

(No Model.)

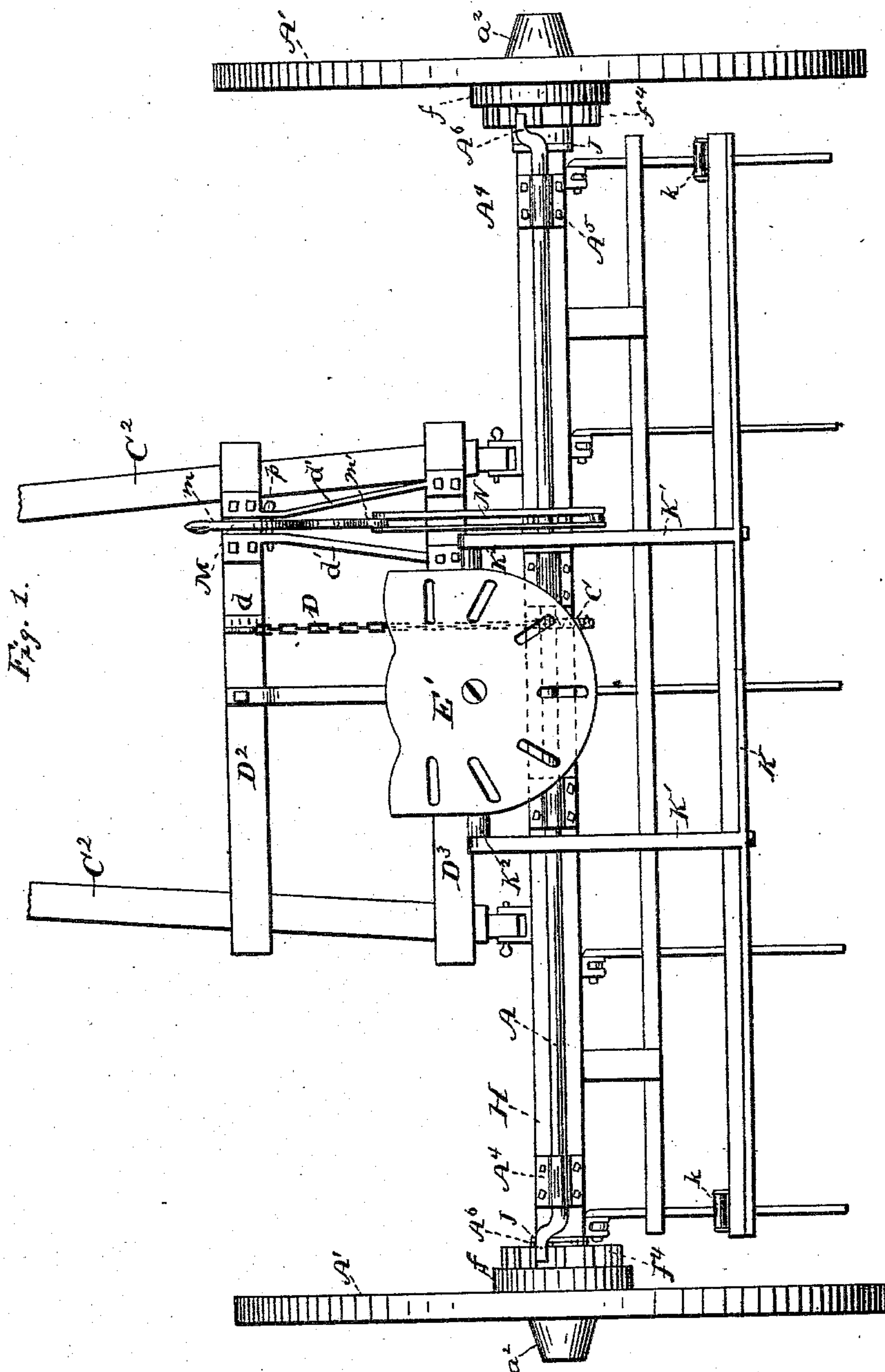
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F. E. KOHLER.

HORSE RAKE.

No. 301,727.

Patented July 8, 1884.



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(No Model.)

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Fig. 2.

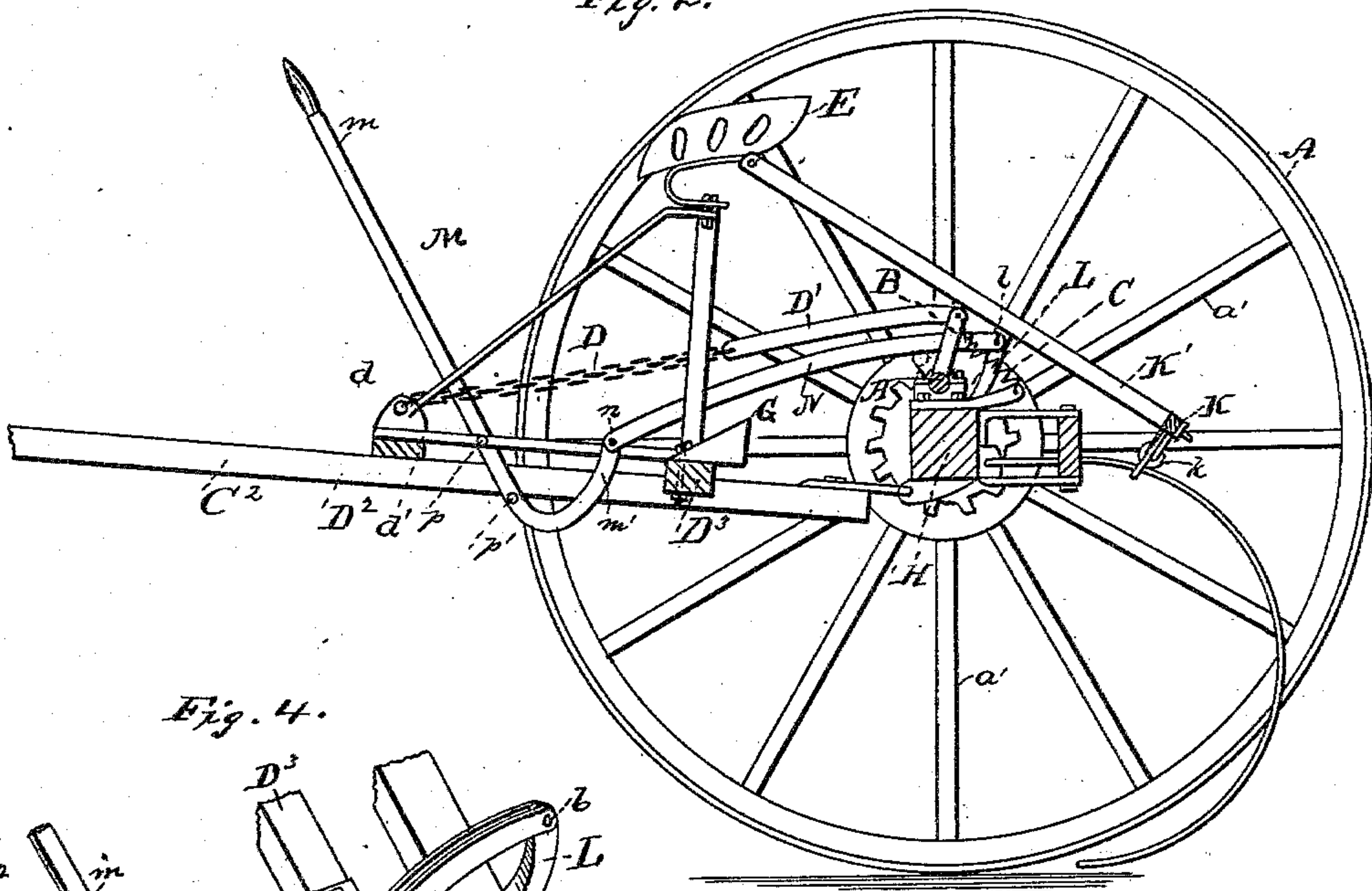


Fig. 4.

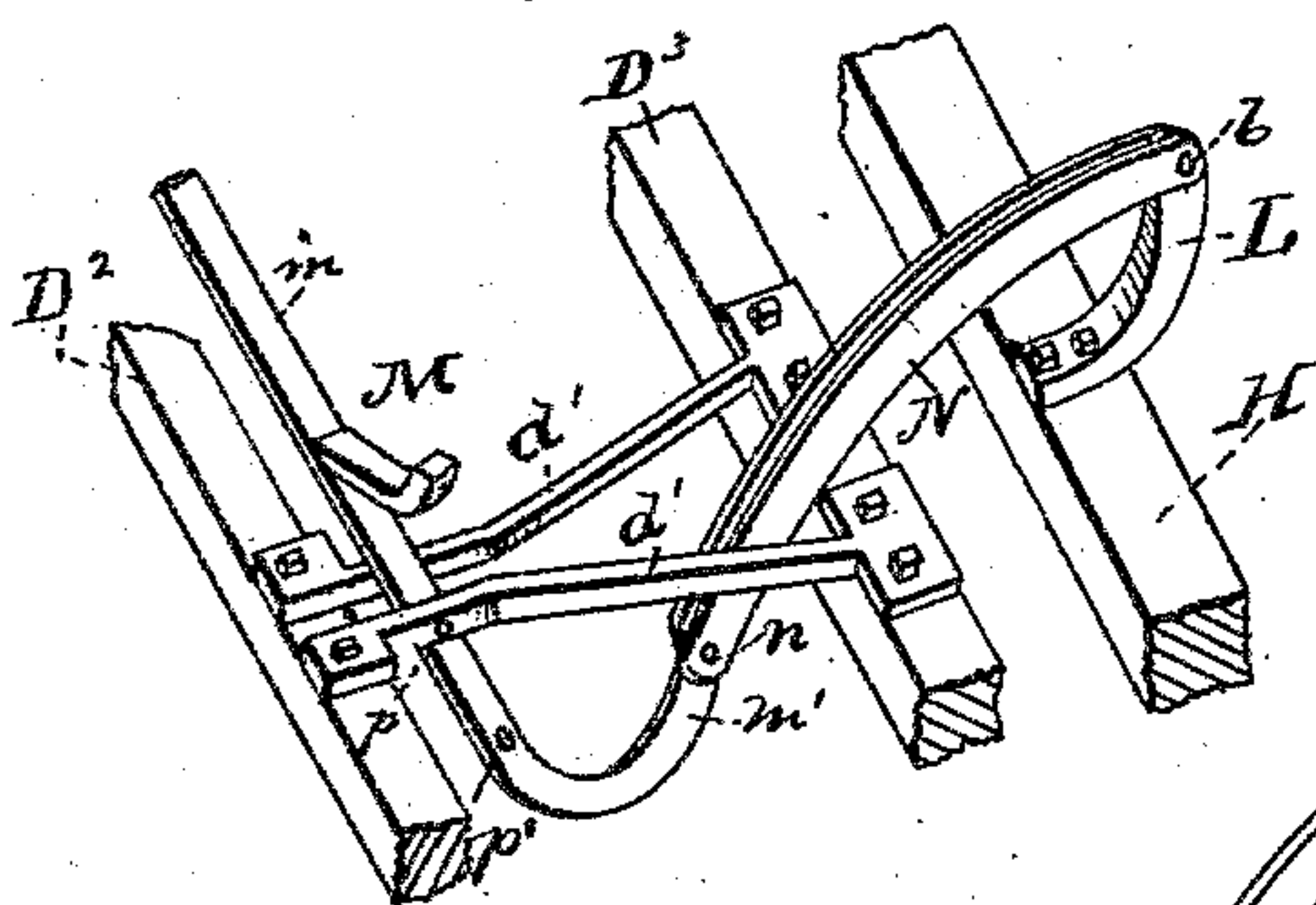
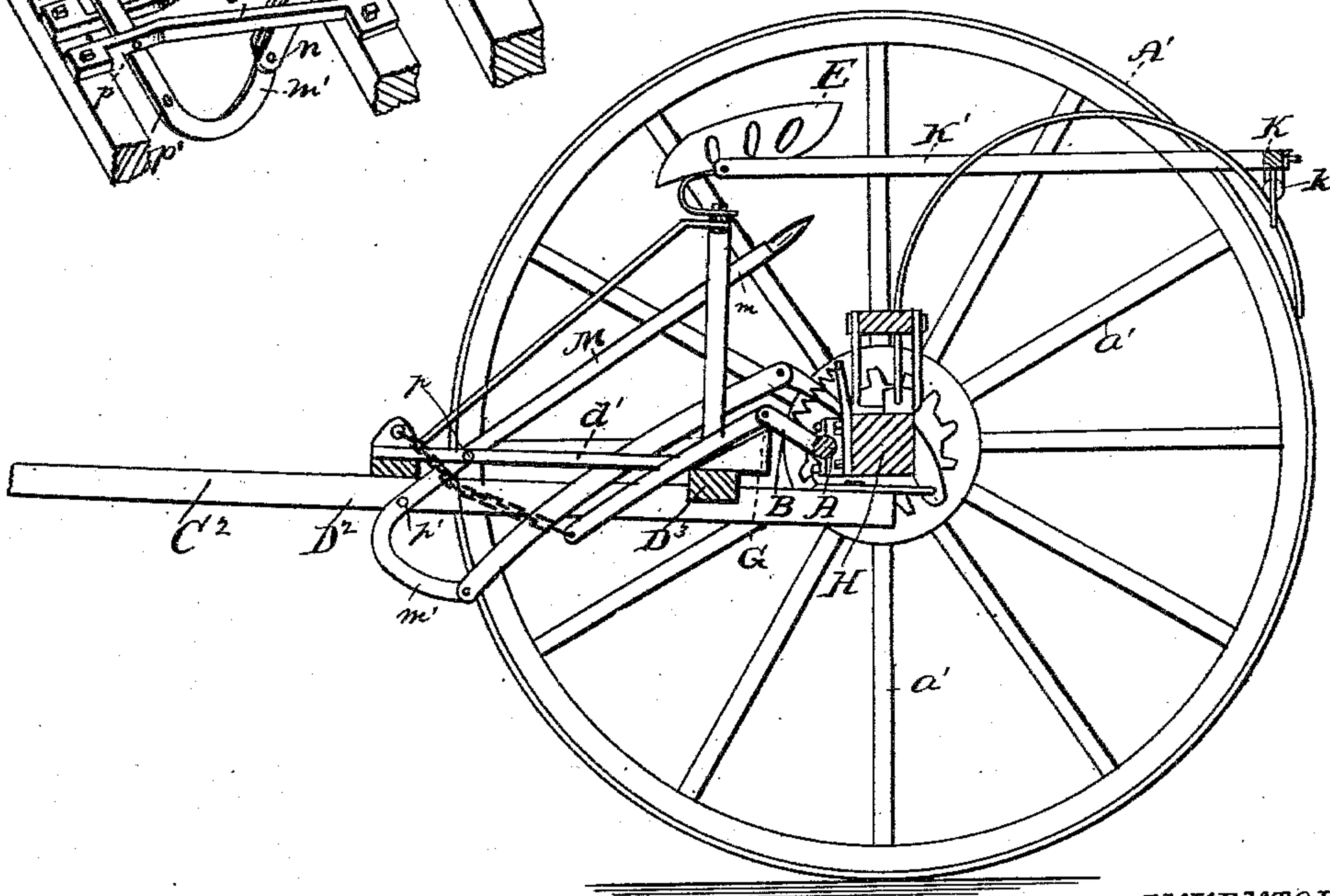


Fig. 3.



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(No Model.)

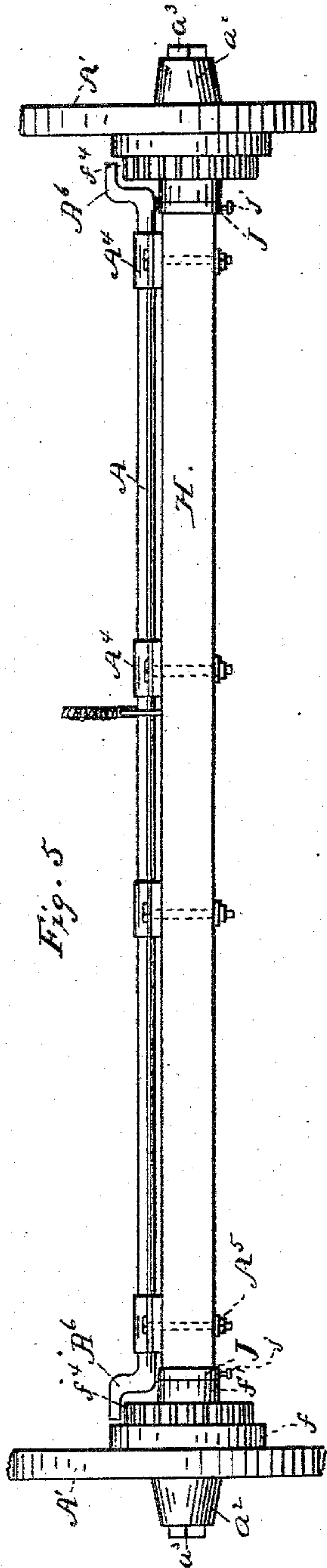
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F. E. KOHLER.

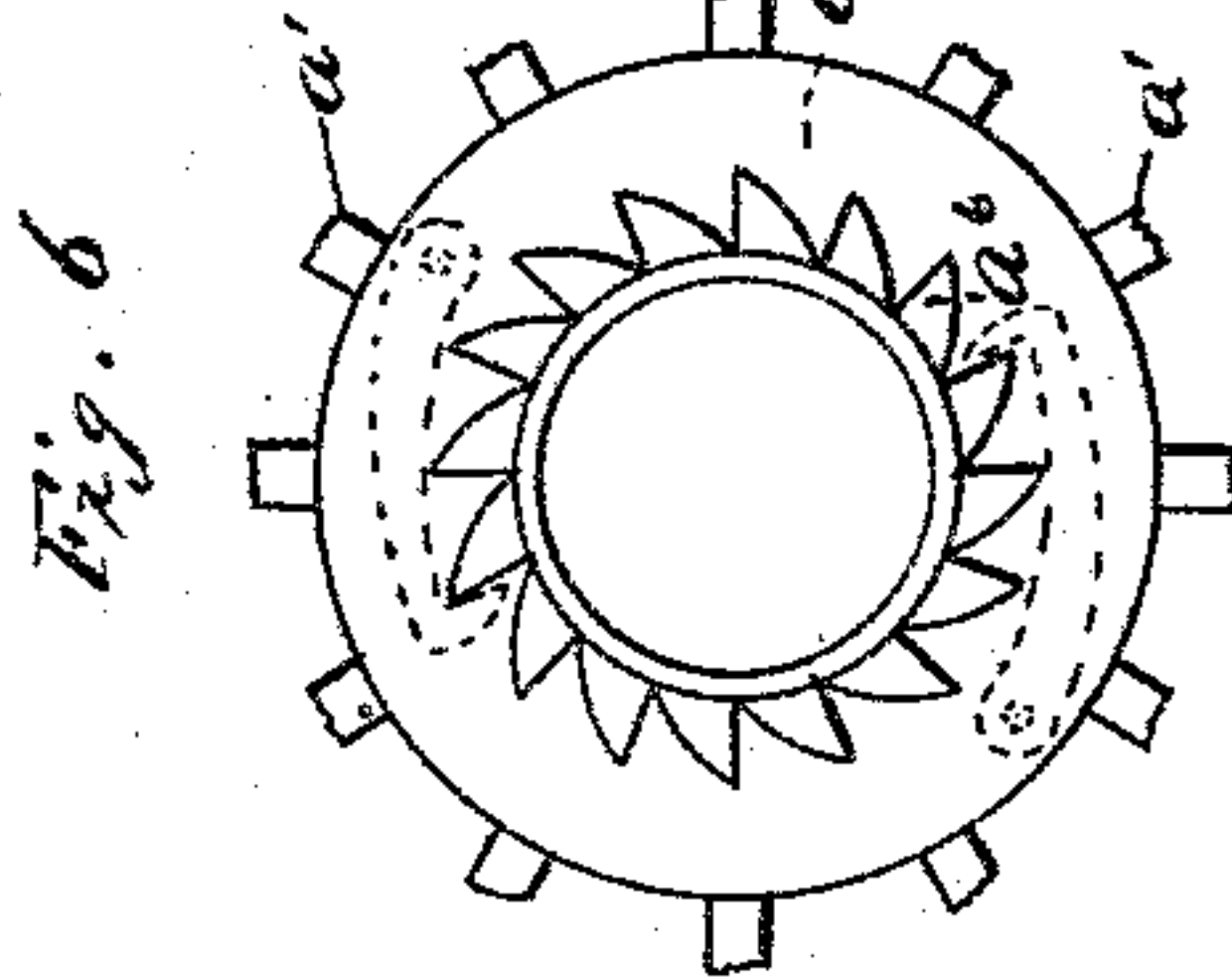
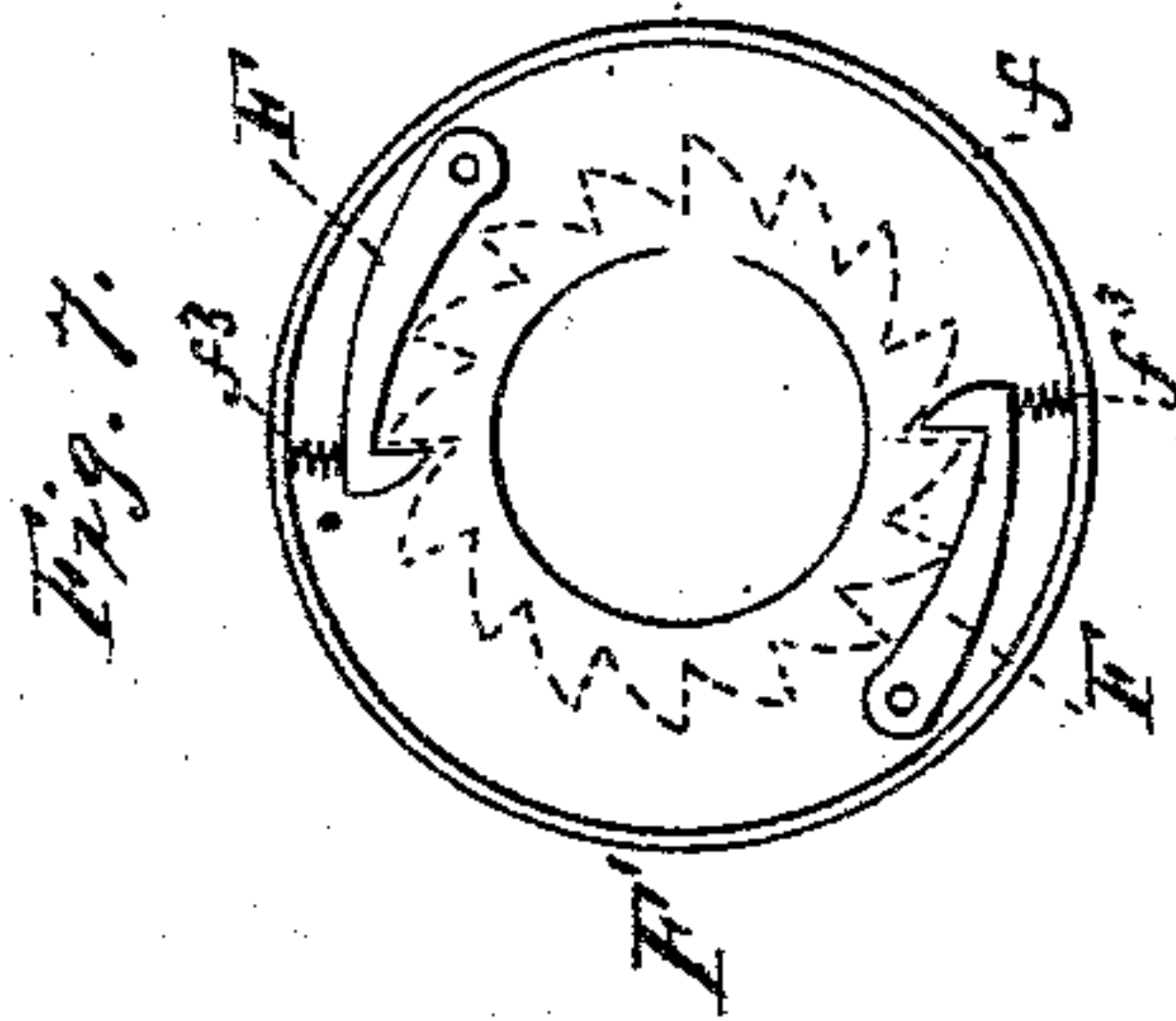
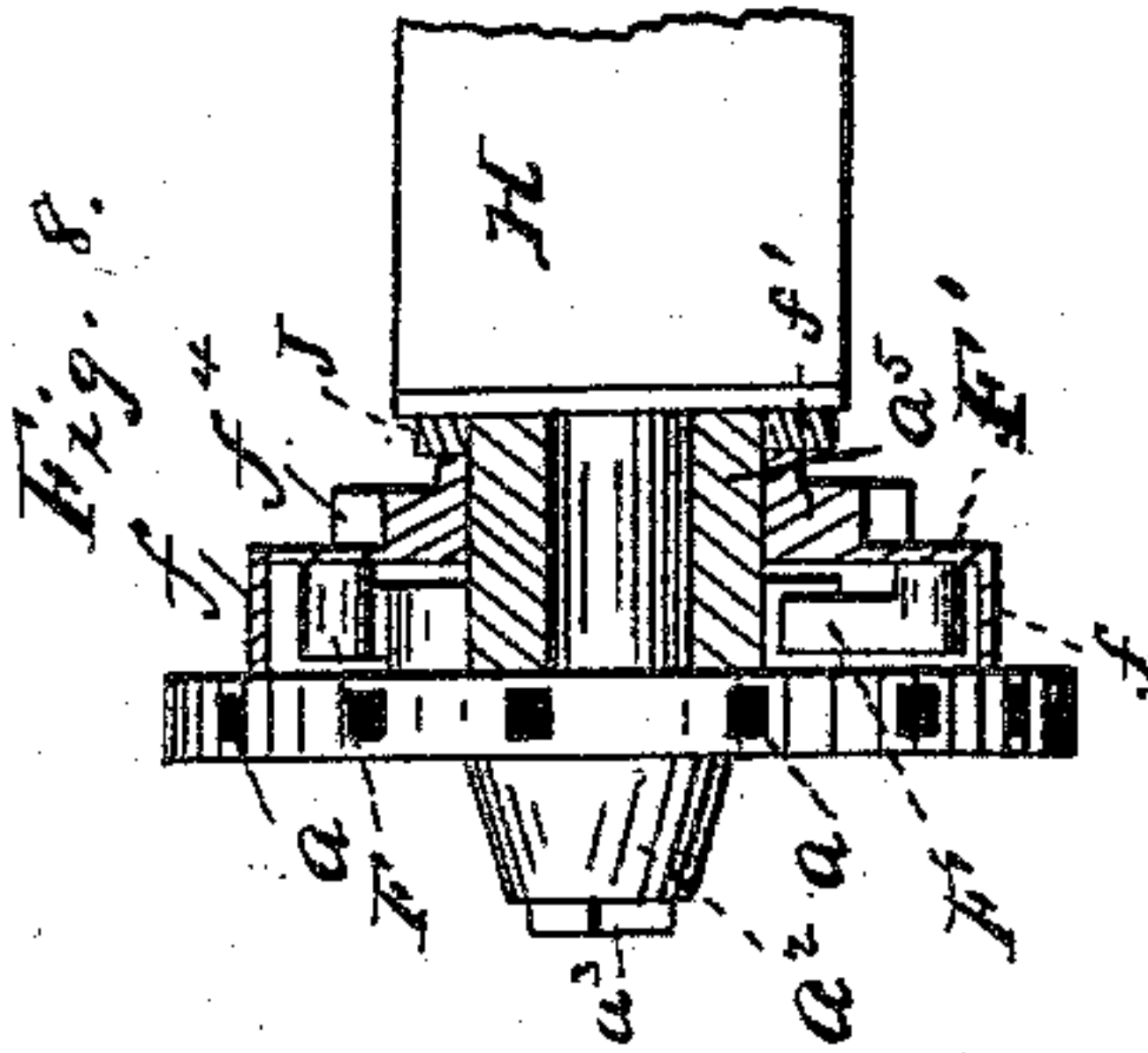
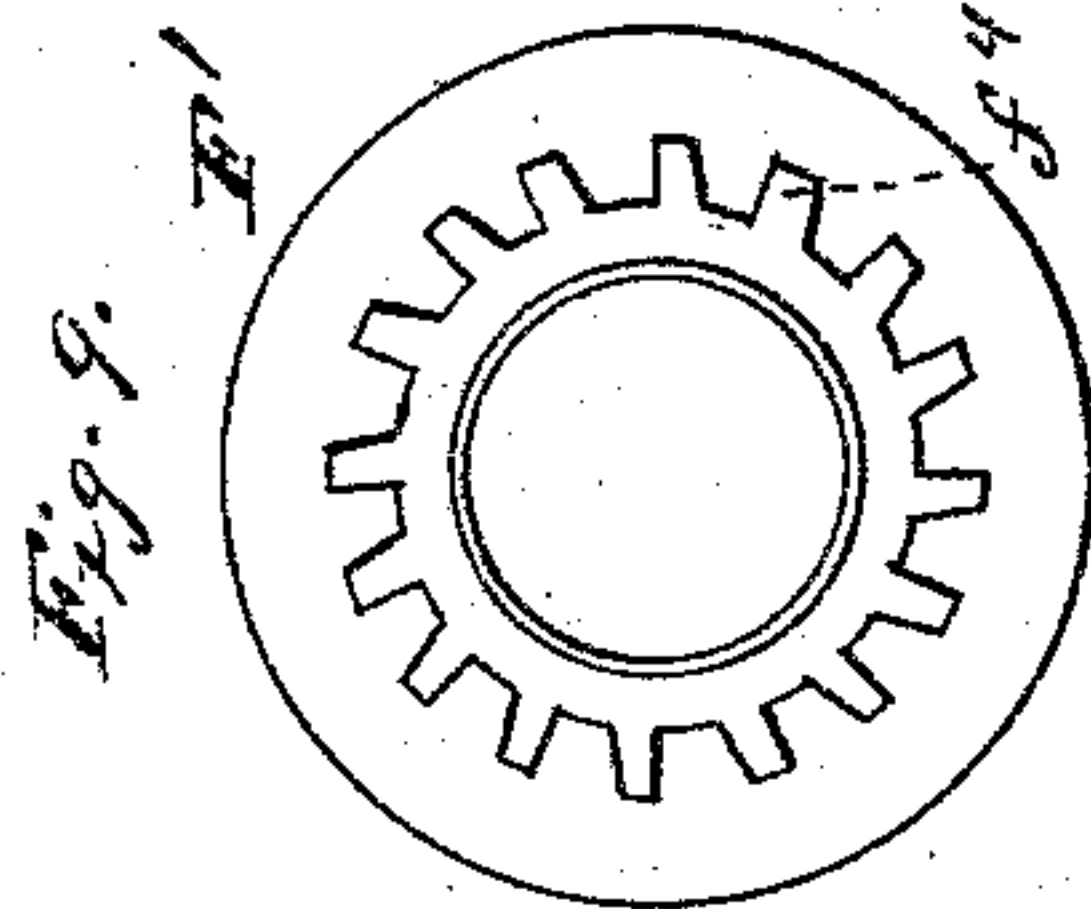
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# UNITED STATES PATENT OFFICE.

FREDERICK E. KOHLER, OF CANTON, OHIO.

## HORSE-RAKE.

SPECIFICATION forming part of Letters Patent No. 301,727, dated July 8, 1884.

Application filed June 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK E. KOHLER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Horse-Rakes, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a top or plan view of a horse-rake embodying my improvements. Fig. 2 is a transverse section showing the teeth down—that is, in the position for raking. Fig. 3 is a similar section, showing the parts in the positions occupied after the teeth are elevated. Fig. 4 is a perspective view of the lever and its attachments for rocking the rake-head by hand. Fig. 5 is a rear view of the axle, the wheel-hubs, and the rocking-bar on the axle detached from the other parts. Fig. 6 is an inside elevation of a wheel-hub. Fig. 7 is an outside elevation of the box carrying the pawls, which engage with the wheel-hub. Fig. 8 is a view, partly in rear elevation and partly in section, of the devices at one end of the axle. Fig. 9 is an inside view of the box, which engages with the wheel-hub.

In the drawings I have shown a horse-rake having parts which may be more or less modified, as my invention is adapted to be applied to rakes of various characters.

A' A' represent the drive-wheels.

H is the axle and rake-head, upon which the wheels are mounted. The draft-frame is composed of shafts C<sup>2</sup> C<sup>2</sup> and cross-pieces D<sup>2</sup> D<sup>3</sup>. This draft-frame is hinged to the axle, as shown.

E' is the driver's seat, preferably mounted in the manner shown—that is to say, by means of a U-shaped spring situated parallel to the axle and upon the rear cross-bar D<sup>3</sup>, and a supplemental spring or brace connected to the one aforesaid, and having its lower end fastened to the forward cross-bar D<sup>2</sup>.

K is the clearer-bar suspended above the rake-teeth, and resting upon the same, it being provided with rollers k, which rest upon the rake-teeth and serve to decrease the resistance of the teeth upon the bar while being raised. The bar K is hinged to the driver's seat by means of upwardly and forwardly projecting pieces K', pivoted at their forward ends to a cross-piece, K<sup>2</sup>, beneath the driver's seat.

With the rake-head may be combined de-

vices for lifting the teeth or rocking the rake-head, adapted to be operated by hand; but as these devices may be of any suitable character they need not be herein shown or described in detail. However, I prefer for this purpose a mechanism of substantially the character of that shown in my previous Patents No. 225,290, March 9, 1880, and No. 269,430, December 19, 1882, but modified, as will be hereinafter set forth. So, too, the rake-teeth themselves may be mounted upon or secured to the rake-head in any suitable way, devices of a superior character for this purpose being shown and described in the aforesaid patents. The driving-wheels A' A' are constructed with a hub portion provided with sockets a, adapted to receive, respectively, one of the spokes a' of the wheel. The hub has an outwardly-extending conical portion, a<sup>2</sup>, which gives a long and steady bearing for the wheel upon the spindle portion of the axle, bolts or screws a<sup>3</sup> being used to hold the wheel in place. The socket portions a of the wheel are carried by the disk or expanded portion a<sup>4</sup>, and inwardly therefrom there projects a substantially cylindrical part, a<sup>5</sup>, of the wheel-hub. Upon the inner face of the disk a<sup>4</sup> are formed ratchet-teeth a<sup>6</sup> in a circular series concentric with the hub.

F' represents a box or hollow shell, having the part f of larger diameter and the part f' of smaller diameter. The portion f fits over the ratchet-teeth a<sup>6</sup> and can be united thereto by means of pivoted dogs or pawls F F upon the inside. f<sup>3</sup> f<sup>3</sup> are springs adapted to bear against the ends of the dogs or pawls F F and normally tending to force the dogs into engagement with the ratchet-teeth a<sup>6</sup>. The part f' of the box fits loosely upon the portion a<sup>5</sup> of the wheel-hub, and is prevented from slipping longitudinally off therefrom by means of a ring, J, which can be fastened by means of set-screws or keys, as at j. Upon the outside of the box or casing there are formed cogs or teeth f<sup>4</sup>, and these may be either formed upon the face of the box or upon the periphery, and are adapted to fulfill a purpose which will hereinafter appear. Each of the wheel-hubs is constructed in the manner described, and has combined with it a box or casing of the character above set forth.

A represents a rock shaft or bar mounted



upon the axle or rake head H, it preferably having bearings provided for it by means of blocks A<sup>4</sup>, held in place by means of bolts A<sup>5</sup>. At the ends the rod or shaft A is bent or provided with cranks or other devices adapted to engage with the teeth f<sup>4</sup> on the outside of the box F'.

B is a lever extending upwardly, and preferably a little backwardly, from the bar or shaft A, to which it is attached.

C is a spring having one end attached to the lever B, and the other secured to some suitable part of the rake-head or frame-work, it tending normally to draw the lever backward, and therefore rock the bar or shaft A back, so as to throw the engaging devices A<sup>6</sup> out of connection with the teeth f<sup>4</sup>; but when the operator desires to effect an engagement between these parts he accomplishes it by means of a link, D', and the chain D, joined together, the chain being fastened to a standard or other suitable support, d, on the draft-frame, and the link being pivotally connected with the lever B. The operator, by placing his foot upon the chain D, and pressing downward slightly, rocks the shaft or bar A forward, which throws the parts A<sup>6</sup> into engagement with the teeth f<sup>4</sup>. It will be seen that when the teeth f<sup>4</sup> are thus in engagement with the parts A<sup>6</sup> the axle or rake-head will be rocked with the wheel, as, by means of the above-described devices, a rigid connection is effected between them, for the dogs F, being in engagement with the teeth a<sup>6</sup>, the box will revolve with the wheel-hub, and, therefore, its outer teeth, f<sup>4</sup>, will compel the rake-head or axle to revolve with the shaft or bar A. In this way the rake-teeth can be lifted from the ground sufficiently to dump the load which they have gathered. The forward motion of these parts will continue until the lever B strikes a stop at G, preferably supported upon the rear cross-bar of the draft-frame. When it strikes this stop, the shaft or bar A will be rocked in such way as to throw the parts A<sup>6</sup> out of engagement with the teeth f<sup>4</sup>, and this breaks the connection between the drive-wheels and the axle or rake-head, so that the latter, with the teeth, will drop again, bringing the teeth anew to their work. If one of the wheels should be moving more slowly than the other, (as is the case in turning the machine,) there will be no interference with the dumping devices, for the wheel which is traveling the fastest will cause a corresponding forward motion of the rake-head and teeth without any conflict from the opposite wheel-hub, inasmuch as the box upon said opposite hub can move forward faster than the wheel-hub, which could not occur if the connection between the wheel-hub and the parts at A<sup>6</sup> were rigid.

It has been said above that I prefer to combine, with the automatic dumping devices above described, means for dumping by hand somewhat of the character shown in my aforesaid patents. I modify them, however, somewhat in their construction and arrangement. The lever M is formed with an upwardly-projecting part, m, and a backwardly-projecting curved arm, m'. It is connected with the arm L on the rake-head by means of one or more links, N, pivoted to both of said parts.

d' d' are bars which form a lever-support, and also operate as braces between the front cross-bars, D<sup>2</sup> and D<sup>3</sup>, of the draft-frame. Preferably they are formed and arranged as shown—that is to say, the forward ends are parallel for a short distance, and they then diverge so as to form a wide base or support at the rear. The lifting-lever M is secured by a pivot to the forward end of these bars, and is adapted to have the pivot attached at two points, p p'. When the pivot is inserted in the upper aperture at p, it will be seen that the pivot at n is below the line passing through the pivot p and the pivot l, and the lever M and link N will not tend to lock the rake-head. Therefore, when the parts are arranged to automatically dump the rake, the lever and link will not make any resistance; but if the lever be pivoted at the point p' it will be seen that the pivot n will be thrown above the aforesaid line, and therefore the lever and link will lock the rake-head, so that it cannot be drawn up until the driver pulls back upon the lever M. A hand-dumping mechanism of this sort can be readily applied either to a machine intended only for automatic dumping, or for one constructed without mechanism to operate in that way.

What I claim is—

The combination of the wheel A, the wheel-hub provided with a series of ratchet-teeth upon the inner face of the wheel, the shell or box F', mounted loosely upon the hub of the wheel, consisting of the part f of larger diameter and the part f' of smaller diameter, said part f' being provided upon its outer edge or face with a series of projections, f<sup>4</sup>, the dogs or pawls F, pivoted to the inner face of the part f of the shell and engaging with the teeth upon the wheel-hub, and a crank-bar mounted upon the rake-head and adapted to engage with the projections f<sup>4</sup> to lock together the wheel, the box F', and the rake-head, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK E. KOHLER.

Witnesses:

THEODORE C. URAN,  
HARRY P. BALL.