(No Model.)

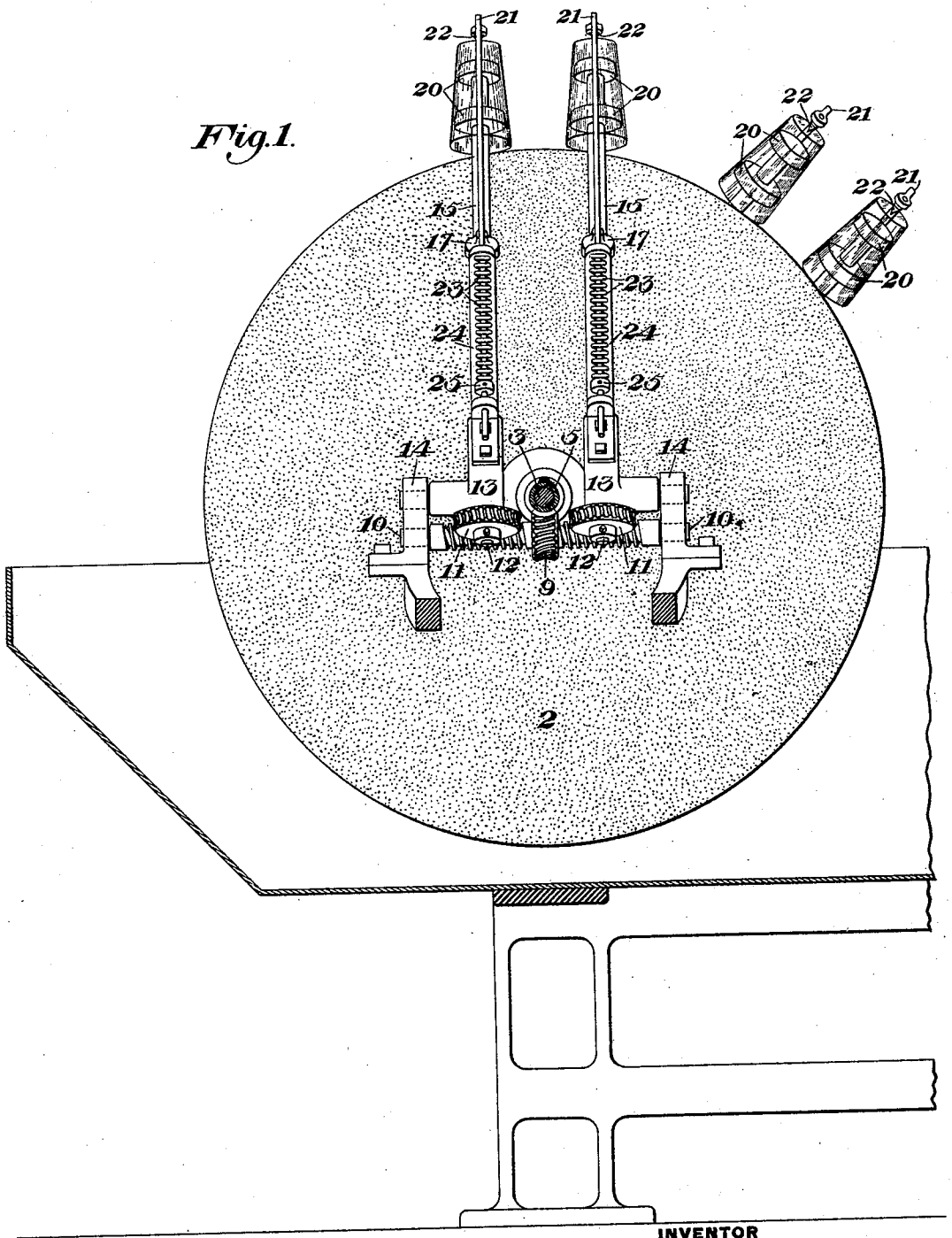
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# J. J. BRANNAGAN.

## GRINDING MACHINE.

No. 589,407. Patented Sept. 7, 1897.

Fig. 1.




WITNESSES

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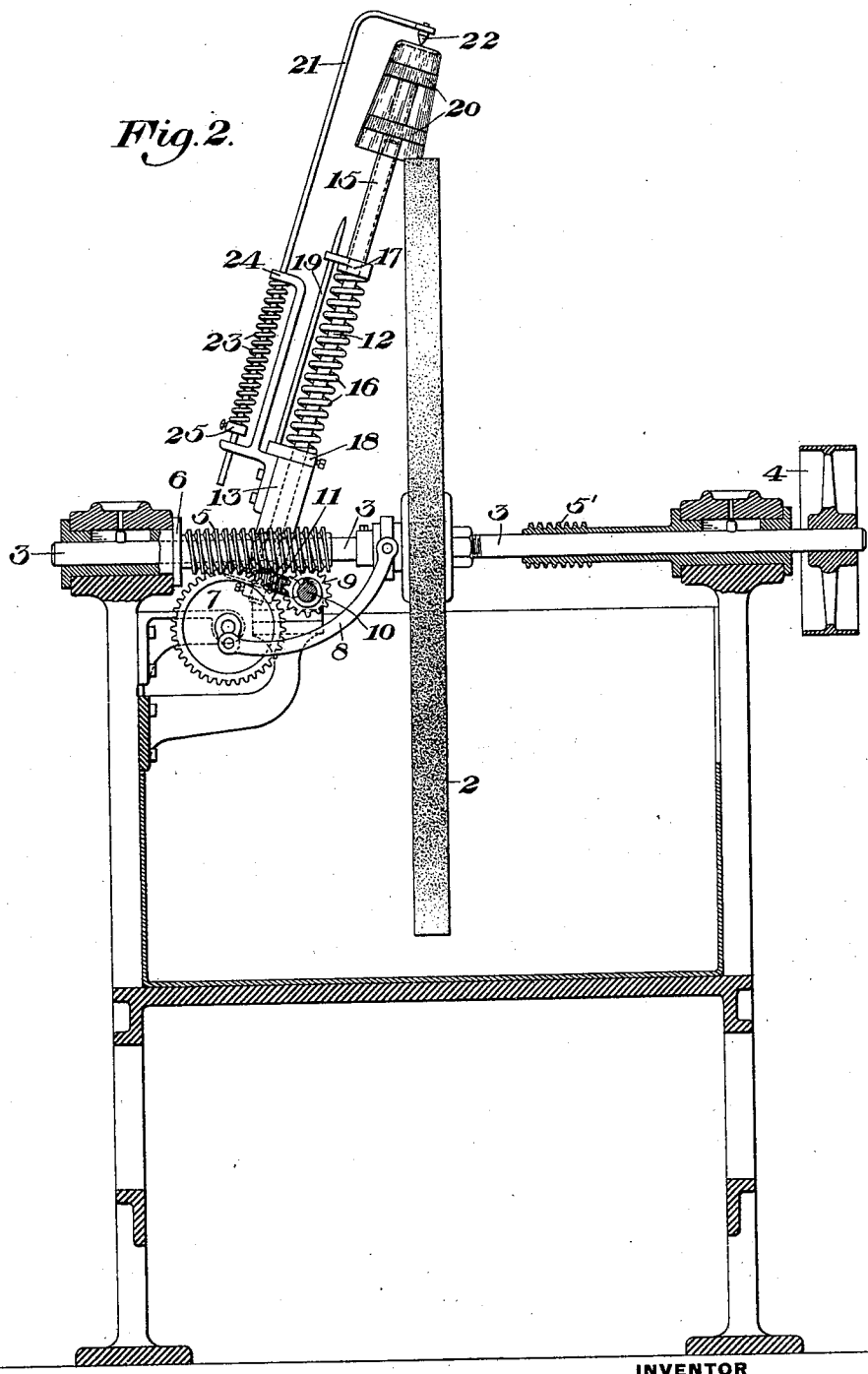
(No Model.) 2 Sheets—Sheet 2.

# J. J. BRANNAGAN.

## GRINDING MACHINE.

No. 589,407. Patented Sept. 7, 1897.

Fig. 2.




WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN J. BRANNAGAN, OF MOUNT PLEASANT, PENNSYLVANIA.

## GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 589,407, dated September 7, 1897.

Application filed October 29, 1896. Serial No. 610,401. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. BRANNAGAN, of Mount Pleasant, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Grinding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly broken away, of a grinding-machine constructed in accordance with my invention; and Fig. 2 is a front elevation of the same, also partly in section.

My invention relates to the grinding of the edges of glass articles, such as tumblers or chimneys, and is designed to provide a machine for this purpose which shall quickly and accurately grind the edges of glass articles without the use of skilled workmen and at little expense.

In the drawings, in which similar numerals indicate corresponding parts, 2 indicates a grindstone secured to a shaft 3, which shaft is rotated by a belt-pulley 4 or other suitable means and is movable endwise through its bearings. At one side of the grindstone and surrounding its shaft is an exteriorly-screw-threaded sleeve 5, which is splined to the shaft, so that it rotates with the shaft, which may move endwise therethrough. The collar is provided at one end with a flange 6, which rests against the bearing of the shaft. Intermeshing with the screw-threads of the collar is a worm-wheel 7, having pivoted thereto at one side of its center a link 8, which is also pivotally connected at its other end with a ring held between collars secured to the shaft 3. The screw-threads of the collar 5 are also engaged by a small worm-wheel 9, centrally mounted upon a shaft 10, which is provided with screw-threads upon each side of this worm-wheel, these screw-threads being engaged by worm-wheels 11, secured at the lower ends of vertically-extending rods 12. These rods pass through swinging arms 13, mounted in bearings 14, and the upper portions of the rods are surrounded by sliding sleeves 15, moving loosely thereon. The sleeves are forced upwardly by a spiral spring 16, surrounding the rods 12 and bearing against rings 17 at the lower ends of the sleeves and against rings 18, resting upon the upper ends of the arms 13. The rings 18 are secured to the rods 12 by set-screws, as shown, and are provided with rods 19, which extend through holes in the rings 17 and rotate the sleeves 15. The sleeves 15 are provided with disks 20, of rubber, cork, or similar material, which are so shaped as to fit the inner surface of the article to be ground and to hold the article. If it be a tumbler, I provide a curved arm 21, having a small cone 22, which bears upon the bottom of the tumbler, the arm being forced in a downward direction by a spring 23, which bears against a curved bar 24, through which the rod passes, and against the collar 25, secured to the rod below the spring. Each bar 24 is secured to the swinging arm 13. I show upon the opposite side of the grindstone a screw-threaded sleeve 5′, by means of which additional articles may be ground, these being held from the opposite side of the stone by mechanism such as that shown or other suitable means and being rotated by similar connections with the screw-threaded sleeve.

The operation of the apparatus is as follows: Tumblers being slipped over the disks 20 while the arms 21 are raised, the arms are then allowed to be drawn down by their springs, so as to hold the tumbler in place. Rotation then being given to the shaft 3 the tumblers are rotated through the connecting worm-gearing and are quickly and neatly ground by the stone. At the same time that the stone is rotated it is given a slow back-and-forth motion by the worm-gearing and the link 8, so that the tumblers come in contact with different lateral portions of its periphery, and scoring or grooving of the stone is thus prevented.

The advantages of my invention will be apparent to those skilled in the art, since the edges of glass articles or other portions of their surfaces may be quickly and accurately ground without the necessity of the skilled laborer, while grooving of the stone is avoided.

Many changes may be made in the form and arrangements of the parts without departing from my invention, since

I claim—

1. In a machine for grinding the edges of glass articles, a rotary holder for the article

consisting of a rod, means for rotating the same, a collar surrounding and rotated by the rod and slidable along the same, a series of disks upon the sleeve arranged to fit within the article, an arm arranged to force the article upon the disks, and a grinding-disk arranged to grind the edge of the article.

2. In a grinding-machine, a holder consisting of a swinging arm, a rod passing through the arm and having an actuating-wheel, a sleeve surrounding and actuated by the rod, said sleeve having several disks arranged to fit within the article, and an arm arranged to press the article upon the disks.

3. In a grinding-machine, the combination with a rotary grinding-disk, of an externally-screw-threaded sleeve surrounding and rotated by the disk-shaft, a rotary holder for the article having worm-gear connection with said sleeve, and a connection with the sleeve arranged to give the disk a slow endwise motion in opposite directions.

4. In a grinding-machine, a rotary grinding-disk secured to a shaft, an externally-screw-threaded sleeve splined to the shaft, connections between the sleeve and the shaft arranged to give the disk a slow endwise motion, and a rotatory holder also having actuating connections with the sleeve.

In testimony whereof I have hereunto set my hand.

JOHN J. BRANNAGAN.

Witnesses:
JOHN RAMSAY,
W. M. JORDAN.