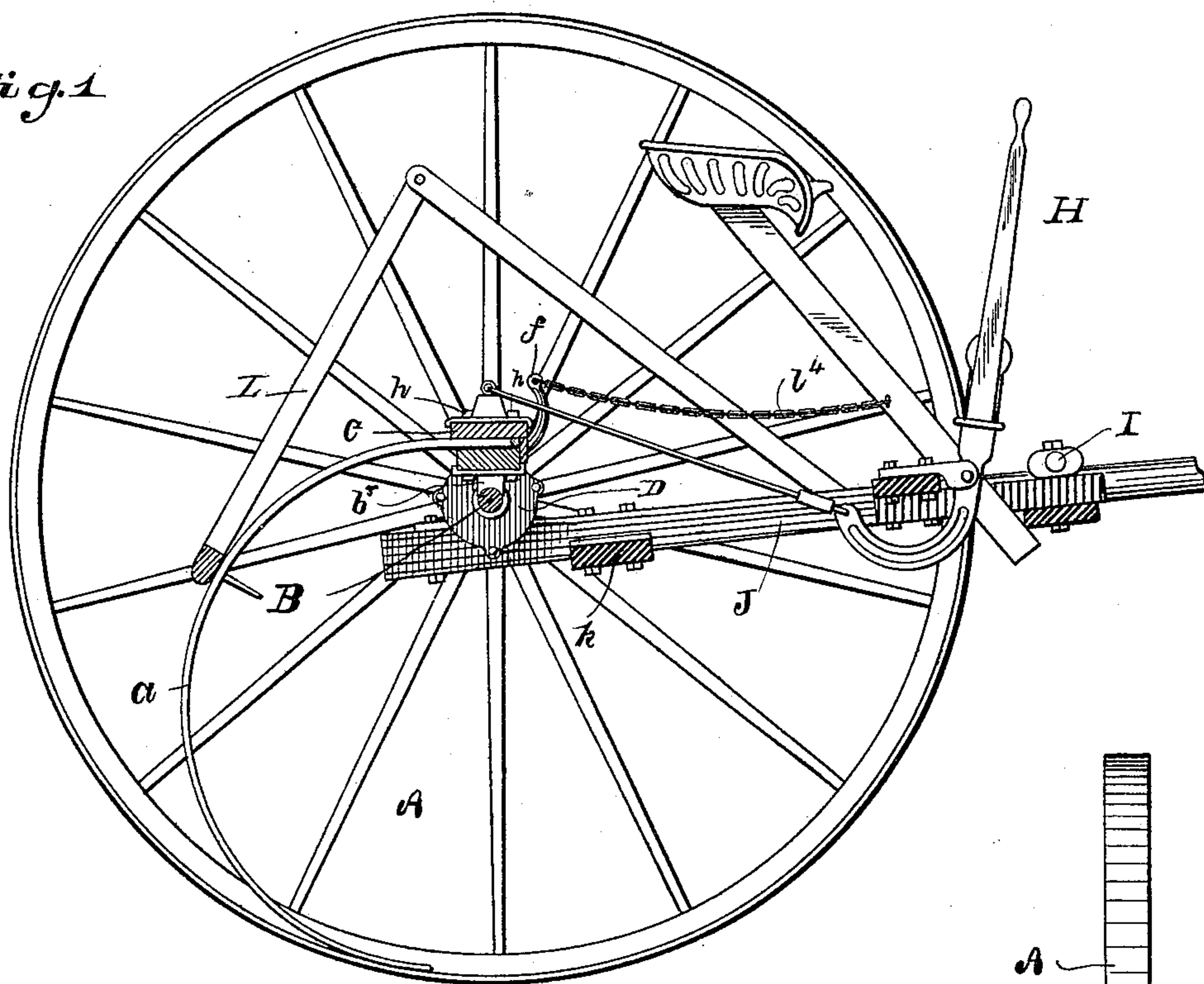
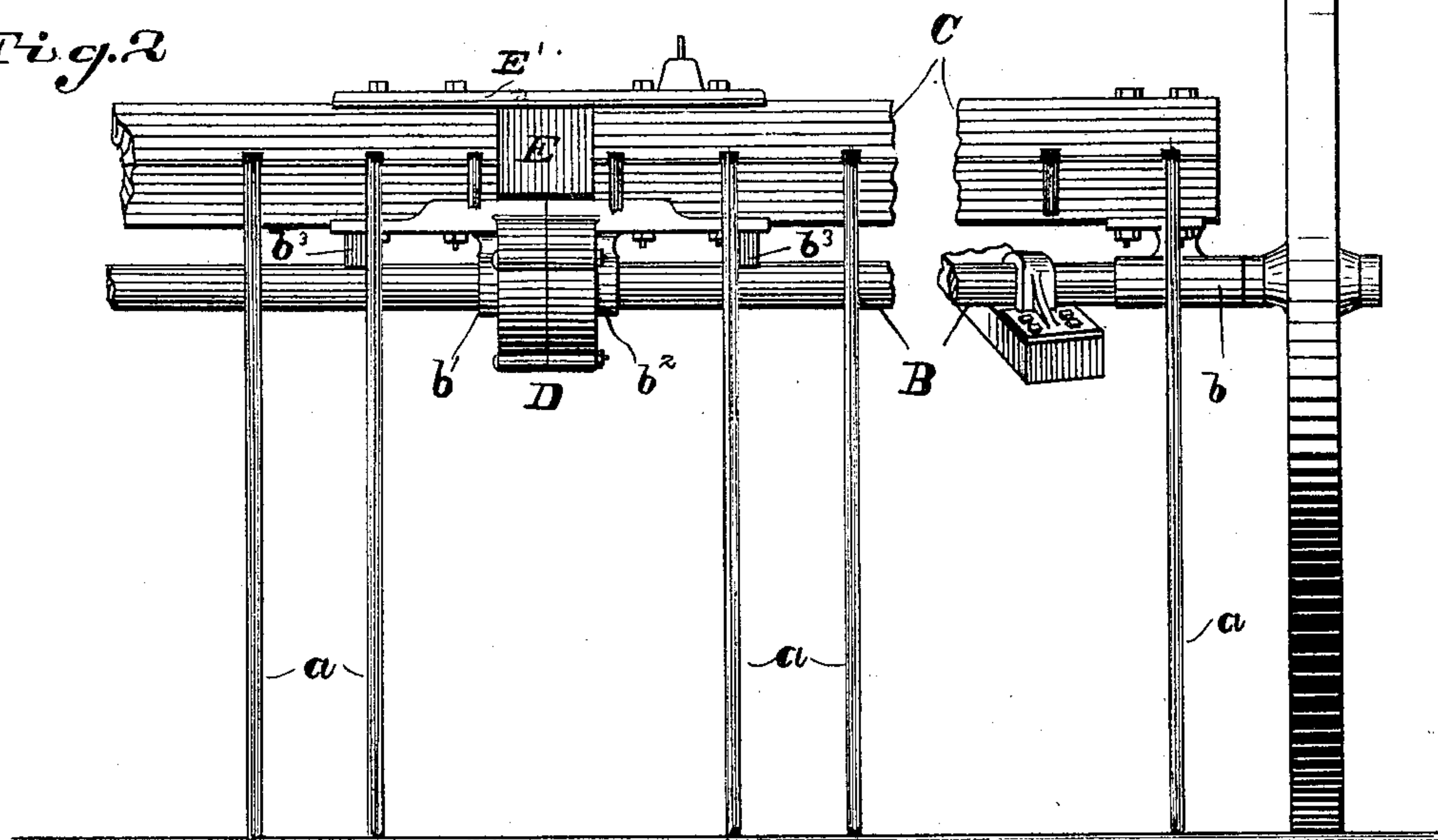


Fig. 2



Attest
W. L. Baines.
Fred. R. Miller.

Inventor,
Robert W. Dixon,
By Omer R. Tatro.

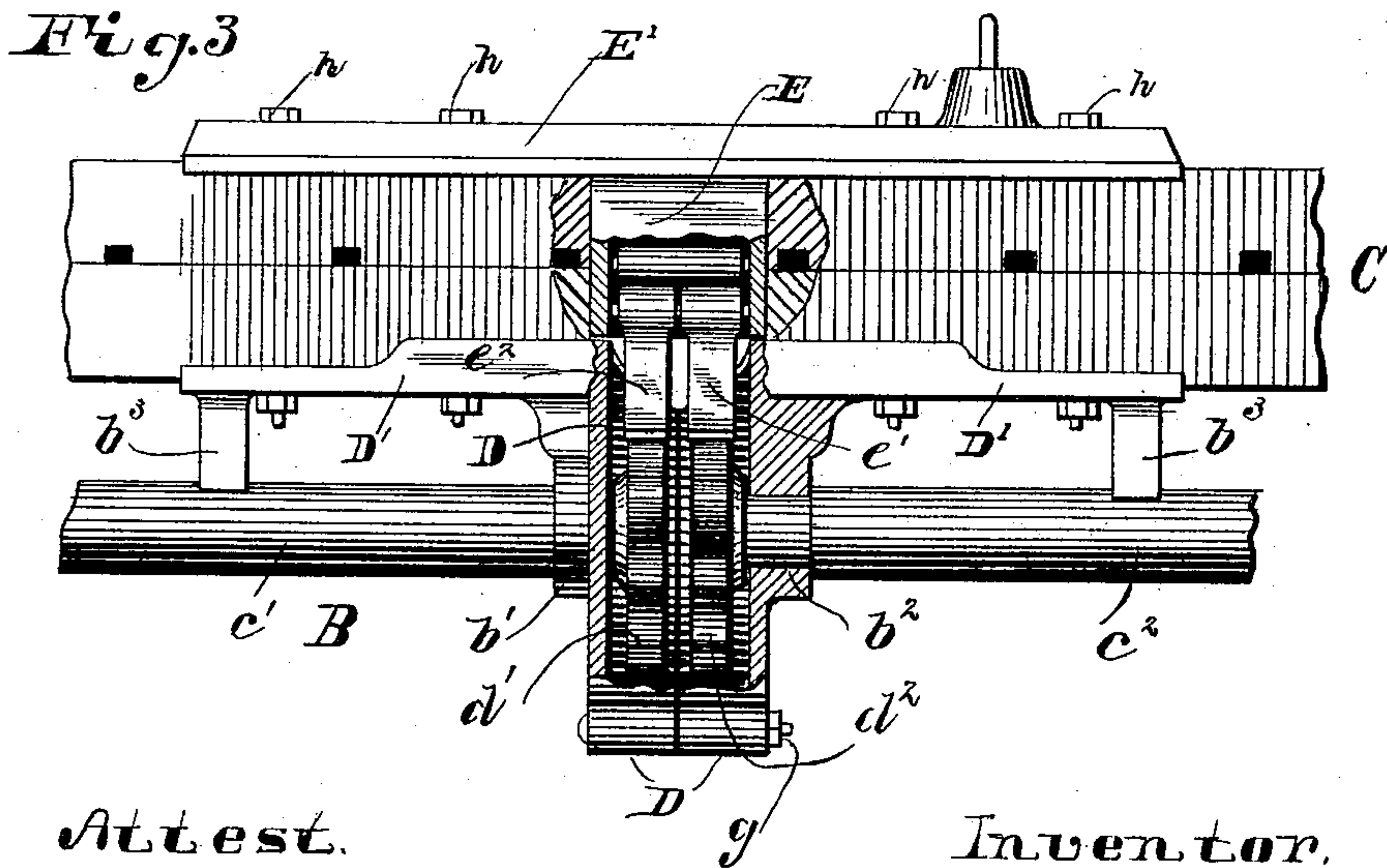
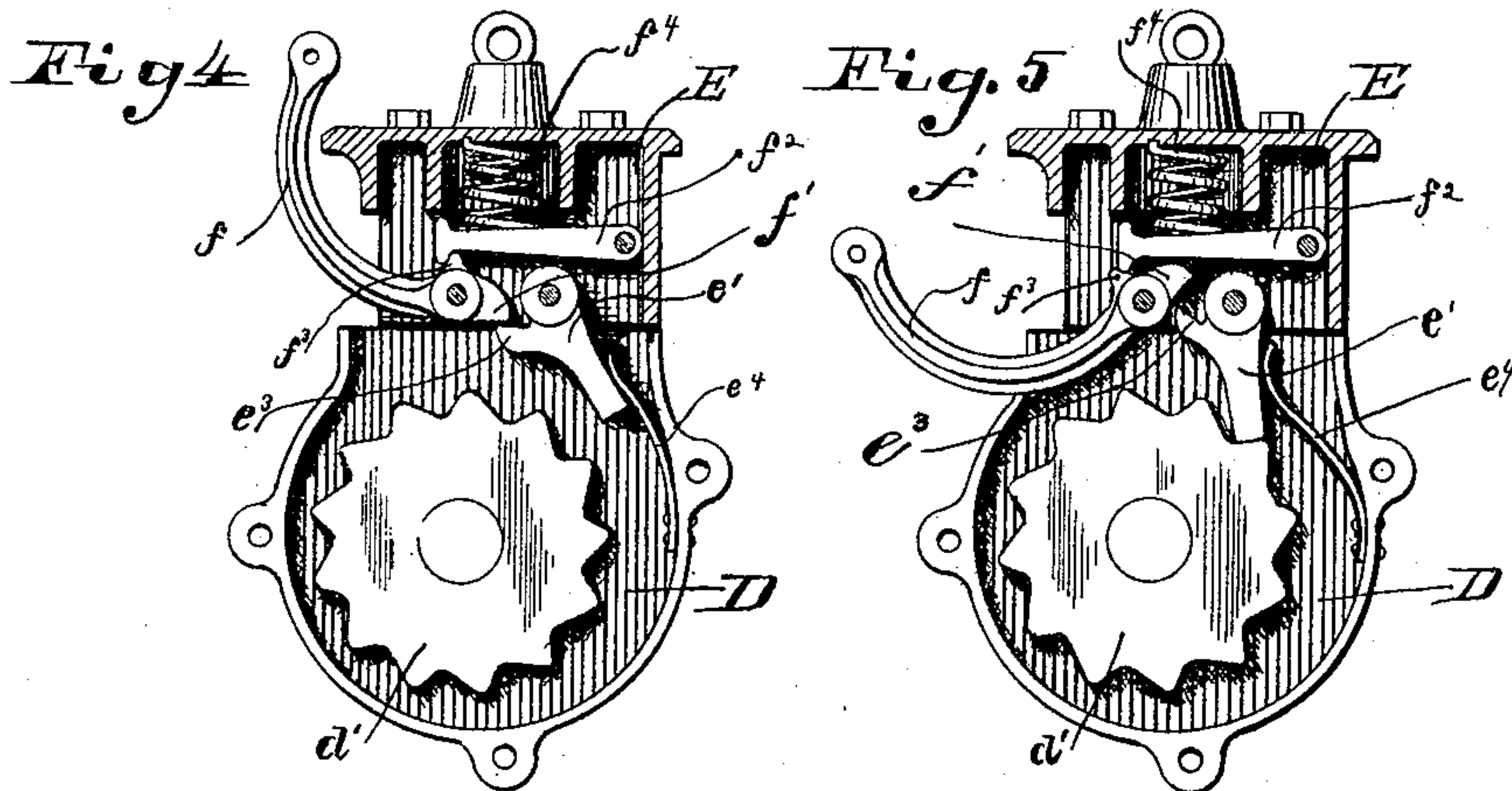
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W. Willis Baines.
Fred. L. Miller.

Inventor.

Robert W. Dixon.
By *Wm. H. Stetson*

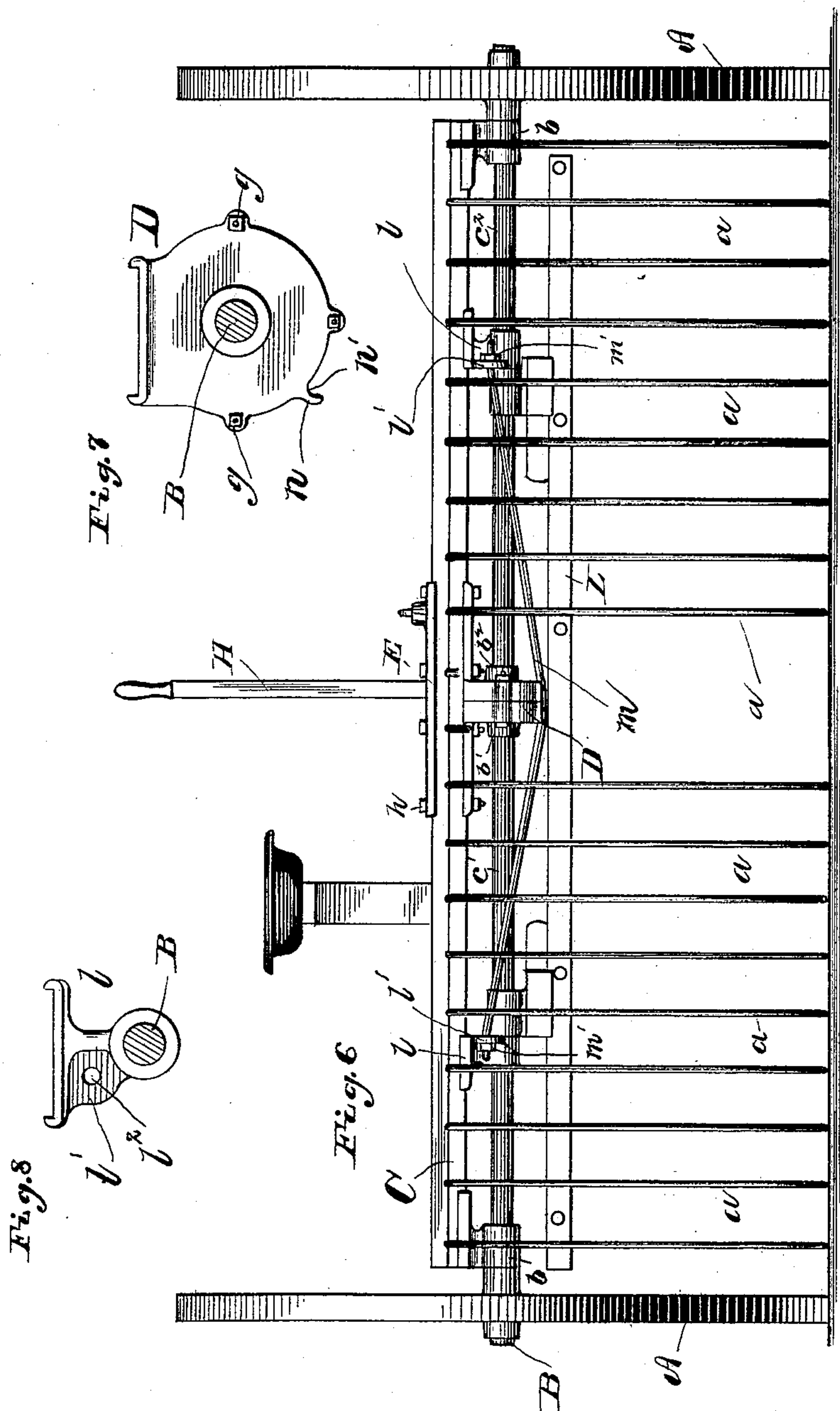
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3 Sheets—Sheet 3.

R. W. DIXON.
RAKE.

No. 386,301.

Patented July 17, 1888.



Attest
L. B. Staley.
Chase Stewark.

Inventor.
Robert W. Dixon.
By Paul A. Staley
att'y.

UNITED STATES PATENT OFFICE.

ROBERT W. DIXON, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE SPRINGFIELD MANUFACTURING COMPANY, OF SAME PLACE.

RAKE.

SPECIFICATION forming part of Letters Patent No. 386,301, dated July 17, 1888.

Application filed June 4, 1887. Serial No. 240,221. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. DIXON, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Rakes, of which the following is a specification.

My invention relates to improvements in hay-rakes; and the object of my invention is to provide a simple and effective mechanism whereby the rake is made self-dumping by the revolution of the carrying-wheels.

My invention consists, first, in a divided axle, to the parts of which the carrying-wheels are rigidly secured and on which the rake-head is journaled, means being provided for connecting the rake-head to the said divided axle, so that the rotation of either or both parts thereof will produce a movement of the rake-head to dump the rake.

My invention further consists in providing a truss or support for said divided axle or rake-head.

My invention further consists in various constructions and combinations of parts, hereinafter fully described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a transverse sectional elevation view of a hay-rake embodying my invention. Fig. 2 is a rear elevation view of the same, some of the parts being broken away to better show the clutch mechanism. Fig. 3 is a longitudinal view of the clutch mechanism in detail, a portion of the case being broken away. Figs. 4 and 5 are transverse sectional views showing the clutch mechanism in different positions. Fig. 6 is a rear elevation view showing a modified form of a rake and illustrating the method of attaching the truss or support. Figs. 7 and 8 are detailed views of some of the parts hereinafter more fully referred to.

Like parts are indicated by similar letters of reference throughout the several views.

In the said drawings, A represents one of the carrying-wheels, of which two are used, one secured on either side of the axle B.

C is the rake-head, in which the teeth *a* are secured in the usual way. The rake-head C is supported on the axle B by bearing-boxes

11, and is adapted to turn or oscillate on the said axle to raise the teeth and dump the load.

At the center of the rake-head, on the lower side thereof, is what I term the "ratchet case" D, which is provided on either side with bearings *b'* *b*² for the axle B. The axle B, instead of being made in one piece throughout, is made in two parts, *c'* *c*², which parts come together in the case D and are provided with ratchet-wheels *d'* *d*², secured on the ends thereof, respectively, within the case D.

Immediately above the ratchet-case D is a pawl-case, E, which is made in one piece with a plate, E', adapted to rest on top of the rake-head C. The pawl-case E extends down through the rake-head C and joins the ratchet-case D. Pivoted in the lower part of the pawl-case E are two small pawls, *e'* *e*², adapted to engage with the respective ratchet-wheels *d'* *d*², as hereinafter described.

Pivoted in the pawl-case E, above the pawls *e'* *e*², is a trip-lever, *f*, the inner end of which is provided with a toe or projection, *f'*, adapted, when the lever is turned up, to come against a lug or shoulder, *e*³, on the respective pawls *e'* *e*², as shown in Fig. 4, and thus hold said pawls out of engagement with their respective ratchet-wheels *d'* *d*².

Extending across the pawl-case above the trip-lever and pawls is a catch-lever, *f*², which is pivoted at the rear to the inside of the case, and is adapted at the front to engage on either side of a stop lug or projection, *f*³, on the trip-lever *f*, and thus hold said lever in either position of adjustment at the limit of its upper or lower stroke, as shown in Figs. 4 and 5, respectively.

A spring, *f*⁴, resting at one end against the top of the case and at the other against the catch-lever, serves to press the said catch-lever into engagement with the stop-lug *f*³, a spring or springs, *e*⁴, being adapted to normally press the pawls into engagement with the ratchet-wheels.

The ratchet-case D is preferably made in two parts bolted together by small bolts *g*, each of said parts being provided with projecting flanges or wings D'. The case is preferably secured to the lower side of the rake-head C

by means of bolts *h*, which pass through the flanges *D'*, the rake-head *C*, and the plate *E'* on the pawl-case *E*, thus holding all the parts firmly together. A connection is formed from the outer end of the trip-lever, preferably by means of a small chain, *l'*, to the lower part of the seat-frame, as shown, so that the trip-lever may be operated by the foot of the driver. A connection is formed in the usual way from the top of the rake-head *C* to a hand-lever, *H*, so that the rake may be dumped by hand when desired.

In order that the axle and rake-head may have the required stiffness and to prevent sagging of the same where the axle is divided, means are provided for supporting the said axle and head at the point where the division occurs in said axle. This I preferably accomplish as follows:

Secured to the under side of the rake-head, at or near the point where the shafts or frame of the rake are attached to the axle, I provide bearing-boxes *ll*, through which the respective parts of the axle are adapted to pass. On each of the bearing-boxes *ll*, I provide a small flange or wing, *l'*, provided with an opening, *l''*, therein, adapted to receive the ends of a truss or support, *m*. This truss or support *m* passes under the ratchet-case *D*, which is provided with a small curved lug, *n*, adapted to form a recess or pocket, *n'*, in which the truss or support *m* is adapted to rest. The truss or support *m* is screw-threaded at either end and provided with adjusting-nuts *m'*, by means of which the tension may be varied as desired.

Instead of the truss-support, a support may be formed by means of lugs *b'*, cast on flanges or wings *D'* of the ratchet-case and adapted to bear against the respective parts of the axle at some little distance from the bearings *b'* and *b''*. These lugs *b'*, in connection with the bearings *b'* and *b''*, it will be seen, will form a truss or bridge which in many cases will meet all the requirements and furnish sufficient rigidity to the axle and rake-head.

The operation of the rake-head is as follows: The horse is hitched in the usual way to the singletree *I* on the shaft *J*. When a sufficient load has accumulated in the teeth of the rake, the driver places his foot on the connection *l'* and thereby draws down the trip *f* and releases the pawls *e'* *e''*, which engage with the teeth of the revolving ratchet-wheels *a'* *a''*. The rake-head is thus connected with the revolving axle and turns therewith until the end of the trip-lever *f* strikes against a stop, *k*, on the shaft *J*. The rake-teeth are thus raised up, permitting the load to drop off, thus dumping the rake, the teeth being cleared from the load in the usual manner by a clearing device, *L*. As soon as the teeth have reached the proper height, the trip-lever *f* comes against the stop and forces it back to its normal position, thus withdrawing the pawls and locking them away from the ratchet-wheels, which permits the rake-head to turn on its axis until the teeth are again in position to rake.

It will be seen that the rake can be automatically dumped at any time when in forward motion by simply tripping the lever *f*, thus releasing the pawls.

By making the axle in two parts and providing separate ratchet-wheels for each part it will be seen that the carrying-wheels are permitted to turn independently of each other in turning corners or otherwise, while by the use of two ratchet-wheels and independent pawls the rake may be dumped by either wheel in motion, even though the other wheel be standing at rest in turning a corner or otherwise.

Having thus described my invention, I claim—

1. The combination of the rake-head and an axle made in two parts, the inner ends of said parts being journaled in a case secured to the rake-head midway of its length, each of said axle parts being provided at the outer end with a carrying-wheel and at the inner end with a ratchet-wheel, the said ratchet-wheels being inclosed in said case, pawls on said rake-head adapted to engage said ratchet-wheels, and a trip-lever secured to the rake-head and adapted to engage said pawls and withdraw them from their engagements with said ratchet-wheels, substantially as specified.

2. The combination, with the rake-head, a divided axle, and the carrying-wheels, of the case secured to the rake-head midway of its length, in which the inner ends of the respective parts are journaled, ratchet-wheels on said divided axle located in said case, pawls on said rake-head adapted to engage said ratchet-wheels, a trip-lever to engage and disengage said pawls, and a catch for holding the trip-lever in either position of adjustment, substantially as set forth.

3. The combination of the rake-head and the divided axle, the parts of which are provided with ratchets adapted, respectively, to engage pawls on the rake-head, a ratchet-case surrounding said ratchets, and a truss or support attached at either end to the rake-head and extending under and bearing against said ratchet-case, substantially as specified.

4. The combination, with the rake-head and an axle made in two parts, said parts being connected together by a case in which the respective parts are journaled, of the truss or support secured at either end to said rake-head and extending under and bearing against said case to form a truss or bridge therefor, substantially as set forth.

5. The combination, with the rake-head, the divided axle, and the carrying-wheels, of the ratchet-wheels on said divided axle, a case secured to the rake-head and having bearings on the inner ends of the parts of said axle, pawls attached to said rake-head adapted to engage with said ratchets, said pawls being each provided with a projecting lug adapted to come in contact with a trip-lever and thus hold said pawls out of engagement with said ratchets, substantially as set forth.

6. The combination, with the rake-head, the divided axle, and the carrying-wheels, of the ratchet-wheels on said divided axle, the ratchet-case about said ratchet-wheels, the pawl-case secured to the rake-head and provided with pawls adapted to engage said ratchets, a trip-lever pivoted in said pawl-case and adapted to come in contact with said pawls and hold them out of engagement with said ratchets, the catch-lever f^2 , adapted to engage with said trip-lever in different positions, and a spring in the top of said pawl-case adapted to bear against said catch-lever, substantially as and for the purpose set forth.

7. The combination, with the divided axle and the ratchet-wheels thereon, of the pawls adapted to engage with the respective ratchet-wheels and provided with projecting lugs e^3 , the trip-lever provided with a toe, f' , adapted to engage the said lugs e^3 , and provided with a projection, f^3 , the catch-lever f^2 , adapted to

engage on either side of the projection f^3 , and the spring f^4 , substantially as set forth.

8. The combination of the rake-head, the divided axle, and the carrying-wheels, the ratchet-wheels on said divided axle, the case about said ratchets, on which the respective parts of the said axle are journaled, the pawl-case on the rake-head provided with the pawls and trip-lever therein, said pawls being adapted to engage said ratchets, or to be held out of engagement with said lever, and a truss or support passing under and bearing against said case and connected to said rake-head, substantially as set forth.

In testimony whereof I have hereunto set my hand this 27th day of August, A. D. 1885.

ROBERT W. DIXON.

Witnesses:

P. J. CLEVINGER,
PAUL. A. STALEY.