

(No Model.)

3 Sheets—Sheet 1.

M. E. COOK.
WHEELED EXCAVATOR AND CARRIER.

No. 489,707.

Patented Jan. 10, 1893.

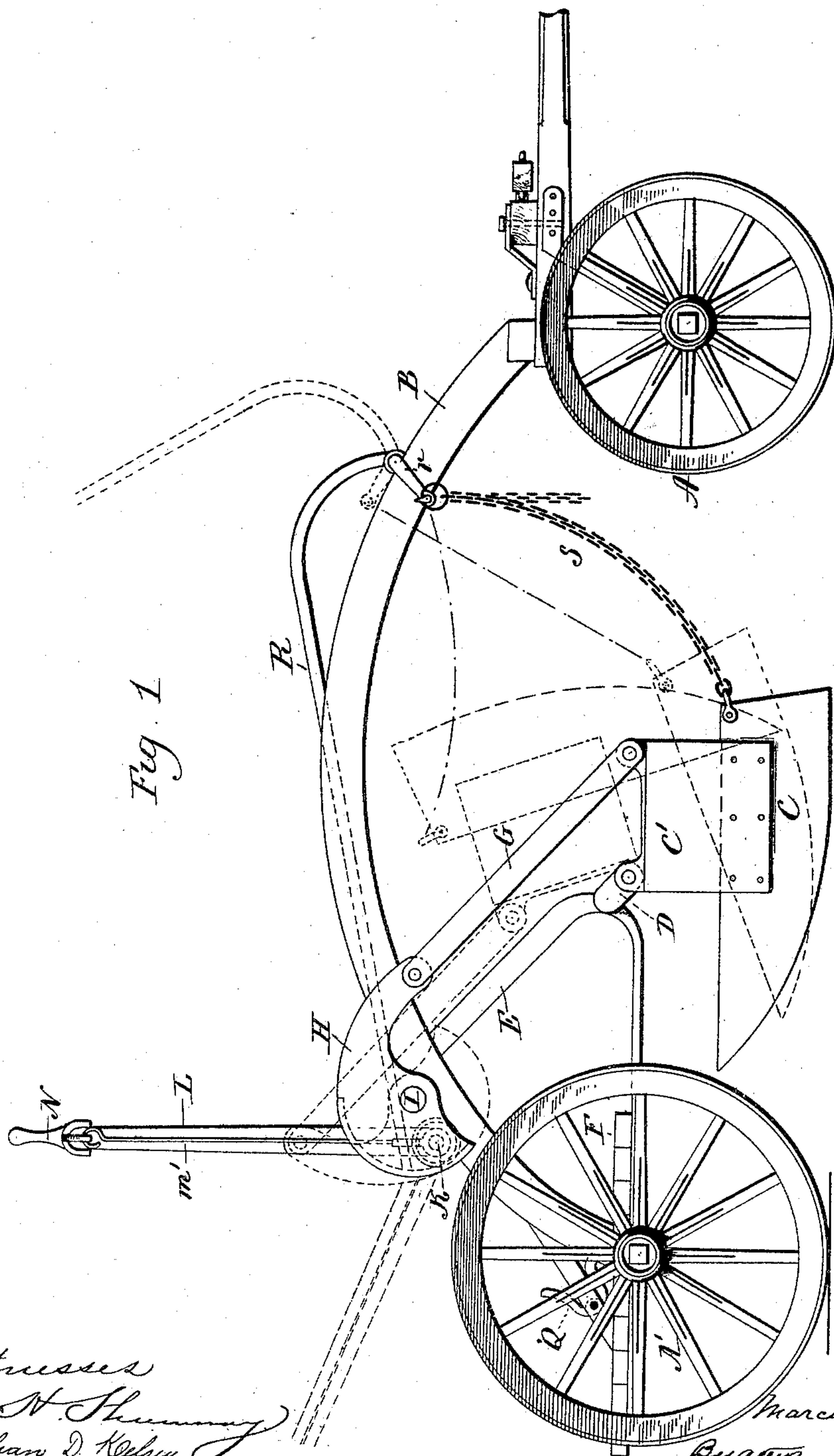


Fig. 1

Witnesses
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Lillian D. Kelsey

Marcus E. Cook
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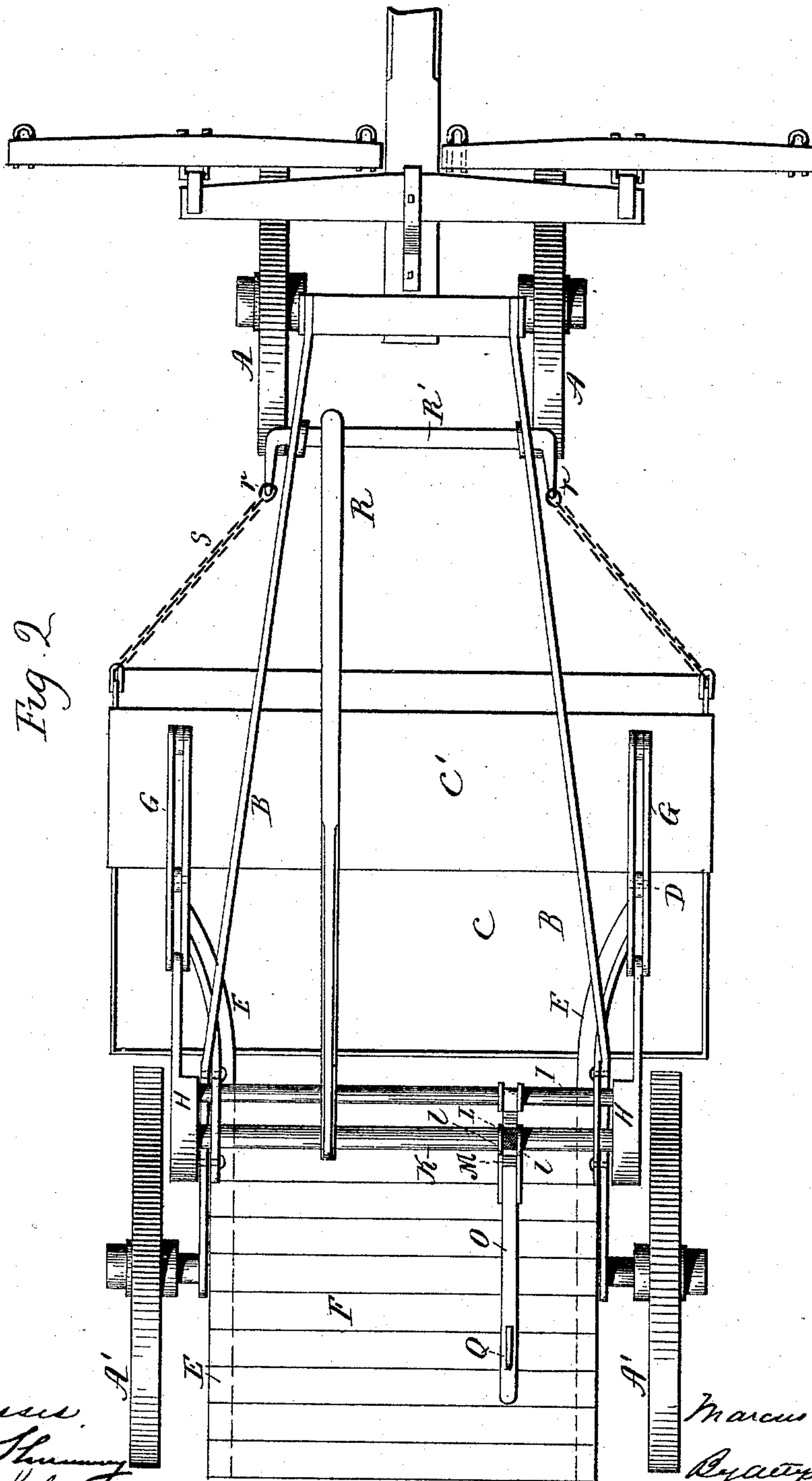
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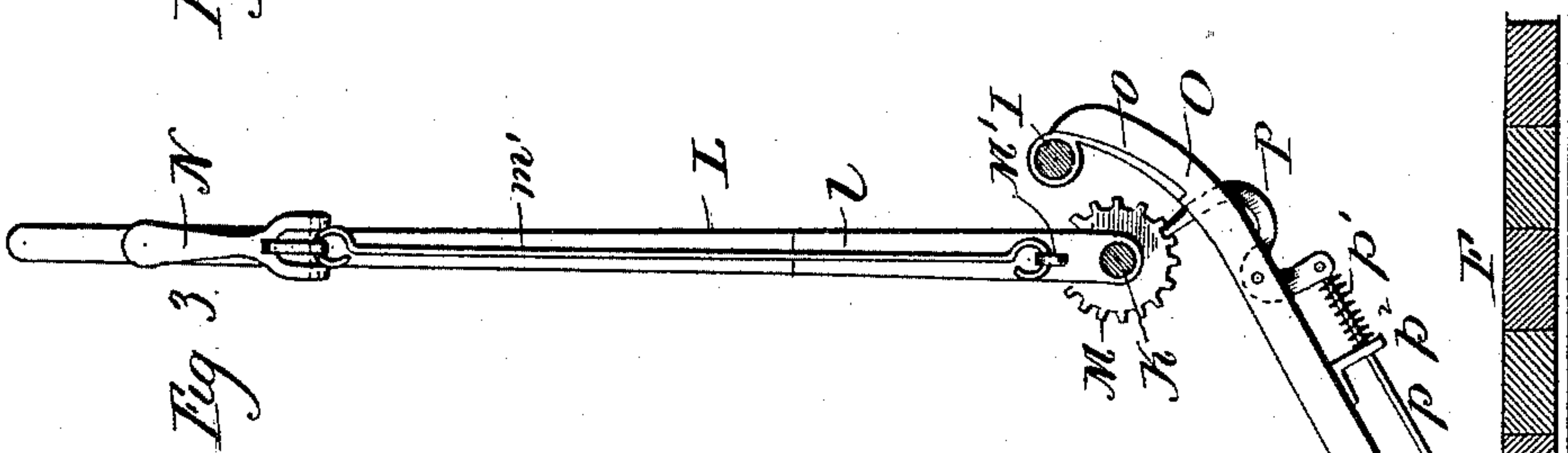
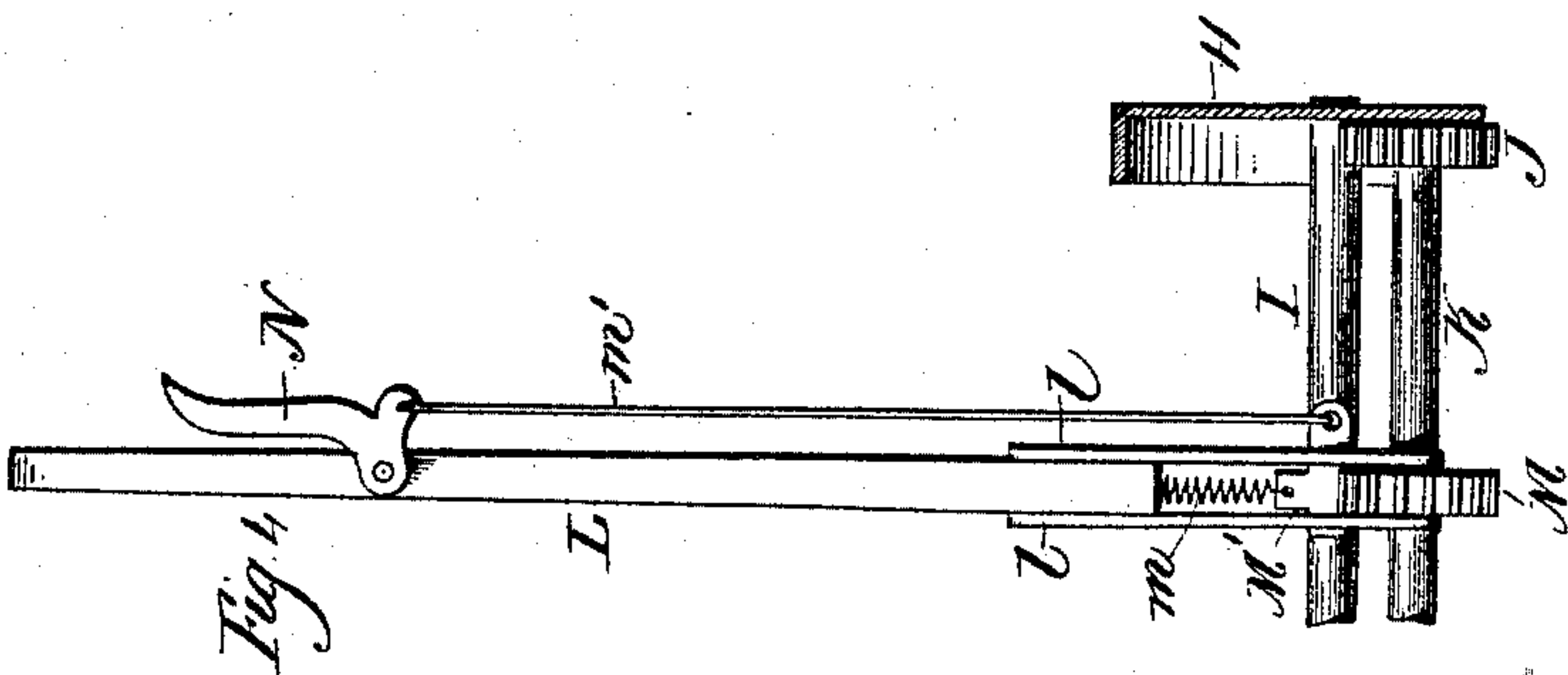
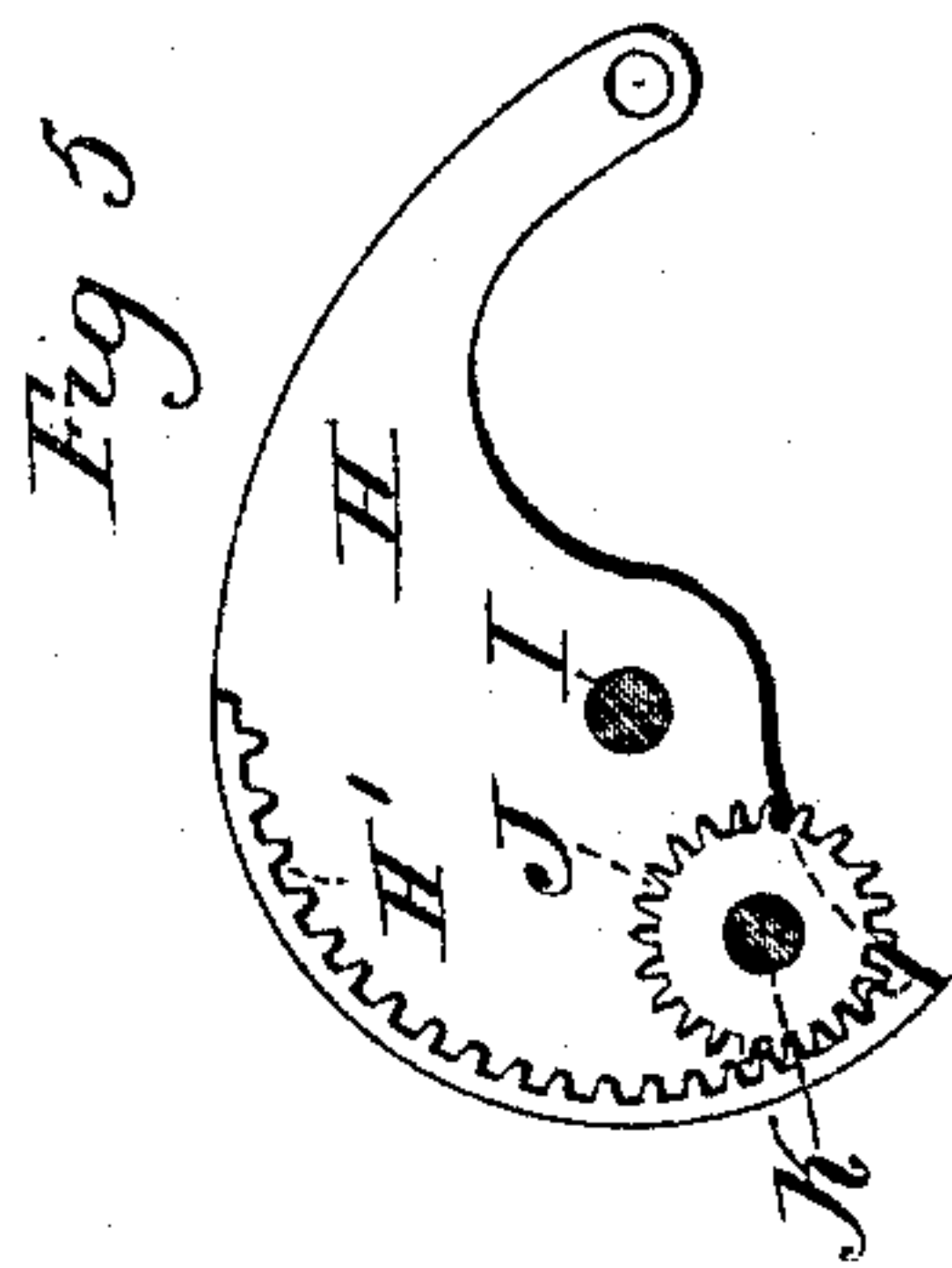
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UNITED STATES PATENT OFFICE.

MARCUS E. COOK, OF WALLINGFORD, CONNECTICUT.

WHEELED EXCAVATOR AND CARRIER.

SPECIFICATION forming part of Letters Patent No. 489,707, dated January 10, 1893.

Application filed March 28, 1892. Serial No. 426,746. (No model.)

To all whom it may concern:

Be it known that I, MARCUS E. COOK, of Wallingford, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Wheeled Excavators and Carriers; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact
10 description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a machine constructed in accordance with my invention. Fig. 2, a plan view thereof. Fig. 3,
15 a detached view in side elevation, showing the operating-lever, the driving-shaft on which the same is mounted, the foot- and hand-levers, and the connections of the same
20 with a ratchet-wheel secured to the said shaft. Fig. 4, a similar view in front elevation, showing the operating-lever, the hand-lever carried by it, the clutch connected with the said hand-lever, the driving and driven
25 shafts, and one of the cams. Fig. 5, a detached view in inside elevation of one of the cams and its co-operating pinion.

This invention relates to an improvement in wheeled excavators and carriers, the object being to produce a simple, durable, convenient and effective machine having a large
30 capacity for work.

With these ends in view, my invention consists in a machine having certain details of
35 construction and combinations of parts as will be hereinafter described and pointed out in the claims.

My improved device employs a forward truck A, and a rear truck A', both of ordinary construction, and united by two arched
40 frame-pieces B, connected with the said trucks in any suitable manner and forming an arched frame. A scoop or scraper C, located about midway between the trucks, and
45 extending transversely under the said arched frame-pieces, has a square forward end, while the rear end of its bottom is curved to permit it to be readily dumped. The scoop, it is to be particularly noted, is made so long
50 that its ends extend beyond the wheels of the rear truck, (as shown in Fig. 2,) whereby the machine is adapted to be used in making lat-

eral excavations and cuttings, as, for instance, in banks above the level on which the said truck-wheels are running. Furthermore
55 by making the scoop longer than the width of the rear truck, as described, the wheels thereof drop into and track in the excavation made by it and therefore travel on the same horizontal level in which the scoop cuts and
60 whereby the scoop feeds, so to speak, to the very best advantage, the described dropping of the wheels into the excavation, corresponding to the depression of the handle of a hand-scoop, after the forward edge of the same has
65 been entered into the earth to the required depth, for the purpose of causing it to operate in a horizontal plane.

The scoop is provided with a wide heavy bail C', having, as shown, a straight body-
70 portion or reach corresponding in length to the length of the scoop, and short ends bent downward at a right angle to the said body-portion, and rigidly secured to the ends of the scoop by riveting or otherwise. The
75 scoop is pivotally suspended in its place, and mainly handled through the medium of the said bail. The ends of the rear edges of the said bail are pivotally connected with two
80 short arms D D, respectively secured to the inner ends of two scoop-supports, which may be of any approved construction, but which as herein shown, consist of two curved bars
85 E E, bolted to the bottom of the platform F, which is supported upon the rear truck, thence extending forward under the arched
90 frame-pieces B B, then turned upward and riveted to the inner faces of the rear ends thereof. Two double lifting-links G G, have their lower ends connected with the said bail
95 C', near the forward edge thereof, their upper ends being respectively connected with operating-cams H H, respectively secured to the opposite ends of a driving-shaft I, extending transversely across the arched frame-
100 pieces B B, and journaled upon them near their rear ends. Each of the said cams is provided with an internal segmental rack H', the said racks being respectively engaged by small gear-wheels J J, secured to the opposite ends of a driving-shaft K, extending parallel with the driven shaft I, before mentioned, and mounted near, but to the rear of the same upon the said frame-pieces B B.

The said driving-shaft K, is actuated by means of an operating-lever L, mounted upon it, and thus located in convenient position for manipulation by the operator who stands upon the platform F, before referred to. As herein shown the said lever is loosely mounted upon the shaft by means of two plates *ll*, the lower ends of which are perforated in line, to receive the driving-shaft. A ratchet-wheel M, rigidly secured to the said shaft, and interposed between the lower ends of the plates *ll* aforesaid, is engaged by a clutch M', mounted in the said plates, which are there-to vertically slotted, and normally forced into engagement with the wheel by means of a spiral spring *m*, interposed between it and the lower end of the lever. The said clutch is raised to disconnect it from the ratchet-wheel by means of a rod *m'*, which connects it with a hand-lever N, pivoted to the upper end of the operating-lever. It will be understood that under the construction just described, the operating-lever will be normally coupled with the driving-shaft by means of the clutch and ratchet-wheel, and that the said lever and shaft may be temporarily disconnected to permit the lever to be thrown forward or rearward by lifting the clutch by means of the hand-lever. I would have it understood, however, that I do not limit myself to any particular construction for connecting the operating-lever with the driving-shaft.

I have also shown a secondary, clutch-mechanism adapted to be operated by the foot of the operator on the platform, F, and mounted in a curved arm O, the upper end of which is connected by a plate *o*, with the driving-shaft, while its lower end is supported upon the platform. This clutch-mechanism comprises a dog P, having its inner end adapted to be engaged with the ratchet-wheel M, and its outer end connected by a rod *p*, with the lower end of a foot-lever Q, which, with the said dog, is pivotally mounted in the arm O, before mentioned. A coiled spring *p'* interposed between the lower end of the said dog, and a bracket *p²* depending from the arm O, is thus arranged to exert a constant tendency to throw the dog into engagement with the ratchet-wheel. By depressing the foot-lever Q, by the foot, it is apparent that the dog will be retracted from the ratchet-wheel, while on the other hand, when the foot-lever is relieved from pressure, the spring *p*, will at once operate to re-engage the dog with the said ratchet-wheel. This secondary clutch-mechanism has the function of holding the driving-shaft against rotation when the same is not so held by the operator by means of the operating-lever, or when the operating-lever is disconnected from the shaft for being thrown forward or drawn rearward to secure a grip upon it, as may be desired.

I do not limit myself to the particular secondary clutch-mechanism which I have described, as various forms of clutches might be utilized in this place. When the driving-

shaft is rotated by means of the operating-lever, its motion will be communicated through its pinions or small gear-wheels J, to the cams H, which are connected by means of the double links G, with the bail of the scoop upon which a very powerful purchase is thus secured, so that under all ordinary circumstances it may be very readily lifted into the upright position in which it is shown by broken lines in Fig. 1. In order, however, to provide for lifting the scoop in case that any obstructions should prevent it from being raised by means of the operating-lever, I furnish the machine with a secondary lifting mechanism, comprising a lifting-lever R, which is normally folded down into the position in which it is represented by full lines in Figs. 1 and 2 of the drawings. This lever is rigidly secured to a shaft R', journaled upon the forward ends of the arched frame-pieces B B, and having its ends furnished with arms *r r*, extending rearwardly, and connected by means of adjustable chains S S, with the upper corners of the forward end of the scoop. By lifting the said lifting-lever R, a nearly direct pull is secured upon the forward end of the scoop, whereby the same may be lifted into an intermediate position, as shown by broken lines in Fig. 1, of the drawings. The lifting of the scoop having been started in this manner, it is then brought into its upright or dump-position by means of the operating-lever, which will in ordinary cases be sufficient of itself to handle the scoop: The outer ends of the said arms *r r* are forked to receive the said chains which are readily adjustable in them. The chains are correspondingly adjusted to be slack when the scoop is not in use, but when it is at work the slack is taken up by the dragging of the scoop backward. The chains thus operate to stay the scoop and to relieve its suspension connections from strain, and particularly to prevent damage to the scoop and its said suspension connections in case of its fouling with stones or other obstructions, or meeting with very heavy or closely compacted earth &c. The staying functions of the so called secondary lifting mechanism are therefore not less important than its lifting functions.

My improved construction for operating the scoop is simple, convenient, and employs the power of the operator to the best advantage.

I prefer to make the scoop-bail as herein shown and of a heavy single plate of wrought iron or steel, but if preferred it may be made otherwise and in more than one piece, the requirement being that it shall in its entirety be rigidly secured to the scoop between the rear and forward edges thereof, and wide enough to secure a leverage sufficient for its operation between its rigid and flexible suspension points *i. e.* between the arms D D and the lifting links G G. The straight portion or reach of the bail should be high enough above the scoop to clear the earth or material taken up by the same.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a wheeled excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop-supports combined with the said frame, a scoop suspended from the said supports, a driven shaft journaled in the said frame at the rear end thereof, two cams respectively mounted on the ends of the said shaft, and having segmental racks; links connecting the said cams with the scoop at points thereon in front of its suspension points, a driving-shaft having gear-wheels meshing into the segmental racks of the cams, and an operating-lever mounted on the said driving-shaft for actuating the same, substantially as described.
2. In a wheeled-excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop supports combined with the said frame, a scoop suspended from the said supports, a driven shaft journaled in the said frame at the rear end thereof, two cams respectively mounted on the ends of the said shaft, and having segmental racks; links connecting the said cams with the scoop at points thereon in front of its suspension points, a driving-shaft having gear-wheels meshing into

the said segmental racks of the cams, an operating-lever mounted on the said driving-shaft for actuating the same, a ratchet-wheel mounted on the said driving-shaft, and clutch mechanism co-operating with the said wheel, and adapted to be operated by the operator with his foot, substantially as described.

3. In a wheeled-excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop-supports combined therewith, a scoop hung from the said supports, an operating-lever mounted in the said frame at the rear end thereof, connections between the said lever and the scoop, and auxiliary lifting-mechanism comprising a lifting-lever mounted in the frame at the forward end thereof, and connections between the said lever and the forward end of the scoop, substantially as described.

4. In a wheeled-excavator and carrier, the combination with the frame and trucks thereof, of a scoop provided with a heavy, wide bail, rigidly secured to it between its edges, means attached to the rear and forward edges of the said bail for suspending the scoop transversely between the said trucks, and means for operating the said scoop, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MARCUS E. COOK.

Witnesses:

FRED C. EARLE,
LILLIAN D. KELSEY.