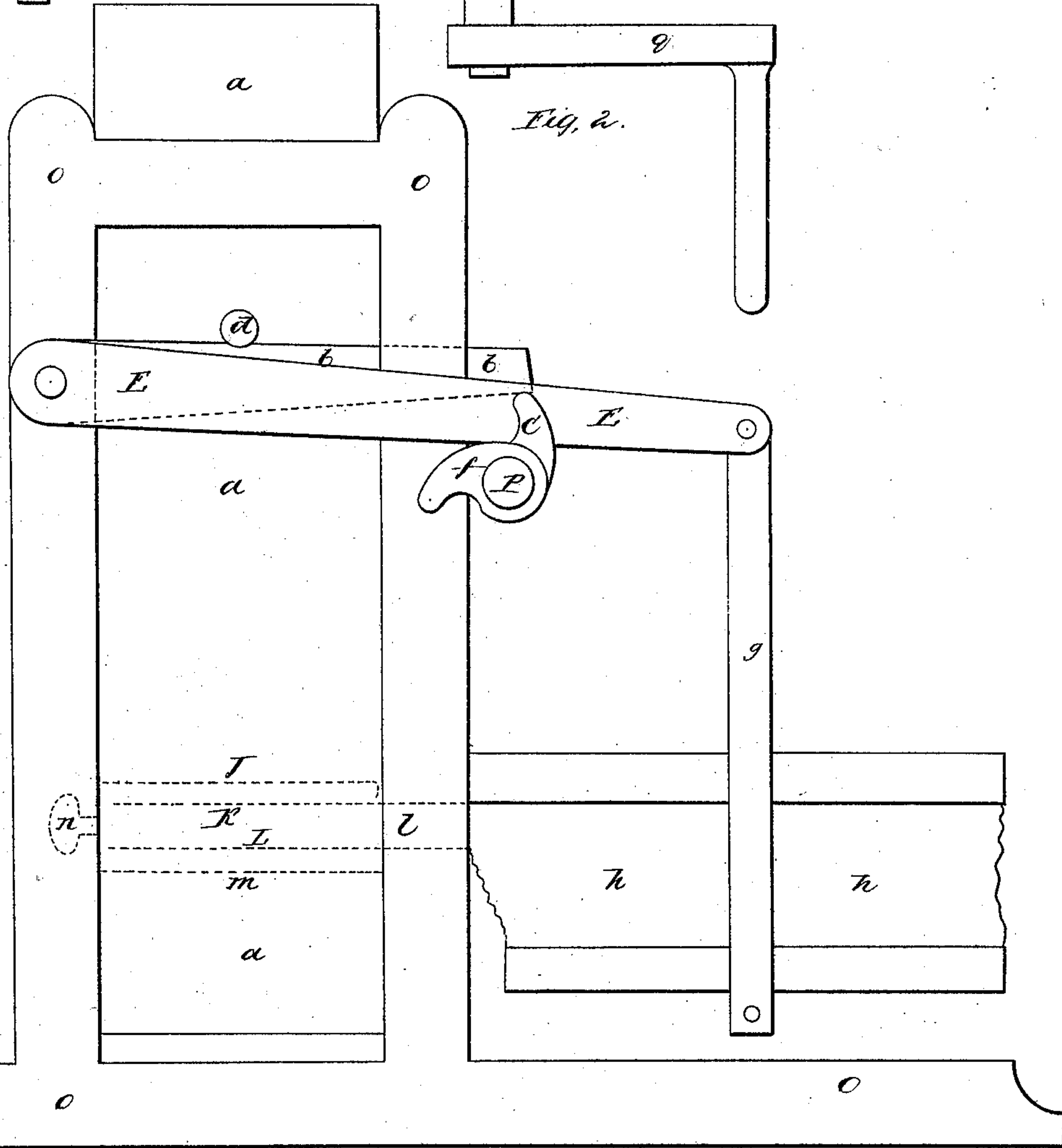
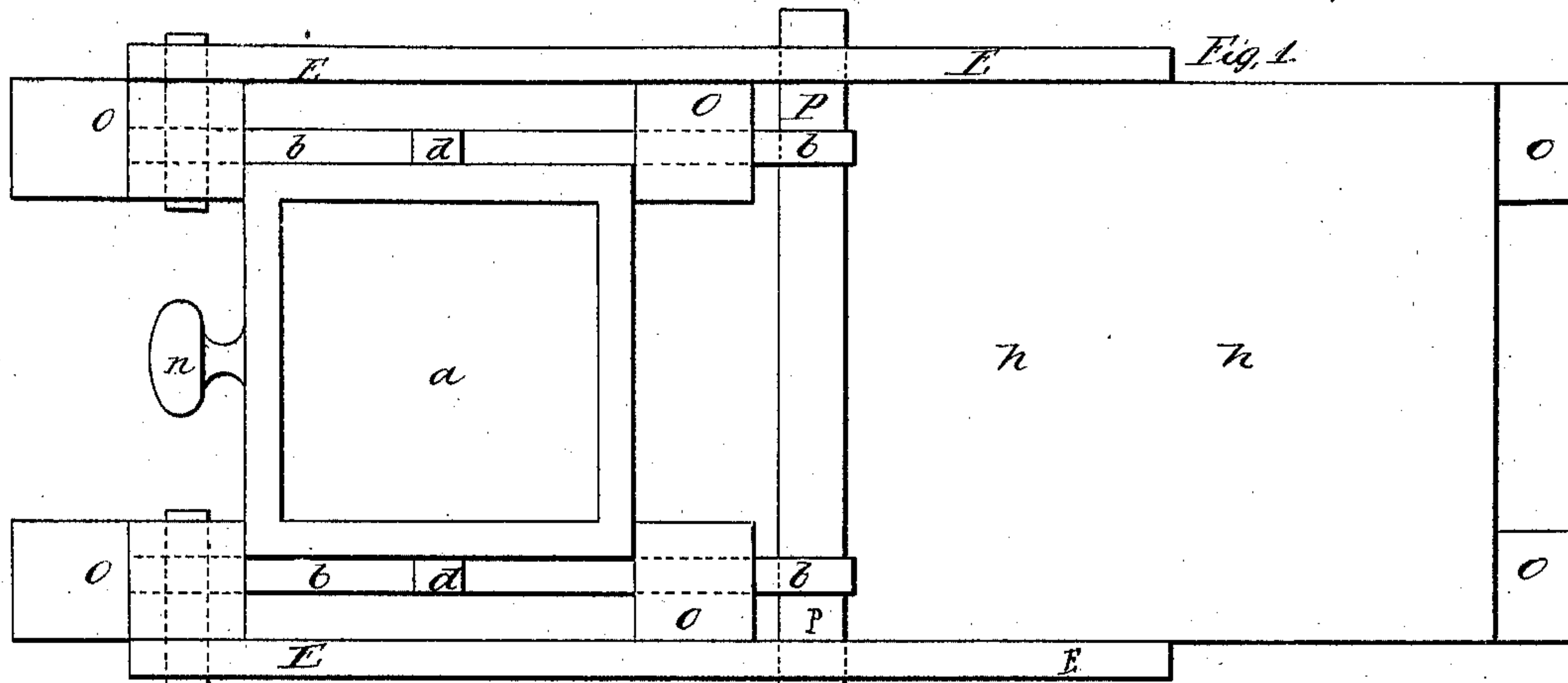


*J. Edgar.*

*Ore Concentrator and Separator.*

*N<sup>o</sup> 97,488.*

*Patented Dec. 7, 1869.*



*Witnesses,  
M. F. Dickinson Jr.  
O. W. Kelley*

*Inventor,  
James Edgar*

# United States Patent Office.

JAMES EDGAR, OF NEW YORK, N. Y.

Letters Patent No. 97,488, dated December 7, 1869.

## IMPROVED ORE-CONCENTRATOR AND SEPARATOR.

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, JAMES EDGAR, of New York, in the county and State of New York, have invented a new and improved Mode of Concentrating and Separating Ores, called "Edgar's Reciprocating Concentrator;" and I hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in giving a vertical motion to the cylinder or vessel in which the pulverized ore is placed, and applying to the ore, at the same moment, a pressure of air, by which motion the adhesion of the particles of the ore upon each other is regularly broken or disturbed, thus greatly facilitating and hastening the separation of the ores, while the pressure of air regulates the descent of the particles in the cylinder or other vessel, and causes them to take their places at the bottom thereof, according to their specific gravity, the heaviest underneath.

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

Figure 1, of the accompanying drawings, presents a top view of the apparatus, and

Figure 2, a side elevation thereof.

This apparatus consists of a cylinder or other vessel, of any convenient shape, *a a a*, open at top to receive the dry pulverized ore.

*b b* are two levers, which receive their motion from two cams *c c*, and communicate a vertical motion to said cylinder or vessel by acting on the studs *d d*.

*e e* are also two levers, receiving their motion from the cams *f f*, and, by means of the connecting-rod *g*, give motion to the bellows *h h*.

The dotted lines *j k l m* represent the section of a movable bottom, which may be withdrawn at pleasure.

*l m* is an air-tight bottom.

*k l*, an air-chamber.

*k* is a finely-perforated or fine-cloth partition, forming the movable bottom.

From *k* to *j* is the space where the concentrated ore is found.

*n* is the handle for removing the movable bottom.

*o o o o* is the frame-work.

*p p*, the cam-shaft for working the levers.

*q*, a crank, for turning the same.

After examining the foregoing, the operation will be easily understood.

The letters represent the same parts in each drawing.

The dry pulverized ore is put in at the top of the cylinder *a a*, (which may be of any shape and size,) and falls upon the perforated bottom *k*. The cam-shaft *p p* is then put in motion, which gives a regularly-recurring vertical movement to the cylinder *a a*, and thus to the ore, by which process the adhesion of the particles of the ore upon each other is broken or disturbed, and the particles set free from each other.

*h h* is a bellows, from which air is pressed, through the passage *i*, into the air-chamber *k l*, and passes up through the perforated bottom *k*, and checks the gravitation of the ore, so that those particles of the greatest specific gravity take their place at the bottom of the cylinder, immediately upon the perforated bottom *k*, while the other particles range themselves above, according to their relative specific gravity, the lightest uppermost.

This motion of the cylinder may be given in various other ways besides by the use of cams as above described.

The apparatus may be constructed of any kind of material found convenient, and of such dimensions as may suit the amount of work to be done, and may be driven by any motive-power now in use, by means of gearing, belts, and cranks.

I claim, as my invention—

The imparting of the vertical motion to said cylinder or other-shaped vessel *a a*, which contains the ore, and thereby destroying the adhesion of the particles, and, while in this condition, bringing upon them a pressure of air, which may be supplied by bellows, or pump, or in any other way found convenient.

JAMES EDGAR.

Witnesses:

M. F. DICKINSON, Jr.,

E. P. NETTLETON.

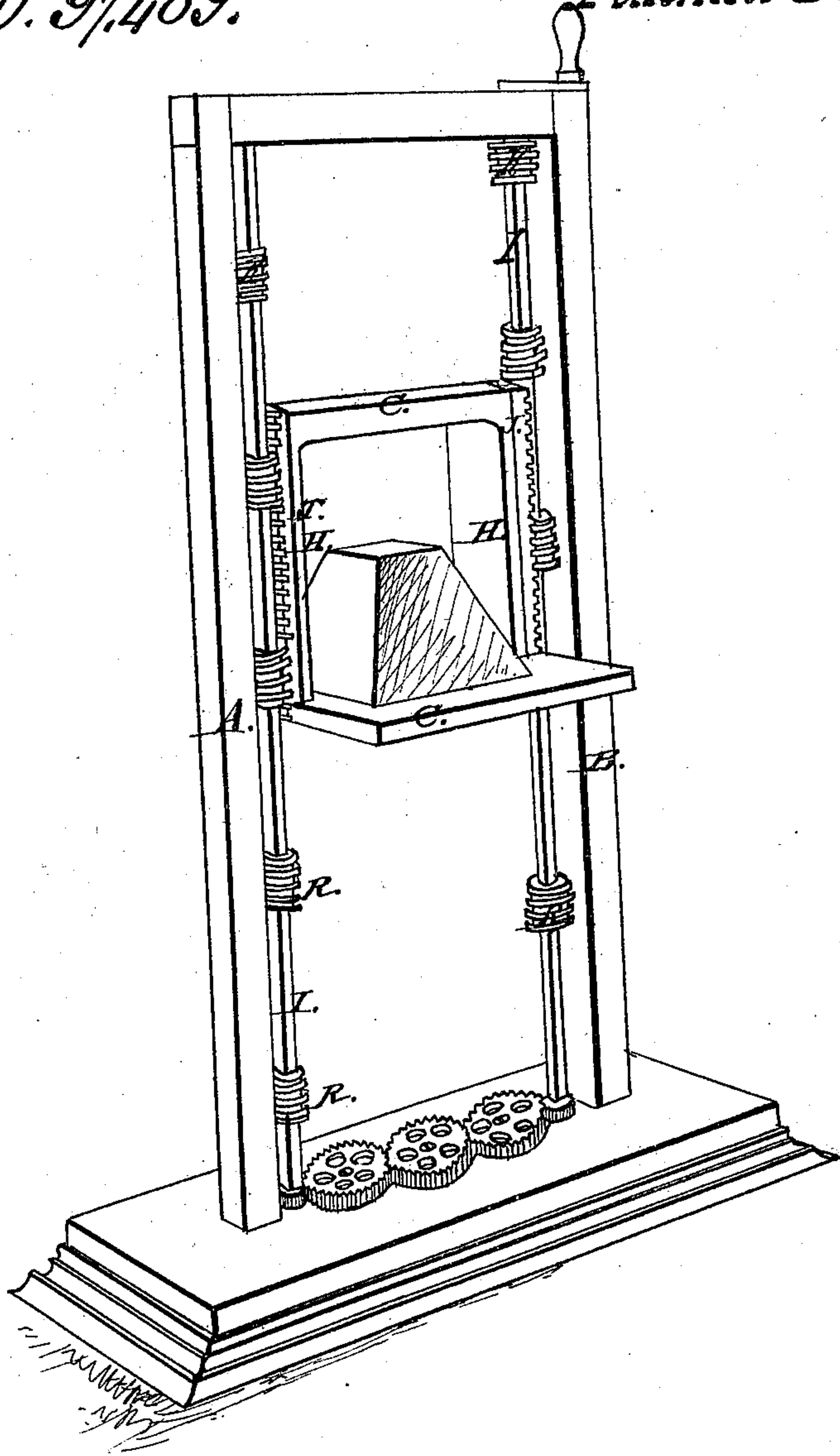


W. Edison,

Elevator.

No. 97,489.

Patented Dec. 7, 1869



Witnesses:

P. H. Bagley  
J. R. Edison

Inventor:

William Edison