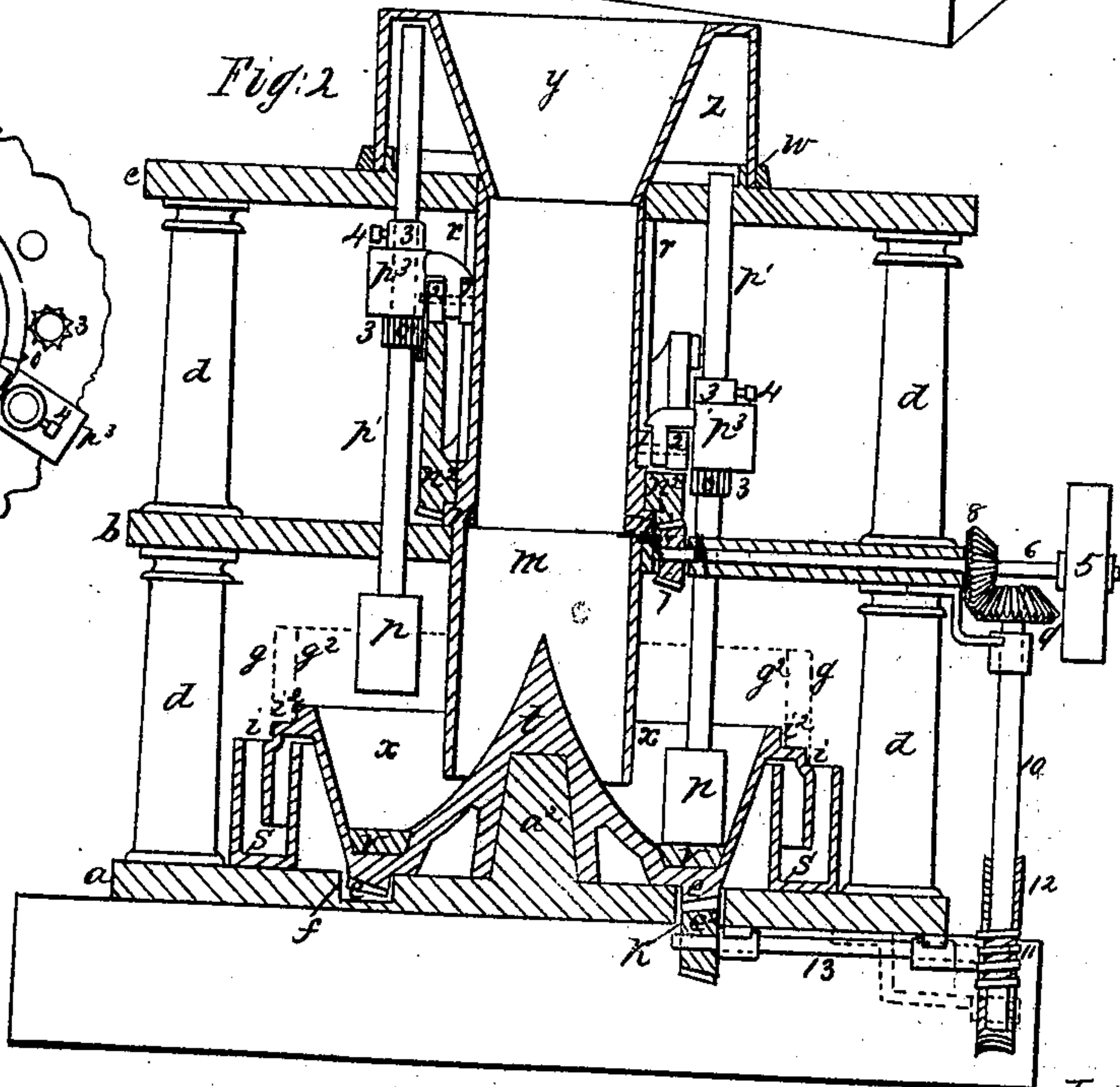
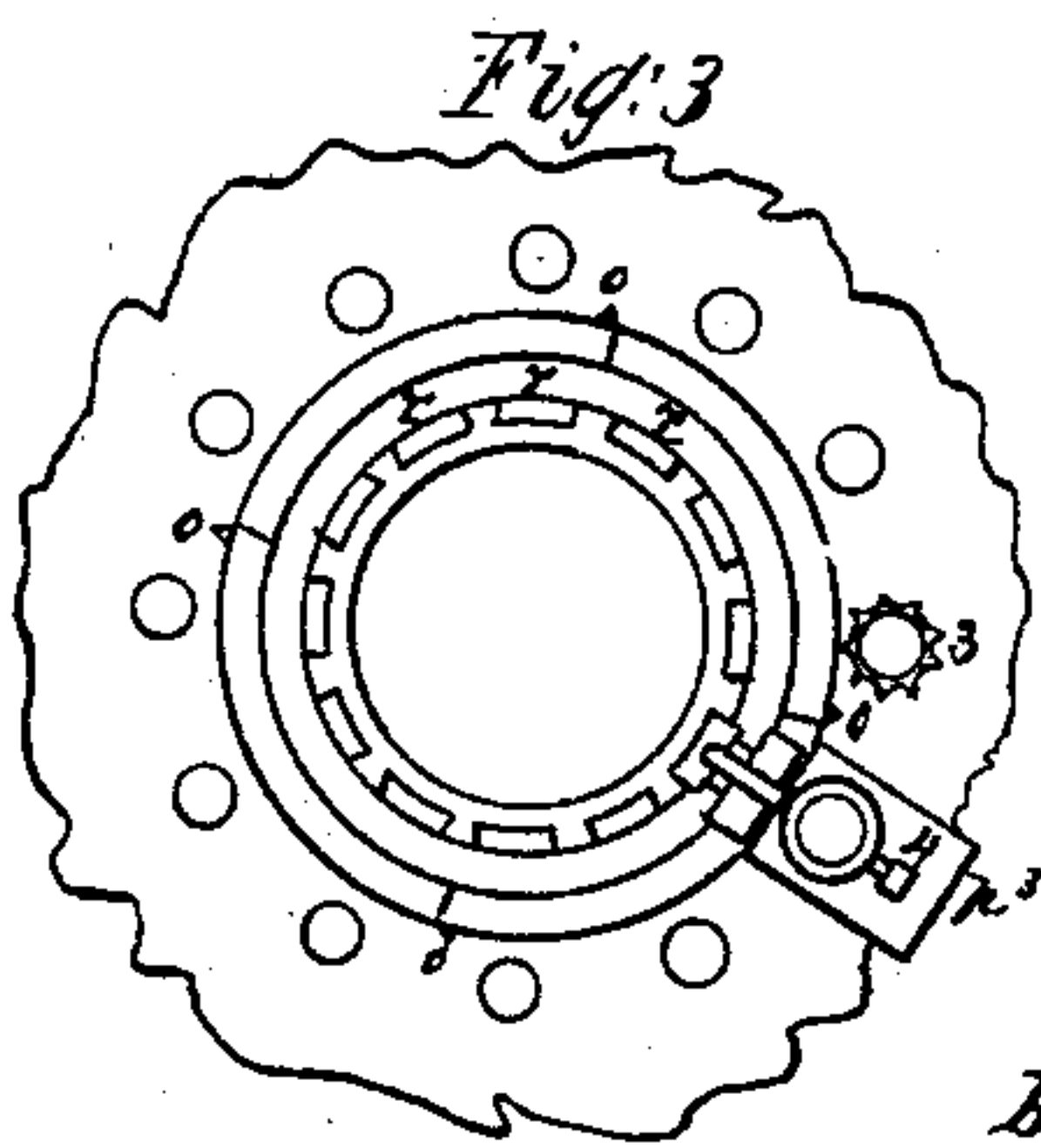
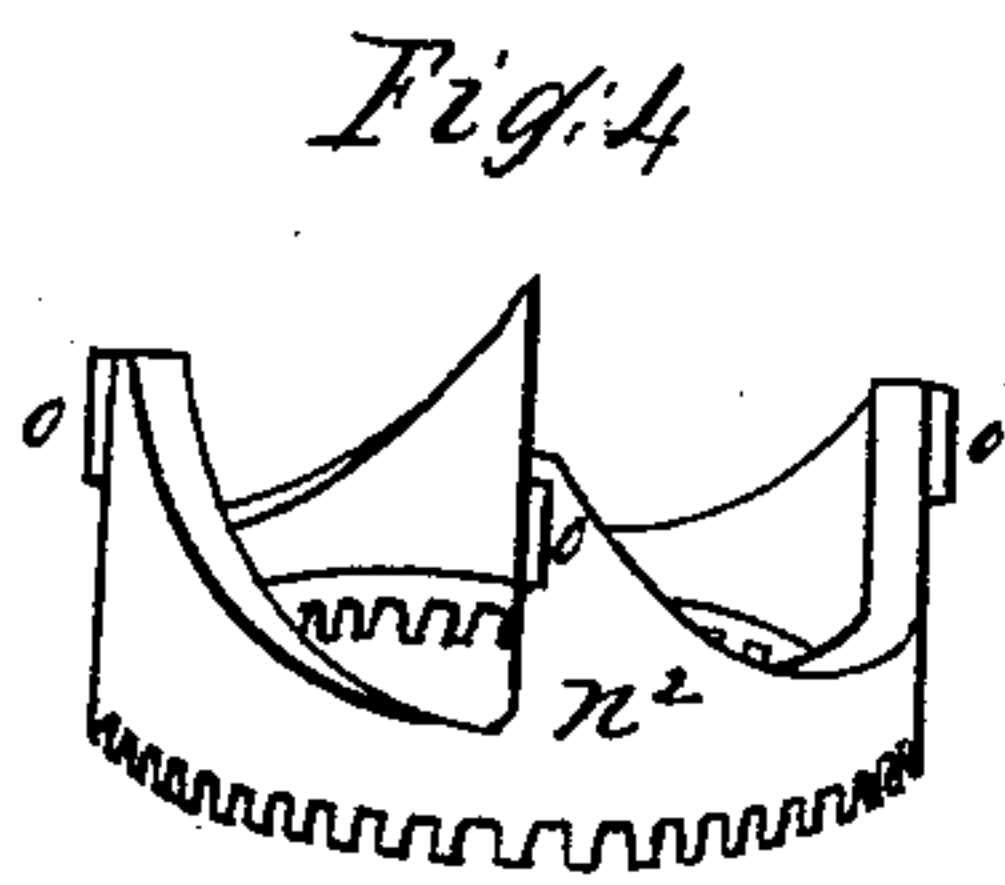
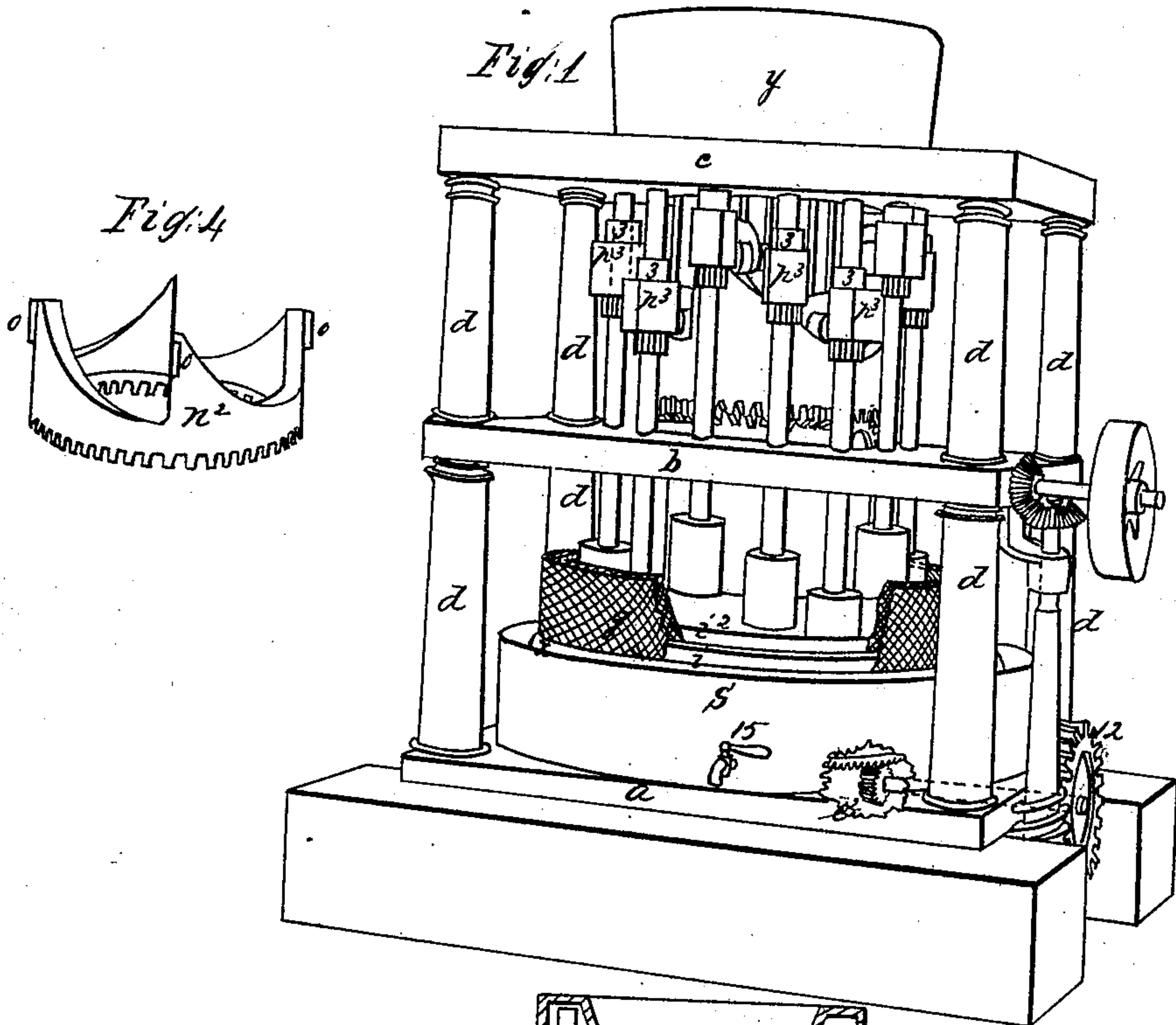


J. Repetti

Quartz Crusher

N^o 89,434.

Patented Apr. 27, 1869.



Witnesses
J. C. Mossey
James M. Hill

Inventor
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United States Patent Office.

JOSEPH REPETTI, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 89,434, dated April 27, 1869.

IMPROVED QUARTZ-CRUSHER.

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

Be it known that I, JOSEPH REPETTI, of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements on a Quartz-Crusher; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view.

Figure 2 is a vertical section of the quartz-crusher.

Figure 3 shows how the lifting-arms are guided, and the stamps revolved.

Figure 4 is an isolated perspective view of the cam-wheel.

The machine has three tables, *a*, *b*, and *c*, connected and supported by the columns *d d d*, figs. 1 and 2.

The lower table, *a*, has a cylindrical pin, *a*², at its centre, on which the stamping-pot *x* revolves.

An annular channel, *f*, concentric with the pin *a*², is provided, to allow the bevel-wheel *e*, which is cast or fastened on the lower side of *x*, to revolve freely in it.

At the point *K*, this channel is cut entirely through, to allow the pinion *e*² to engage with the wheel *e*.

The stamping-pot *x* is provided, on its top rim, with shoulders, *i* and *i*², to receive wire-cloth cylinders, *g* and *g*², as shown in perspective, in fig. 1, (part broken out to show interior,) and indicated by dotted lines in fig. 2.

The outside flange of *x* projects a considerable distance into the annular vessel *s*, which is set on the table *a*, concentric, or nearly so, with *x*.

In the centre of *x* is a cone, *t*, which not only forms the bearing for the pin *a*², but also, in connection with the sloping rim of *x*, serves to bring the ore or quartz continually upon the chilled-iron ring *V*, which is cast separately, and can be renewed as occasion requires.

The central table, *b*, has holes, for the purpose of guiding the stamping-rods *p*¹ equidistant from the centre of the table, and also equidistant from each other, as in fig. 3.

Another large hole is made in the centre of the table, to allow the pipe *m* to pass through until the shoulder *n* rests firmly on the table.

This shoulder carries the cam-wheel *n*², fig. 4, which consists of a hollow cylinder, whose lower end is provided with teeth, and its upper edge shaped properly as a lifting-cam.

The upper portion of the pipe *m* has rectangular grooves, *r r r*, figs. 2 and 3, running parallel with the said pipe.

The upper table, *c*, is similar to *b*, but has, in addition, an annular groove, *w*, in which the outside shell of the hopper *y* fits. The interior of the hopper is conical, the small end of the truncated cone entering the pipe *m*.

By this construction of the hopper, the annular space *z*, fig. 2, is formed, allowing the stamp-rods to rise.

The stamps *p*, which I usually make of chilled iron, are fastened to the lower end of the cylindrical stamp-rods *p*¹, by any well-known method.

The raising of the stamps is effected by means of the lifting-arms *p*³ *p*³ *p*³, figs. 1, 2, and 3, which carry two friction-rollers, 1 and 2; 2 bearing on the inclines of *n*², and 1 working in the grooves *r r r*, on the vertical pipe *m*, keeping the arm from revolving on the stamp-rod *p*¹, as the side-strain of the cam comes upon it.

The lifting-arms are kept from sliding lengthwise, and can be adjusted to any desired height on *p*¹, by means of the collars 3 3 3, which are tightened, and kept in position by the set-screws 4 4 4, which are countersunk in the lower collar.

To cause the stamps to wear equally, they are made to revolve intermittently. For this purpose, the lower collars, 3, are provided with teeth, and the cam-wheel *n*² has also teeth *o o o o*, figs. 3 and 4.

As the cam-wheel revolves, its teeth *o* engage with those on the collars, 3, fig. 3, revolving the latter, and consequently, the stamp, through the space of one tooth.

The motive-power is applied to the pulley 5, or its equivalent, through the shaft 6, whose bearing is in the centre table, and thence to the bevel-pinion 7, which drives the cam-wheel, from which the stamps derive their motion.

The shaft 6 carries, also, a mitre-wheel, 8, gearing into another mitre-wheel, 9, on the vertical shaft 10, on which endless screw 11 is either cut or fastened.

This screw drives the worm-wheel, 12, on the shaft 13, the bearings of which are fastened to the lower side of the table *a*.

The shaft, 13, carries the bevel-pinion *e*², which imparts a slow rotary motion to the stamp-pot *x*, by means of the bevel-wheel *e*.

The operation of the machine is as follows:

The ore or quartz is dropped into the hopper *y*, and falls through the annular space formed by the pipe *m* and cone *t*, upon the chilled-iron ring *V*, where the stamps operate upon it. Water being admitted into the pot *x*, the pulverized ore is carried through the wire-cloth cylinders *g* and *g*², into the vessel *s*, from whence it is removed by the valve or cock 15, fig. 1.

The machine may be used, also, for the dry-stamping process.

By reference to fig. 4, it will be seen that the cam is of such a shape, that it will not lift the stamps immediately after they have dropped, allowing them to rest, for a certain period, upon the ring *v*. But, as the ring revolves continually with the pot *x*, it follows, that a certain grinding action between the stamps and ring is effected.

By this general construction of the machine, all the grit and dust are excluded from the main working-parts and bearings.

I do not claim devices for raising and revolving the

stamping-rods of quartz-crushers by means of a helical cam; but

What I do claim, is—

1. The arrangement herein described, of the cam-wheel n^2 , with its lugs o , in combination with the cylindrical stamp-collar p^3 , when provided with ratchet-collars, for the purpose of imparting rotary motion to the said rods, and causing the same to remain, for a time, at rest upon the ring v , as herein described.

2. The pipe m , with its shoulders, and grooves r r

r , when combined and arranged with the cylindrical stamps p^1 , as described.

3. The arrangement herein described, of tables a b c , hopper y , pipe m , toothed cam-wheel n^2 , stamps p^1 , pot x , shafts 6 and 10, wheels 8, 9, and 7, and E^2 , screw 11, and worm-wheel 12, all constructed as set forth and shown.

Witnesses:

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