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CYRUS W. BALDWIN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HYDRAULIC ELEVATORS.

Specification forming part of Letters Patent No. **201,980**, dated April 2, 1878; application filed February 8, 1878.

To all whom it may concern:

Be it known that I, CYRUS W. BALDWIN, of Brooklyn, county of Kings, State of New York, have invented or discovered a new and useful Improvement in Hydraulic Elevators; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which, like letters indicating like parts—

Figure 1 is an outline elevation of so much of the apparatus as is requisite in order to illustrate my improvement. Fig. 2 is a sectional elevation, to an enlarged scale, of the cylinder, piston-valves, and connections of Fig. 1; and Figs. 3, 4, and 5 are sectional views, to a somewhat larger scale, of the valve devices of Fig. 2, showing the different positions of the valves as adjusted for different purposes.

This improvement relates to that class of hydraulic elevators in which the ram, piston, or plunger is operated by variations of fluid-pressure on one or both sides of the piston or head, and more specifically to the construction of a double piston, in connection with other operative devices, whereby a double lifting-power is secured without increase of fluid-pressure, or of the diameter of the cylinder.

A portion of the lifting-rope is represented at R. This rope passes over the pulley or wheel W, in the usual way, and thence any desired number of times around the fixed and movable sheaves or pulleys W^1 W^2, (of which more or less may be used, as desired,) and its end is made secure at R′. The movable pulleys W^2 are connected by a stirrup, *p*, with the double piston-stem B^3, which latter, passing through stuffing-boxes *b* into the cylinder A, is connected at its opposite end with the double piston B B^1. The cylinder A is made in two parts, or is divided into two compartments or chambers, *a* a^1, by means of a transverse diaphragm, a^2, at or about midway between its two ends. The piston-heads B B^1 play one in each chamber. Both are attached to the same intermediate stem B^2, so as to receive the same motions. The stem B^2 plays through a stuffing-box, *b*′, and in the diaphragm I make a port, *c*, opened and closed by any suitable form of valve, *c*′. Supply and discharge ports A^1 A^2 are made at or near the ends of the cylinder A.

The valve-case D has a valve-chamber, *d*, preferably of cylindrical form, and, by preference, lined with lining d^1, and in such lining I make perforations d^2, covering the ports *e* e^1 e^2. The port *e* has a pipe communication, P, with the cylinder-port A^1. The port e^1, by a pipe or passage, P^1, communicates with a cylinder-port, a^3, at or near the upper end of the chamber a^1, and the port e^2 is connected, by a pipe, P^2, with the cylinder-port A^2.

In the valve-chamber D, I arrange a series of disk-shaped valves, *s* s^1 s^2, on a common stem, s^3. These valves are provided with suitable packing, preferably cup-leather packing, and the stems project outside of the valve-case, so that the valves can be shifted by rack and pinion *i*, or in other suitable way. Water under pressure is admitted at *m* from any suitable head or source of supply.

The valves in valve-case D receive their motion, through rack and pinion *i*, from an operating-wheel, G, or other equivalent device capable of being moved so as properly to shift the valves by the use of an operating-cord in the car, or other known means adapted to the like end. A hand-hole, *h*, covered by a cap, is provided in the side of the cylinder A near the diaphragm a^2, for convenience in packing the stem B^2 and the piston-head B.

The lower open end of the valve-chamber constitutes a waste-port, as at d^3. The apparatus has also an open water passage or communication, *q*, from the chamber *a*, near the diaphragm a^2, to the chamber a^1, below or outside of the utmost point of motion of the piston-head B^1.

When the operator in the car desires to raise the car while empty or with only a light load, he works his operating-cord so as to bring the valves to the position shown in Fig. 2.

Both chambers *a* a^1 are presumed to be full of water under pressure, as also the communicating pipes. Full water-pressure will then be effective on the upper side of the piston-head B, and water below the piston-head B^1 will flow out freely at d^3. The valve s^1 prevents the supply from escaping at the waste-port. Water from below the piston-head B

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JOSEPH K. BARTON, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN TOY WHEELED VEHICLES.

Specification forming part of Letters Patent No. **201,981**, dated April 2, 1878; application filed December 29, 1877.

To all whom it may concern:

Be it known that I, JOSEPH K. BARTON, of Worcester, Massachusetts, have invented an Improvement in Toy Wheeled Vehicles; and that the same is fully described in the following specification and illustrated in the accompanying drawing.

The object of this invention is to provide, for the amusement of children, a variety of cheap, ornamental, and durable toys in the form of wheeled vehicles.

My invention consists in toy wheeled vehicles, such as wheelbarrows, carts, velocipedes, phaetons, cars, and similar articles, when made of wire, substantially as herein described.

The drawing is an illustration of various forms of toys, each embodying my invention, and all having the general features of one or more wheels supporting a skeleton-frame constructed of wire, suitably wrought, united, and finished.

For beauty and strength I prefer to construct these toys partially or entirely of twisted wire, as shown in most of the figures; but I propose to employ, in some cases, plain wire, or wound wire, as fancy or convenience may dictate. These articles will usually be made of iron wire, the parts united by clinching upon each other, or by soldering, or by metal bands, and finished by a bath of molten tin, which gives a lustrous surface and a complete union of the wires intended to be joined.

Figure 1 is a representation of a toy phaeton or a perambulator, which vehicles differ as wire toys only in the fact that the former is provided with shafts or pole, attached in front, for drawing it, and the latter is furnished with a handle in the rear, by which it may be pushed forward, as in this figure of the drawing. The body of the perambulator, formed as shown, is constructed of one continuous piece of twisted wire, beginning at the corner *a* of the dash-board, extending backward as a side rail and arm to the rear corner *b* at the top of the back; thence downward, with a bend at *c*, to and around the axle *d*, for which it forms a bearing. Returning then to the point *c*, it extends forward and downward at the front to form a bearing for the front axle *e*; thence, returning upward to the place of beginning, it crosses as the top of the dash-board *f* to the opposite side of the body, where its course is the reverse of that just described, (through points corresponding to *e*, *d*, *c*, and *b*,) ending at the corner *a*. The ends of this wire strand are clasped around the body of the wire at the points *a a*; and cross-wires *g* connect the various parts of the frame from side to side, representing the floor and back of the vehicle, the wires *g'* indicating the position of the seat, and the wire *g''* denoting the top of the back. The wheels are shown as made of twisted-wire rims *h* and spokes *h'*, the wires forming the latter being wound together and secured upon the axles *d* to represent hubs. With this mode of construction the axles of the hind wheels are each made of a separate wire, which wires, after being passed from without inwardly through their bearings, are joined firmly together at a central point by a sheet-metal sleeve or tube. This permits the wheels to be secured to their axles and the body to be hung low between the hind wheels. The front axle *e* is a single wire, wound from wheel to wheel with the four twisted strands, which, diverging, form the spokes *h'*, to which the rim *h* is applied. These forward wheels have no outside hubs; but the projecting ends of the axle pass from within outwardly through their bearings in the frame-wires. The pole or shafts may be attached to the front axle; but with the construction of the running-gear just described I usually propel the carriage by a handle, *i*, secured to the back of the body or frame. The canopy *k* is formed of an inner and outer wire ring, connected by a series of radial wires, the whole supported by an arm, *l*, preferably pivoted on one of the rear cross-bars *g*, so that the canopy may drop backward and rest against the handle *i*. In this figure the ribbon *x* indicates the outline of dash, floor, seat, and back. These parts, together with the canopy, may be covered and trimmed in imitation of upholstery, or in any attractive manner.

Fig. 2 represents a toy having the form of a velocipede, and composed principally of twisted wire. The rear wheels are made and applied to the frame in the same manner as the rear wheels in Fig. 1. The front wheel is similarly made, except that the twisted wires which form the spokes are wound around