

No. 852,012.

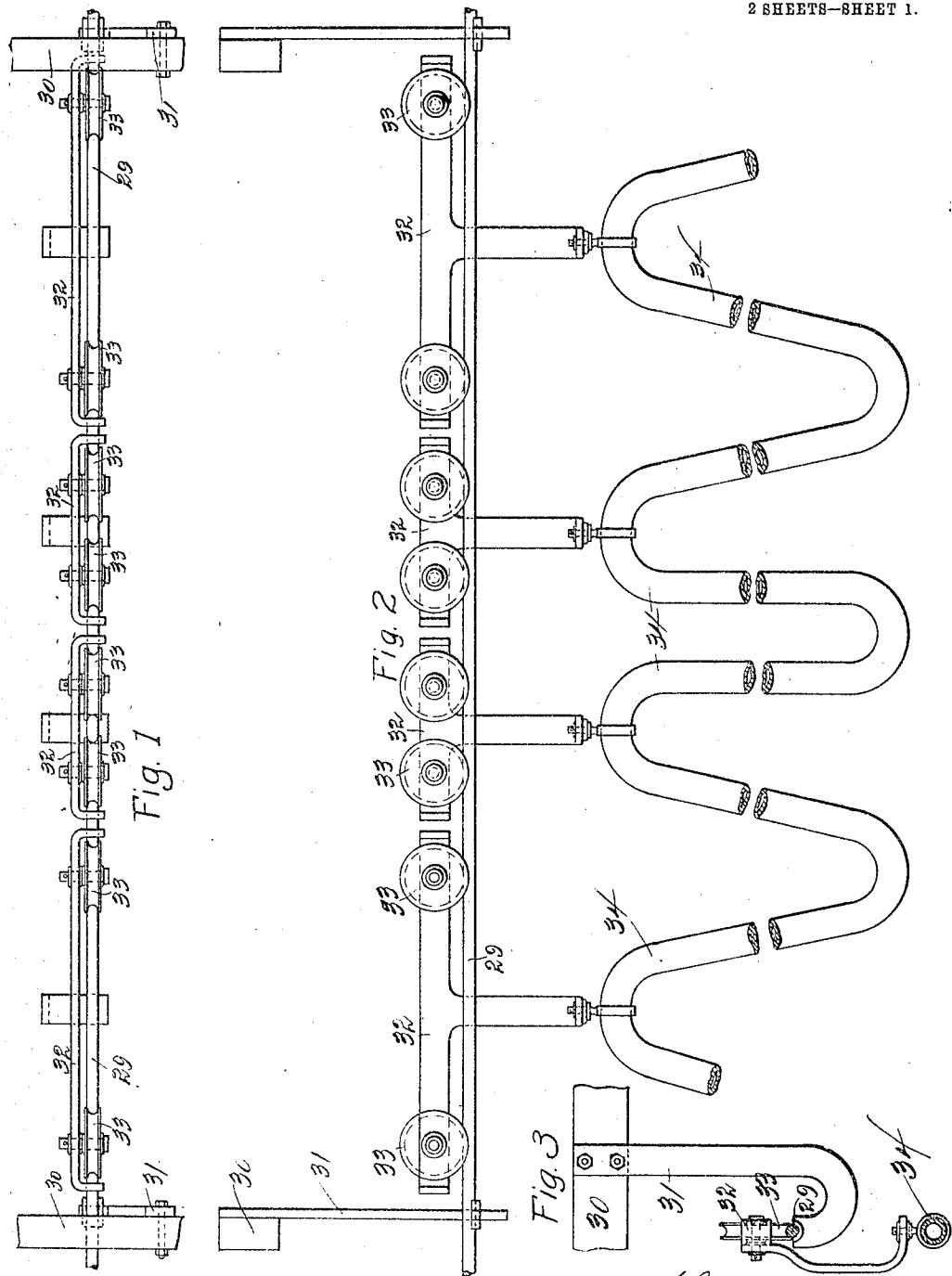
PATENTED APR. 30, 1907.

J. G. BLUM.

CHARGING TRUCK FOR ANNEALING FURNACES.

APPLICATION FILED JULY 15, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

David C. Walter
Chas. A. D. Young

INVENTOR:
John G. Blum,
By Amos Hall, His Atty.

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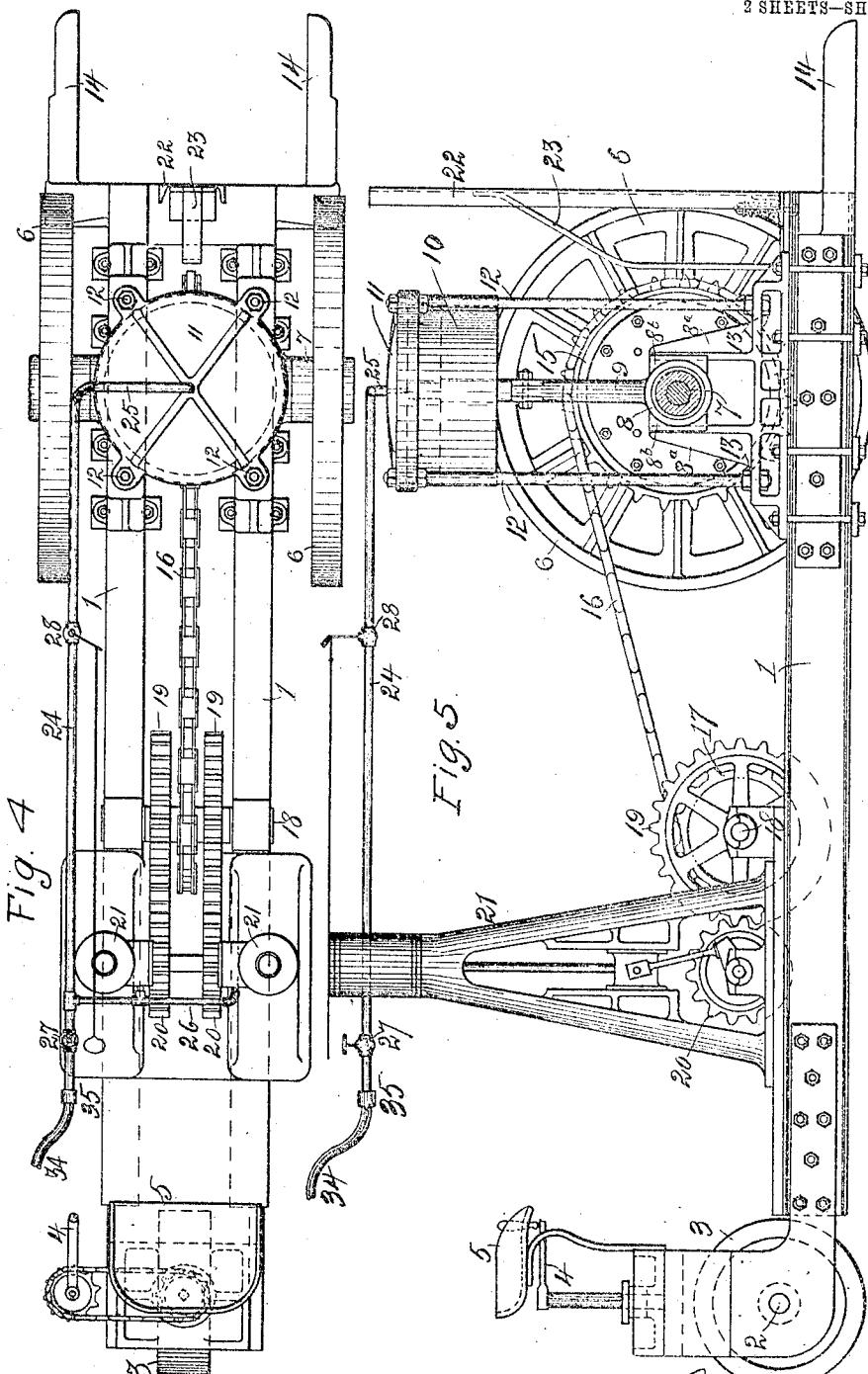
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UNITED STATES PATENT OFFICE.

JOHN GEORGE BLUM, OF TOLEDO, OHIO.

CHARGING-TRUCK FOR ANNEALING-FURNACES.

No. 852,012.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed July 15, 1905. Serial No. 269,806.

To all whom it may concern:

Be it known that I, JOHN GEORGE BLUM, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Charging-Trucks for Annealing-Furnaces; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

In malleable iron works a most laborious and difficult task is the removing of the heavy flasks containing the annealed iron articles from the hot ovens after the ovens have been opened to be emptied and refilled. The flasks are heavy and the temperature of the ovens so high that it can only be borne by the workmen for a moment.

My invention relates to and its object is to provide a pneumatic truck for annealing furnaces which may be used for rapidly and easily handling heavy flasks in charging or discharging the annealing ovens of malleable iron works, and, more particularly, to provide a truck operated by compressed air which may be moved rapidly into and out of an oven; which will pick up heavy loads without manual contact, and which will convey the load to any desired point in the cooling room. I attain these objects by means of the devices, mechanisms and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which

Figure 1 is a top-plan view of my extensible device for supplying compressed air to my truck; Fig. 2, a side elevation of the same; Fig. 3, an end elevation of the same, the rail and air-hose, hereinafter referred to, being shown in cross-section; Fig. 4, a top-plan view of my truck, and Fig. 5, a side elevation of the same, one of the driving-wheels, herein-after referred to, being removed.

In the drawings, 1—1 are two horizontal I-beams secured in parallel relation and which form the bed or frame of my truck. One end of this bed is pivotally supported, as at 2, upon a steering-wheel 3, provided with a steering-handle 4. At this end of the frame or bed is a seat 5 for the operator. At the opposite end of the bed or frame is a pair of driving-wheels 6—6 mounted upon the ends

of shaft 7. Upon the shaft, at its middle, is a sleeve 8 from which springs vertically a piston-rod 9, carrying at its top a piston or plunger (not shown in the drawings,) movable vertically in cylinder 10. From the flanged head 11, at the top of the cylinder, lead downwardly stout rods 12 which, at bottom, are connected, as at 13, with the side bars 1, as shown. It will be seen that the frame, at this end, is suspended by means of the rods 12 from the cylinder, resting upon the piston within the cylinder, which piston is supported by the stout piston-rod 9, engaged at its lower end with the axle of the driving-wheel. Upon the top of the beams 1 are secured parallel jaws 8^a which engage and form guides for corresponding portions 8^b on the sleeve 8.

At the end of the bed or frame opposite the steering-wheel and next to the ground are horizontally projecting arms 14 disposed at such height as to conveniently slip under the low benches on which the annealing flasks are piled.

Upon the shaft 7, midway between the driving-wheels, is a sprocket-wheel 15 engaged by a sprocket-chain 16 which passes over another sprocket-wheel 17 on the shaft 18 of a gear-wheel 19, which is engaged and driven by a gear 20 on the shaft of an air-engine 21, mounted upon the frame of the truck near to the operator's seat.

22 is an upright fender or brace upon the front of the frame 1—1, supported by spring 23, designed to prevent the pile of annealing flasks upon the arms 14 from toppling over backward against the adjacent machinery.

24 is an air-pipe connected with the cylinder 10 by means of branch 25 and with the cylinders of the air-engine 21 by means of branch 26. In the air-pipe is a valve 27 controlling the admission of air to the engines 21, also a valve 28 controlling the admission of air to the cylinder 10. These valves are operated by means within convenient reach of the operator.

A single rail or rod 29 is suspended from the cross-beams 30, of the shop, upon the extremities of hook-shaped hangers 31. A series of carriages 32—32, each having a pair of grooved wheels 33, ride upon the rail 29. An air-hose 34,—one end of which is connected with an air-compressor, the other end being connected with the air-pipe 24, as at 35,—is connected with and suspended at equi-distant intervals from the series of overhead

carriages 32. As the truck is moved about the shop the air-hose may be either stretched to its full length,—the carriages 32 accommodating themselves to the movement of the hose,—or the hose may be shortened up so that it will hang in festoons, as illustrated in Fig. 2.

The operation of my truck is as follows: Air being admitted to the air-engine which is supplied with reversing mechanism, (not illustrated, but which will be understood without explanation,) the driving-wheels are caused to travel in the desired direction, the truck being steered by means of the steering-wheel and crank 3—4. The truck being driven with its forward arms 14 under a bench of flasks, air is admitted to the cylinder 10 which is now lifted, carrying with it through the rods 12, the forward end of the bed or frame 1—1. The bench of flasks is now carried to the desired point in the shop, the air is permitted to escape from the cylinder 10, through the reverse movement of the valve 28, and the forward end of the frame sinks to its normal level so that the bench of flasks rests upon the ground. The truck is now backed away from the bench of flasks and is ready for a repetition of the above described operation. It will be seen that a bench of flasks may thus be picked up and quickly placed in an annealing oven, or the truck may be rapidly driven into an annealing oven and caused to quickly pick up a bench of flasks and to retreat with it in such time that the operator is not subjected to the usual serious inconvenience and occasional suffering accompanying these tasks.

Having described my invention, what I claim and desire to secure by Letters Patent 40 is—

1. In a charging truck, a frame, an axle near one end of the frame, a piston rigidly

supported upon the axle, a cylinder in operative relation with the piston, and connections between the cylinder and frame. 45

2. In a charging truck, a horizontal frame, driving wheels at one end and a steering wheel at the other end of the frame, a driving mechanism on said frame connected with said driving wheels, a mechanism supported by the axle of the driving wheels for raising and lowering one end of the frame, and means for connecting a stationary source of power with said two mechanisms, whereby the truck may be driven from place to place and the end of said frame raised and lowered at will. 50

3. In a charging truck, a horizontal frame, forwardly projecting arms secured to the front of the frame, driving wheels and a steering wheel for the truck, a piston and cylinder adapted to raise and lower the front end of the frame, a driving engine on the frame connected with the driving wheels, a pipe connected with said cylinder and with said driving engine, and means for extensibly connecting said pipe with an air-compressor. 55

4. In a charging truck, a horizontal frame, a pair of driving wheels at one end of the frame, a steering wheel at the other end of the frame, an axle for the driving wheels, a piston supported upon the axle, a cylinder upon the piston, connections between the cylinder and the frame, an engine on the truck connected with the driving wheels, and extensible means, adapted for connection with said cylinder and with said engine, for conveying power from a stationary source. 70

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

JOHN GEORGE BLUM.

Witnesses:

LOUIS SKRANSEWFKY,
L. J. ANDERSON.