

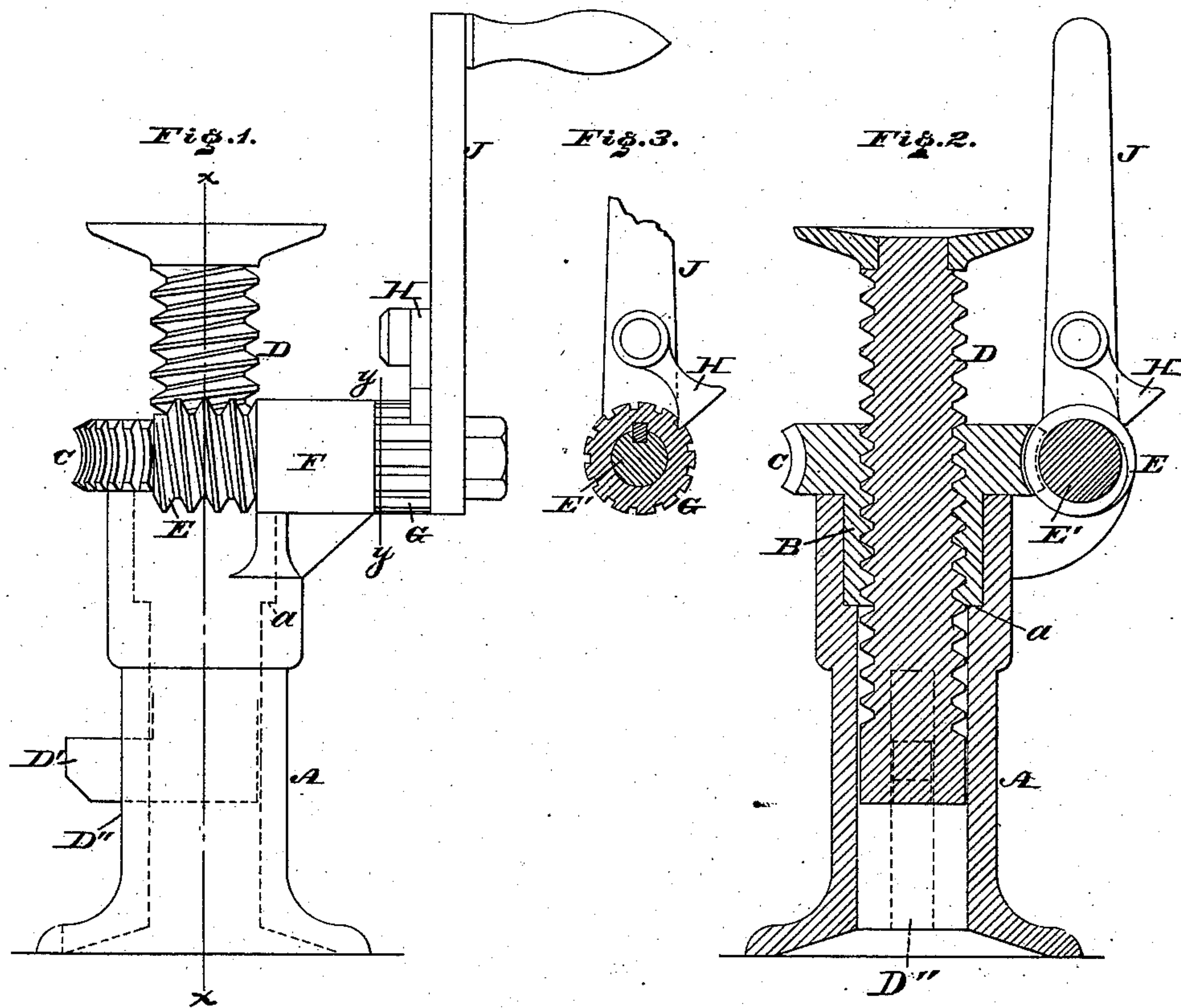
(No Model.)

E. H. MIDDLETON.

SCREW JACK.

No. 292,568.

Patented Jan. 29, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD H. MIDDLETON, OF PHILADELPHIA, PENNSYLVANIA.

SCREW-JACK.

SPECIFICATION forming part of Letters Patent No. 292,568, dated January 29, 1884.

Application filed November 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. MIDDLETON, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Screw-Jacks, which improvement is fully set forth in the following specification and accompanying drawings, in which--

Figure 1 is a side elevation of a screw-jack embodying my invention. Fig. 2 is a vertical section thereof in line *x x*, Fig. 1. Fig. 3 is a view of a detached portion in line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a stand, a nut, and worm-wheel supported on said stand, a screw-shaft engaging with said nut, and a worm engaging with the worm-wheel, producing a strong, powerful, and compact screw-jack.

Referring to the drawings, A represents a hollow stand formed of metal, and having on its inner face a shoulder, *a*, on which is supported a nut, B.

C represents a worm-wheel, which is cast with or secured to the upper part of the nut B, and sustained on the top edge of the stand A, it being noticed that the nut B is sustained on the shoulder *a*, whereby said nut and aforesaid wheel are independently supported, the strength of the jack being accordingly increased.

D represents a screw-shaft, which engages with the nut B and wheel C, and primarily receives the load to be elevated, said shaft having at its lower end a guide and foot, D', which enters a vertical slot, D'', in the stand, and prevents rotation of the shaft. Meshing with the worm-wheel C is a worm, E, whose shaft E' is mounted on a boss, F, formed on or connected with the stand on the outside thereof, and having keyed or otherwise secured to it a toothed wheel, G, with which engages a dog, H, on the loosely-fitted crank-handle J of the jack, it being noticed that said dog is pivoted to the handle J in such manner that it may be made to rotate the wheel G in opposite directions in order to raise or lower the shaft D. The handle J may, however, be firmly connected with the shaft E', in which case the wheel G and dog H are not required.

When a wagon or other vehicle or object is to be elevated, the jack is properly located thereunder, so that the collar of the shaft D may come in contact with the same. The handle J is then properly operated, whereby rotation is imparted to the worm E, and consequently to the worm-wheel and nut C B. The action of the nut and worm-wheel on the non-rotating shaft D causes the latter to rise, and thus elevate the vehicle, object, or load. By reversing the direction of rotation of the worm E by means of the handle J, the shaft D is returned and the vehicle lowered, as is evident.

It will be seen that by the present construction I produce a jack which is compact, strong and durable, inexpensive, and powerful, all parts being made of metal, excepting possibly the grip of the crank-handle J. The load is primarily received by the screw-shaft D, then transferred to the nut and worm-wheel B C, and finally received by the stand A, both nut and worm-wheel bearing on said stand. The foot D' protrudes sufficiently through the slot D'' to provide means for lifting vehicles and other objects from the bottom of the shaft D, when so required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is--

1. A screw-shaft, in combination with a nut and worm-wheel, connected as stated, a hollow stand supporting said nut and wheel, on its inner shoulder and top edge, as described, a worm mounted on the stand engaging with the worm-wheel, and an operating-handle, substantially as and for the purpose set forth.

2. A stand, a nut and worm-wheel, a non-rotating screw-shaft, a worm, and a handle, said worm being connected with a shaft which carries a toothed wheel, with which engages a reversible dog attached to said handle, the parts being combined and operating substantially as and for the purpose set forth.

3. A screw-shaft with a foot, D', a stand with a slot, D'', a nut and worm-wheel, B C, a worm, E, a toothed wheel, G, a dog, H, and operating-handle J, combined and operating substantially as and for the purpose set forth.

EDWARD H. MIDDLETON.

Witnesses:

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CHARLES HART.