

(No Model.)

3 Sheets—Sheet 1.

F. PETELER.

POWER LOADING APPARATUS.

No. 277,337.

Patented May 8, 1883.

Fig. 2

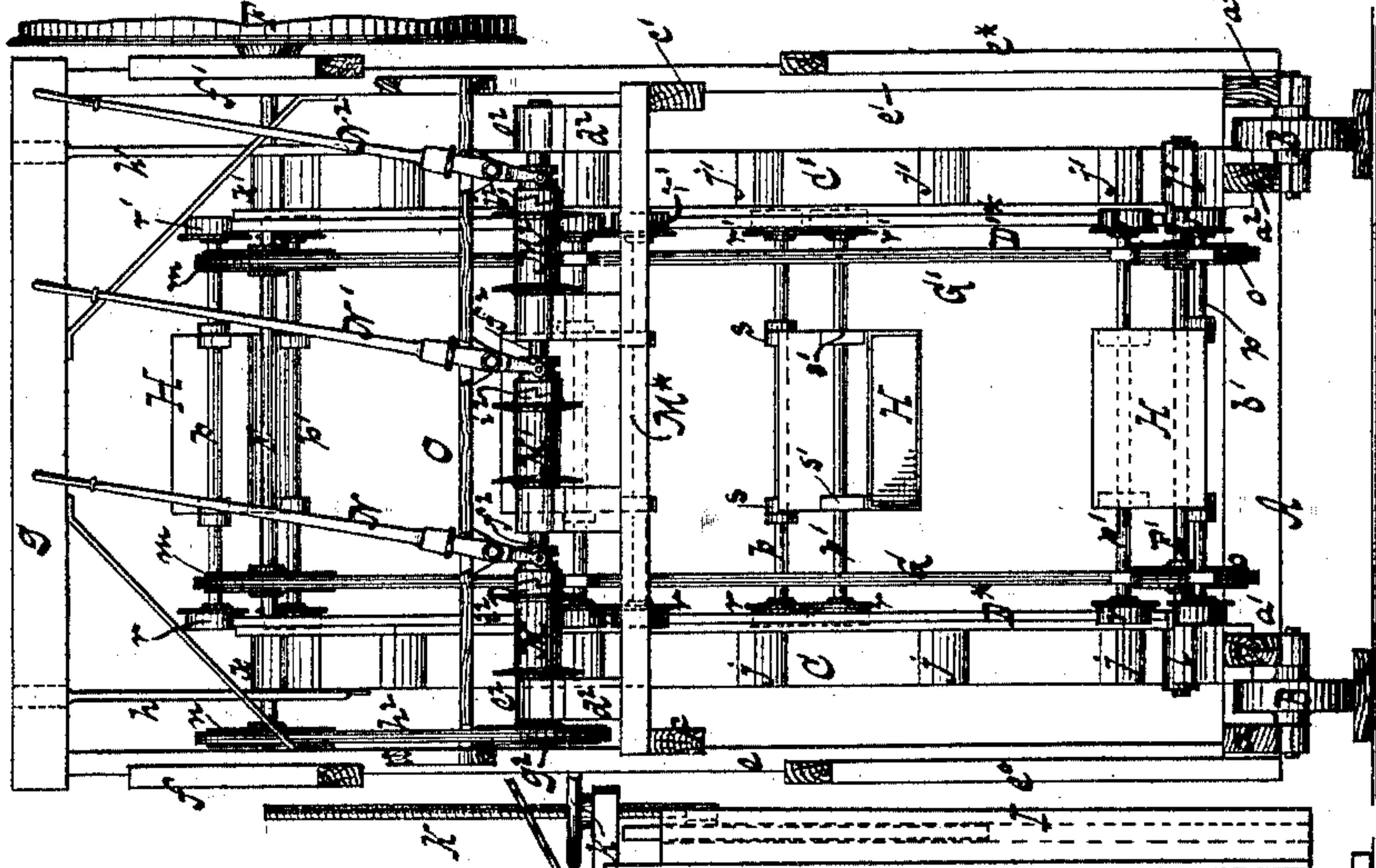


Fig. 1

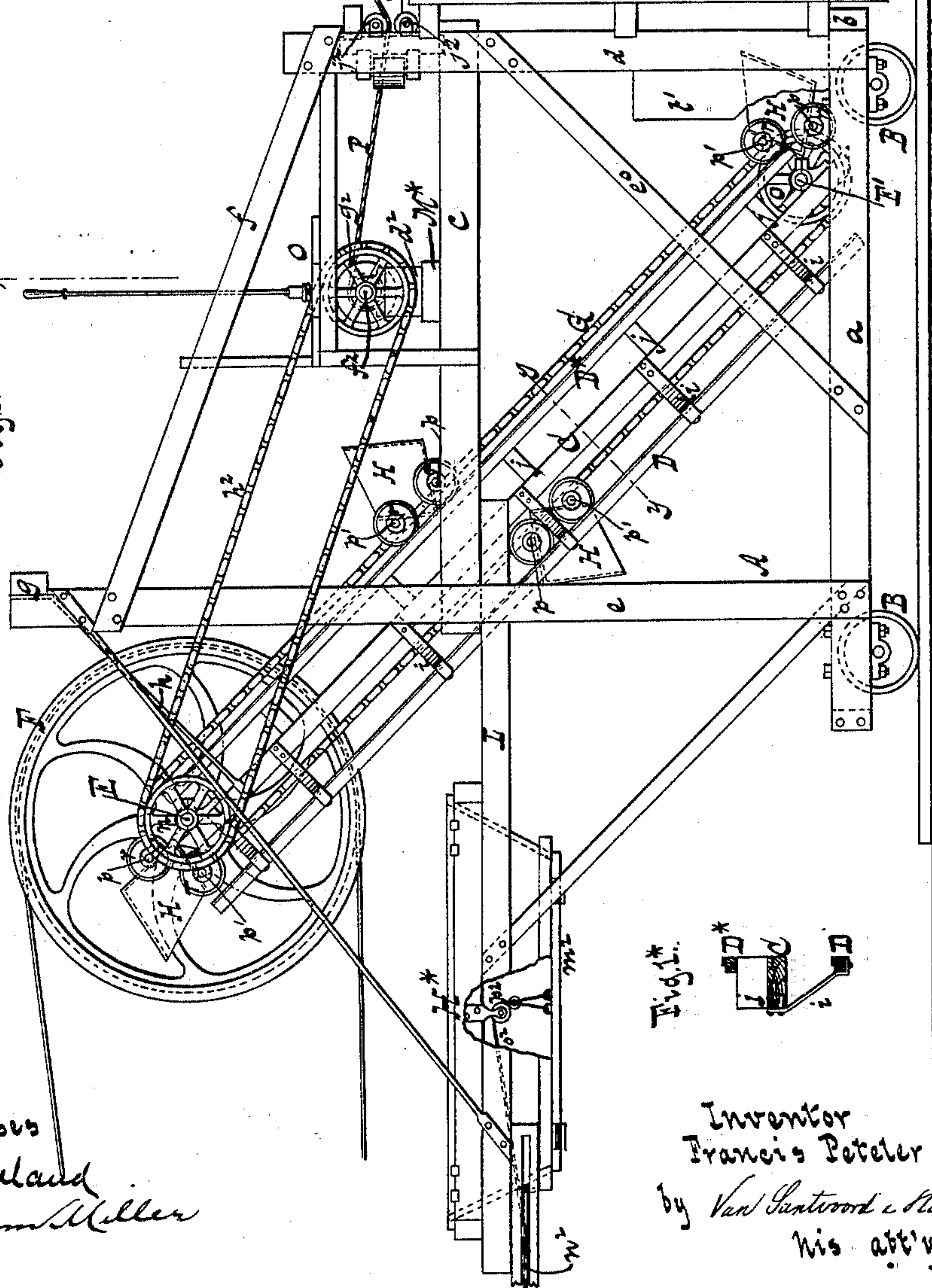


Fig. 3



Witnesses
Otto Hufeland
William Miller

Inventor
Francis Peteler
by Van Gantwood & Hauff
his att'ys.

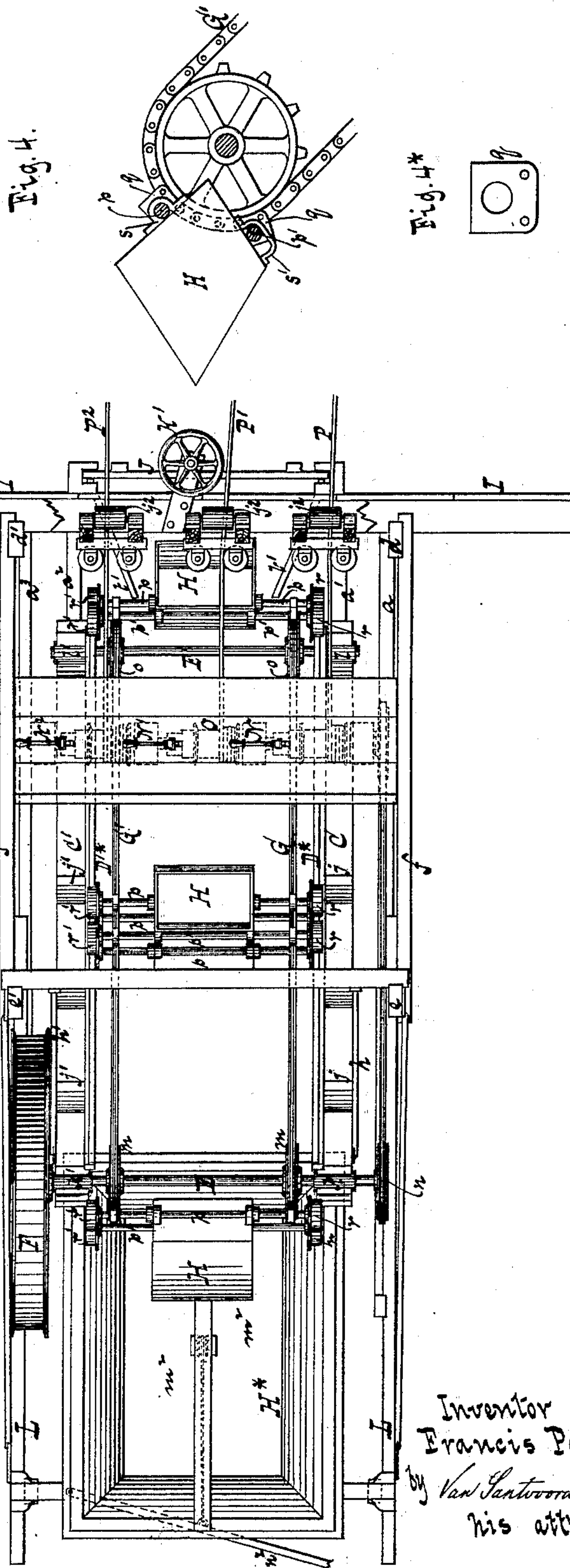
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Witnesses
Otto Stufelau
William Miller

Inventor
Francis Peteler
by Van Santvoord & Hauck
his attys.

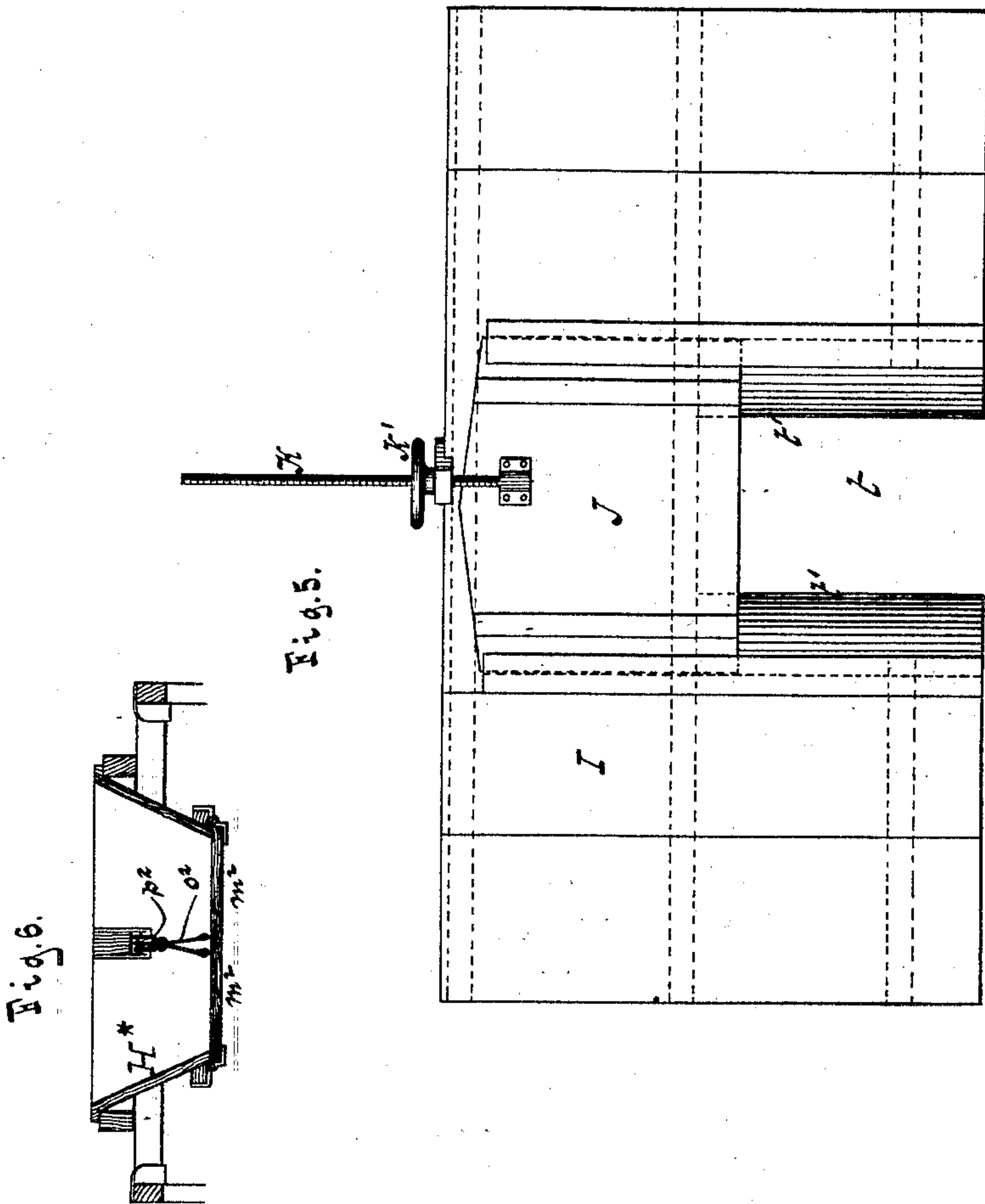
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Witnesses
Otto Hufeland
William Miller

Inventor
Francis Peteler
by Van Santvoord & Hauff
his attys.

UNITED STATES PATENT OFFICE.

FRANCIS PETELER, OF MINNEAPOLIS, MINNESOTA.

POWER LOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 277,337, dated May 8, 1883.

Application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS PETELER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented new and useful Improvements in Power Loading Apparatus, of which the following is a specification.

This invention relates to an apparatus which is intended particularly for elevating earth or other like material and dumping the same in railroad-cars, wagons, or carts. The peculiar and novel construction of my apparatus is pointed out in the following specification, and illustrated in the accompanying drawings, in which—

Figure 1 represents a side view. Fig. 1* is a transverse section in the plane $y y$, Fig. 1. Fig. 2 is a transverse vertical section in the plane $x x$, Fig. 1. Fig. 3 is a plan or top view. Fig. 4 is a detached view of one of the buckets and one of the chains carrying the same, on a larger scale than the previous figure. Fig. 4* is a detached elevation of one of the chain-links. Fig. 5 is a face view of the abutment, with its sliding door and opening. Fig. 6 is a transverse vertical section of the hopper.

Similar letter indicate corresponding parts.

In the drawings, the letter A designates a frame or truck, which rests upon wheels B B, and which is composed of four longitudinal beams, $a a' a^2 a^3$, and two transverse beams, $b b'$, at the bottom, two longitudinal beams, $c c'$, above, two vertical beams, $d d'$, in front, and two vertical beams, $e e'$, in the rear, with suitable cross-braces, $e^0 e^* f f'$, and a cross-beam, g , at the top, as shown in the drawings.

In the interior of the truck-frame A are placed two inclined beams, C C', the lower ends of which are secured to the longitudinal beams $a' a^2$, respectively, while their upper ends are retained in position by hangers $h h'$. Each of the inclined beams C C' supports two tracks, D D* D' D', respectively, the tracks D D' being secured to hangers i , while the tracks D* D' rest upon blocks $j j'$, the hangers i being bent inward, as shown in Fig. 1*, so that the track D comes directly beneath the track D* and the track D' directly beneath the track D'.

On the inclined beams C C', near their upper ends, are secured journal-boxes $k k'$, which

form the bearings for a shaft, E, and on said inclined beams, near their lower ends, are secured journal-boxes $l l'$, which form the bearings for a shaft, E'.

On the shaft E are mounted a pulley, F, to receive the driving-belt, two chain-wheels, $m m$, and an additional chain-wheel, n , and on the shaft E' are mounted two chain-wheels, $o o$, which correspond in position to the chain-wheels $m m$, and which, together with these last-named chain-wheels, support the endless chains G G', which carry the elevator-buckets H. These buckets are mounted each on two rods, $p p'$, (see Fig. 1,) which extend through lugs q , (see Fig. 4*,) formed on the appropriate links of the chains G G', and on the outer ends of said rods are mounted wheels $r r'$, respectively. These wheels travel on the tracks D D* D' D', and in order to allow to the buckets the requisite freedom of motion each of them is provided with two round eyes, s , which engage with one of the rods p , and with two oblong eyes, s' , which engage with one of the rods p' , (see Figs. 2 and 4,) said oblong eyes being so formed that the rods p' can move inward during the time the two rods which carry one of the buckets pass round above or below one of the pairs of chain-wheels, while the rods p' move outward in the oblong eyes as they reach the rectilinear portions of their path.

On the inner end of the truck-frame A is firmly secured an abutment, I, a face view of which is shown in Fig. 5. In the lower part of this abutment is an opening, t , which can be opened or closed by a gate, J, that moves in suitable guides, and is raised or lowered by a screw, K, and hand-wheel K', or other suitable means.

On the inner edges of the opening t are converging flanges t' , and when the endless chains G G' are set in motion the elevator-buckets H pass through between these flanges, and the earth or other material which passes in between said flanges is scooped up by the buckets and dumped into a hopper, H*, from which it passes into the cars or vehicles intended for its reception. The hopper H* is supported by beams L, which extend from the outer end of the frame A, and it (the hopper) is situated beneath the shaft E, as shown in Figs. 1 and

3, so that the contents of the buckets, on being dumped, drop into said hopper.

On the longitudinal beams $c c'$ of the frame A is firmly secured a transverse beam, M^* , on which are placed blocks d^2 , which support journal-boxes e^2 . These journal-boxes form the bearings for a shaft, f^2 , on which is mounted a chain-wheel, g^2 , corresponding to the chain-wheel n on the shaft E. An endless chain, h^2 , extends round the chain-wheels $n g^2$.

On the shaft f^2 are loosely mounted three drums, $M M' M^2$, which can be thrown in gear with the shaft by clutches i^2 , which are operated by hand-levers $N N' N^2$. The hand-levers extend through a platform, O, on which stands the person engaged in operating the apparatus.

On each of the drums $M M' M^2$ is wound a rope, $P P' P^2$, respectively, and these ropes extend out between guide-pulleys j^2 , mounted in the frame A above the abutment I. The free ends of the ropes P and P^2 are secured to plows or scrapers intended to dig up the ground, and if the drums which carry these ropes are thrown in gear with the shaft f^2 said ropes are wound up and the plows or scrapers attached to them are drawn in toward the abutment I. Each plow is guided by a man in such a way that the earth carried by the same is brought opposite to the opening t in the abutment, whence it is scooped up by the elevator-buckets, as already described. The rope P' may also be used in the same manner as the ropes $P P^2$; but since my apparatus is designed principally for digging down hills, where the plows, on being carried back, have to be raised up the embankment, I carry the rope P' over a pulley fastened at a distance from the abutment I at an elevation on the embankment and secure its free end to the plows, so that when the rope P' is wound up on its drum M' the plow or plows secured to its free end are rapidly carried up the embankment without requiring any hand labor. If it is desirable to keep a larger number of plows in operation, the number of drums $M M' M^2$ and of ropes $P P' P^2$ can be increased.

In digging down a hill I move my apparatus to the spot where I desire to commence. Then I dig up the ground by means of the plows, and carry the same to the opening t in the abutment I by the aid of the ropes $P P^2$, as above stated. The elevator-buckets H then take up the ground and dump it through the hopper into the cars or vehicles provided to receive the same and to carry it to the dumping-ground. The bottom of the hopper H^* consists of two trap-doors, m^2 , which are hinged to the sides of the hopper, and are closed by a lever, n^2 , and a chain, o^2 , which passes over a pulley, p^2 , and the inner end of which forms two branches, one for each trap-door. During the time a loaded car is driven off and an empty car moved beneath the hopper the trap-doors are closed, so that the motion of the elevator can con-

tinue, the hopper being made of sufficient capacity for this purpose. When the empty car is in position beneath the hopper the trap-doors are opened and kept open until the car is loaded. As the digging operation progresses the truck-frame A is pushed back, so that the abutment I is kept as close to the embankment as may be possible.

It must be remarked that the truck-frame and the abutment are so constructed that their parts can readily be detached from each other, and the whole apparatus can be packed up and transported with comparatively little trouble.

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

1. The combination, substantially as hereinbefore described, of the wheel-supported truck-frame A, the abutment I, its opening t , the elevator-buckets H, and the pulley for driving the elevator-buckets, all mounted on the truck-frame.

2. The combination, substantially as hereinbefore described, of the wheel-supported truck-frame A, the abutment I, its opening t , the elevator-buckets H, the pulley for driving the elevator-buckets, and the hopper H^* , all mounted on the truck-frame.

3. The combination, substantially as hereinbefore described, of the wheel-supported truck-frame A, the abutment I, its opening t , converging flanges t' , the adjustable gate J, the elevator-buckets H, and the pulley for driving the elevator, all mounted in the truck-frame.

4. The combination, substantially as hereinbefore described, of the wheel-supported truck-frame A, the abutment I, its opening t , the elevator-buckets H, the pulley for driving the elevator, the hopper H^* , the trap door or doors forming the bottom of the hopper, and means for opening and closing said trap-door, the abutment, the elevator, the pulley, and hopper being mounted on the truck-frame.

5. The combination, substantially as hereinbefore described, of the frame A, the inclined tracks $D D^* D' D'^*$, secured in said frame, the endless chains $G G'$, running on chain-wheels $m o$, mounted in said frame, the rods $p p'$, secured to the chains, the wheels $r r'$, mounted on the rods $p p'$, and running on the tracks $D D^* D' D'^*$, and the elevator-buckets H, hung on the rods $p p'$.

6. The combination, substantially as hereinbefore described, of the endless chains $G G^*$, running on chain-wheels $m o$, the rods $p p'$, secured to said chains, and the elevator-buckets H, provided with round eyes s , and with oblong eyes s' , the round eyes being made to engage with the rods p , and the oblong eyes s' with the rods p' .

7. The combination, substantially as hereinbefore described, of the wheel-supported truck-frame A, the abutment I, its opening t , the elevator-buckets H, the drums M, which carry the drag-ropes P, (one or more,) and the pul-

ley for imparting motion to the elevator-buckets and to the drums, all mounted on the truck-frame.

8. The combination, substantially as herein-
5 before described, of the wheel-supported truck-frame A, the abutment I, the opening *t*, the elevator-buckets H, the drums M, which carry the drag-ropes P, the clutch mechanism and clutch-levers N, connected with said drums,
10 and the pulley for imparting motion to the ele-

vator-buckets and to the shaft which carries the drums and the clutches, all mounted on the truck-frame.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscri- 15
ing witnesses.

FRANCIS PETELER. [L. S.]

Witnesses:

J. H. KING,
REUBEN TOMLINSON.