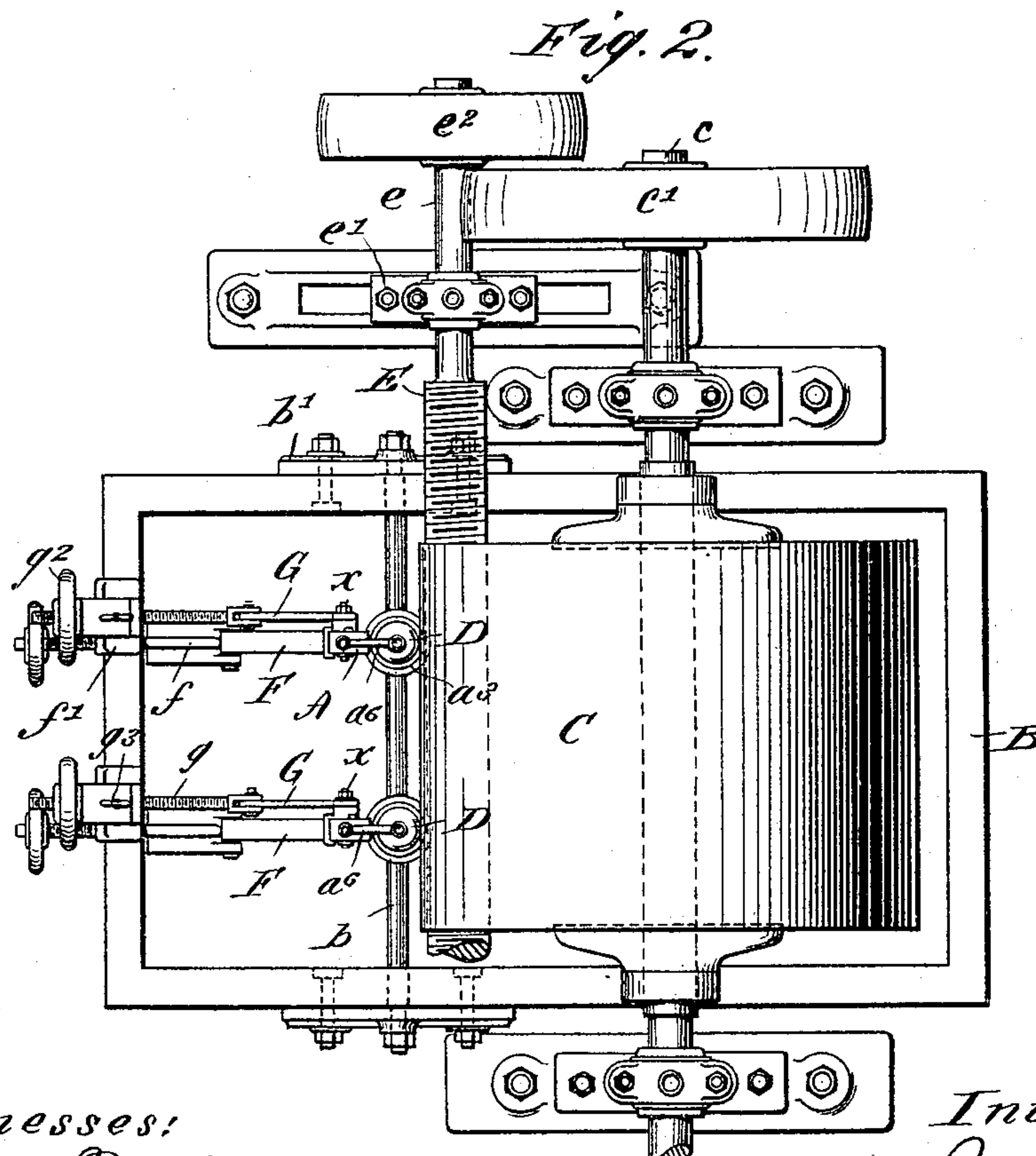
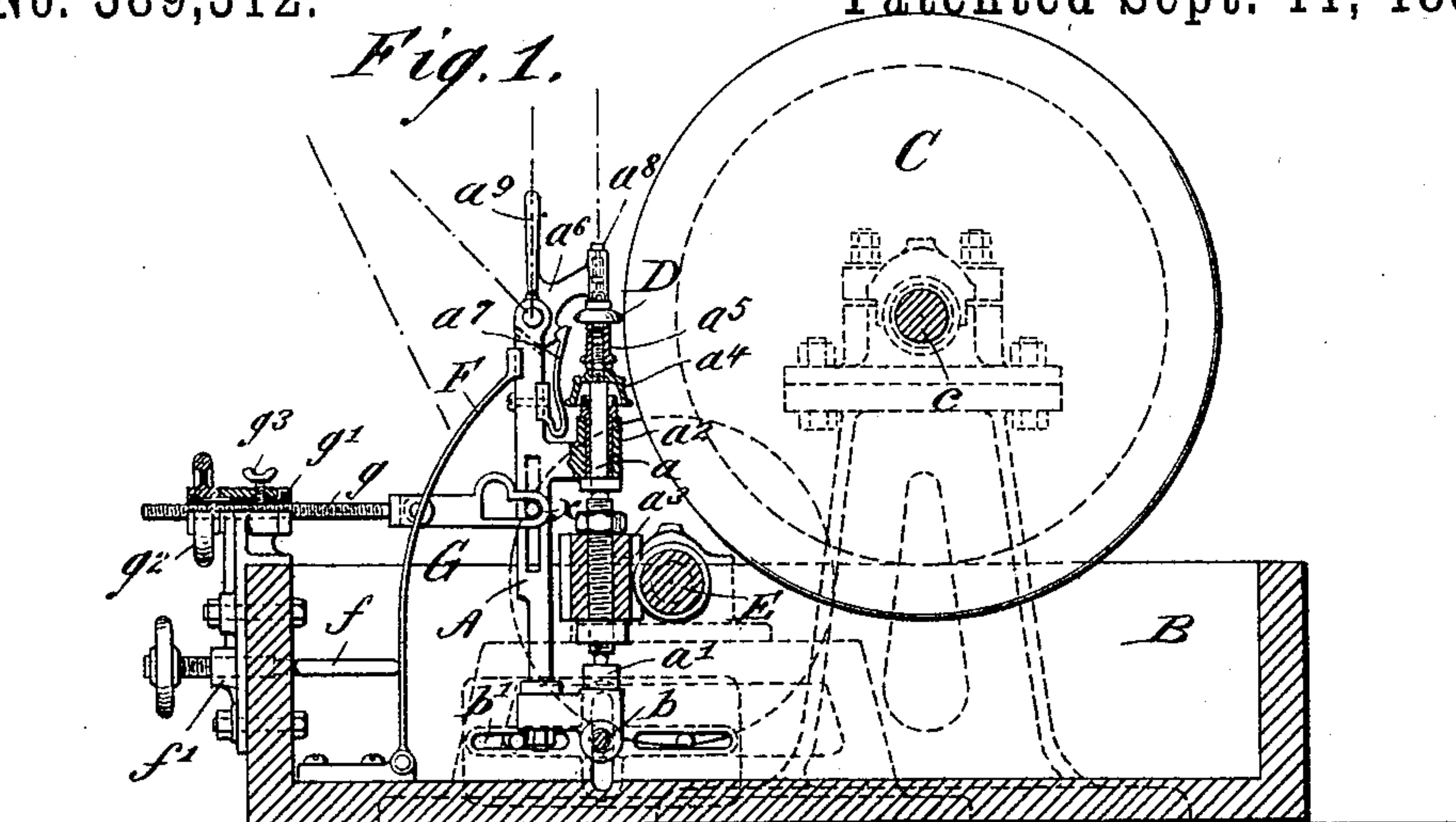


J. MAHLA.

APPARATUS FOR GRINDING BUTTON EDGES.

No. 389,312.

Patented Sept. 11, 1888.



Witnesses:  
Donn Twitchell,  
L. Sedgwick.

Inventor:  
J. Mahla.  
By Munn & Co.  
Attorneys.

(No Model.)

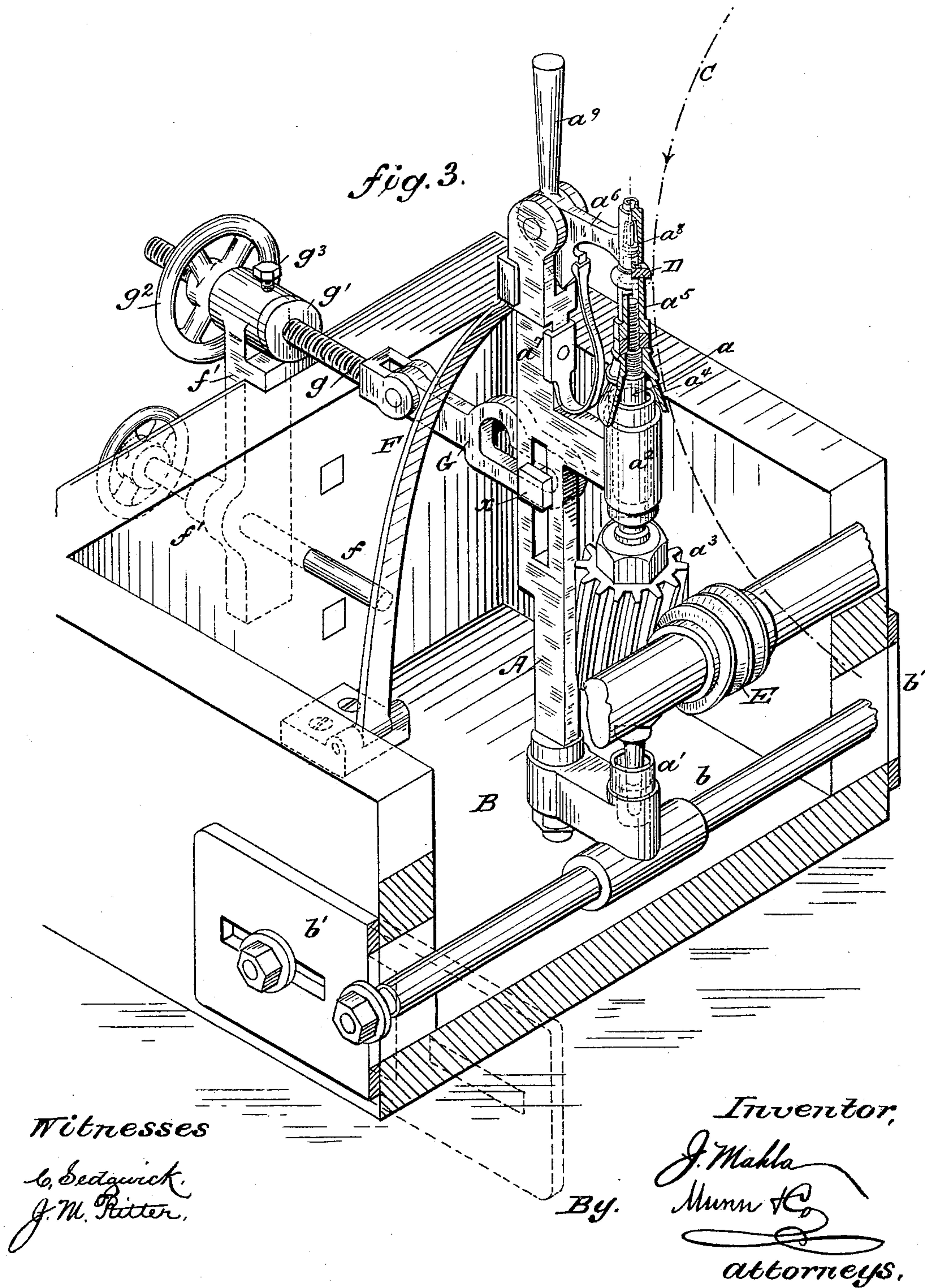
2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

JACOB MAHLA, OF GABLONZ-ON-NEISSE, BOHEMIA, AUSTRIA-HUNGARY.

## APPARATUS FOR GRINDING BUTTON-EDGES.

SPECIFICATION forming part of Letters Patent No. 389,312, dated September 11, 1888.

Application filed December 8, 1886. Serial No. 220,947. (No model.) Patented in Germany July 3, 1886, No. 38,264; in France July 3, 1886, No. 177,175; in Austria-Hungary October 21, 1886, No. 22,430, and No. 51,378, and in England November 17, 1886, No. 14,950.

*To all whom it may concern:*

Be it known that I, JACOB MAHLA, manufacturer, a subject of the Emperor of Germany, residing at Gablonz-on-Neisse, in the Province of Bohemia, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Apparatus for Grinding Button-Edges, (for which Letters Patent in the following countries have been granted, viz: in Austria-Hungary, (Vienna,) No. 22,430, and (Buda-Pesth) No. 51,378, dated October 21, 1886; in Germany, No. 38,264, dated July 3, 1886; in France, No. 177,175, dated July 3, 1886, and in England, No. 14,950, dated November 17, 1886;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a sectional side elevation of my improvement, and Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of my machine, partly in section and parts being broken away, of the stationary box, one spindle, and its operating and connected parts on an enlarged scale, part of the grinding-wheel being shown by dotted lines.

The object of my invention is to provide a new and improved machine for grinding the edges of buttons into a cylindrical or conical shape.

The invention consists in the construction and arrangement of various parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

In a suitably-constructed stationary box, B, revolves the cylindrical grinding-wheel C, mounted on the shaft *c*, provided with the usual driving-pulley, *c'*, for imparting rotary motion to the said shaft and its wheel. Parallel with the shaft *c* is arranged a rod, *b*, secured to the plates *b'*, held longitudinally adjustable on the sides of the box B by means of bolts passing through slots in the said sides of the box. On the rod *b* is fulcrumed the spin-

dle-frame A, supporting in a socket, *a'*, the lower end of the spindle *a*, which is held near its upper end in a suitable bearing on the arm *a''*, projecting from the said spindle-frame A. The spindle *a* is provided with a worm-wheel, *a'''*, meshing into the horizontal worm E, secured to a shaft, *e*, mounted in bearings *e'*, adapted to slide laterally on suitable supports.

On the spindle *a* screws a cover, *a''*, protecting the upper end of the bearing on the arm *a''*, and the cover *a''* is held in place by a jam-nut, which screws on the spindle *a* and against the said cover *a''*. On the upper end of the spindle *a* also screws the button-holder *a''*, supporting the button D to be ground. The latter is held in place on the holder *a''* by the pin *a''*, having a leather-covered head and turning in a socket formed on the arm *a''*, which is provided with a handle, *a''*, and is pivoted on the spindle-frame A. A bent spring, *a''*, fastened on the frame A, presses on the arm *a''* and holds the latter in contact with the button D.

A spring, F, pivoted by one end in the box B, is secured by its other end to the frame A. In a slot in the frame is held adjustably the bolt *x*, projecting into a recess formed in the arm or plate G, pivoted on the screw-rod *g*, screwing in a nut, *g'*, provided with a hand-wheel, *g''*, and adapted to be held by means of a set-screw, *g''*, in the bracket *f''*, secured by bolts or other means to one end of the said box B. In the lower part of the bracket *f''* screws a rod, *f*, the inner end of which abuts against the said spring F, and the rod *f* serves to increase or diminish the tension of the spring F. The spring F forces the frame A and its button D against the grinding-wheel C, while the plate or arm G limits the inward motion of the said frame A and its button D in relation to the grinding-wheel C.

The lateral adjustment of the rod *b* permits of placing the frame A in either a vertical or an inclined position, and thus permits of grinding the edge of the button D held on the said frame A cylindrically or conically.

Any desired number of spindle-frames A and connections can be fulcrumed on the said rod *b*, so as to grind several buttons at the same time on the wheel C. When a button D is ground and is to be removed from the spindle *a* and to



be replaced by a fresh one, then the spindle-frame A is pulled backward, so that the bolt  $x$  engages the enlarged part of the slot formed in the plate G, thus holding the spindle-frame A in an inclined position, and at the same time disengaging the button from the grinding-wheel C. The operator now takes hold of the handle  $a^9$  and turns the same downward, so that the pin  $a^8$  disengages the button D, which is removed and replaced by a new one, and when the operator now releases the handle  $a^9$  then the spring  $a^7$  returns the arm  $a^6$  to its former position, so that the leather-covered head of the pin  $a^8$  engages the new button D.

At the same time the operator lifts the plate or arm G upward slightly, so that the pin or bolt  $x$  is disengaged from the enlarged part of the recess in the said plate, whereby the spring F forces the spindle-frame inward and the button against the grinding-wheel C. The edge of the button is then ground off by the grinding-wheel C until the inward motion of the spindle-frame A is interrupted by the bolt  $x$  coming in contact with the inner end of the slot in plate G.

Any number of grinding-wheels C may be mounted on a common shaft,  $c$ , which is driven by means of one belt-pulley,  $c'$ . In this case the worms E of all the grinding devices are fixed to a common shaft,  $e$ , carrying a belt-pulley,  $e^2$ , which imparts motion to all the said worms E.

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

1. In an apparatus for grinding the edges of circular buttons, the combination, with a rotary

grinding-wheel, of a freely-movable slotted frame the axis of which is parallel to that of the grinding-wheel, a rotary spindle supported by the said frame perpendicularly to the axis of the grinding-wheel and having the button-holder near its free end, a spring constantly tending to move the free end of the said frame toward the cylindrical surface of the grinding-wheel, a screw extending toward the said frame and having a slotted plate on its inner end, and a pin freely passing through the slots of the screw and frame, substantially as and for the purpose described.

2. In an apparatus for grinding the edges of circular buttons, the combination, with a vertically-revoluble grinding-wheel, of a frame having a longitudinal slot and an axis parallel to that of the grinding-wheel, a rotary spindle supported by the said frame perpendicular to the axis of the grinding-wheel and having the button-holder near its free end, a spring constantly pressing the free end of the said frame toward the cylindrical surface of the grinding-wheel, a screw extending toward the said frame, a gravitating plate articulated to the inner end of the screw and provided with a longitudinal slot the end of which, near the screw, has an upwardly-extending recess formed in it, and a pin freely passing through the said slot and the longitudinal slot of the frame, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB MAHLA.

Witnesses:

EDUARD HISCHE,  
I. JAMMANN.