P. J. BORGER.

Improvement in Hydraulic-Power Elevators.

No. 130,468. Patented Aug. 13, 1872.

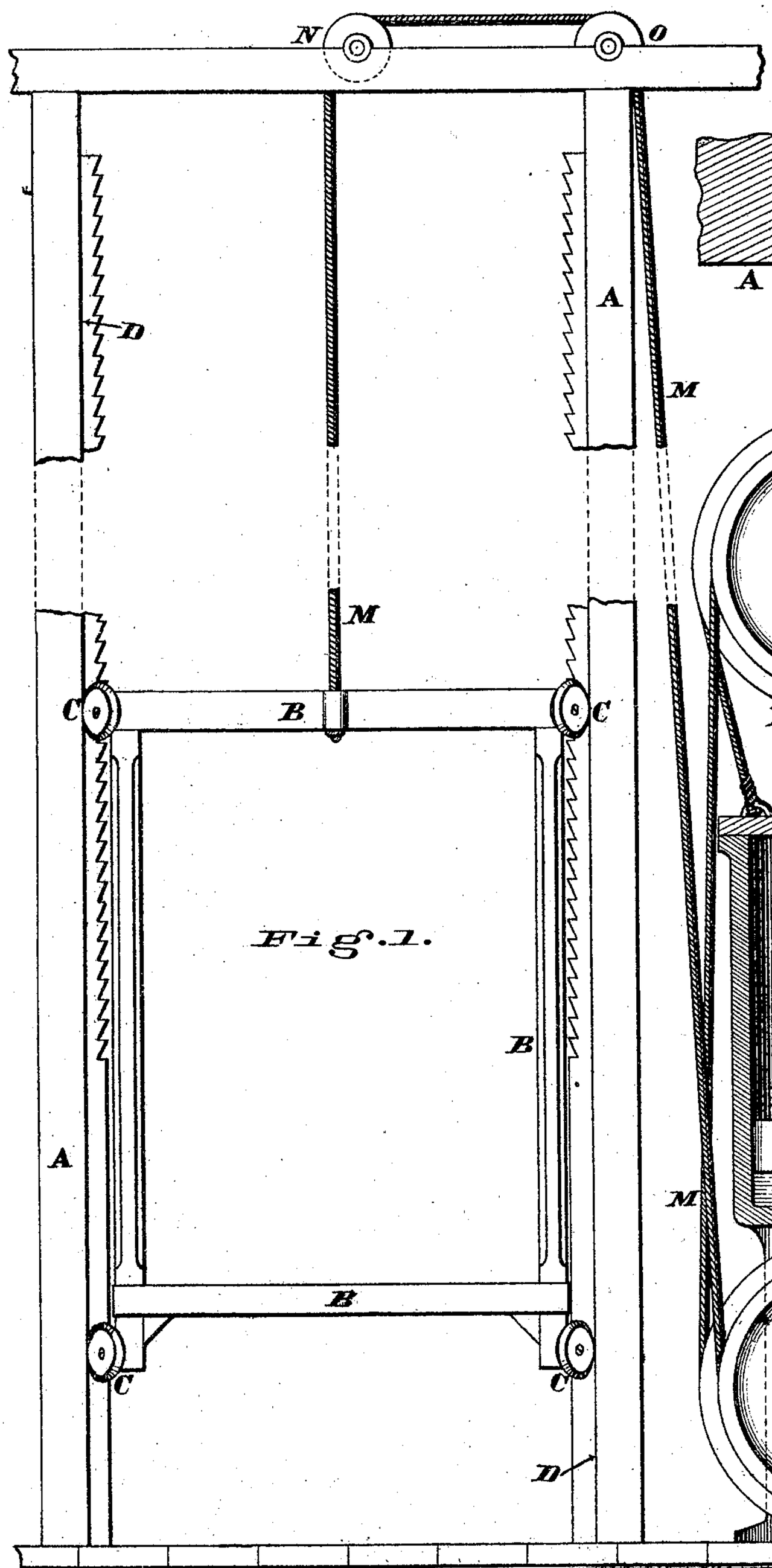
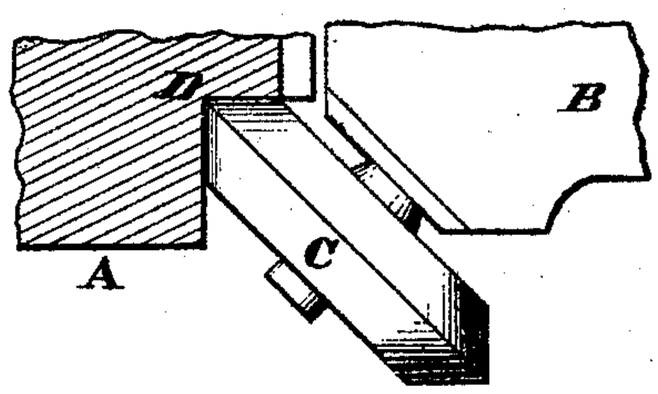
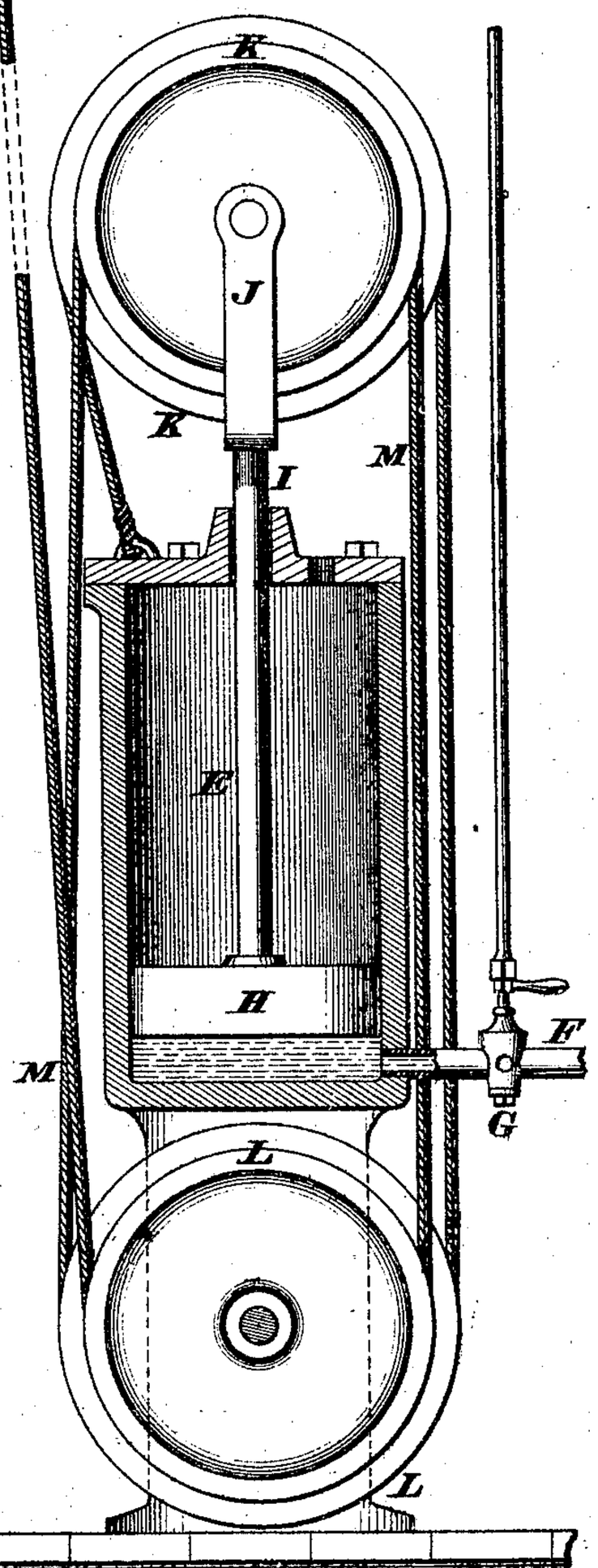


Fig. 1.

Fig. 2.





Attest.
Jas. N. Layman
John Kilvh.

A. J. Borger
By Knight Bros
Att'ys.

UNITED STATES PATENT OFFICE.

PETER J. BORGER, OF CINCINNATI, OHIO.

IMPROVEMENT IN HYDRAULIC-POWER ELEVATORS.

Specification forming part of Letters Patent No. **130,468**, dated August 13, 1872.

Specification of a Hydraulic Elevator, invented by PETER J. BORGER, of Cincinnati, Hamilton county, Ohio.

Nature and Objects of the Invention.

The first and chief feature of my invention consists in a provision whereby the power of water under pressure—such as in the ordinary hydrant main—is made available to lift a cage or platform to any desired height through the instrumentality of a piston, of sufficiently-large area, but comparatively short stroke, such as to enable the confining-cylinder and its appendages to be contained within an ordinary basement. For this purpose I interpose between the hydraulic motor and the cage or platform a system of cords and pulleys which cause the comparatively short stroke of the piston to be transfered with greatly-increased speed and length of stroke to the cage or platform. The second feature of my invention is a system of obliquely-presented rollers, of angular periphery, which, engaging in corresponding receding angles of the guide bars or stanchions, confine the cage or platform to an absolutely-vertical path.

General Description.

Figure 1 is a side elevation of a hydraulic elevator or hoist embodying my invention. Fig. 2 is a horizontal section of a stanchion and top view of a guide-roller and portion of the cage or platform on a larger scale than the preceding figure.

A represent two of the four guide bars or stanchions of an ordinary hoist-elevator. B is an ordinary cage or platform, furnished with rollers C having the represented salient angular peripheries, which peripheries engage in corresponding receding angles D in the guide bars or stanchions. E is a cylinder, whose lower end communicates, by means of a suitable pipe, F, and cock G, with a water head or main—such, for example, as that of a customary hydrant or water main in cities. H represents a piston, and I a piston-rod, which latter terminates in a journal-bearing, J, for a system or set of sheaves, K. Journaled in stationary bearings underneath said cylinder is another set of sheaves, L. A cord or cable, M, having one end of it attached to the cylinder or other stationary object, is rove around the two sets of sheaves, in the manner represented, which differ in no respect from that of an ordinary block and tackle, and its other end, being carried over suitable pulleys N O, is secured to the cage-top in any approved manner.

I have designed my apparatus for the use of water, but it is manifest that steam or compressed air might be employed, and differential cylinders might take the place of the sheaves here represented.

Claims.

I claim as new and of my invention—

1. The provision of short cylinder E of large area, piston H I, movable sheaves K, stationary sheaves L, cable M, pulleys N O, and cage or platform B, substantially as and for the purpose set forth.

2. The oblique and angular rollers C, in the described combination, with guide-bars A having receding angles D, as explained.

In testimony of which invention I hereunto set my hand.

PETER J. BORGER.

Attest:

GEO. H. KNIGHT,

JAMES H. LAYMAN.