

H. Fluid.

Hydraulic Jack.

N^o 94,732.

Patented Sep. 14, 1869.

Fig. 1.

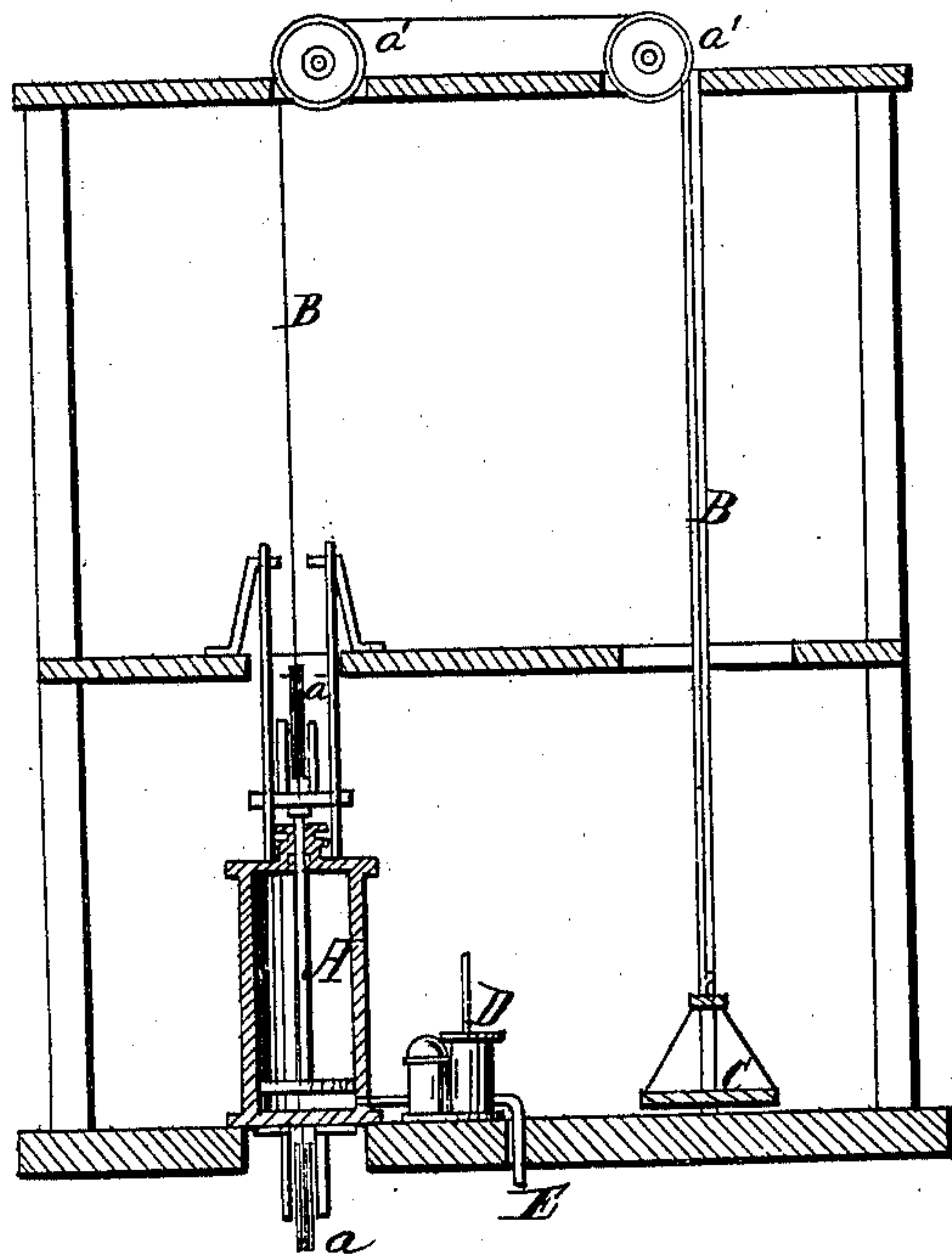
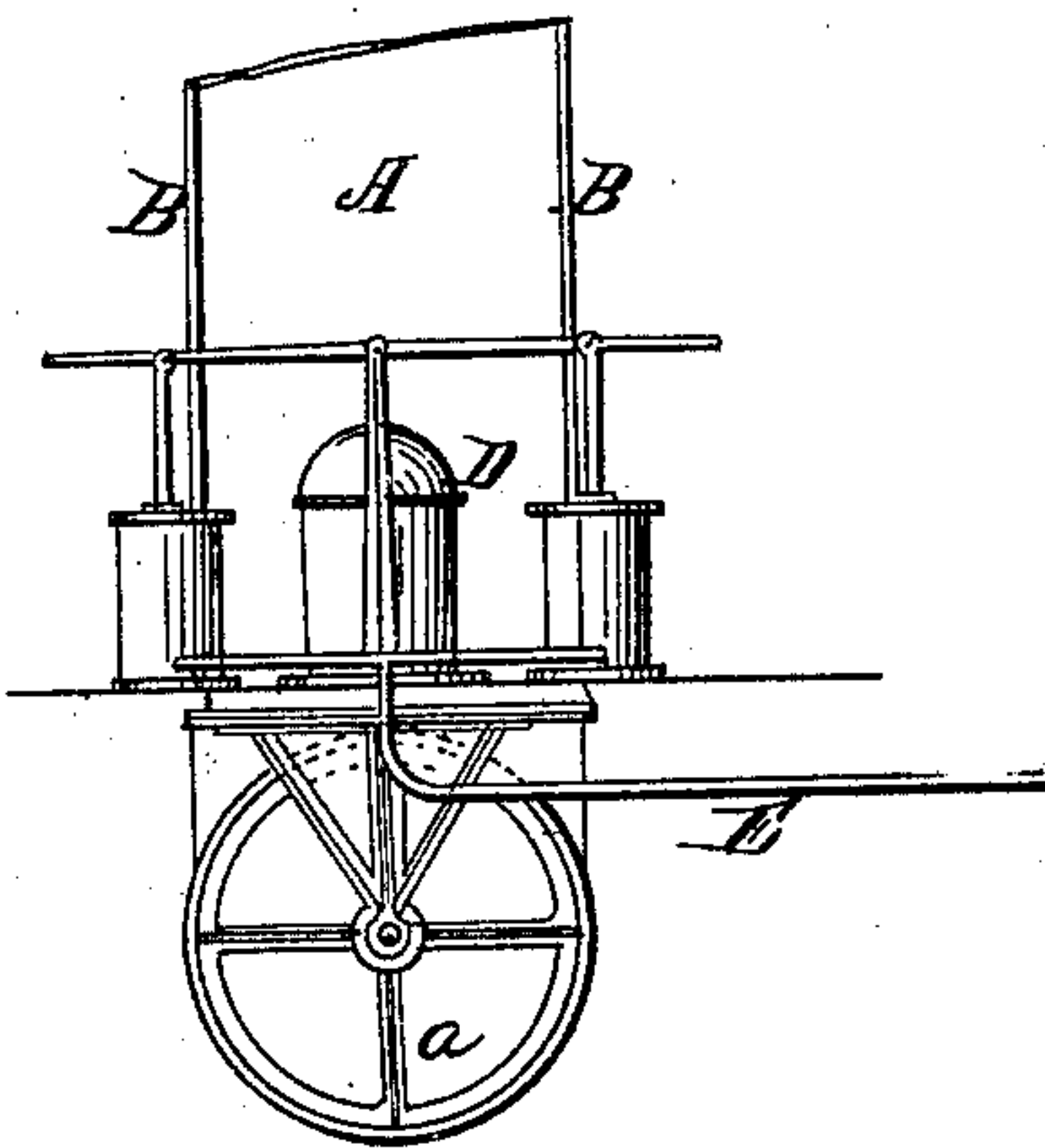


Fig. 2.



Witnesses
Robert. Burns
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United States Patent Office.

HENRY FLAD, OF ST. LOUIS, MISSOURI.

Letters Patent No. 94,732, dated September 14, 1869.

IMPROVEMENT IN HYDRAULIC ELEVATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY FLAD, of St. Louis, in the county of St. Louis, and State of Missouri, have made certain new and useful Improvements in Hydraulic Elevators; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to an improvement on an hydraulic elevator patented by Flad and Herthel, May 28, 1867, and numbered 65,200. In the said patented elevator, a cylinder and piston were employed, in which the direct pressure of water from a street-main or other similar source was employed to operate the piston, and thus to raise the weight placed upon the elevator. These elevators, being principally designed for use in cities supplied with water-pipes, the supply of water for the machine was to be taken therefrom. In the practical using of the said elevators, it is found that an occasional load, much larger than any ordinary load, had to be provided for in their construction, and to do this, the dimensions of the cylinder had to be proportionately increased, thus not only adding increased cost to the original construction of the machine, but also adding to the running expenses, by using the same amount of water for small loads that was required for larger ones.

It is to remedy these defects in the existing machines that is the object of the present invention.

In the improved machine the cylinder is made just large enough for the ordinary loads, and a force-pump is added to the machine, for the purpose of supplying an extra amount of pressure on the piston whenever required, the usual pressure of the water from the main being taken advantage of in the construction of the machine, so as to employ it as an auxiliary to aid in the operation of the pump.

To enable those skilled in the art to make and use my improved elevator, I will proceed to describe its construction and operation.

Figure 1 of the drawings is a sectional elevation of the complete elevator-hoist.

Figure 2 is a sectional elevation, showing the force-cylinder, and a side elevation of the auxiliary force-pump attachment.

In this machine, the cylinder A, sheaves *a a'*, hoisting-rope B, and hoisting-platform C, are arranged precisely similar to what these, or the corresponding parts were in the former machine.

In this machine, however, the cylinder is made somewhat smaller than those formerly employed, and beside it, and in connection with it, is placed the force-pump D.

The street-main E is to be in connection with the cylinder A, and also with the pump D.

When small loads are to be raised, the direct pressure of the water from the main may be so applied to the piston as to raise it in the former manner; but when extraordinary loads are to be raised, the pump is to be used in the manner hereinafter described, to produce the extra pressure required.

The street-pipe, or main E may either have an independent attachment to the cylinder, or be conducted to it through the pump, with a valve-arrangement so constructed as to deliver the water either to the pump or to the cylinder.

The pump used may be a double-action plunger-pump, or a rotary-pump, or any other suitable pump, by means of which the direct pressure of the water from the supply-main may be used to assist in the operation of the pump itself. Thus, if a double-action plunger-pump be used, the pressure of the water on the rising plunger will be used to assist in depressing the forcing-plunger, and consequently only the additional pressure required in the cylinder will have to be employed in the operation of the pump. If a single-action pump were employed, a counterpoising weight would have to be used with it, so arranged as to allow the pressure from the main to be used to assist in raising the said weight at the receiving-stroke of the pump, and then the weight itself might be used to assist in delivering the required amount of pressure to the cylinder. The same result would be obtained with the use of a rotary-pump, in which the pressure from its induction-pipe would be used to assist in its forward motion.

Thus it will be seen that I do not limit myself to any particular form of pump, but the use of any form adapted to the purpose is clearly within the scope of my invention.

The pump may also be used to operate the elevator, when there may be no available pressure on the fluid by which to operate it or the piston of the elevator, by taking the water or other fluid from a tank, or reservoir, or cistern, holding a little more than one cylinder full.

Having described my invention,

What I claim, is—

The force-pump D, when arranged to receive water under pressure and be actuated thereby, and by any auxiliary power, and reinforcing the pressure in the cylinder A, substantially as set forth.

HENRY FLAD.

Witnesses:

M. RANDOLPH,

GEO. P. HERTHEL, Jr.