

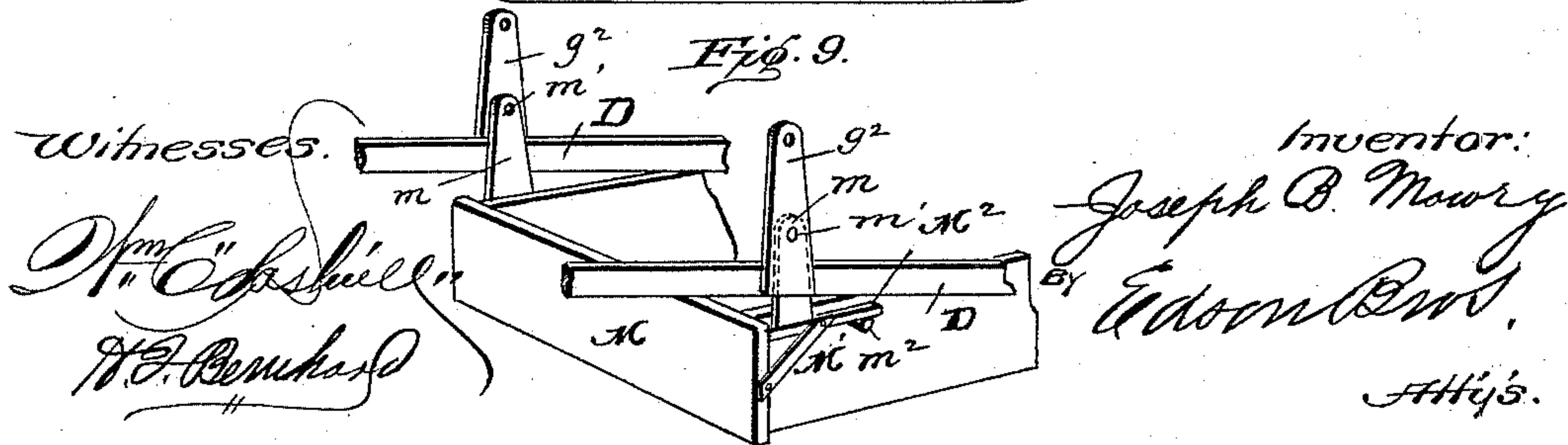
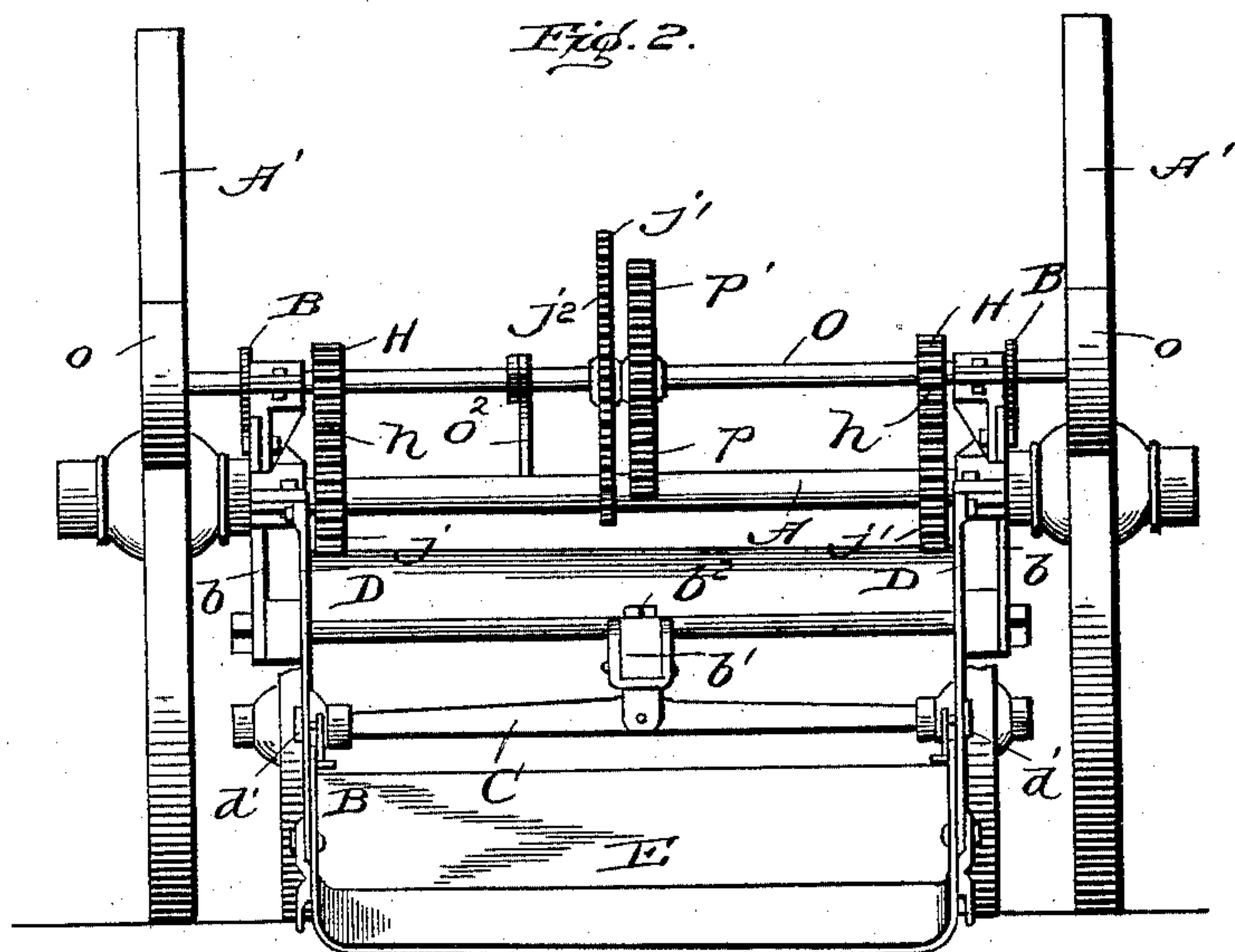
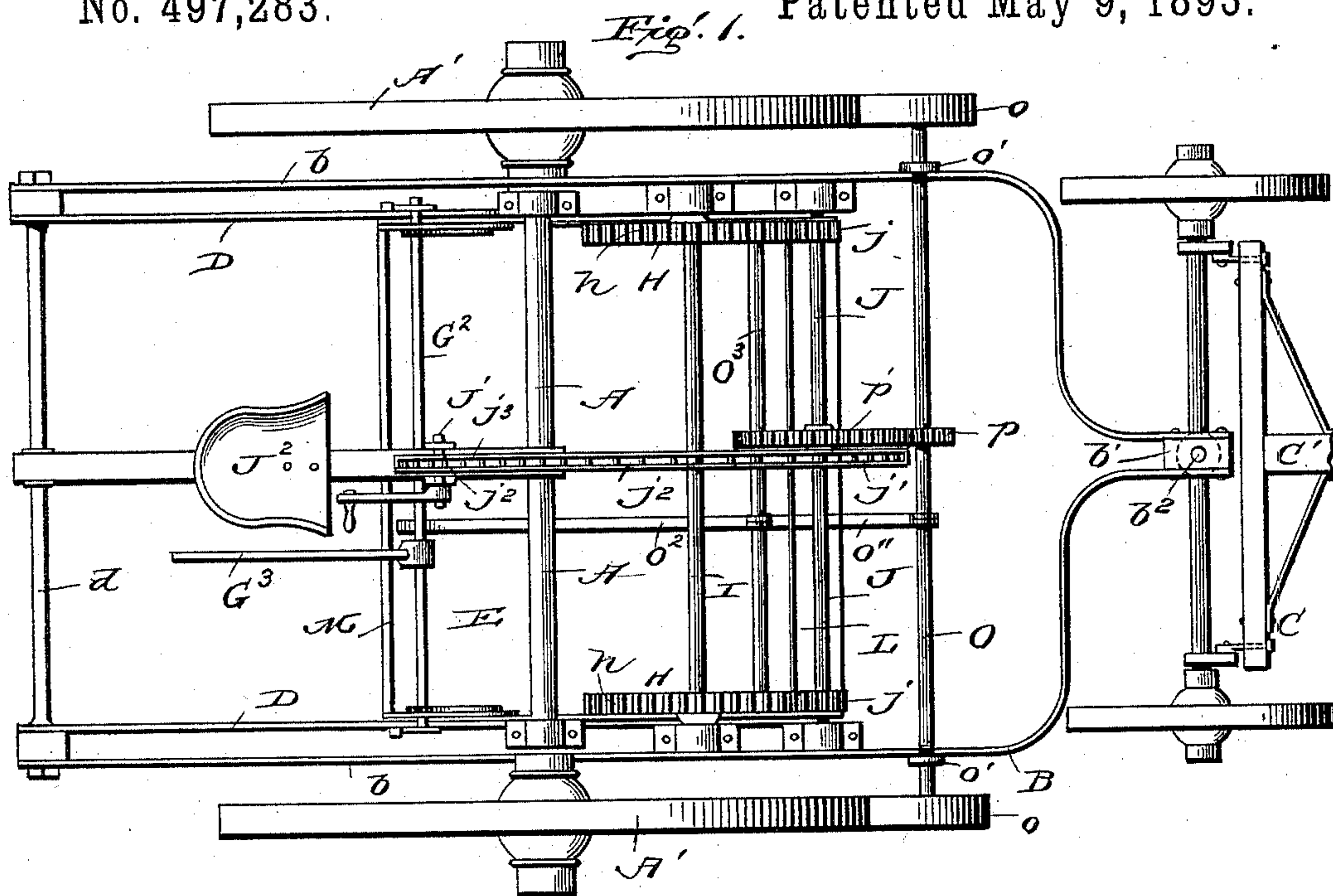
(No Model.)

3 Sheets—Sheet 1.

J. B. MOWRY.  
WHEELED SCRAPER.

No. 497,283.

Patented May 9, 1893.



Witnesses.

*Wm. C. Ashwell*  
*W. E. Pennington*

Inventor:

*Joseph B. Mowry*  
*Edmond B. Mowry*  
Attys.

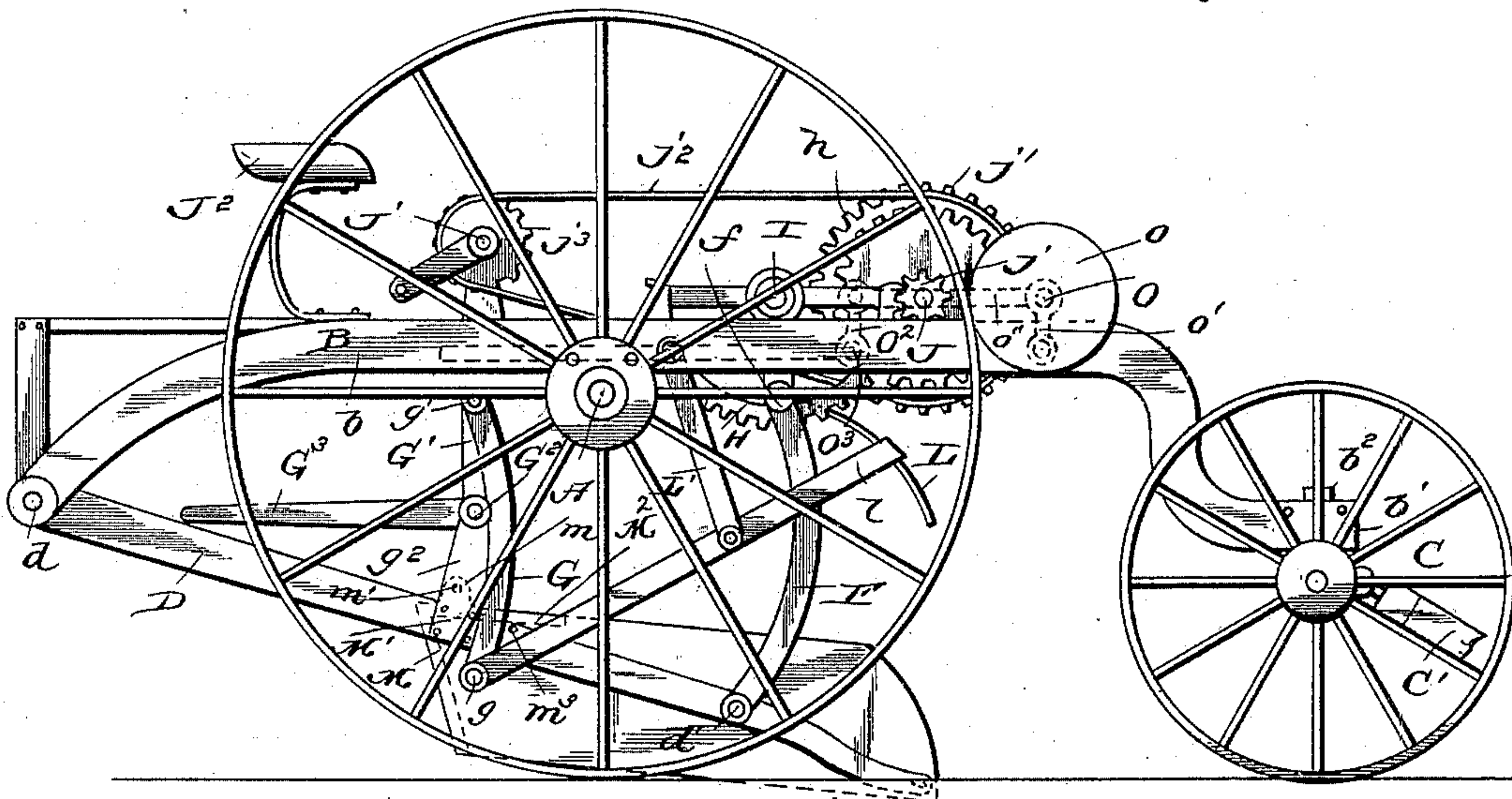
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3 Sheets—Sheet 2.

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*Fig. 3.*

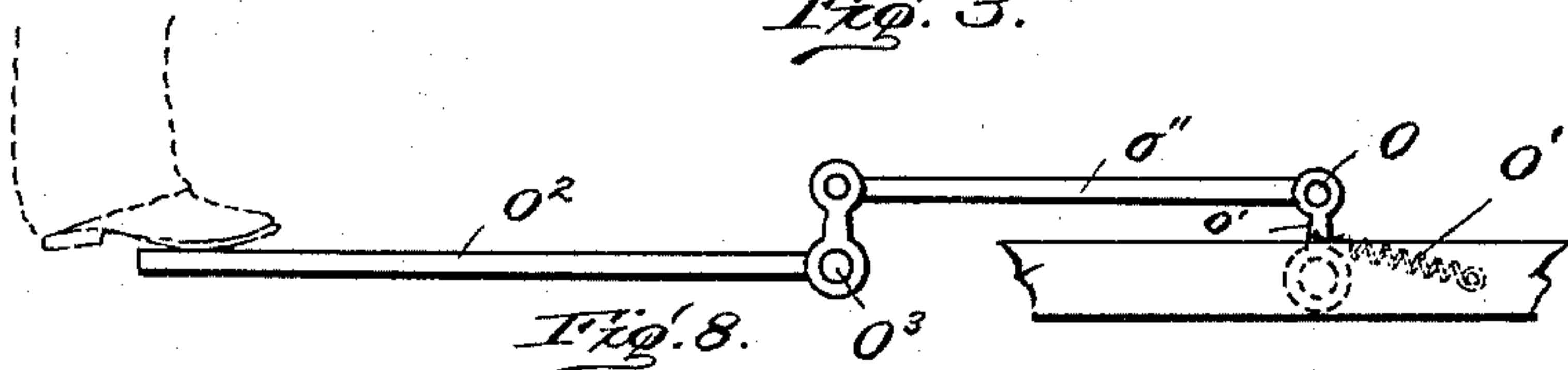


Fig. 8.

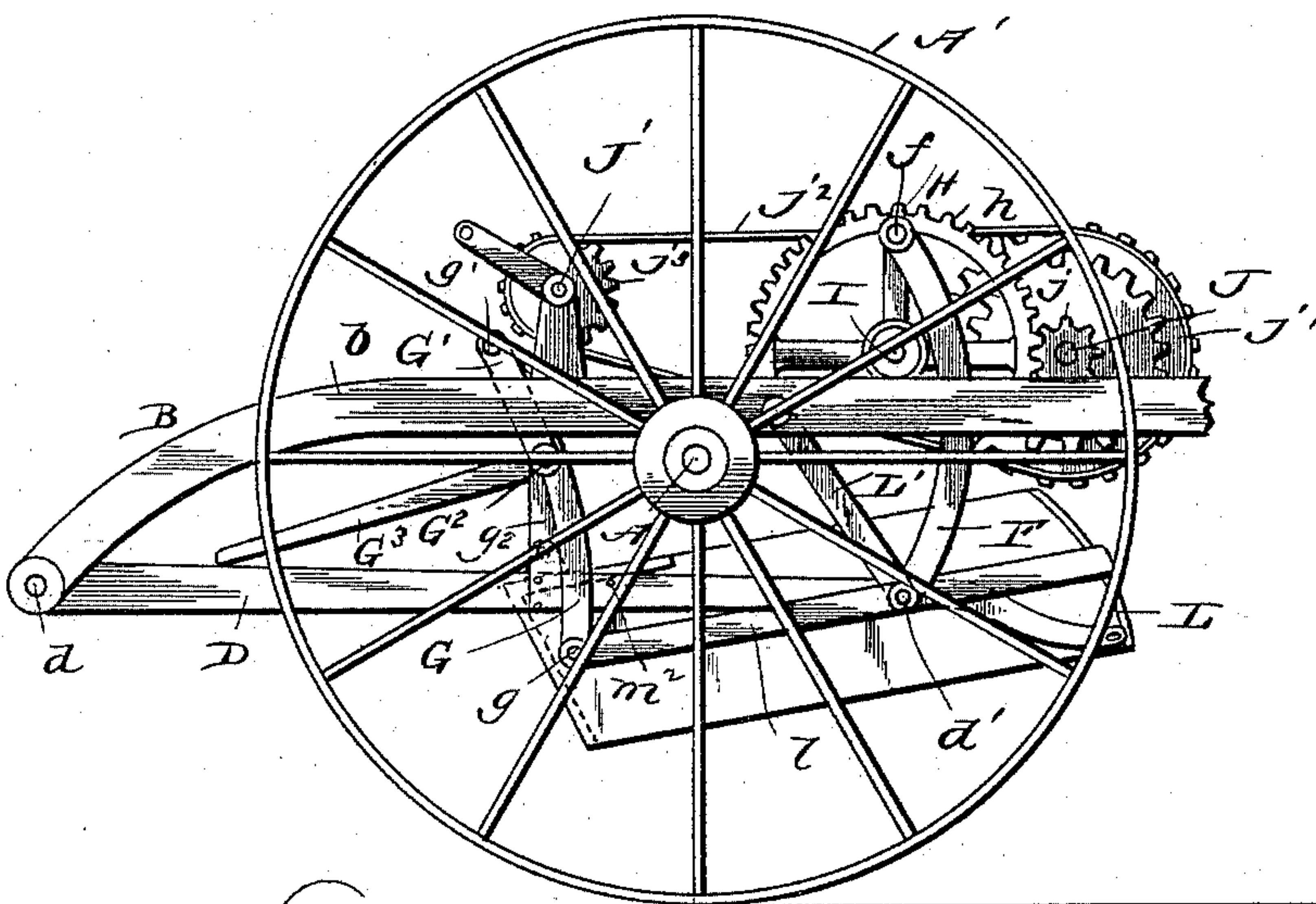


Fig. 4.

Witnesses:

Wm. C. Chace  
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*Inventor*

Joseph B. Mowry  
BY Edmund Davis  
Att'y's.



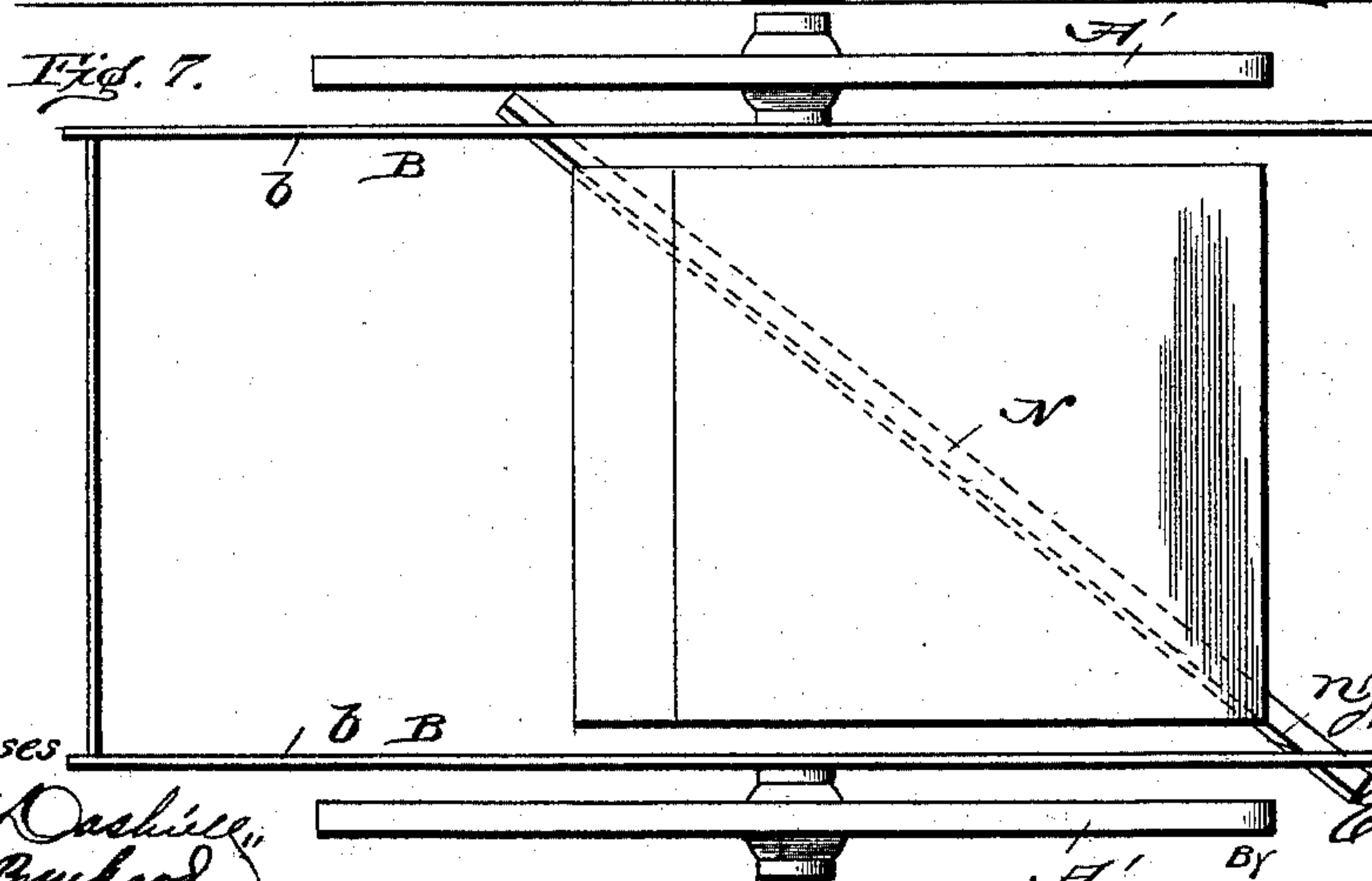
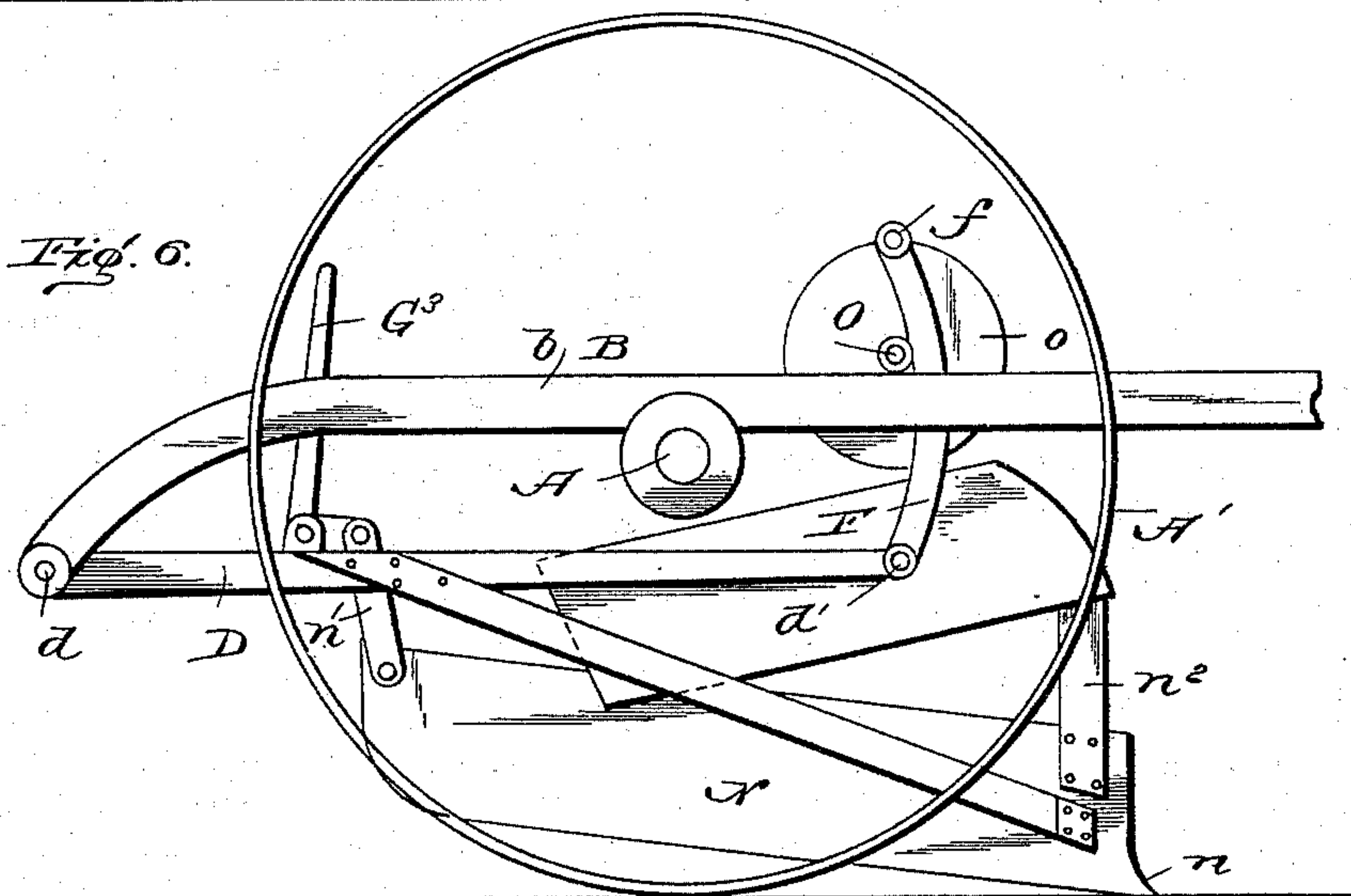
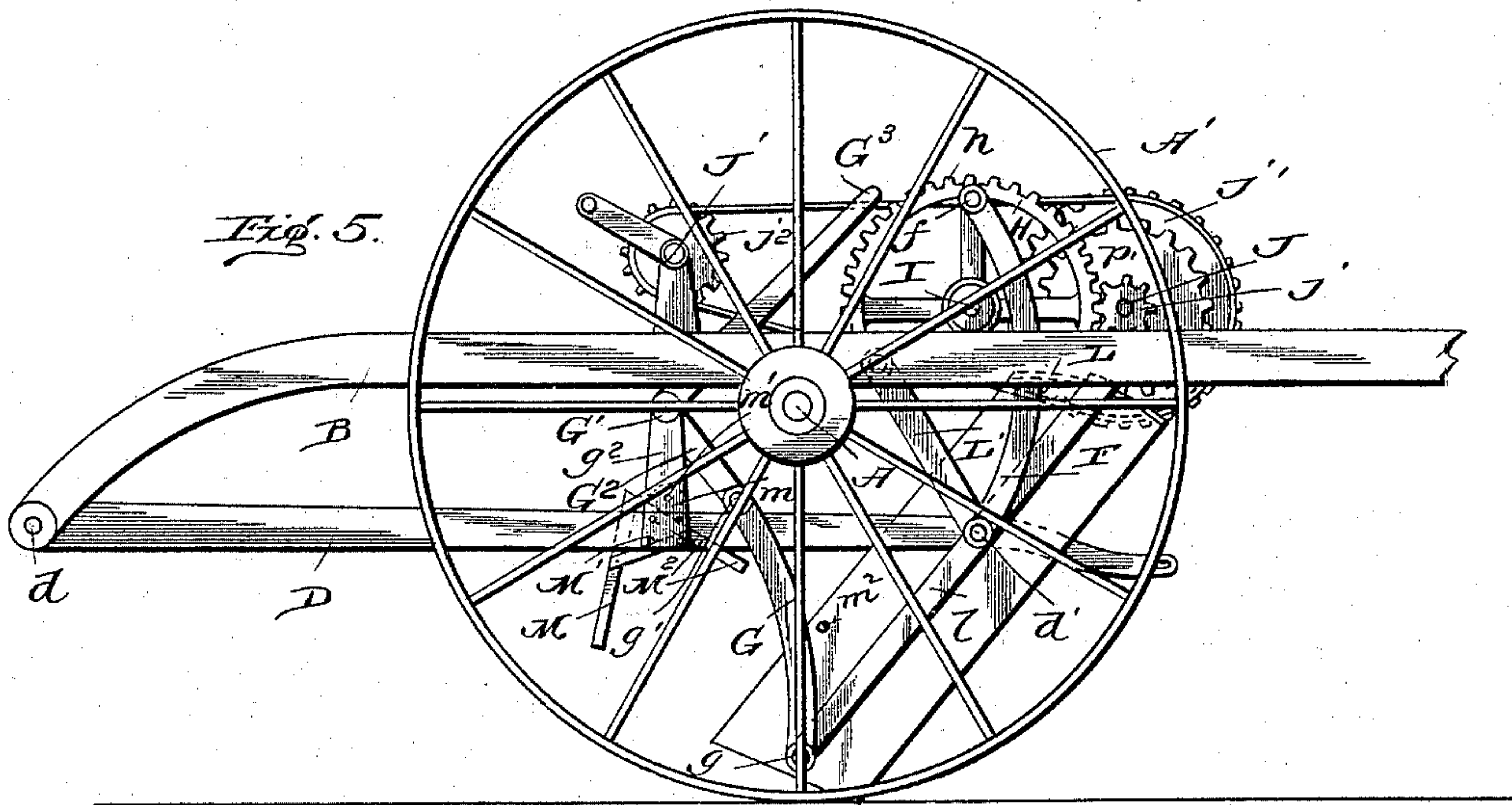
(No Model.)

3 Sheets—Sheet 3.

J. B. MOWRY.  
WHEELED SCRAPER.

No. 497,283.

Patented May 9, 1893.



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# UNITED STATES PATENT OFFICE.

JOSEPH B. MOWRY, OF MANSFIELD, OHIO, ASSIGNOR OF ONE-HALF TO  
JOHN F. STINE, OF SAME PLACE.

## WHEELED SCRAPER.

SPECIFICATION forming part of Letters Patent No. 497,283, dated May 9, 1893.

Application filed September 13, 1892. Serial No. 445,815. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH B. MOWRY, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Wheeled Scrapers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wheeled scrapers designed more particularly for excavating the dirt in roads, as well as in other places; and the objects in view are, first, to provide novel means whereby the bucket or shovel can be readily lowered into position for operation and automatically raised out of the dirt as the machine progresses or moves forward; secondly, to novel means for suspending and locking the bucket or shovel so that it cannot be accidentally dumped while moving the machine from the place where the dirt is excavated to the place where it is desired to deposit the earth carried by said bucket or shovel; thirdly, to novel devices whereby the bucket can be readily dumped by the driver on the seat of the machine, and to replace the rear end gate, as the bucket is raised to its normal position relative to the body of the bucket to close its rear end; and finally to so improve the machine in its general construction as to render it simple and strong and efficient and reliable in service.

With these, and such other ends in view as pertain to my invention, I employ a longitudinal carrying frame supported on the wheeled axle of the machine, and to this frame is hinged or pivoted a pair of parallel supporting arms. To these parallel arms or bars, the bucket or shovel is pivoted at an intermediate point of its length, said bucket being normally below the horizontal position occupied by the longitudinal carrying frame of the machine. The forward end of the bucket or shovel is sustained by means of a pair of links or hangers, which are pivoted at their lower ends to the bucket at the same points that the long pivoted carrying arms are connected thereto, and the bucket is lowered by the following devices, to wit:—On the longitudinal carrying frame of the machine

is journaled a horizontal shaft which is provided with two segments or mutilated gears; and to these gears or segments are pivotally connected the upper end of the depending links or hangers which sustain the forward end of the bucket or shovel, said segments being also geared to small pinions which are carried by another shaft or countershaft which is provided with a sprocket wheel around which passes a sprocket chain that extends around a sprocket wheel on a power shaft journaled in bearings on the longitudinal carrying frame in such position that the crank on the power shaft can be easily grasped by the driver so as to turn the power shaft, and thus through the sprocket chain revolve the countershaft which operates the gear segments to lower them and thus depress the forward end of the bucket or shovel. To raise the bucket automatically after it has received its load, and while the machine is in motion, I provide another shaft on the main carrying frame of the machine, which shaft is provided at its ends with friction wheels that are pressed or forced into frictional contact with the peripheries of the driving or carrying wheels of the machine, said frictionally driven shaft being geared with the countershaft which has the segments and the bucket suspending links connected to the segments, so that as the machine is moved to carry the load from the road to the place of deposit, the friction wheels on the shaft operate to turn the same and through the gearing and the segments, the forward end of the bucket is raised to prevent the dirt therein from being discharged through accident while the load is in transit. The tail end of the freely suspended bucket or shovel, is sustained by means of hangers or links which are pivotally connected to the side walls of the bucket or shovel, near the rear ends thereof; and these hangers or links at the rear end of the bucket are pivoted to crank arms which are secured rigidly to a rock-shaft journaled in vertical arms or standards fixed to the long suspending bars which are pivotally connected to the bucket or shovel, and said rock shaft is provided with a lever by means of which it can be conveniently turned or rocked by the driver occupying the seat on the machine. The suspending hangers or links that sustain



the forward and rear ends of the shovel or bucket are curved throughout their length; and the rocking segments and the crank arms to which said front and rear hangers or links are connected are so arranged that the pivotal connection between the said hangers, the segments and cranks will lie over or in rear of the centers of motion of the crank and segments when the bucket or shovel is lifted, whereby the curved hangers are locked in position to sustain the bucket in its elevated or raised position and prevent the bucket from tilting accidentally while the machine is moving from the road to the place where it is desired to dump the earth out of said suspended and locked bucket or shovel. The rear end gate of the bucket is not secured directly to the side walls of said bucket, but it is mounted on or carried by supports which are pivoted to the long carrying bars of the bucket, and these pivoted supports are provided with inclined arms that lie in the path of studs or pins fixed to the side walls of the bucket, the arrangement being such that the end gate is withdrawn from the rear end of the bucket when the latter is tilted or dumped by throwing the lever forward so as to rock the shaft and depress the crank arms and hangers, but as the rear end of the bucket is raised, after the load has been discharged, the studs or pins thereon strike against the inclined arms of the pivoted end-gate supports, whereby the elevation of the rear end of the bucket serves to depress and adjust the rear end gate forward in proper position to close the rear open end of the bucket. The front end gate of the bucket is likewise disconnected from the sides of the bucket, and it is sustained by a pair of arms or bars, which are pivoted to the rear ends of the bucket at the same points that the rear suspending hangers are connected to said bucket; and to these sustaining bars for the front end gate are pivoted links that are connected, at their upper ends, to the longitudinal carrying frame of the machine, such sustaining bars of the front end gate being adapted to raise the front end gate when the front end of the bucket is lowered into position to penetrate the ground and take up the load of dirt. But as the front end of the bucket is raised, the bars lower the front end gate into position across the open front end of the bucket, and thus after the bucket is loaded and lifted, the front end thereof as well as the rear end are closed by automatic end gates.

In connection with the machine, I provide a scraper adapted to be secured in place below the bucket or shovel which is elevated out of the way and locked in such elevated position by the described arrangement of curved hangers and the actuating devices therefor; and this scraper extends diagonally across the machine so as to act on the ground to level the same after it has been excavated to the desired extent by the bucket or shovel.

The invention further consists in the novel

combination of devices and peculiar construction and arrangement of parts which will be hereinafter fully described and particularly pointed out in the claims.

The accompanying drawings fully illustrate my improved machine for scraping and leveling dirt.

Figure 1 is a plan view. Fig. 2 is a front elevation. Figs. 3, 4 and 5 are side elevations of the machine provided with the bucket or shovel in its different positions for excavating, carrying and dumping the dirt. Fig. 6 is a side view showing the machine provided with the leveling scraper. Fig. 7 is an outline plan view of the machine in order to more clearly indicate the leveling scraper. Fig. 8 is a detail view, in side elevation, of the means for holding the friction disk on the hoisting shaft normally out of contact with the carrying wheels and for adjusting the shaft so that its friction disks will bear against the carrying wheels to raise the front end of the shovel as the machine moves forward. Fig. 9 is a detail perspective view of a part of the bucket, a part of the two longitudinal carrying bars, and the rear end gate showing the means for supporting and adjusting the said rear end gate.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the carrying axle of the machine, and on the end of this axle are fitted the carrying wheels  $A'$ ,  $A'$ , in the usual manner. On this horizontal axle is supported the longitudinal carrying frame B which sustains the shovel or bucket and the operating mechanism therefor, said frame B consisting of the spaced parallel bars or beams  $b$ ,  $b$ , which beams  $b$ ,  $b$ , are converged at their front ends to be fastened to the coupling-block  $b'$  interposed between the said contiguous ends of the beams, see Figs. 1 and 3. The front part of this longitudinal carrying frame B, is connected by a vertical king bolt  $b^2$ , to a wheeled truck C, and to this truck is fastened the draft-tongue  $C'$ , to which the draft horses can be attached in the usual manner. The rear ends of the longitudinal beams  $b$ ,  $b$ , of the carrying frame are curved or inclined downward below the level of the transverse carrying axle A, and said ends of the beams  $b$ ,  $b$ , are connected together by a transverse stay bolt or rod  $d$ . On this rod or bolt  $d$  are hung or pivoted the rear ends of the bucket-carrying arms or bars D, D, which are arranged within the beams  $b$ ,  $b$ , of the carrying frame, and which lie below the horizontal level of said beams; and these bars D, D extend beneath and forward of the axle A for a suitable distance to receive the bucket or shovel E which is sustained by and between its supporting bars D, D.

The bucket comprises the sides and bottom, which are united together in a substantial manner, and the disconnected front and rear end gates, which will be more fully de-



scribed presently. This bucket and its supporting bars are pivotally connected together at intermediate points of their length, as at  $d'$ ; and said bucket is operated and sustained by the front and rear hangers F, F, and G, G, and the operating devices for said hangers.

The front hangers F, F, are connected at their lower ends to the bucket or shovel at the same pivotal points,  $d'$ , as the supporting bars D; and the upper ends of said front hangers are pivotally connected to the rocking segments H, H. These rocking segments are secured near the ends of a rock shaft I which is journaled in suitable bearings on the main frame B; and said segments are provided on their peripheries with gear teeth  $h$ , that mesh with the gear teeth of the pinions  $j$ , carried by a countershaft J also journaled in bearings on the frame B. This intermediate or countershaft J is further provided with a sprocket wheel  $j'$  around which passes a sprocket chain  $j^2$  that extends to and around the sprocket wheel  $j^3$  on the power shaft J' journaled on the frame B immediately in front of the driver's seat J<sup>2</sup> also on the frame B, the power shaft J' having a crank handle for conveniently turning the same, and thus through the intermediate gearing to turn or rock the segments H, H, to lower or raise the bucket or shovel.

The front hangers F, F, are curved throughout their length and the pivotal connections,  $f$ , between the hangers and rocking segments are at such points on the segments that they will lie over or in rear of the centers of motion of the segments after the latter have been turned to elevate the bucket or shovel, whereby the hangers and bucket are locked in their raised positions to obviate accidental tilting or lowering of the bucket and the inadvertent discharge of its contents.

The rear hangers G, G, are pivotally connected at their lower ends to the bucket about midway between the upper and lower corners, at the rear part of the sides of said bucket, and the upper ends of said rear hangers G, G, are likewise pivotally connected, at  $g'$ , to the crank arms G', G', carried by a rock shaft G<sup>2</sup> journaled in bearings provided in the upper ends of vertical standards  $g^2$  which are rigid with the bucket-carrying arms or bars D, D, said rock shaft G<sup>2</sup> having an operating lever G<sup>3</sup> rigidly fastened thereto for conveniently lowering or raising the heel of the bucket by the operator on the seat.

The rear hangers G, G, are like the front hangers F, curved throughout their length; and the crank arms G' are so formed and the pivotal connections between the rear hangers and the crank arms are such that the pivots  $g'$  will lie over or in rear of the center of motion (the rock shaft) of said crank arms when the heel of the bucket is raised and thus said end of the bucket and the rear hangers will be locked in position.

L, M, are, respectively, the front and rear end-gates of the bucket or shovel, each of which is entirely independent of or disconnected from the side walls of the bucket and which are sustained in position across the ends of said bucket, when elevated, by devices which operate to permit the lowering of either end of the bucket without such end gates partaking of the dropping motion of the bucket.

The front end gate L is curved or segmental in cross section, and it is rigid with the front ends of two parallel sustaining bars,  $l, l$ , that lie alongside of the bucket, the rear ends of said bars  $l, l$ , being pivotally connected to the bucket at the pivotal connections  $g$  between the rear hangers and said bucket. To the front end-gate-bars are pivoted the lower ends of the vertical links  $L'$ , and the upper ends thereof are pivoted to the side beams  $b, b$ ; the arrangement of the links and bars and their pivotal connection with the main frame, the bucket, and with each other, being such that the bars will be raised when the longitudinal carrying bars D and the bucket are lowered without affecting the rear end gates, thus lifting the front end gate L clear of the front end of the bucket; but when the carrying bars D and the bucket are raised, the end gate L is lowered across the front end of the bucket and closes the same to prevent the dirt from escaping while it is being carried from the place of excavation to the place of deposit.

The rear end gate M, is preferably flat as shown, and it is carried by brackets or plates  $M', M'$ , to which it is rigidly secured in any desirable way. These brackets are provided in their upper edges with lugs  $m$ , which are pivoted to the standards,  $g^2$ , as at  $m'$ ; and said pivoted brackets are further provided with inclined cam projections or arms  $M^2$  which are extended into the path of shoulders or pins  $m^3$ , which are fixed to the sides of the bucket. With the bucket in its raised position, the inclined arms of the pivoted rear end-gate rest or bear upon the shoulders or pins  $m^3$  and close said gate securely against the rear end of the bucket, but when the lever G<sup>3</sup> is operated to lower the rear end of the bucket to dump the same, the shoulders or pins  $m^3$  are withdrawn from the arms  $M^2$  and the tail gate is pitched, by the location of the pivots and the gravity of the arms  $M^2$ , into an inclined position to give sufficient clearance for the rear end of the bucket as the latter is elevated after dumping its load.

After sufficient dirt has been excavated or scraped out of the road or other place, I employ a leveling scraper N which is supported below the shovel or bucket by suitable devices which may be attached to the shovel-sustaining bars D. This leveling scraper N extends diagonally across the length of the machine, and it consists of a segmental blade, or a flat blade with a curved lower edge, indicated at  $n$ , and the front and rear sustaining bars  $n', n^2$ , which are secured respectively



to the carrying bars D and to the front part of the shovel, or to the bars D in front of the shovel.

The bucket is positively lifted, after it has received its load, by friction hoist mechanism, the preferred embodiment of which consists of a rotary shaft journaled in suitable bearings on the beams *b, b*, of the longitudinal carrying frame. This shaft O is provided at its ends with friction disks, *o, o*, which bear or ride against the peripheries of the carrying wheels and which are adapted to be rotated by frictional contact therewith when the machine is drawn along after the bucket has received its load; and said hoisting shaft O is further provided with a gear pinion *p*, which meshes with a similar gear *p'* fixed to the countershaft on the main carrying frame B. The friction hoist shaft is adapted to have its friction wheels moved into and out of engagement with the driving wheels of the machine, and to do this I support said shaft O in movable bearings *o'* on the longitudinal carrying frame, said bearings *o'* being preferably pivoted on the sides of said frame B. The shaft O is normally held by a pressure spring or springs *O'* in a position where its friction wheels are free from contact with the driving wheels, and to the shaft is connected a link *o''* which has its other end pivoted to the arm of a bell-crank treadle *O<sup>2</sup>* suitably fulcrumed on a transverse bar *O<sup>3</sup>* secured to the main frame in such position that the operator on the seat can press with the foot against the free end of said treadle to move the shaft and throw its friction wheels into close contact with the driving wheels when the bucket is to be lifted.

This being the construction of my improved wheeled scraper, the operation may be described as follows:—To transport the machine, the power shaft is turned to lift the front end of the bucket, and the lever on the rock shaft is operated to lift the heel of the bucket, and thus the latter is locked in its raised position. The team can now be driven to move the machine to the place where it is desired to excavate or scrape the road. The power shaft is operated to lower the front end of the bucket into operative position, the heel of the bucket turning on the pivots which connect the same to the carrying bars D, D, and the said bars also being lowered with the bucket, the bars turning on the pivotal rod or bolt at the rear end of the beams *b, b*, of the carrying frame. The bucket and carrying bars are now in the inclined positions shown by Fig. 3 of the drawings, and the machine is now drawn forward by the team so that the front end of the bucket will scrape the dirt and force the same into the bucket. After sufficient dirt has accumulated in the bucket to form a load, the treadle *O<sup>2</sup>* is depressed and the continued movement of the machine causes the hoisting shaft to raise the front end of the bucket because said hoisting shaft is geared to the countershaft which turns the rocking gear seg-

ments in their reverse directions. The bucket with its load will thus be automatically raised to the position shown by Fig. 4, with the front end gate across the open front end of the bucket, and the curved hangers will lock the bucket in its raised position so that the machine can be driven from the road to the place where it is desired to deposit the earth without permitting the dirt to escape from the bucket. To dump the load, it is only necessary to turn the lever on the rock shaft and thus lower the rear hangers, thereby tilting the bucket to the inclined position shown by Fig. 5, the rear end gate M being thrown or dropping out of the way of the bucket and being retained by its pivotal connection with the carrying bars D in the elevated position above the bucket. To raise the heel of the bucket, it is only necessary to move the lever and thus draw up the crank arms and hangers, and as the bucket is thus lifted the studs or shoulders on the bucket impinge against the inclined or cam arms and adjust the rear end-gate across the rear open end of the bucket to close the same.

It will thus be seen that I provide a machine which can be readily moved from one place to another without liability of accidentally dumping the load as the bucket or shovel is locked in its elevated position, and at the same time the bucket can be easily manipulated by the driver on the seat to lower or raise either the front or rear end of the bucket to scrape the earth or dump the load.

After the dirt has been removed sufficiently out of the road, the scraper can be attached to the carrying bars D, D, in its diagonal position across the bucket, and the machine operated to level the dirt.

I am aware that changes in the form and proportion of parts and details of construction of the mechanism herein shown and described can be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such alterations and modifications as fairly fall within the scope of my invention.

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

1. The combination with the carrying frame, of the longitudinal carrying bars pivoted to the rear of the frame, a tiltable bucket pivoted at an intermediate point of its length to said carrying bars, means connected to the front end of said pivoted bucket to raise or lower said bucket and its carrying bars, and operating devices normally connected to the bucket in rear of its pivots to tilt or cant the bucket bodily on its pivot into a dumping position and limit the descent of the rear end of the bucket, substantially as and for the purpose described.

2. The combination with a carrying frame, of the longitudinal carrying bars pivoted to the rear part of the frame, the front hangers pivoted to the bucket and bars and having means for raising and lowering said bucket



and the bars to which it is pivoted, the rear hangers pivoted to the bucket in rear of its pivotal connection to the carrying bars and serving to limit the descent of the rear end of the bucket, and means for moving the rear hangers vertically to tilt the bucket into a dumping position or to raise the bucket into a carrying position, substantially as and for the purpose described.

3. The combination with a carrying frame, and the pivoted longitudinal bars, of a tiltable bucket pivoted at an intermediate point of its length to the longitudinal bars, means for raising or lowering the bucket and its longitudinal carrying bars into a scooping position, the rear hangers pivoted to the bucket in rear of its pivotal connection with the bars and serving to limit the descent of the rear end of the bucket when tilted to its dumping position, and a rock-shaft to which the rear hangers are connected, substantially as and for the purpose described.

4. The combination with a carrying frame, of the longitudinal carrying bars pivoted to the frame, a tiltable bucket pivoted at an intermediate point of its length to said longitudinal carrying bars, the front hangers pivoted to the bucket at the points of its connection with the carrying bars, power devices for raising and lowering the bars and bucket, the rear hangers pivoted to the bucket in rear of its pivotal connection with the longitudinal bars and front hangers, and a rock shaft to which the rear hangers are linked, substantially as and for the purpose described.

5. The combination with a carrying frame, of the pivoted bucket, the shaft journaled on the frame and carrying the segments, the curved hangers between the segments and the bucket having their pivotal connection with the segments at points to lie over the shaft when the bucket is elevated, and means for operating the segment-carrying shaft, as and for the purpose described.

6. In a wheeled scraper, the combination with a carrying frame, of the longitudinal bars pivoted to said frame, a bucket carried by said longitudinal bars, a transverse shaft journaled on the carrying frame and provided with the segments, the hangers pivoted to said bucket and to the segments, and a power shaft geared to said transverse segment-carrying shaft, substantially as and for the purpose described.

7. The combination with a carrying frame, of the pivoted bucket, a shaft journaled on said frame and carrying the segments, the curved hangers pivotally connected at their lower ends to the bucket and having their pivotal connection with the segments at points to lie over said shaft when the bucket is elevated, a power shaft also journaled on the frame, and a countershaft geared to the power shaft and the segment-shaft, substantially as and for the purpose described.

8. The combination, with a wheeled carry-

ing frame, of the pivoted bucket, the shaft carrying the segments, the hangers pivoted to the bucket and having their upper ends pivoted to the segments at points to lie over said shaft when the bucket is elevated, and a hoisting shaft geared to the segment-shaft and adapted to be driven directly from the carrying wheels of the machine, substantially as and for the purpose described.

9. The combination with a carrying frame, mounted on suitable wheels, of the pivoted longitudinal bars carrying a bucket, a transverse shaft having connections with said bucket and its carrying bars, a hoisting shaft mounted in movable bearings on the frame and provided with the friction disks, and means for moving said hoisting shaft to gear with the transverse shaft and cause its friction disks to bear against the carrying wheels, substantially as described.

10. The combination with a carrying frame, of the pivoted carrying arms, the rock shaft journaled in said arms, the bucket pivoted to the arms, and the hangers between the arms and the bucket, as and for the purpose described.

11. The combination with a carrying frame, of the pivoted longitudinal carrying bars, the bucket pivoted thereto, a transverse shaft journaled on the frame and having the front hangers connected to said bars and the bucket, means for rotating said transverse shaft to raise and lower the bucket and bars, and a rock shaft journaled on the longitudinal carrying bars and having the rear hangers connected to the bucket in rear of its pivotal connection with the front hangers and bars, the front and rear hangers being pivotally connected to the transverse and rock shafts at points which lie over and in rear of the centers of motion of said transverse and rock shafts when the bucket is raised, substantially as described.

12. The combination with a pivoted bucket and means for operating the same, of the front and rear end gates disconnected from the bucket, a pair of sustaining bars which carry the front end gate and operate to lift the same when the bucket is lowered, and pivoted supports for the rear end gate which withdraw the same when the bucket is dumped and provided with means actuated by raising of the tail end of the bucket to close the rear end gate across the tail end of the bucket, substantially as described.

13. The combination with a pivoted bucket and mechanism for independently raising or lowering either the front or rear end thereof, of an independent front end-gate arranged and sustained by devices to close the front end of the bucket only when it is elevated, and another independent rear end-gate pivotally supported to close the rear end of the bucket when elevated and adapted to permit the bucket to drop when dumping, as and for the purpose described.

14. The combination with a carrying frame,



a pivoted bucket, and mechanism for sustaining and operating the same, of a front end gate, the supporting bars rigidly connected to said front end gate and pivoted to the rear  
5 part of the bucket, and the vertical links connected to the machine-frame and to the gate-sustaining bars, as and for the purpose described.

15. The combination with a carrying frame  
10 and the bucket-sustaining bars, of a bucket pivoted to said bars, a rear end-gate pivotally supported on the bucket-carrying arms and adapted to close the rear end of the bucket when elevated, as and for the purpose de-  
15 scribed.

16. The combination with a carrying frame, of the longitudinal carrying bars, a bucket pivoted at an intermediate point of its length to said carrying bars, mechanism for raising  
20 or lowering either end of said bucket, and a rear end gate pivotally supported on said carrying bars to automatically drop out of the path of the bucket when the rear end thereof is lowered and provided with means arranged  
25 in the path of said bucket or of projections thereon to close said end gate against the rear end of the bucket when the said end is elevated, substantially as and for the purpose described.

30 17. The combination with a carrying frame and pivoted bucket, of a pivoted rear end gate having the inclined or cam projections, and studs or projections on the bucket adapt-

ed to impinge against said inclined or cam arms as the bucket is raised, as and for the  
35 purpose described.

18. The combination with a main frame, of the pivoted bucket-carrying arms, a bucket pivotally connected to said arms, means for raising and lowering either end of the bucket  
40 independently, the gate-carrying arms pivoted at their rear ends to the bucket and carrying the rigid front gate at their forward ends, the links between the carrying frame and the gate-sustaining arms, and a rear end  
45 gate pivotally supported on the bucket-carrying bars and provided with the projections which lie in the path of shoulders or pins on the bucket, as and for the purpose described.

19. The combination with a carrying frame,  
50 of the longitudinal pivoted bars D, a bucket and the front hangers pivoted at  $d'$  to said bars, D, the rear hangers pivoted at  $g$  to the bucket, a front gate sustained by bars  $l$  connected to the bucket by pivots  $d', g$ , the links  
55  $L'$  pivoted to the frame and the pivots  $d'$ , and a rear end gate pivotally supported on the bucket-carrying bars D, substantially as described.

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

JOSEPH B. MOWRY.

Witnesses:

R. BRINKERHOFF, Jr.,  
ROBT. B. BRINKERHOFF.