(No Model.)

2 Sheets—Sheet 1.

T. F. GILROY.

GLASS BEVELING MACHINE.

No. 271,836. Patented Feb. 6, 1883.

Fig. 1.

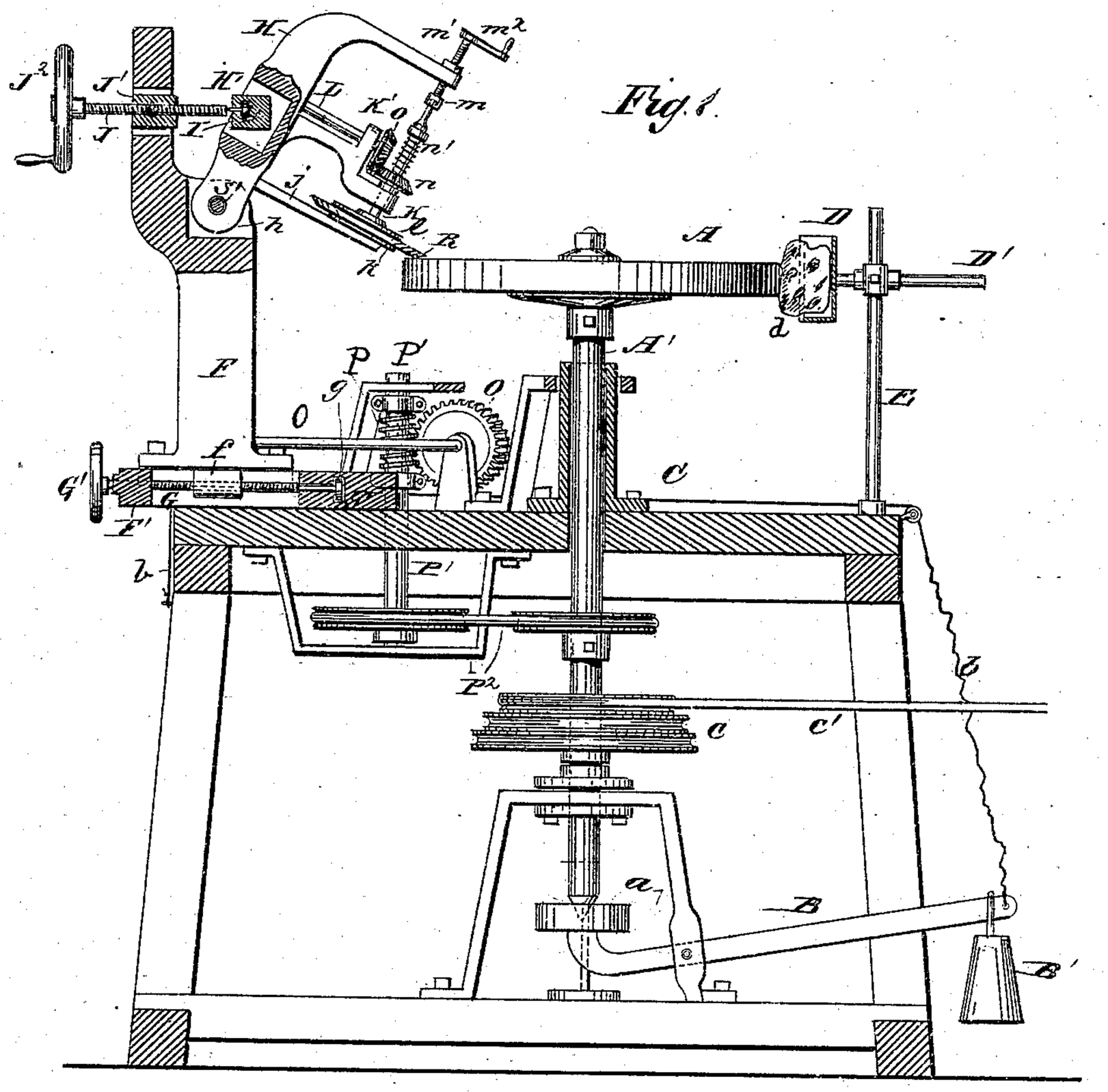
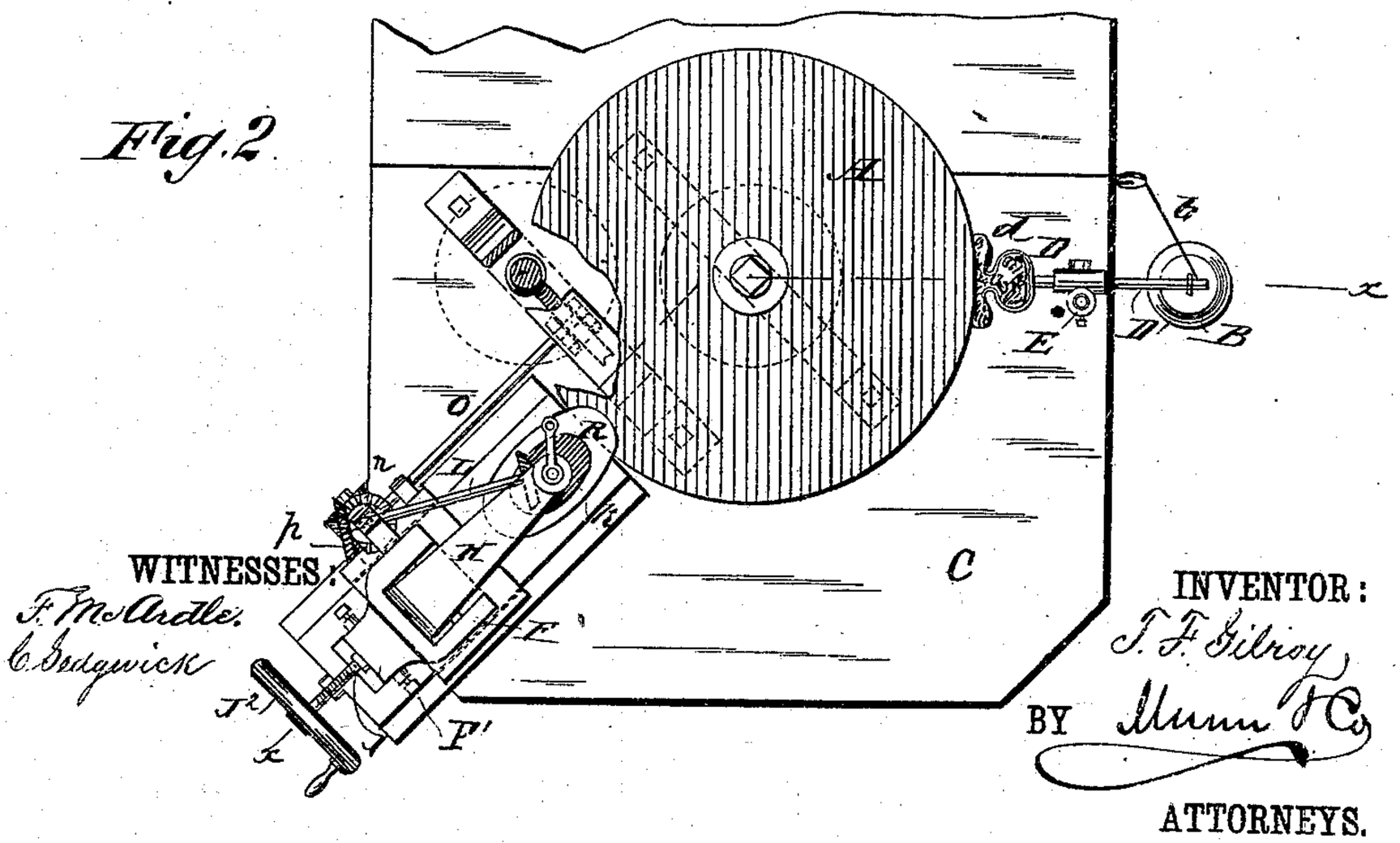


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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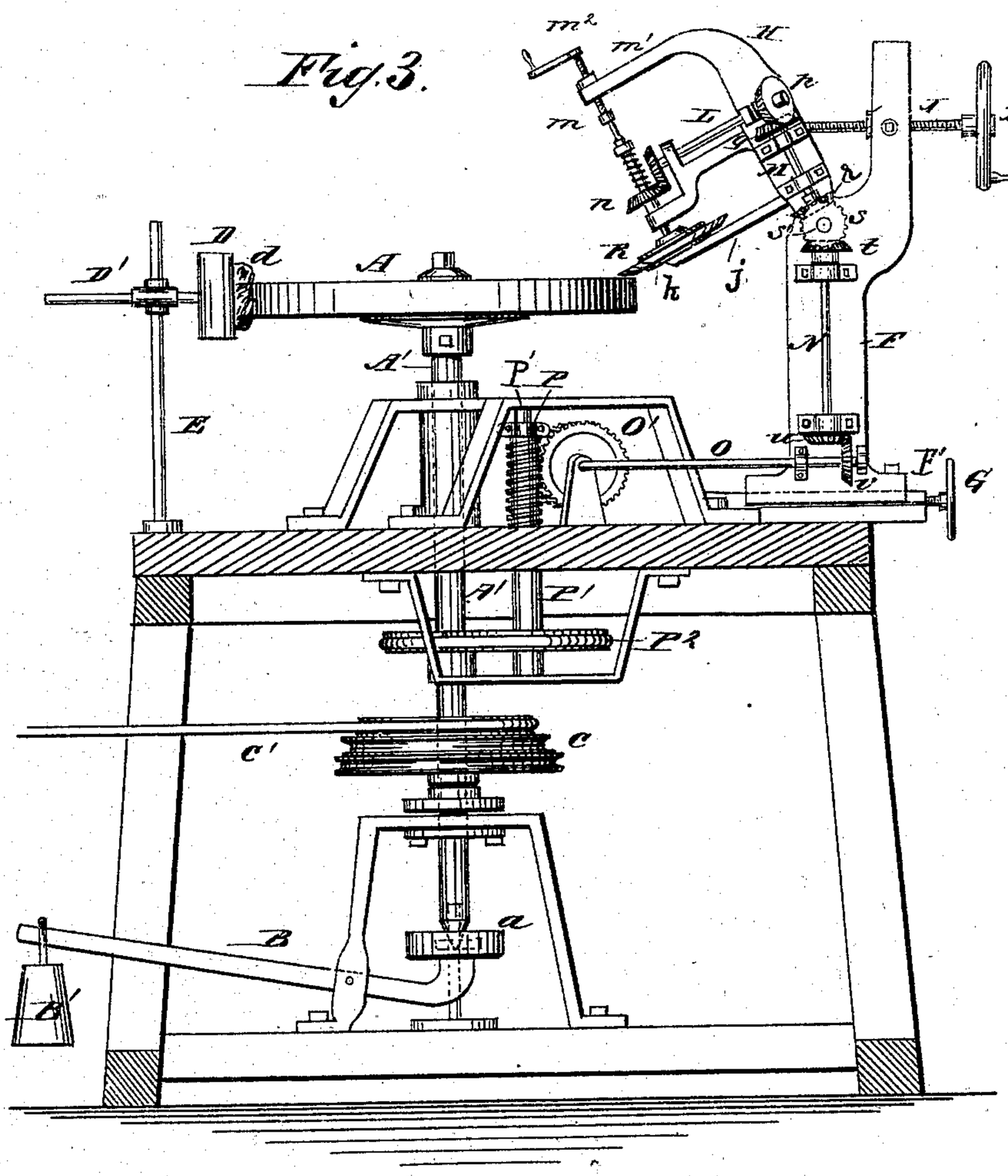
Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS F. GILROY, OF NEW YORK, N. Y.

GLASS-BEVELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 271,836, dated February 6, 1883.

Application filed June 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. GILROY, of the city, county, and State of New York, have invented a new and Improved Machine for Beveling Glass, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for beveling the edges of circular and oval or similar mirrors with curved or partly-curved edges.

My invention relates to improvements in glass-beveling machines; and it consists in the peculiar construction and arrangement of parts, as hereinafter more fully set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved glass-beveling machine on the line *x x*, Fig. 2, the grinder being left in elevation. Fig. 2 is a plan view of the same, parts being broken out and shown in section. Fig. 3 is a longitudinal elevation of the same, parts being shown in section.

The abrading-wheel A is mounted rigidly on the upper end of a vertical shaft, A′, so as to rotate in the horizontal plane, which shaft A′ is journaled in a frame, C, and has its lower end resting on a step, *a*, at the inner end of a pivoted lever, B, provided at its outer end with an adjustable balancing-weight, B′. A cord, *b*, is attached to the outer end of the lever B, and passes over suitable pulleys and over the top of the frame or table C. The shaft A′ is provided with a series of belt-pulleys, *c*, around which a belt or cord, *c′*, can be passed. A sponge, *d*, is held in a sponge-cup, D, attached to an arm, D′, held adjustably on a standard, E, on the frame C, which sponge is pressed against the periphery of the abrading-wheel A to absorb the water that drops upon the wheel, and thus prevents the water from being thrown from the wheel A by the centrifugal force. A standard, F, rests on tracks F′ on the frame C, and from the bottom of this standard F a lug, *f*, projects, which is provided with a longitudinal threaded aperture, through which a screw-spindle, G, passes, which is provided at its outer end with a hand-wheel, G′, and at its inner end with a head, *g*, held to turn in a block, *g′*, on the frame C, so that the standard F can be moved to or from the shaft A′ by turning the hand-wheel G′. A curved or angular arm, H, is pivoted at its lower end in a recess, *h*, in the standard F, and this curved arm H has a recess, H′, formed in its outer edge, in which the block I is pivoted transversely. A screw-spindle, J, passes through a nut, J′, pivoted in the standard F above the joint of the arm H, which spindle J is provided at its outer end with a hand-wheel, J², and at its inner end with a head held to turn in the pivoted block I. An arm, *j*, projects from the inner edge of the curved arm H, near the pivot of the same, and on the outer end of this arm *j* a glass-holding plate, *k*, is pivoted in such a manner that this plate rests flat on the arm *j*. A glass-holding plate, *l*, is attached to the lower end of a spindle, K, passing loosely through the outer end of an arm, K′, of the curved arm H, the upper end of which spindle K passes into a screw-socket, *m*, at the lower end of a screw-spindle, *m′*, passing through the upper outer end of the curved arm H, and provided at its outer or upper end with a handle, *m*². A beveled cog-wheel, *n*, is mounted on the spindle K, above the arm K′, in such a manner that it will rotate with this spindle K, but can slide longitudinally on the same. A spiral spring, *n′*, surrounding the spindle K, presses this beveled cog-wheel *n* on the upper surface of the arm K′. A beveled cog-wheel, *o*, engages with the beveled cog-wheel *n*, and is mounted on one end of a shaft, L, on the opposite end of which is mounted a beveled cog-wheel, *p*, engaging with a beveled cog-wheel, *q*, mounted on the upper end of a shaft, M, journaled on the side of the curved arm H, on the opposite end of which shaft M a beveled cog-wheel, *r*, is mounted, which engages with a beveled cog-wheel, *s*, loosely mounted on the pivot *s′* of the arm H on the standard F, with which cog-wheel *s* a cog-wheel, *t*, engages, which is mounted on a shaft, N, on the lower end of which a beveled cog-wheel, *u*, is mounted, which engages with a beveled cog-wheel, *v*, mounted on the end of a horizontal shaft, O, provided on the opposite end with a worm-wheel, O′, engaging with the worm P on a vertical shaft, P′, journaled in the frame C, which shaft P′ is operated from the shaft A′ by means of a belt, P². The worm-wheel O′ is mounted on the shaft O in such a manner that

it will turn with the shaft, but can be adjusted longitudinally on the same, so that when the standard F is moved to or from the shaft A′ the wheel O′ will slide on this shaft O.

The operation is as follows: The glass plate R, which is to have its edges beveled, is placed between the glass-holding plates *k* and *l*, and is held firmly by pressing the spindle K upon the glass plate R by turning down the screw-spindle *m′*. If power is applied, the abrading-wheel A will be rotated, and the spindle K will be rotated by means of the beveled cog-wheels *n o* and the above-described shafts and beveled cog-wheels for transmitting power, and thus the glass plate R will be revolved with the spindle K. By turning the hand-wheel J^2 the inclination of the vertical part of the arm H toward the standard can be varied more or less, and consequently the inclination of the plate R to the abrading-surface of the wheel A will also be varied more or less, and the bevel of this plate R will be varied accordingly. If the plate is circular, the arm H can be locked in the proper position, and requires no further adjustment until the bevel is complete. By means of the hand-wheel G′ and the spindle G the standard F can be moved to and from the shaft A′, so that the different parts of the upper surface of the abrading-wheel can be used to act on the edge of the glass plate, thereby avoiding making a hollow or groove in the abrading-surface of the wheel A. If the plate R, which is to be provided with beveled edges, is oval or any similar curved shape, the distance from the center of the plate to the surface of the wheel A will vary, and the wheel A must rise and fall automatically, according to the variations of this distance. For instance, if the longitudinal axis of the plate R is parallel with the radius of the wheel A, as shown in Fig. 2, the wheel A must be lowered. The glass plate R is rotated continually, and after a short time the transverse axis of the plate R will be parallel with the radius of the wheel A, and as this transverse axis is shorter than the longitudinal axis of the plate R, it is evident that the wheel A must rise so as to be able to act on the plate R when its short axis is presented to the abrading-wheel. These movements up and down of the abrading-wheel are governed by the shape of the glass plate R, for as the same turns it pushes the wheel A downward, and the weight B′ forces the wheel A upward again as soon as the long axis of the plate R leaves the wheel A. So that the glass plate will not break by acting on the wheel A in the manner described, this wheel must be very carefully balanced, or otherwise it would chip off the edges of the plate R. The cord *b* is used to raise the weight B′ and lower the shaft A′ of the wheel A when a fresh glass plate R is to be placed between the glass-holding plates *k l*. The abrading-wheel A rotates very rapidly, and the glass-holding plates *k l* rotate very slowly in comparison to the speed of the wheel A.

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

1. In a glass-beveling machine, the combination, with the pivoted arm H, carrying the glass-clamping plates *k l*, of the abrading-wheel A, mounted on the upper end of the shaft A′, and the lever B, having step *a* and counterbalance-weight B′, whereby the abrading-wheel is adapted to rise and fall automatically to conform to the curve of the edge of the plate being ground, substantially as shown and described.

2. In a glass-beveling machine, the combination, with the abrading-wheel A, of the pivoted arm H, clamping-plates *k l*, spindle K, screw *m′*, pivoted block I, screw-spindle J, and pivoted nut J′, substantially as and for the purpose set forth.

3. In a glass-beveling machine, the combination, with the abrading-wheel A, of the arm H, the plates *k* and *l*, the spindle K, attached to the plate *l*, the spring *n′*, surrounding the spindle K, the beveled cog-wheel *n*, splined to the spindle K, the screw *m′*, and the devices for rotating the beveled cog-wheel *n*, substantially as herein shown and described, and for the purpose set forth.

4. In a glass-beveling machine, the combination, with the abrading-wheel A, of the glass-plate-holding device, held in the arm H, of cog-wheels and shafts held on the arm H, beveled cog-wheels and shafts on the standard F, the cog-wheel *s* on the pivot of the arm H, devices for rotating the beveled cog-wheels and shafts on the standard F from the shaft of the abrading-wheel A, substantially as herein shown and described, and for the purpose set forth.

THOS. F. GILROY.

Witnesses:
J. H. SIMONS,
MARTIN J. GILROY.