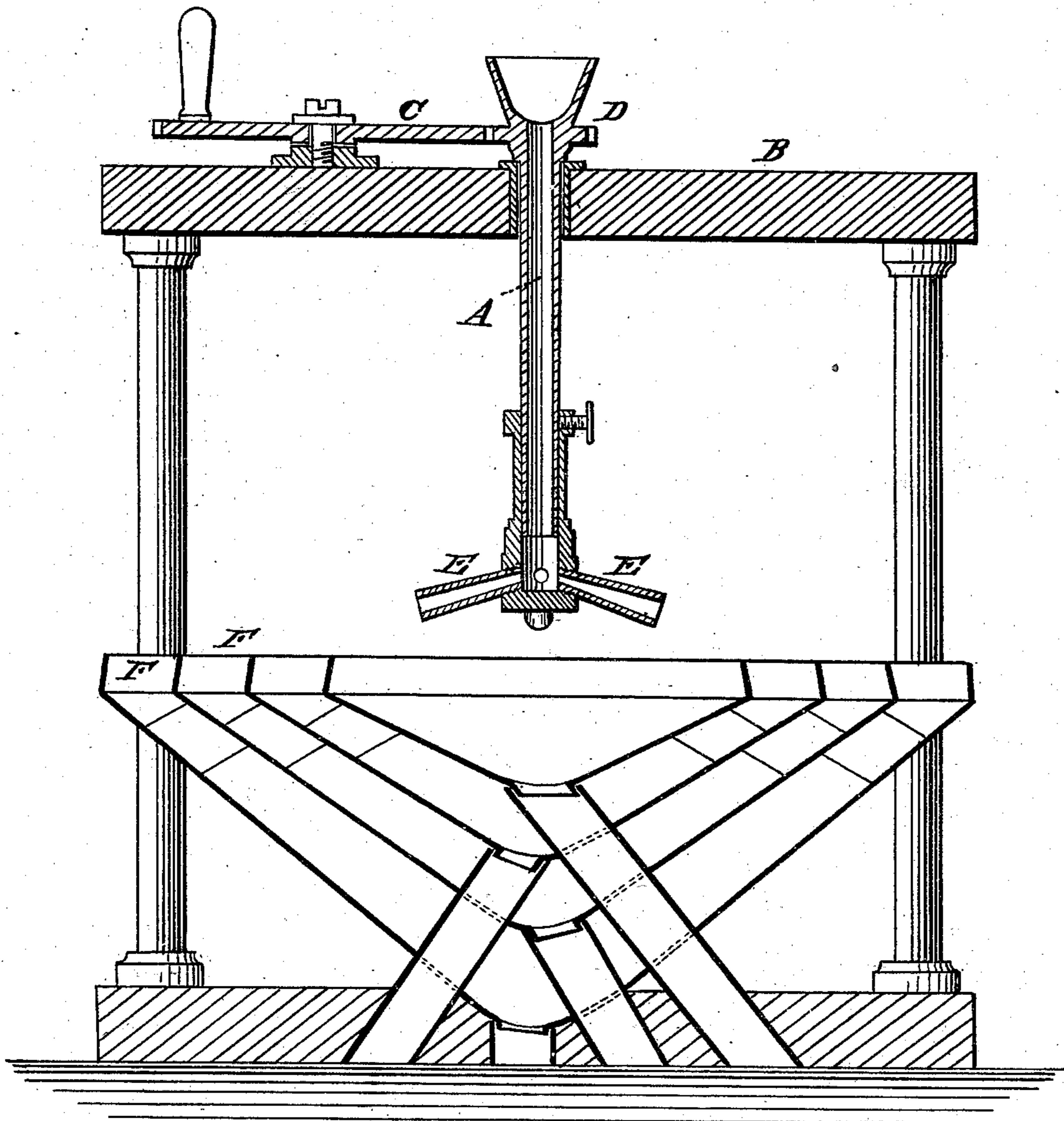


S. T. PEARCE.

Ore Separator.

No. 80,764.

Patented Aug. 4, 1868.



Witnesses:  
Wm A Morgan  
Frank Blockley.

Inventor:  
S. T. Pearce  
per Munroe & Co.  
Attorneys.

# United States Patent Office.

STEPHEN T. PEARCE, OF NEW YORK, N. Y.

Letters Patent No. 80,764, dated August 4, 1868.

## IMPROVED MACHINE FOR SEPARATING ORES AND OTHER GRANULAR SUBSTANCES.

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, STEPHEN T. PEARCE, of the city, county, and State of New York, have invented new and useful Improvements in Machinery for Separating Ore and other Granular Substances; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide an improved method of separating ores and other granular substances by the action of centrifugal force, whereby the employment of water or air, by which a material proportion of the finer particles is lost, may be dispensed with.

It consists, according to one example of my invention, in the employment of a vertical, hollow, rotating cylinder, to which the pulverized ore is fed by any suitable means, and which is provided with lateral discharging-tubes near the bottom, through which the ore or other substance is impelled by the centrifugal force due to the rotation of the cylinder, in combination with the graduated annular receptacles under the said cylinder, into which the substance will be discharged, according to its specific gravity.

The drawing represents a sectional elevation of my improved apparatus.

A represents a vertical tube, supported in a suitable framing, B, and provided with any suitable means for rotating it, as, for instance, a spin-wheel, C, and pinion, D. It is also, by preference, made to be contracted or extended lengthwise, and is provided with lateral discharging-tubes E, of any desired number, arranged to project in axial or curved lines, as preferred.

F represents a series of funnel-shaped receivers, arranged below the tube, into which the ore or other substance is discharged, and from which it may be conveyed by separate spouts to other receptacles, or to elevators, to be conveyed back again to be passed through again, or to other similar separating-machines.

The ore is first pulverized by any approved method, and then sifted or screened, for the purpose of sizing it accurately. It is then passed through the rotating tube, as above described, whereby the particles, on emerging from the tubes E, which are preferably made larger at the discharging-end, will have acquired a velocity due to their weight, and being of uniform size, those which are heaviest will be discharged into the outermost receptacle, while the lighter ones will fall into the others, according to their weight or velocity.

My improved apparatus may be used for separating grain and other substances; and for separating seed-grain it is especially useful, for the reason that the heaviest grains possess the best germinating quality; hence it is highly desirable to separate it with especial reference to weight.

In the finer ores, as gold, a large and valuable part exists in fine particles of dust, which, in the present methods of separating by the use of water and air, is entirely lost, being carried off with the water or air.

To preserve these fine particles, and at the same time separate them from the baser particles of dust, I propose to make use of a centrifugally-acting machine within an air-tight chamber, from which the air may be exhausted to produce a vacuum, wherein, the fine particles not being resisted by the air, will obey the same law of centrifugal action as the heavier particles, as above described.

Various other arrangements of means for impelling the ore may be used, and instead of the lateral tubes E, a flat disk may be arranged at the bottom of the tube, from which the ore may be discharged, and instead of carrying the ore to the disk through the tube, the disk may be secured to a shaft, and the ore discharged on to it from a spout, or when a tube is used, it may have an enlargement at the bottom, having radial perforations through which the ore may be discharged.

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

1. The employment of means for impelling ores and other granular substances by centrifugal force, in combination with graduated receptacles for separating them, either in the atmosphere, or *in vacuo*, substantially as and for the purpose described.

2. The combination of the adjustable tube A, provided with the lateral tubes E, or their equivalent, with the receptacles F, substantially as and for the purpose described.

The above specification of my invention signed by me, this 15th day of July, 1868.

S. T. PEARCE.

Witnesses:

FRANK BLOCKLEY,  
GEO. C. COTTON.