

(No Model.)

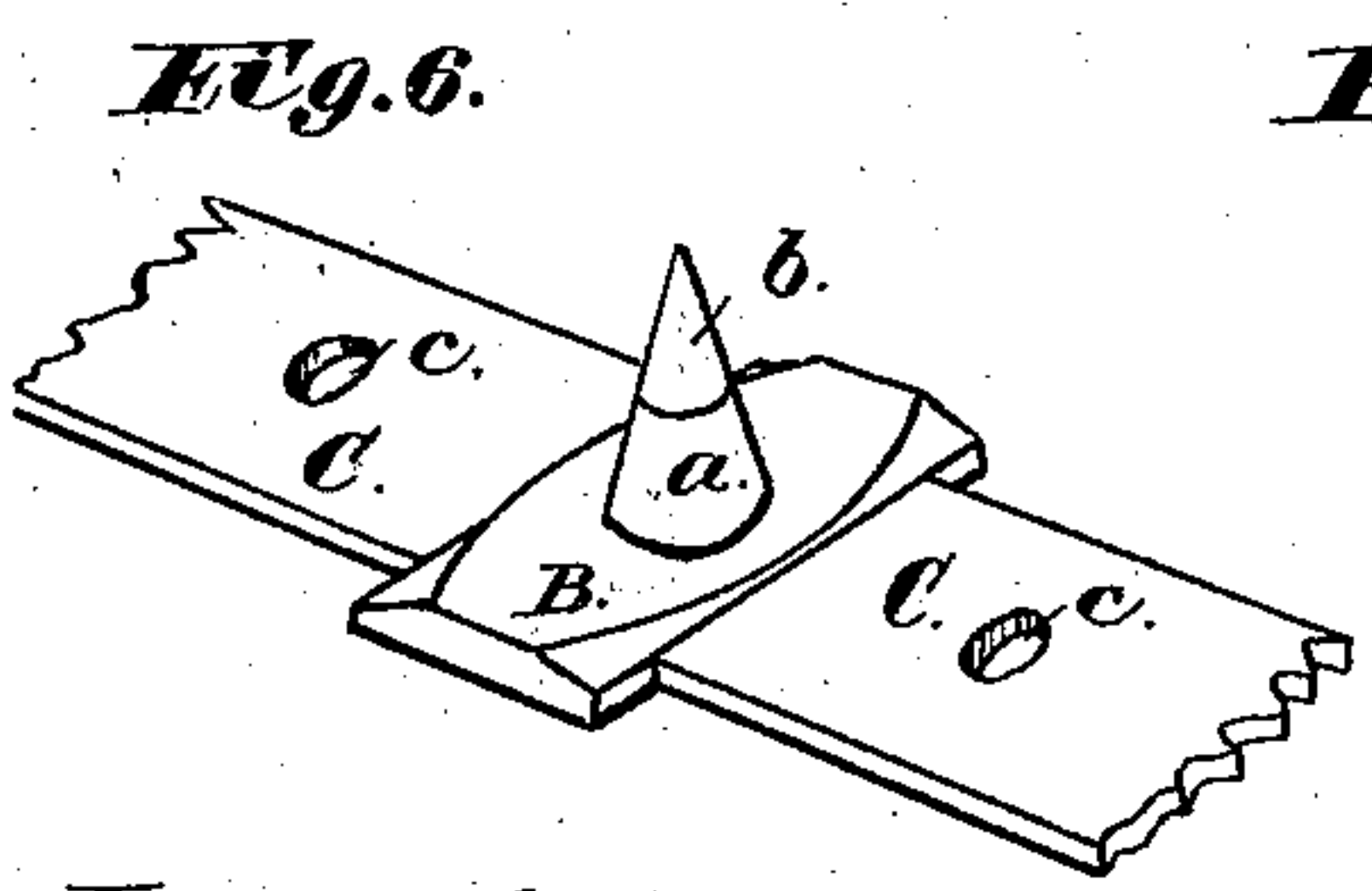
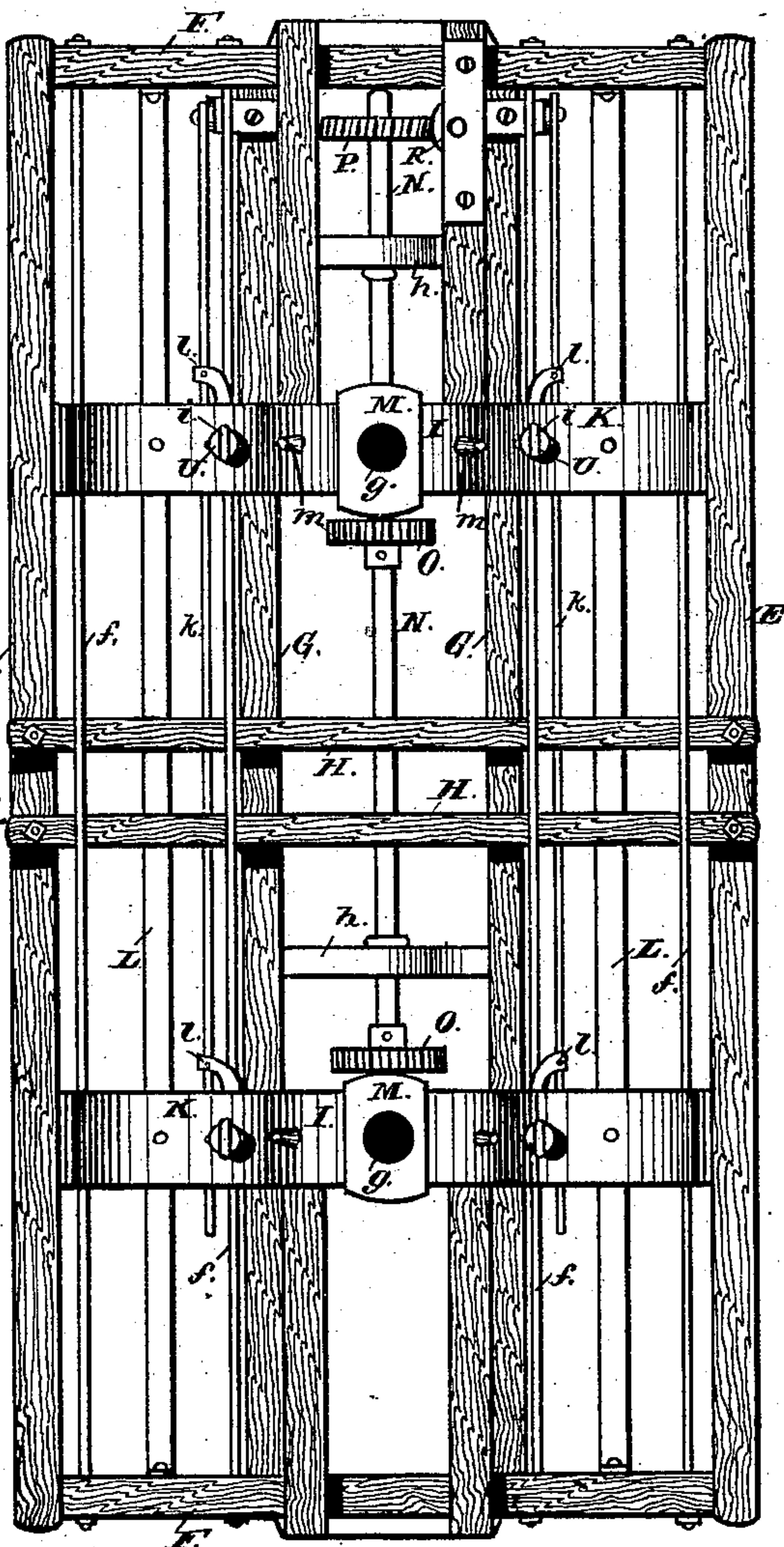
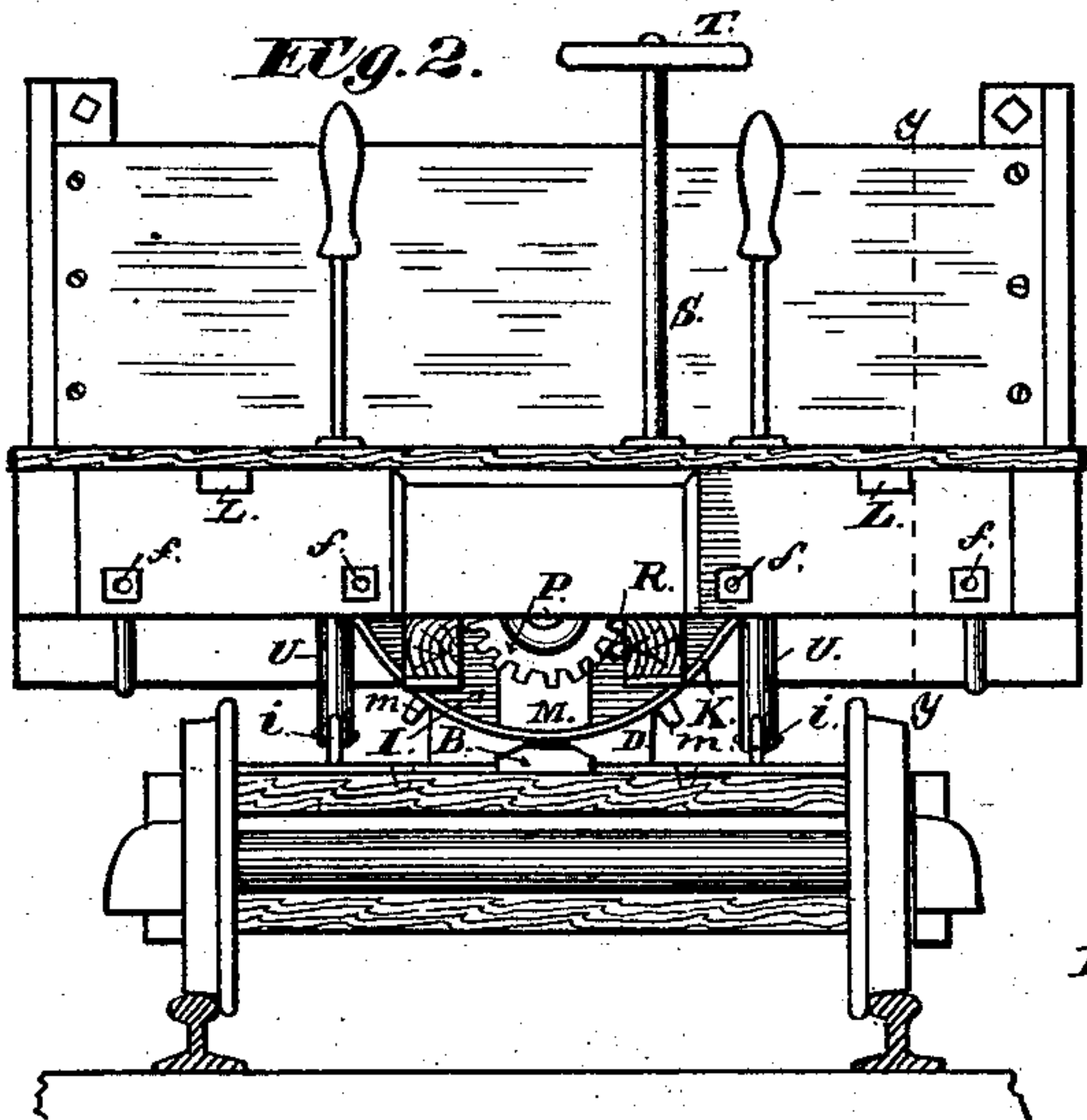
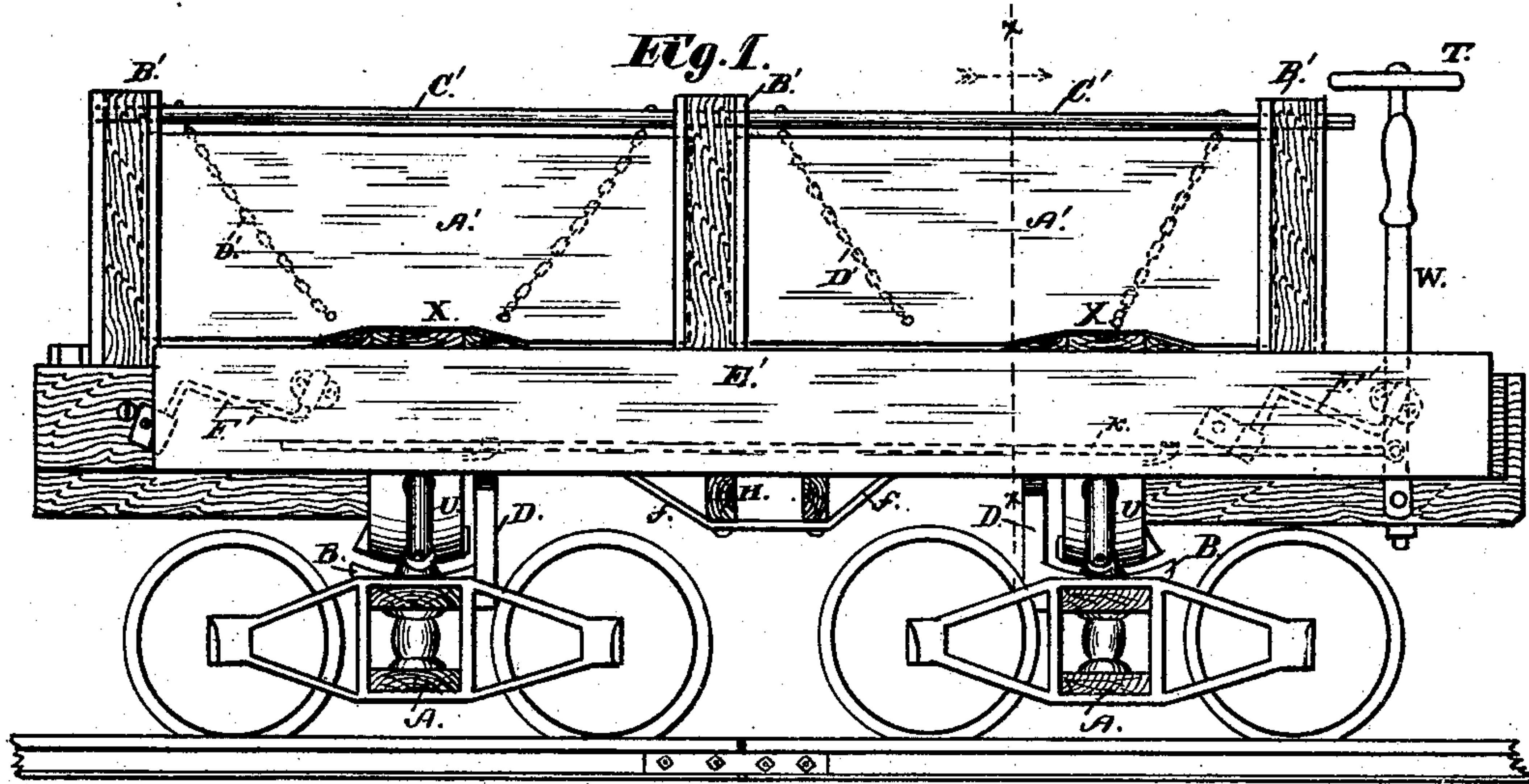
2 Sheets—Sheet 1.

M. VAN WORMER.

Dumping Car.

No. 236,121.

Patented Dec. 28, 1880.



Inventor;
Matthew Van Wormer
by Peck & Ritchie
his Atty's;

Witnesses;
C. H. Taylor.
P. H. Gunkel

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

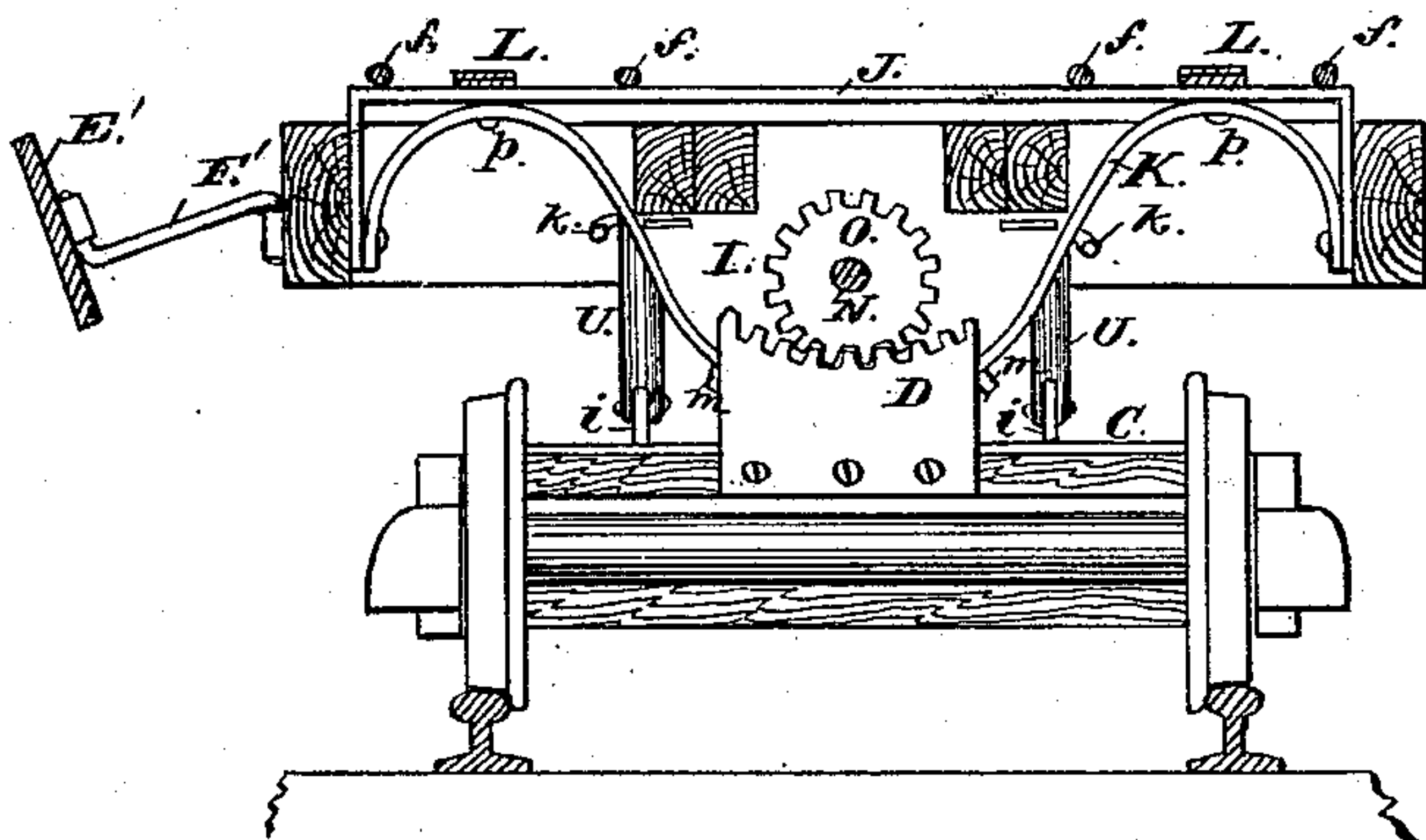


Fig. 5.

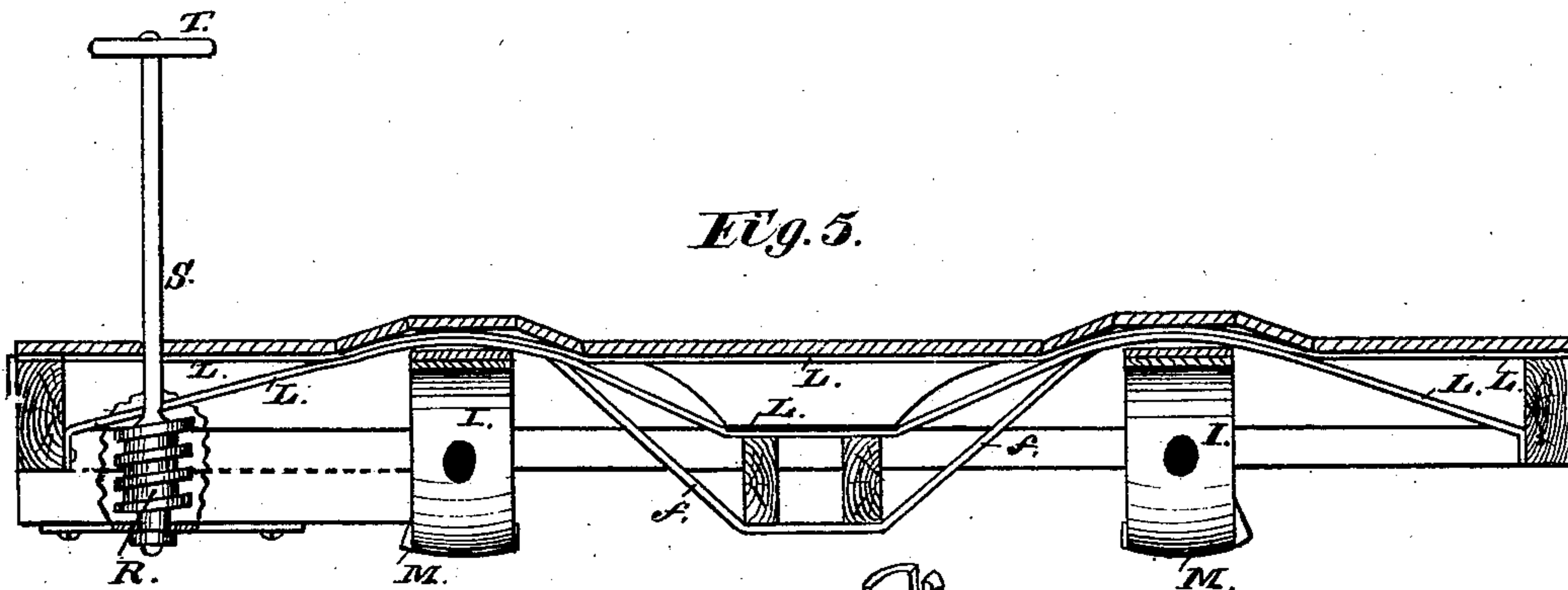
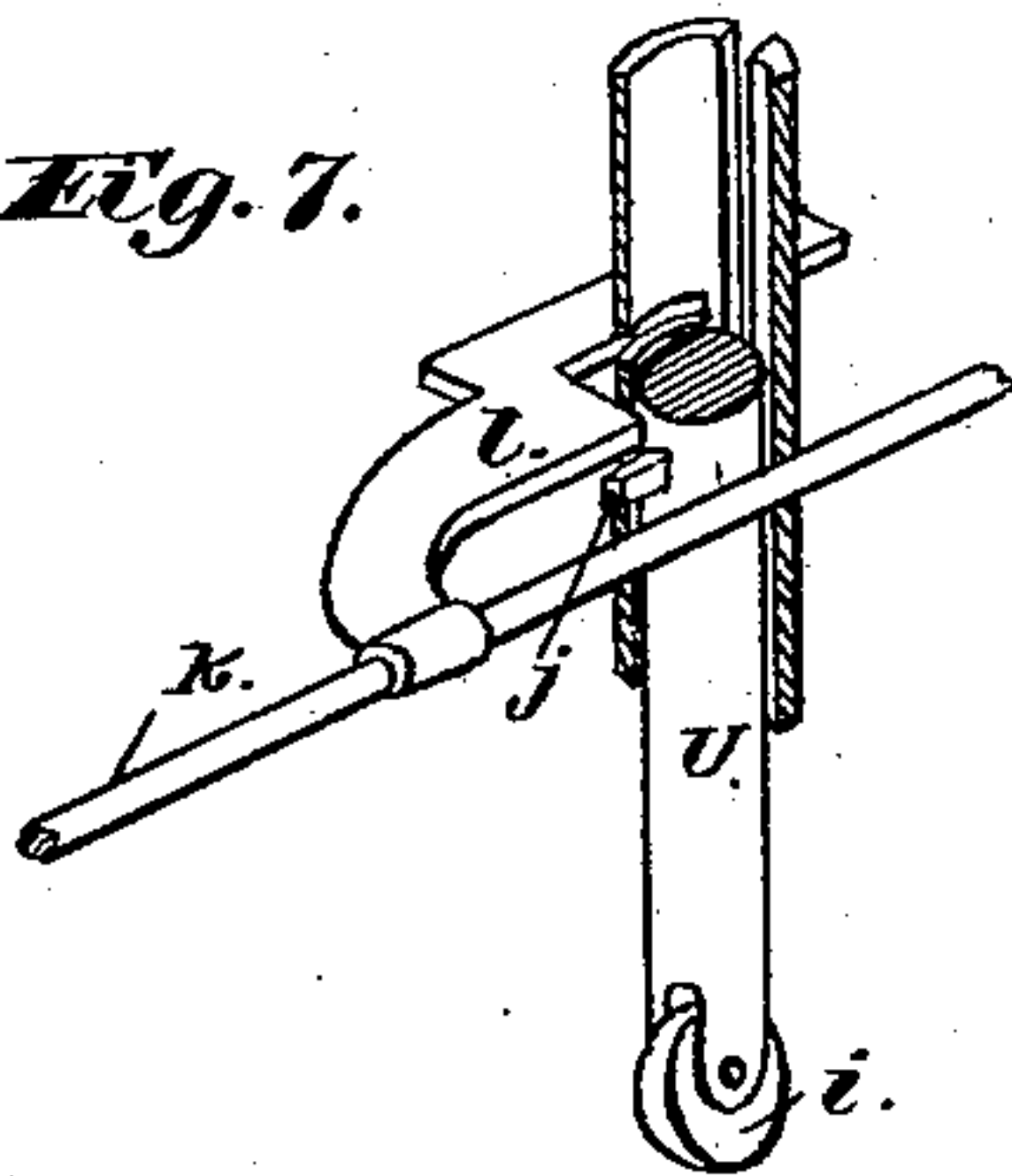


Fig. 7.



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UNITED STATES PATENT OFFICE.

MATTHEW VAN WORMER, OF DAYTON, OHIO, ASSIGNOR TO NANCY VAN WORMER, OF SAME PLACE.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 236,121, dated December 28, 1880.

Application filed July 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW VAN WORMER, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dumping-Cars; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improvement in that class of railway-cars known as "dumping-cars," which are capable of being tilted sidewise on their trucks to empty their loads in bulk.

The novelty of the invention consists in the construction and combination of the devices employed, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved dumping-car. Fig. 2 is an end view of the same. Fig. 3 is a plan view of the body taken off the trucks and inverted. Fig. 4 is a sectional end view through the line *xx* of Fig. 1. Fig. 5 is a sectional side elevation through the line *yy* of Fig. 2.

Corresponding letters of reference refer to like parts in all the figures.

The trucks A may be of the usual or any suitable construction.

Upon the top of each upper truck-timber, at its middle, is secured the center body-bearing plate, B. (Shown at Fig. 6 in perspective.) This plate is concave, as represented, and has a central frusto-conoidal boss or extension, *a*, through which the king-bolt passes down into the truck-timber and serves to lock the plate B thereto. The head of the king-bolt *b* is shaped to complete the cone of which the boss upon the plate is a frustum, as seen in Fig. 6. These plates B and their king-bolts form center bearings for the body of the car. Upon each side of the plate B flat metal plates C are secured to the upper truck-timber, and through each is one or more apertures, forming recesses *c*, whose office will be hereinafter explained.

Bolted to the side of each upper truck-timber, in any suitable manner, is a segmental rack, D, with the concave side uppermost, as shown.

The platform or bed of my improved car-

body is composed, essentially, of the side beams, E, end beams, F, longitudinal central beams, G, and transverse central transoms or beams, H, supported by the beams G.

Directly over each truck-timber is a rocker-piece, I, flat on top and convex on its under surface, the whole forming the segment of an ellipse, as represented. These rocker-pieces may be of wood, with the beams G mortised through them, and they are further supported by metal straps or plates J and K, of which the former passes over and the latter under the rockers I, and have their outer ends, which are turned down, bolted to the side timbers, E. While the under surfaces of the plate K are convex to conform to the rockers I, their outer ends are concave, as represented, for a purpose to be hereinafter explained. To strengthen and stiffen this frame-work I employ the girder-rods *f*, as represented, and to form a further support for the bed-planks I use metal straps L in pairs, which are bolted to the end timbers, F, as represented, pass over the plates J and K and over and under supporting-blocks secured upon the transverse beams H.

Securely bolted or otherwise fastened to the lower side of the rockers I at their middle are center bearing-plates, M, with convex lower surfaces, and having in each a central recess or aperture, *g*, to receive and contain the heads of the king-bolts and the frusto-conoidal stem of the plates B. It is thus clearly seen that the body of the car, by the intervention of the plates M, rests upon the plates B as central bearings, and at the same time the king-bolts and the stems of the plates B form pivots for each of the trucks while turning curves.

To dump the car to either side I employ a central longitudinal shaft, N, which is journaled in hangers *h* supported by the beams G, and is further supported by passing through openings in the rockers I and beams H. This shaft carries two pinions, O, keyed to it, which engage respectively with each of the racks D. The teeth of the pinions are tapered at each side, so as to permit of the play between the parts requisite in turning curves. Keyed upon the end of the shaft N, just under the plat-

form at one end of the car, is a worm-wheel, P, which engages with a worm, R, secured upon a vertical shaft, S, passing up through the platform, and provided with a crank or hand wheel, T. By turning said hand-wheel the shaft N is caused to rotate and the car is tilted to either side desired. By the employment of this dumping-gear with a worm-shaft a positive lock is always secured, no matter in what position the body of the car may be. It cannot move from that position without a breakage of some of the parts. To assist, however, in retaining the car in an upright position and lessen the strain upon the dumping-gear, I employ rests or side beams, U, which consist of cylindrical metal pieces carrying pivoted friction-rollers *i* in their lower ends, as seen. These supports, Fig. 7, are recessed in metal sockets secured in the rockers I on each side of the center bearings, and are provided with laterally-projecting pins *j*, which, traveling in slots in the sockets, prevent the supports from falling out of said sockets, and further prevent them from turning therein. These supports are sufficiently long, also, that when dropped down to their lowest extent their rollers *i* rest upon the plates C. To lock them in this position so as to enable them to support the body of the car on each side, I employ rods *k*, having their forward ends connected to levers W, which, pivoted below the platform, pass up through openings in the same. Each of these rods *k*, which are supported in the sockets I so as to slide therein, is provided with two slides, *l*, of the shape represented, and so fitted into transverse openings in the rockers I, adjacent to the support-sockets, that when said rods are shifted by their levers the slides *l* will pass over the tops of the supports and prevent them from ascending into their sockets.

When it is desired to dump the car it is only necessary to unlock the supports on the dumping side of the car, when, by turning the hand-wheel as aforesaid, the car will turn and empty itself. During this tilting of the car the supports or side bearings which were unlocked will be pressed up into their sockets, out of the way, and will not interfere with the dumping. When the car, after being dumped, is turned back to a horizontal position the supports will fall of their own gravity back to their former position, when they can be locked as aforesaid.

In order to prevent the car while in the act of being dumped from being disengaged from its center bearings, I employ studs or dowels *m*, which are secured in any manner desired to the under side of the rocker-plates K, between the supports U and the center bearings. These dowels, while the car is tilting, enter the apertures *c* in the plates B and serve to prevent the car from slipping or being displaced. The apertures *c*, as seen, are sufficiently wide to receive the dowels, even though the car when being dumped stood on a short curve.

Especial attention is called to the floor-planks X, which are raised, as seen, just over the rockers, for the purpose of enabling the car to be tilted over farther without raising the bed higher than other cars of this class, or of ordinary cars. This result is further contributed to by the curved portion *p* of the rocker-plates K, and by the employment of the strap-supports L, which, lying upon each other, occupy very little space.

The sides of the car are movable gates A', which are held in slotted posts or supports B', and these posts form journals for shafts C', as seen. The gates A', of which I employ two or more on a side, which are free to slide up and down in the slots of the posts, are connected to the shaft C' by chains, ropes, or wire cords D', as shown.

By employing permanent or removable cranks at either end of the shafts C' they may be rotated, thus winding up the chains D' and causing the gates on either side to be raised simultaneously. A reverse motion would permit them to fall by their own gravity.

Another valuable feature of my invention consists of a director-board for causing the dumped material—as gravel, for instance—to fall close to the rails of the track. This I accomplish by hinging a board, E', to the side beams by means of pivoted bracket-arms F', arranged as shown. By means of these swinging arms the board, when not wanted for use, can be swung around so as to lie close to the side of the car, in which position the contents of the car would pass over it while being dumped; or it can be swung out, as shown in Fig. 4, when it could act as a director to throw the load of the car close to the rails.

It will be observed that the dowels upon the under side of the rocker could be transferred to the plates C, and in that case the recesses *c* would be formed in the plate K of the rocker.

Having thus fully described my invention, what I claim is—

1. In a dumping-car, the combination of the following instrumentalities: segment-racks attached to the trucks, pinions engaging with said racks, attached to the car-body by a common shaft, and an actuating worm-shaft connected to the pinion-shaft by a worm-wheel, whereby the car can be dumped to either side, and whereby a positive lock is effected between the car body and trucks, no matter in what position of inclination the car-body may stand.

2. In a dumping-car, the combination, with rockers upon which the car-body turns and rests, of central bearing-pivots consisting of concave plates B, with frusto-conoidal stems, and king-bolts whose heads complete the cones of which the plate-stems are frustums, as specified.

3. In a dumping-car, the combination, with the trucks, whose upper timbers are provided with central bearings and pivots and flat metal bearing-plates, of convex rockers at-

tached to the body of the car and mounted upon said central pivots and bearing-plates, as specified.

4. In a dumping-car, the rockers I, carrying upon their under surfaces the reversed curved metal plates K and the central recessed convex bearing-plates M, in combination with the subjacent concave plates B and their conical pivots, substantially as specified.

5. In a dumping-car, the combination, with rockers upon which the body turns and rests and by which it is pivoted to the trucks, of telescopic gravitating side bearings, whereby, when said side bearings are extended and locked, the car-body is prevented from turning to either side, as specified.

6. In a dumping-car, the combination, with the rockers I, of the side bearings or supports, U, recessed in sockets in said rockers and carrying at their lower ends friction-rollers, as and for the purpose specified.

7. In a dumping-car, the combination, with the telescopic gravitating side bearings or supports, U, of locking-slides connected to shifting rods actuated by levers upon the platform, whereby, upon moving said levers in one direction, said side bearings are locked to enable them to support the body of the car and prevent it from tilting, and whereby, upon moving said levers in an opposite direction, said side bearings are unlocked and will permit the car to be dumped by ascending into their sockets, as specified.

8. In a dumping-car, the combination, with the rockers I and recessed plates C, of dowels

or studs connected to the lower side of said rockers and adapted to enter the recesses in the plates to prevent the body of the car from slipping or becoming displaced when dumped, as specified.

9. The herein-described construction of the car bed or body, consisting of the side beams, E, end beams, F, longitudinal central beams, G, transverse central transoms, H, girder-rods f, and strap-braces L, the whole constructed and united in the manner and for the purpose specified.

10. The vertically rising and lowering gates A', in combination with actuating-shafts C', connected thereto by chains, ropes, or cords, as specified, whereby upon rotating said shafts the gates on either side are raised or lowered simultaneously.

11. In a dumping-car, the bed or platform raised transversely across and above the trucks, whereby the car can be turned over farther without raising the main body of the car higher than ordinary cars, substantially as described.

12. In a dumping-car, the directing or deflecting board, hinged to the side of the car by swinging brackets, substantially as shown and described.

In testimony whereof I have hereunto set my hand.

MATTHEW VAN WORMER.

Witnesses:

PATRICK H. GUNCKEL,
CHAS. M. PECK.