

# B. W. Remy. Excavator.

N<sup>o</sup> 8,453.

Patented Oct. 21, 1851.

Fig. 3.

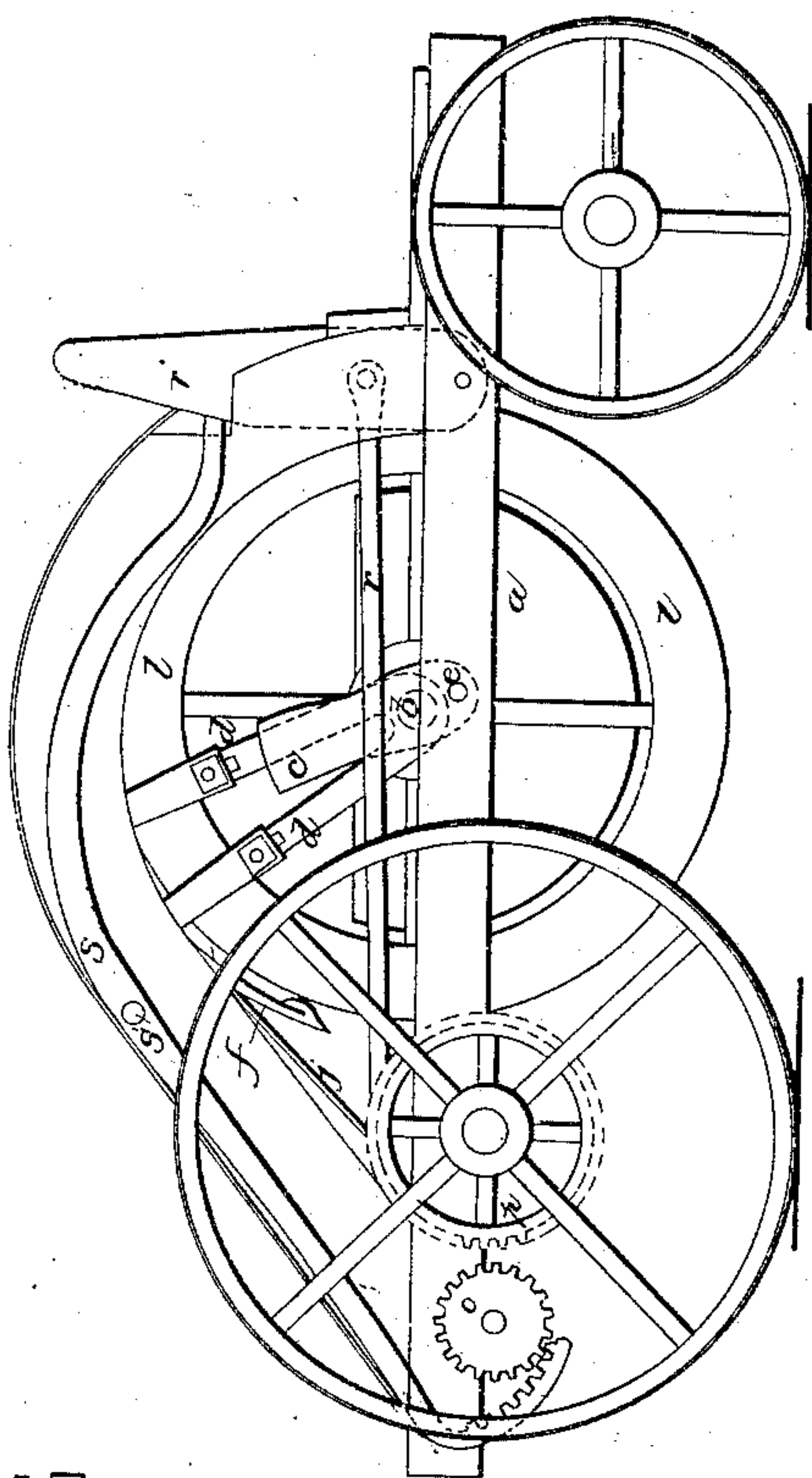


Fig. 2.

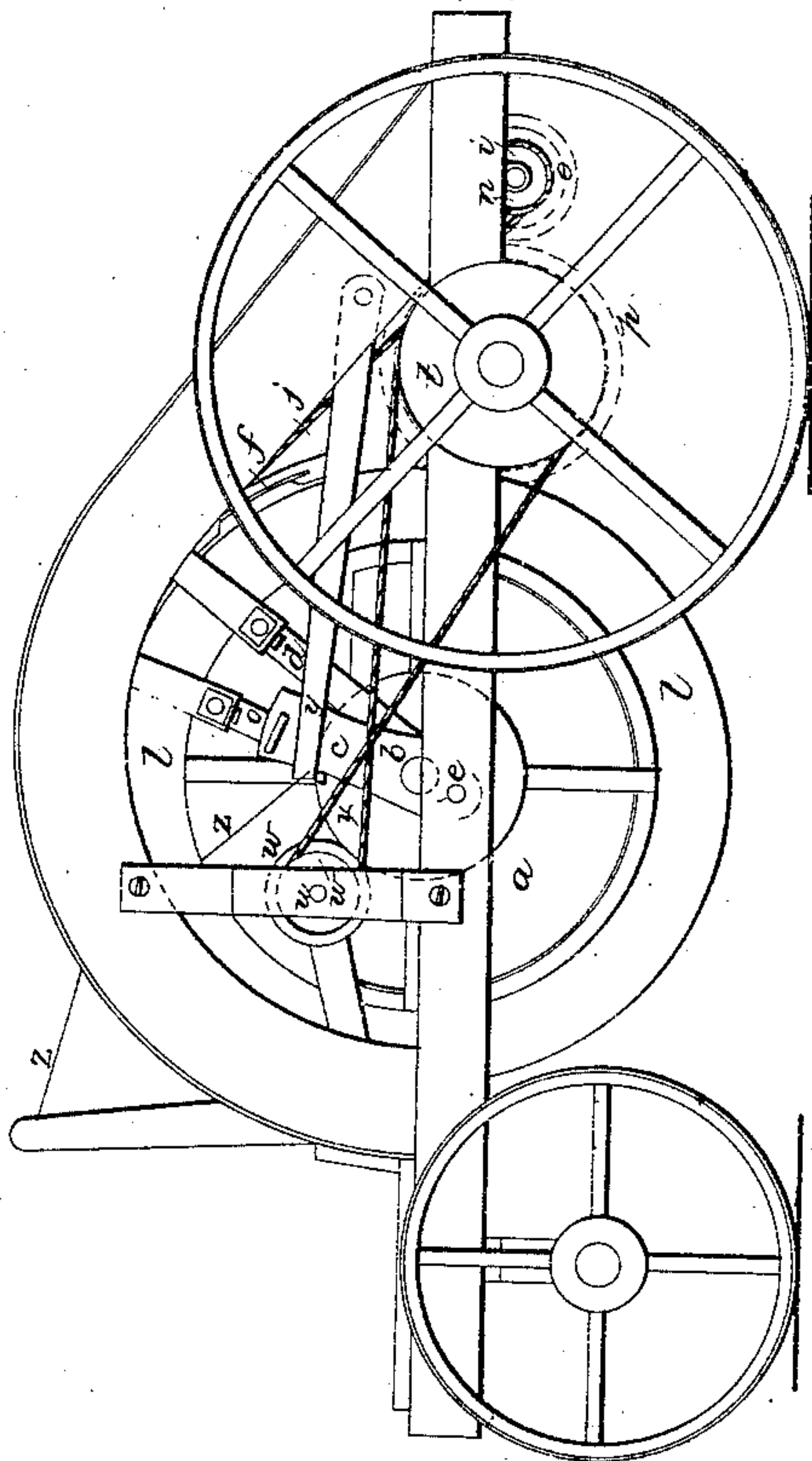


Fig. 1.

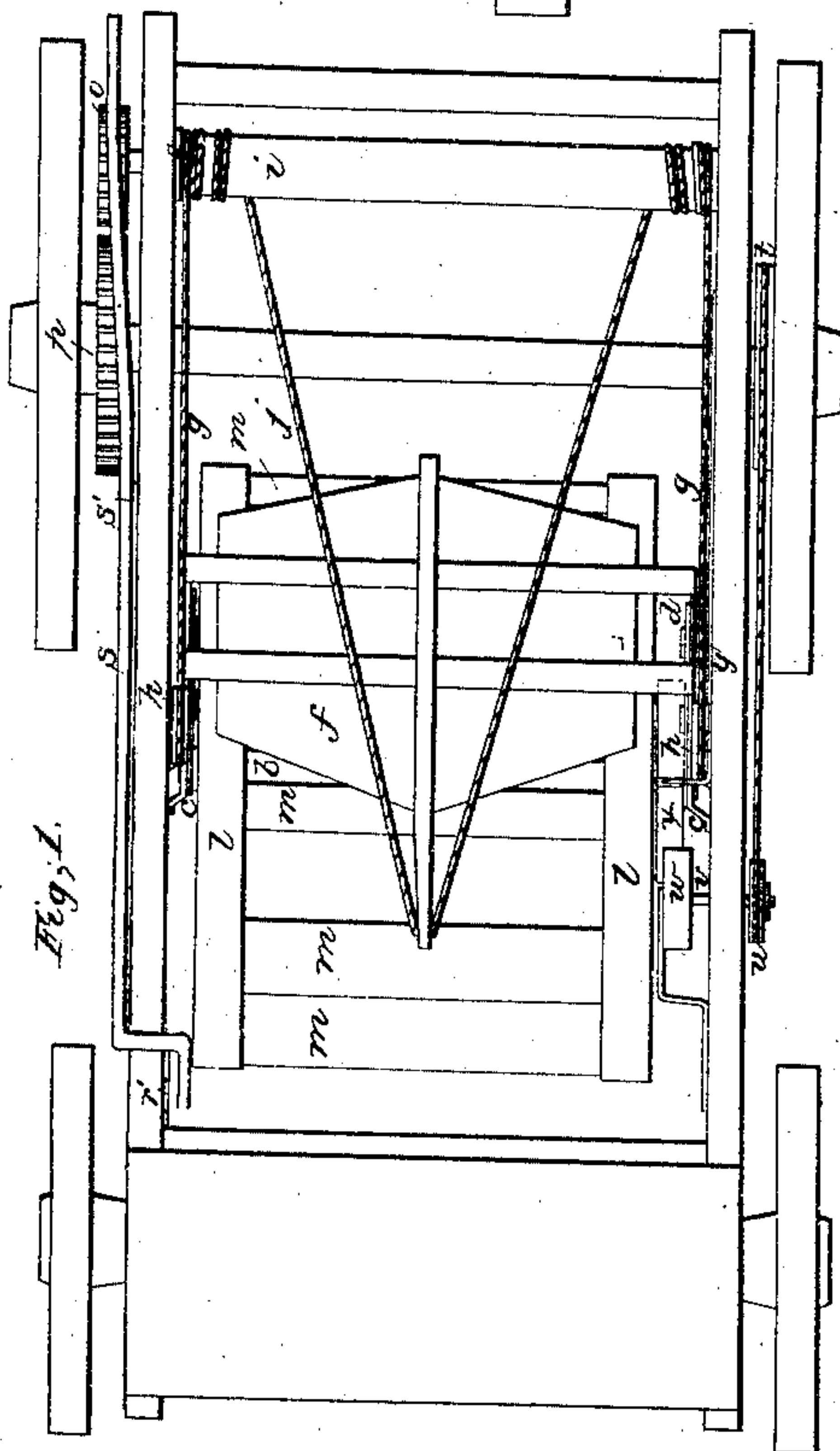
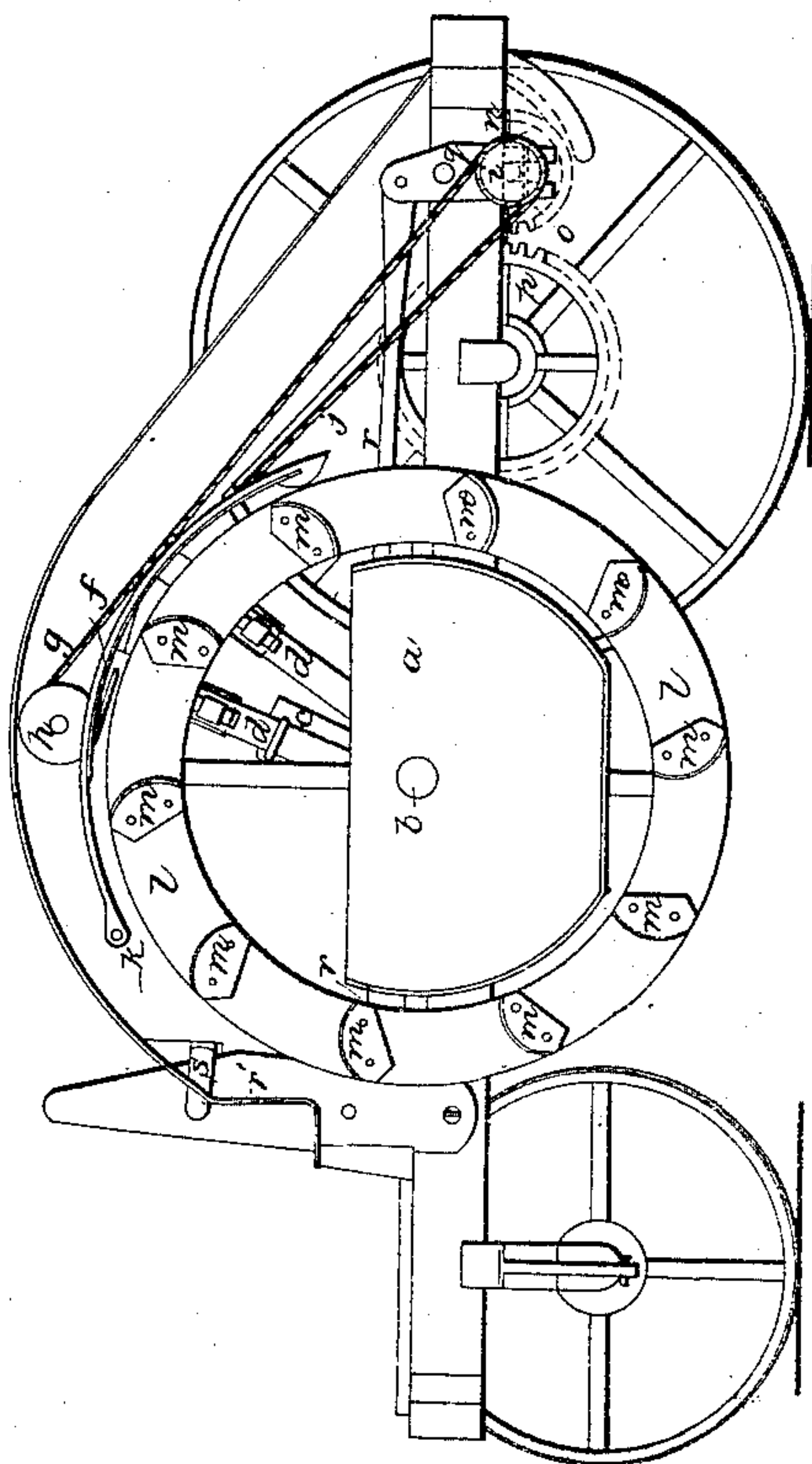


Fig. 4.





# UNITED STATES PATENT OFFICE.

BENJ. W. REMY, OF BROOKVILLE, INDIANA.

## EXCAVATING-MACHINE.

Specification of Letters Patent No. 8,453, dated October 21, 1851.

*To all whom it may concern:*

Be it known that I, BENJAMIN W. REMY, of the county of Franklin and State of Indiana, have made certain new and useful  
5 Improvements in the Machine for Excavating Earth; and I do hereby declare that the following is a full, clear, and exact description of their nature and construction, reference being had to the accompanying  
10 drawings, making part of this specification, in which—

Figure 1 is a plan view, without the case, Figs. 2 and 3, right and left hand side elevations, and Fig. 4, a longitudinal vertical  
15 section.

The same letters refer to similar parts in each of the figures.

The nature of my invention, consists first, in suspending the shaft (on which is hung  
20 the box containing the earth to be removed and the wheel of buckets or elevators) to two movable arms one on each side of the wheel, one end of these arms being attached by fulcrum pins to the frame work of the  
25 machine and turning thereon freely, so that as the other ends of these arms are elevated by appropriate connections to a perpendicular line they will carry up the shaft, the body and the elevators, and the machine can  
30 then be adapted to any irregularity of ground. And the second part of my invention consists in making the operation of dumping self-operating, by suspending the  
35 the rims of the wheels of elevators turn loosely, said shaft carrying a pulley at one end, the periphery of which is notched to receive the end of a lever which prevents the body from turning while being loaded,  
40 and combining therewith a friction roller so that when the body is full of earth and the attendant has raised the wheel of elevators from the ground the pulley on the shaft of the elevators is brought up against  
45 the friction roller, and when the lever is removed from the notch in the pulley the friction produced will cause the shaft and body to rotate and thereby discharge its contents.

50 In the accompanying drawings, *a* represents the cart body or box which is permanently attached to the shaft *b*, the ends of which have their bearings in arms *c* and *d* placed on each side of the machine.  
55 The arms *c* extend down some distance below the bearings of the shaft and are hung

on fulcrum pins *e* attached to the frame work of the machine and the upper ends of the arms *d* are slotted to receive screw bolts which pass through and connect these ends  
60 to the shield *f* which is placed just over the wheel of elevators to be presently described. This shield may be made of any material and extends across the entire width of the  
65 wheel of buckets or elevators, and has at each end a cord *g* attached which passes over pulleys *h*, and each cord is then wound around in the same direction and secured  
70 to a roller or shaft *i* placed at the rear of the machine. Near one end of this roller or shaft (*i*) there is another cord *j* wound around it in an opposite direction to the  
75 cords *g*, and it then passes forward through an eye *k* in the shield, *f*, and back again to the other end of the roller or shaft and secured to it in the same way as at the end  
80 first mentioned. These cords in connection with some other parts of the machine to be presently described are for the purpose of drawing down the wheel of elevators and  
85 shield, the shield simply preventing the earth as it is being carried up by the buckets from falling over to that part of the ground which has been operated upon.

On the shaft *b*, are loosely hung the rims  
85 *l*, forming the wheel of elevators, so that they (the rims) can revolve freely on the shaft when the machine is in operation for the purpose of loading the body, while it  
90 and the body remain stationary. The elevators *m* are made of any form desired, although in the model and drawings they are represented of a curved form as best adapted to the purpose, and extend across from  
95 one rim to the other and are bolted or otherwise secured to them.

The journals of the roller or shaft *i*, run in boxes *n*, one of which is so constructed as shown by dotted lines in the longitudinal  
100 section in the drawings, that the end of the roller which is supported by this bearing shall slide freely back and forth, and this end of the roller extends through to the outside of the machine and carries a pinion *o*  
105 which when the attendant desires to elevate or depress the elevators to suit the ground to be worked, is made to engage the teeth of a wheel *p* (on the rear axle of the machine) by means of a forked arm *q*, one end  
110 of which embraces the journal of the roller or shaft *i* and, the other end is attached to a rod *r* which extends to the front of the ma-



chine, said rod at the front end being also connected to an upright arm  $r'$ . On the outside of the frame work of the machine, and on the same side also with the rod  $r$ , there is a lever  $s$  having its fulcrum  $s'$  the forward end of which is made to act on the upright arm  $r'$  and the rear end is curved downward and provided with teeth to hold the pinion  $o$  from the wheel  $p$ , (as is presently described) when the elevators are ready to be set in operation.

From the foregoing it will be seen that when the attendant desires to depress the buckets or elevators so as to operate on a piece of ground, he forces up the forward end of the lever  $s$ , which relieves the upright arm  $r'$  (the rear end of said lever  $s$  at the same time from its curvature relieving the pinion  $o$ ) and then the attendant by forcing said upright arm in toward the machine causes the arm  $q$  (which embraces one of the journals of the roller or shaft  $i$ ) to bring the pinion  $o$  in contact with the toothed wheel  $p$ , and by moving the machine backward a little the motion thus given to the pinion  $o$  causes the shaft  $i$  to revolve with it and by means of the cords  $g$  and  $j$  already described the elevators can be depressed as low as desired, and then the forward arm of the lever  $s$  is forced down by the attendant by which motion the pinion is released from the toothed wheel, and held away from it while the machine is in operation by the rear end of said lever which, as before stated, is curved downward and provided with teeth for that purpose.

On the opposite side of the machine and attached to the rear axle is a pulley  $t$  from which a band passes to a pulley  $u$  on a journal  $v$  and this journal also carries a friction roller  $w$  which when the earth is to be dumped is made to bear against the periphery of another wheel  $x$  permanently secured to the shaft  $b$ ; and this wheel  $x$  is notched to receive one end of a lever  $y$ , which holds the body of the cart firmly while it is being loaded. After the body has been loaded and the machine been drawn to the place where the earth is to be dumped the lever  $y$  is released from the notch in the wheel  $x$  by the attendant by means of a cord  $z$ , attached to it and passing to the front of the machine.

The buckets or elevators having been lowered to the ground in the manner above stated the machine is then put in operation and as the wheel of elevators revolve freely on the shaft  $b$  the shaft itself with the body or box  $a$  is held stationary by means of the notched wheel  $x$  and the lever  $y$ . As the buckets or scoops revolve over the ground that portion of the earth which is in front of the buckets is caught up by them and delivered in the cart body or box—the shield preventing any earth from falling on that part over which the elevators have passed. When the body or box has been filled the pinion  $o$  is brought in contact with the toothed wheel  $p$  and the elevators are raised sufficiently to be free from the ground, the pinion  $o$  is then released, and the machine removed to where the earth is to be dumped.

The drawing represents the rims  $l$  which form the wheel of elevators as raised from the ground, and the notched wheel  $x$  being firmly secured to the same shaft is raised with them and consequently brought in contact with the friction pulley or roller  $w$ . When the machine is in the position as shown in Fig. 2 the body  $a$  is supposed to be filled with earth and ready to be discharged of its load, the wheel  $x$  and pulley  $w$  being in contact, and by raising the lever  $y$  out of the notch in the wheel  $x$  and moving the machine a little forward the friction of the pulley  $w$  (which receives its motion from the pulley  $t$ ) on said wheel  $x$  will cause the body to turn and discharge its load.

Having thus fully described the nature of my invention, what I claim therein as new and desire to secure by Letters Patent, is—

1. The within described arrangement of parts by which the elevators can be raised or lowered to correspond with any irregularity or unevenness of ground.

2. And I also claim making the operation of dumping self-operating by means of the friction roller acting on the periphery of a pulley permanently attached to the shaft as herein fully described and represented and for the purpose made known.

BENJAMIN W. REMY.

Witnesses:

ISRAEL STOUGH,  
WM. MOFFITT.