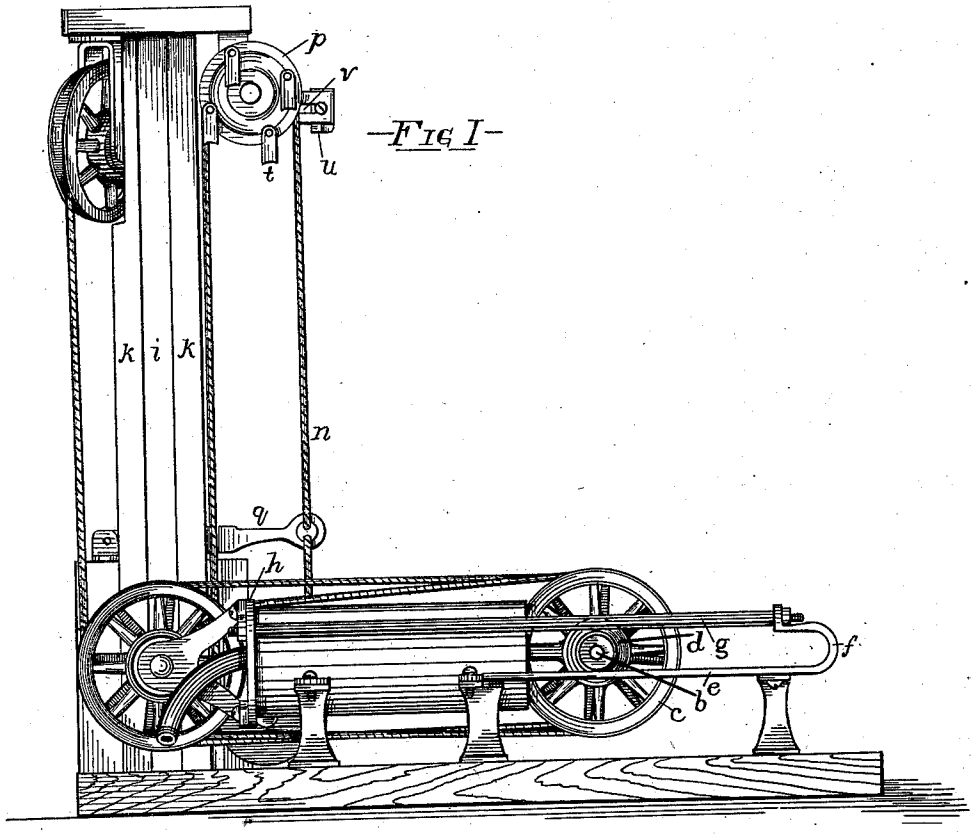
H. SNOWDEN.

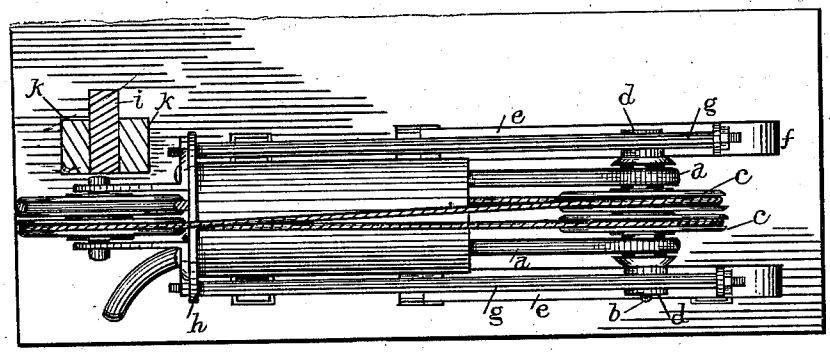
Hydraulic-Elevator.

No. 216,465. Patented June 10, 1879.



—FIG I—

—FIG II—



Witnesses:

Chas. E. Lewis

Chas B. Mann

Inventor:

Henry Snowden.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY SNOWDEN, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN HYDRAULIC ELEVATORS.

Specification forming part of Letters Patent No. **216,465**, dated June 10, 1879; application filed April 9, 1879.

To all whom it may concern:

Be it known that I, HENRY SNOWDEN, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in Hydraulic Elevators, of which the following is a specification.

This invention relates to hydraulic elevators, and will first be described in connection with the accompanying drawings, and then pointed out in the claims.

Figure I is a side elevation. Fig. II is a plan view of engine.

This invention is an improvement applicable to hydraulic engines of the horizontal description, and relates to the two piston-rods *a*, attached to one piston-head and to a transverse shaft, *b*, forming a cross-head, on which revolve the sheaves *c*. The ends of the shaft or cross-head are provided with friction-rollers *d*, which traverse the slides or ways *e*. These latter, at their extremity, are curved upward or otherwise provided with stops *f*, to which a rod, *g*, is connected, and is secured by its opposite end to the head *h* of cylinder. The stop end *f* prevents the piston with the cross-head and sheaves from escaping from cylinder in the event of rope breaking, or if the water, by accident, is not shut off.

It will be seen one end of the ways *e* is secured directly to the cylinder, and the other end is, by means of the rod *g*, also secured to the cylinder, thus connecting the parts in a very substantial manner.

A novel feature of the upright guides and the brake mechanism here shown is described and claimed in another application for a patent.

Having described my invention, I claim and desire to secure by United States Letters Patent—

1. In a hydraulic engine of the horizontal description, the improved cross-head consisting of the combination of the two piston-rods *a*, attached to the piston-head and to the transverse shaft *b*, about which the sheaves *c* revolve, as set forth.

2. In a horizontal water-engine, the combination, with the cylinder, of ways *e*, each having one of their extremities provided with stops *f*, and the connecting-rods *g*, attached to the stops and secured to the cylinder, as set forth.

HENRY SNOWDEN.

Witnesses:
R. HIPKINS,
JOHN W. TAYLOR.