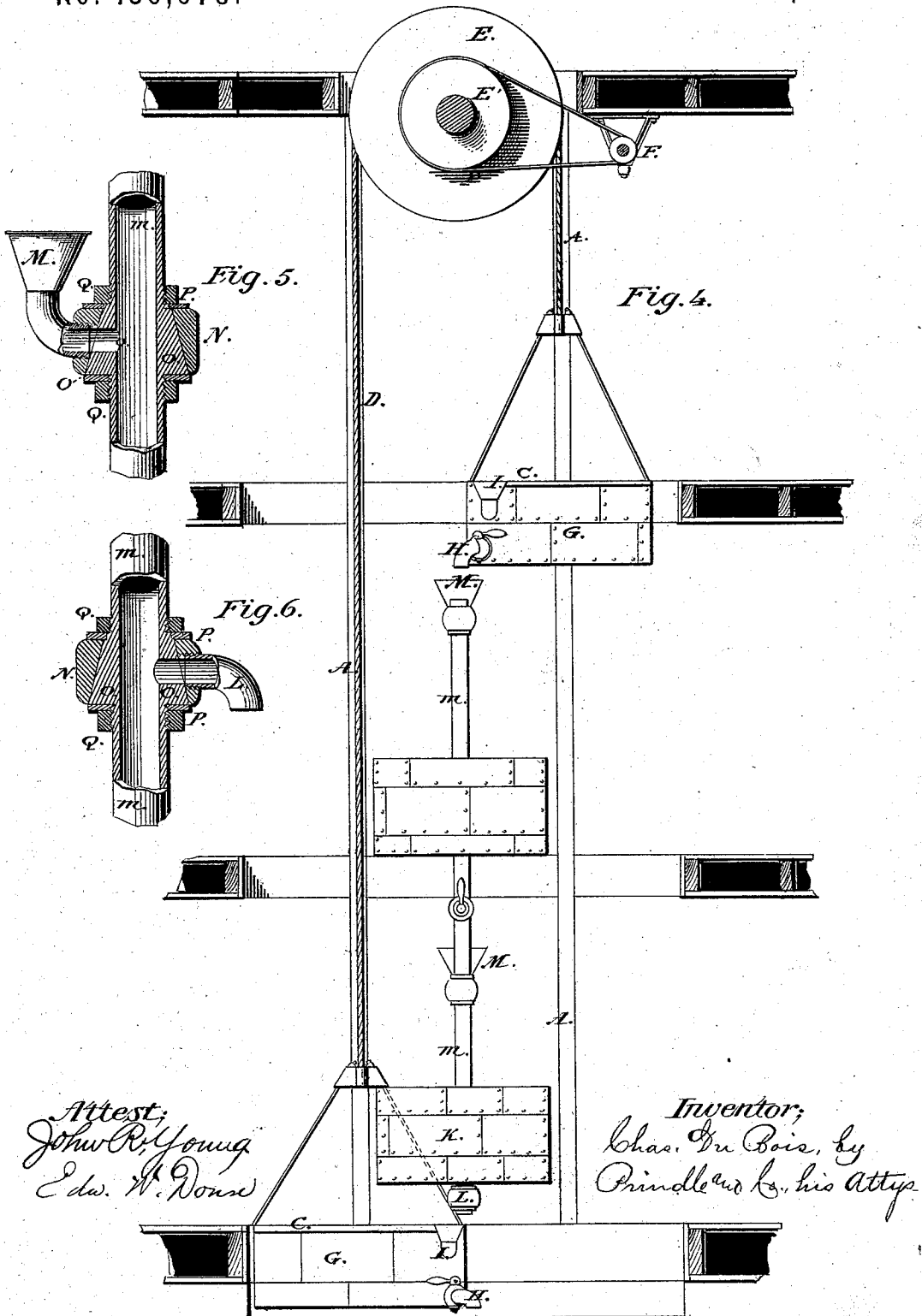


C. DU BOIS.
Elevators.

No. 136,978.

Patented March 18, 1873.



UNITED STATES PATENT OFFICE.

CHARLES DU BOIS, OF FISHKILL LANDING, NEW YORK.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **136,978**, dated March 18, 1873.

To all whom it may concern:

Be it known that I, CHARLES DU BOIS, of Fishkill Landing, in the county of Dutchess and in the State of New York, have invented certain new and useful Improvements in Elevators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation of my improved apparatus as arranged for operation. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section of one end of the water-tank, showing the construction and means for operating the valves. Fig. 4 is a vertical section of a vertical elevator embodying the principles of my invention; and Figs. 5 and 6 are, respectively, a vertical section of a reception nozzle or funnel, and a like view of a discharge-nozzle used in connection with said vertical elevator.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable the weight of articles which are to be transported between an upper and a lower point to be wholly or in part counterbalanced, so as to lessen the amount of power required to withstand or overcome the force of gravity and render the operation comparatively easy; to which end it consists in self-balancing carriages provided with reservoirs for the reception of water, in combination with suitable apparatus for supplying said water to said reservoirs at points within the travel of said cars, and for receiving the same from said reservoirs at other or higher points, substantially as and for the purpose hereinafter specified.

The principle involved in my invention is applicable in various ways and by means of a variety of apparatus; but as its operation would be the same under any circumstances, but two forms of mechanism are required in order to thoroughly illustrate the same. For convenience I have selected and will describe below an inclined and a vertical elevator containing my improvements.

In the annexed drawing, A and A represent the rails of a double-track railway, resting upon and secured to a suitable support, B, which has any desired inclination from a hor-

izontal line. The tracks are arranged parallel with each other, and at such distance apart as may be found most convenient. Upon each track is placed a four-wheeled car, C, of such construction as to best adapt it to the requirements of the service, which car has attached to its upper end a rope or chain, D, that passes upward to the upper end of the track around a grooved wheel, E, and from thence downward to the car C, placed upon the opposite track, to which said rope is attached. The wheel E corresponds in diameter to the distance between the centers of the tracks, and revolves in a plane parallel to the surface of said tracks, transversely and longitudinally, and being placed at a height therefrom corresponding to the points at which the rope D is attached to the cars it will be seen that said rope will pass upon or leave the periphery of said wheel in the same line, whatever the positions of the cars, longitudinally, upon the tracks. This arrangement is what is commonly known as "self-balancing," as by it the weight of one car is counterbalanced by that of the other, so that in order to move them upon their tracks it is only necessary that a sufficient force should be exerted to overcome their inertia and the friction of the mechanism. When it is desired to move articles from the upper to the lower end of the incline, one of the cars is moved to the point desired and loaded, and its speed down the track controlled by means of a brake, F, which operates upon the wheel E or upon a second wheel, E', secured to or upon one side of the same. In order that the weight of the load may be counterbalanced, a tank, G, is placed beneath the platform of each car, and upon the side adjacent to the opposite track is provided at its lower end with a discharge-spigot, H, and at its upper end with a funnel, I. At or near the lower end of the incline and between the tracks is placed a reservoir or tank, K, which is elevated upon suitable supports until its bottom is above the open end of the funnel I, when the car is at its lowest point. A spigot or valve, L, is provided within each side of said tank for the purpose of enabling its contents to be discharged into said funnels. The water is now admitted to the tank of the lower or empty car in sufficient quantity to nearly counterbalance the weight of articles placed upon the

upper car, leaving a sufficient difference in favor of the latter to overcome the friction of the machinery and cause said loaded car to move slowly down the incline. Upon reaching the upper end of the incline the contents of the weighted tank is discharged through the spigot H into the open end M of a pipe, *m*, that extends downward to the reservoir K, into which the water descends by the force of gravity, to be again used as occasion requires.

It will be seen that by this arrangement no loss or waste occurs in the counterbalancing fluid, other than from evaporation, and that by tightly inclosing the tanks and reservoir such loss may be reduced to so small a percentage as to become an item of no importance.

In Fig. 4 my invention is shown in its application to a building where the carriage is to be in a vertical direction. The cars C are suspended from opposite ends of a rope, D, that passes around a grooved wheel, E, and travel between suitable tracks or rails A. The reservoirs G are placed beneath the platforms and are each provided with a discharge-spigot, H, and a receiving-funnel, I. The supply-tank K is placed at or near the lower end of the tracks, and is provided with a pipe, *m*, which extends vertically upward, and at each floor is furnished with a funnel-shaped opening, M. A spigot, L, at the lower end of the tank enables the contents of the same to be discharged into the car-reservoirs. As the movement of the cars is in a vertical line it is necessary that the spigot L and funnel M should be so constructed as to be capable of turning to one side in order to permit the corresponding parts of the car-reservoir to pass. This result is accomplished by attaching said parts to a barrel, N, which has a tapering interior opening that fits over a corresponding plug, O, attached to or upon the pipe *m*. A

washer, P, placed above and beneath said plug and barrel, and a nut, Q, screwing over the pipe and bearing against said washers, insures the relative positions of said parts, and enables the degree of pressure between their conical bearing-surfaces to be so adjusted as to produce a water-tight joint. An opening, *o*, corresponding in size and vertical position to the inner end of the funnel or spigot, is provided in and through the plug in such a position radially as to cause it to coincide with the openings of said spigot or funnel whenever the latter parts are turned outward so as to discharge water into or receive it from the car-reservoirs.

The device thus constructed is operated in the same manner as that before described, each part in one performing a like office to that performed by the corresponding part in the other.

The principle involved in my invention is capable of a wide and general application, and from its use a material saving is effected in the cost of handling heavy articles which require to be lowered from one point to another.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

Two self-balancing carriages provided with reservoirs for the reception of fluid, &c., in combination with suitable apparatus for supplying such articles to said reservoirs at points within the travel of said cars, and for receiving the same from said reservoirs at other or higher points, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of February, 1873.

Witnesses: CHARLES DU BOIS.
PIERRE C. DU BOIS,
GEO. S. PRINDLE.