

A. M. BACON.

Machine for Grinding Glassware.

No. 228,164.

Patented June 1, 1880.

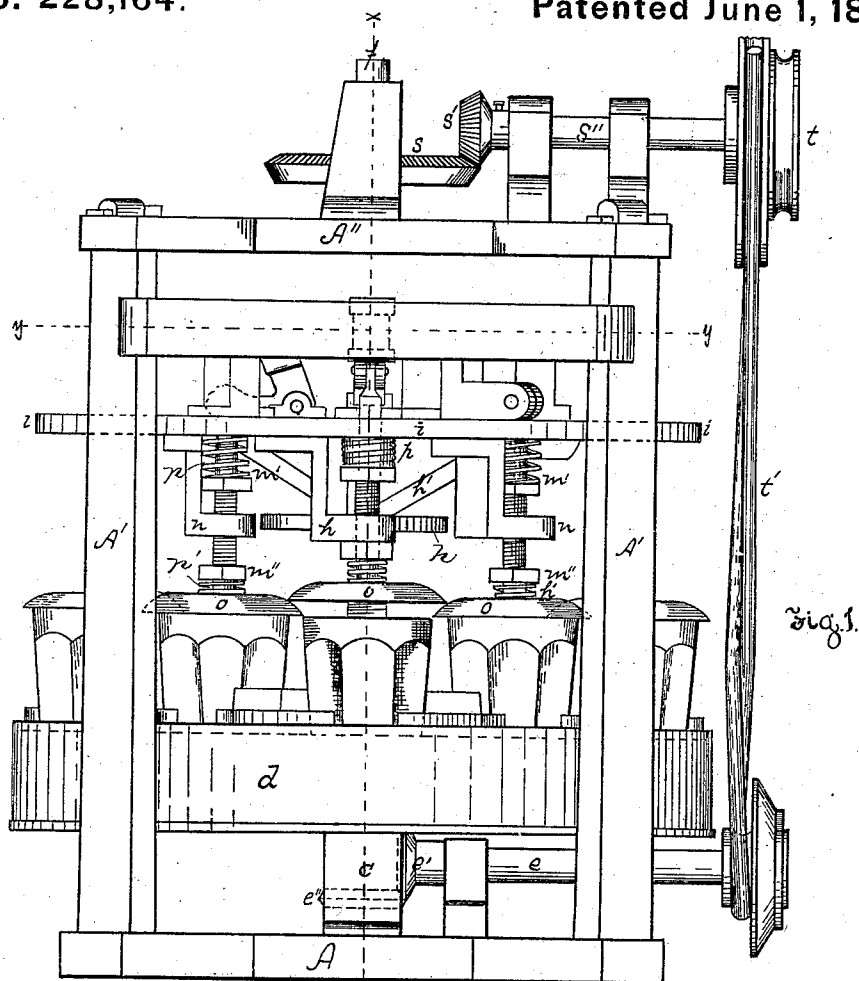
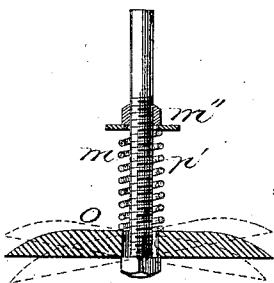


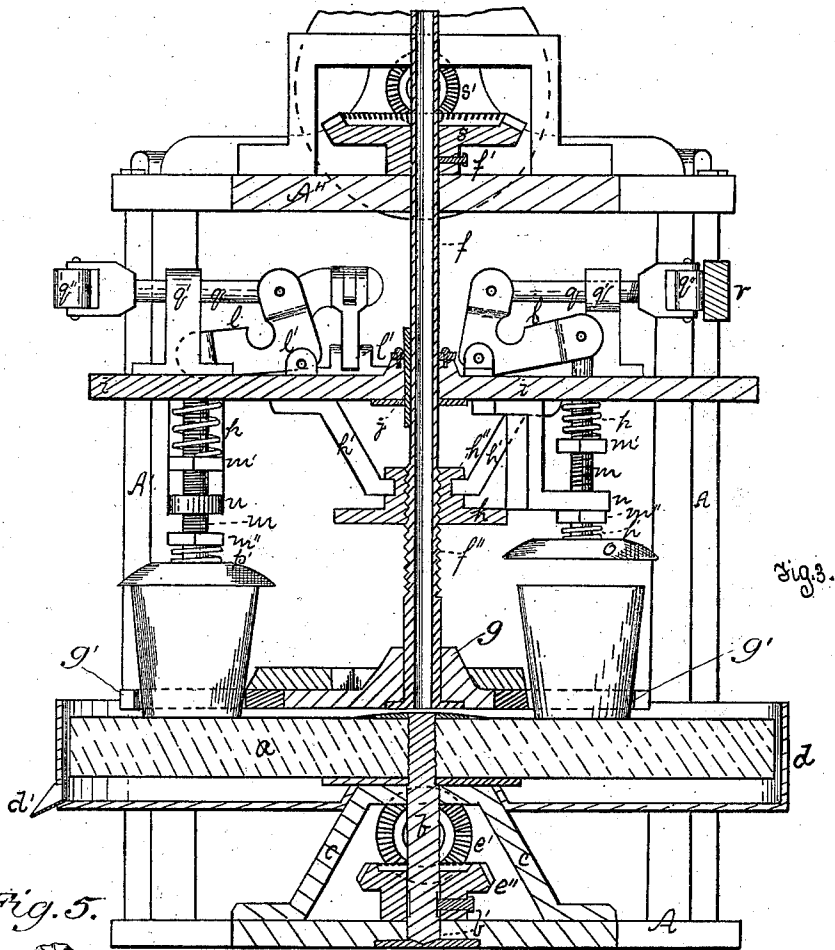
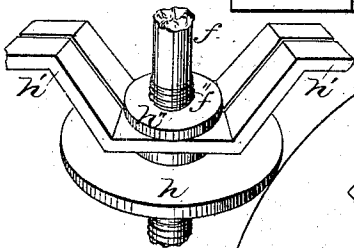
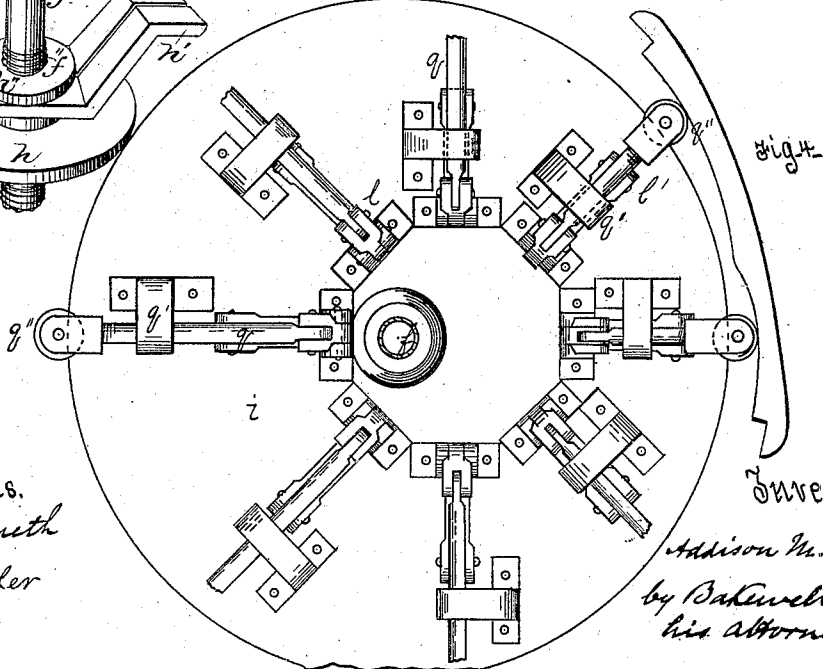
Fig. 6.



Witnesses
John Smith
L. C. Fidler

Inventor
Addison M. Bacon
by Bakewell Kerr
his Attorneys

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UNITED STATES PATENT OFFICE.

ADDISON M. BACON, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR GRINDING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 228,164, dated June 1, 1880.

Application filed February 11, 1880.

To all whom it may concern:

Be it known that I, ADDISON M. BACON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Grinding Glassware; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a detached plan view of the tumbler-rack. Fig. 3 is a vertical section on the line *x x*, Fig. 1. Fig. 4 is a plan view, in section, on the line *y y*, Fig. 1. Fig. 5 is a detail view, showing the construction of the strut, &c., which sustains the adjustable table *i*. Fig. 6 is a sectional view of the spring-pressure disk, showing the construction which permits the slight lateral play of the disk.

Like letters of reference indicate like parts in each.

My invention consists of an improved machine for grinding tumblers, fruit-jars, and other articles of glassware in the process of finishing them. These articles have rough places, fins, and teats of glass upon their ends and edges, due to defective molds, blow-over, and other causes, and require to be ground smooth and true, sometimes at one and sometimes at both ends. This has heretofore usually been done by hand, there being a large amount of breakage in the use of some machines which have been devised for the purpose.

The hand operation consists of holding one tumbler or other article at a time on the surface of the grinding-wheel and grinding it off smooth. This method is slow and expensive and does not always produce a uniform result.

To enable others skilled in the art to make and use my machine, I will now describe its construction and operation.

I mount a grindstone, *a*, horizontally upon a vertical shaft, *b*, which is stepped in the frame *A* at *b'*. The shaft and grindstone receive support from the strut *c*, through which the shaft passes. The stone *a* revolves in a pan, *d*, preferably made of sheet-iron, the edge

of which extends above the surface of the stone, and which is provided with a drain-spout, *d'*. Keyed to the shaft *b* is a miter-wheel, *e''*, by which power to turn the shaft *b* is communicated to it through the shaft *e* 55 and bevel-gear wheel *e'*.

The frame *A* has four uprights, *A'*, and a cap or cross-piece, *A''*. Supported on the cap *A''*, in the center of the machine, by a collar or by the hub of the miter-wheel keyed to it, is a hollow-shaft, *f*. It extends nearly down to the surface of the grindstone *a*, and is open for the purpose of supplying water or water and sand to the stone. At the lower end of the shaft, and secured to it eccentrically, 65 is a plate, *g*, from which extend radially a number of pairs of curved arms, *g'*, for holding and carrying the articles over the stone, each pair of arms holding one article. The plate *g* and its fingers constitute a revolving rack. The fingers are secured to the plate *g* 70 by means of the blocks *g''*.

The shaft *f* is externally threaded a part of its length, as at *f''*, and on this threaded portion is a threaded collar or disk, *h*, which sustains, by a strut, *h'*, resting upon it, a circular table, *i*, the shaft *f* passing up centrally through both strut and table. The table will slide up and down on the shaft *f*, but cannot turn thereon, being prevented by a feather and spline, *j*. The strut *h'* is in two parts, being divided longitudinally, and is put in place by inserting one part into the groove *h''* on one side, and the other part on the other side, bringing them together and screwing or bolt- 85 ing them to the table *i*.

Pivoted to the table *i* at *l'* are a number of bent levers or segments, *l*, arranged in a circle. Pivoted to one arm of each of these levers is a stem, *m*, which runs down through the table and a guide, *n*, and carries at its lower end a disk, *o*. The lower portion of each stem *m* is threaded, and is provided with two nuts, *m'* and *m''*. Between the nut *m'* and the table *i* is a spiral spring, *p*, and between the nut *m''* and the disk *o* is a second spiral spring, *p'*. The hole through the disk, through which the stem *m* passes, is sufficiently large to allow some slight play of the disk on the stem. The spring *p* causes the disk *o* to bear upon the 100

tumbler placed in the rack below it, and the spring p' , owing to the enlarged opening in the disk, permits the disk to have a slight lateral movement and to conform to and bear
5 equally upon all parts of an irregular surface or tumbler end.

To the other or vertical arm of the bent levers l are pivoted stems or trip-rods q , which extend horizontally and through guides q' ,
10 and are provided with friction-rollers q'' at their outer ends. The function of the stems q is to raise the holding-disks o off of the tumblers at the proper moment, and this they do when, in the rotation of table i , they come in
15 contact with the offsetting cam or bar r , placed at the side of the machine, which causes the upper arm of the levers l to be thrown back and the lower arm to be drawn up, thus raising the disk o .

20 The offsetting-cam r is shown at one side only of my machine; but, if desired, it may be placed on two or more sides, and thus cause the more frequent release of the tumblers.

Power to rotate the shaft f , and with it the rack g and table i , is obtained by means of the
25 miter-wheel s , pinion s' , shaft s'' , and pulley t and belt t' , or by other known or convenient means.

30 The table i may be raised or lowered on the shaft f by the screw-collar h at pleasure.

In the operation of my machine the attendant is at the side where the offsetting cam-bar r is placed. He removes the tumbler or other article from the rack g as the disk o is raised,
35 and replaces it by another, and so on, as the rack turns in front of him. The stone a revolves at high speed and the rack g at low speed. The rack being mounted eccentrically upon the shaft f , the articles are at different
40 distances from the center, and each describes a different circle upon the stone. Consequently the stone is worn equally over its entire face, and will last much longer than if the articles all moved in the same circle, the effect of which
45 would be to wear a groove in the face of the stone while the rest of its surface would not be used.

The rack g may be constructed with but one arm, which, in that case, would be back of the
50 article; or its construction may be varied in a number of ways—as, for instance, it might consist of a series of plain arms or wire holders of different lengths.

The stone is supplied with water through
55 the hollow shaft f , the water coming from a pipe or funnel emptying into it, and being discharged on the stone, it will be thrown outward and flow into the pan d , and thence by the spout d' .

60 An iron wheel may be used instead of the stone a , in which case sand and water would be supplied through the shaft f .

In case of articles requiring to be ground at both ends, such as lantern-shells or chimneys,
65 a second offsetting cam or bar, r , could be placed on the opposite side of the machine,

and then, when the article had made a half-revolution of the rack, the disk o would be raised, the article turned upside down by a second attendant, and the other end ground,
70 thus completing it in one revolution of the machine. The grinding power will be increased as the speed of the wheel a is increased.

The machine may be adjusted to grind articles of different heights by raising or lowering
75 the table i by means of the collar h , and the pressure of the disks o may be regulated by means of the nuts m' .

Among the articles which may be ground on this machine are tumblers, mugs, fruit-jars,
80 chimneys, lantern-shells, &c.

Heretofore this work usually required skilled labor and was very slow. By my machine I dispense entirely with skilled labor, produce
85 uniform work, and increase the daily production enormously. By the uniformity with which the surface of the wheel is worn and the compensating pressure of the disks which hold the articles to the wheel I avoid breakage, even
90 with very thin ware.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for grinding glassware, the combination of a revolving grinding-wheel and a hollow carrier-shaft suspended over the grinding-
95 wheel, said shaft provided with a series of radially-arranged racks secured to a disk eccentrically attached to the carrier-shaft, substantially as and for the purpose specified.

2. In a machine for grinding glassware, the
100 combination of a revolving grinding-wheel, a series of racks radially arranged upon a plate or disk eccentrically attached to a carrier-shaft suspended over the axis of the grinding-wheel, and a series of spring-pressure disks corresponding to the racks, said pressure-disks
105 mounted in a table secured to the carrier-shaft above the racks, substantially as and for the purpose specified.

3. In a machine for grinding glassware, the
110 combination of a grinding-wheel, a rack for holding the article to be ground, a pressure-disk for holding the article to be ground in the rack, and cam mechanism for automatically lifting the pressure-disk and releasing
115 the article held by the disk and rack, substantially as and for the purpose specified.

4. In a machine for grinding glassware, the combination of a revolving grinding-wheel, a carrier-shaft having a radial rack or series of
120 racks for holding the articles to be ground, and a series of radially-arranged pressure-disks corresponding to the rack or racks and mounted in a table or disk vertically adjustable on the carrier-shaft, substantially as and
125 for the purpose specified.

5. In a machine for grinding glassware wherein a rack or series of racks are suspended over the grinding-wheel by a carrier-shaft, the combination, with the carrier-shaft, of the
130 threaded collar h , strut h' , and table i , substantially as and for the purpose specified.

6. In a machine for grinding glassware, the combination of a revolving grinding-wheel, a revolving rack for carrying the articles to be ground, and spring-pressure disks having enlarged openings in the disks for the reception of the disk-stems to permit the lateral play of the disk, substantially as and for the purpose specified.

7. The combination of the spring-pressure

disks, pivoted levers, trip-rods, and one or more offsetting-cams, substantially as and for the purposes described.

In testimony whereof I, the said ADDISON M. BACON, have hereunto set my hand.

ADDISON M. BACON.

Witnesses:

JAMES H. PORTE,
L. C. FITLER.