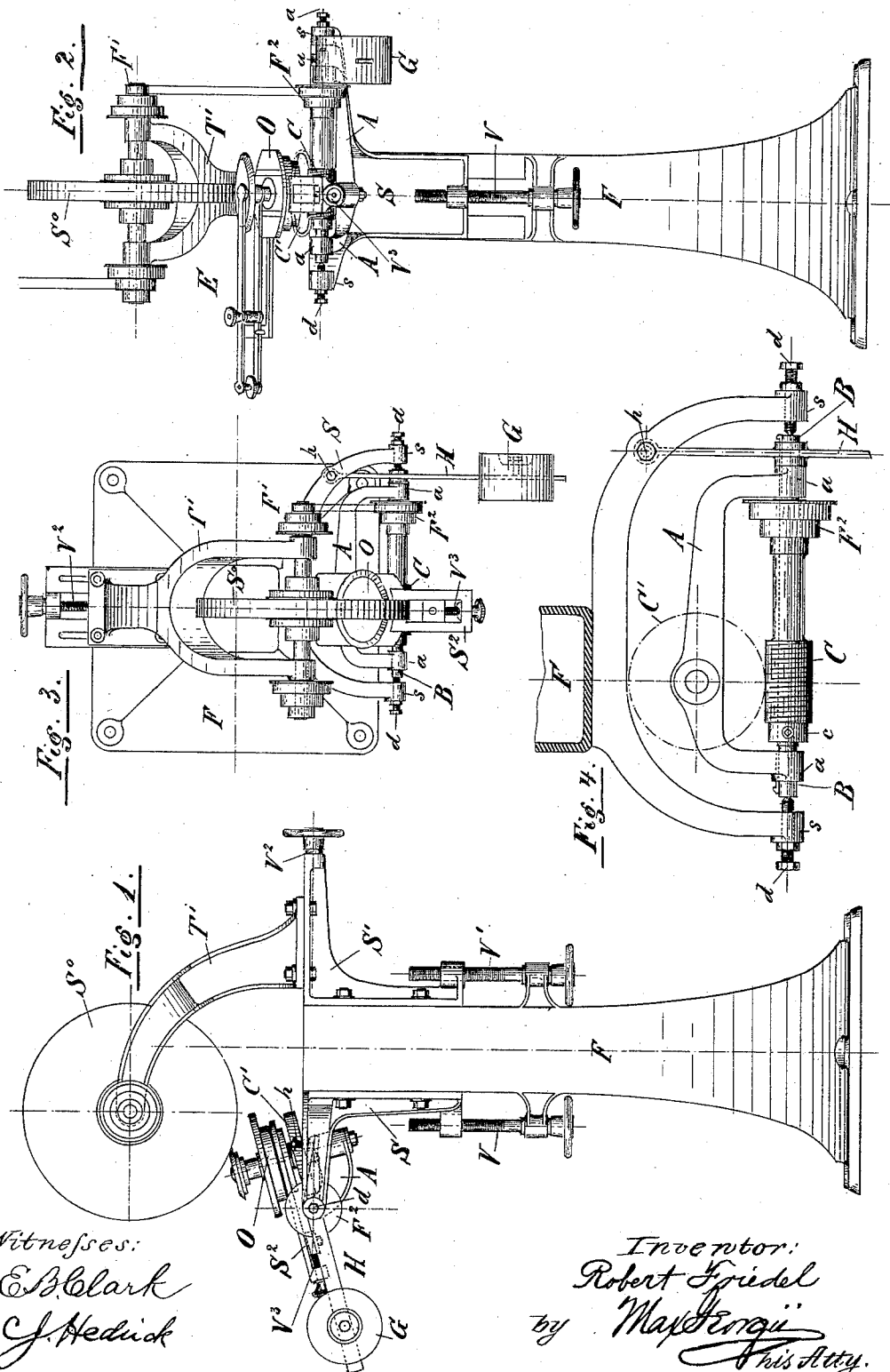


(No Model.)

R. FRIEDEL.
MACHINE FOR GRINDING OVAL GLASSES.

No. 465,695.

Patented Dec. 22, 1891.



Witnesses:
E. B. Clark
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UNITED STATES PATENT OFFICE.

ROBERT FRIEDEL, OF STUTTGART, GERMANY.

MACHINE FOR GRINDING OVAL GLASSES.

SPECIFICATION forming part of Letters Patent No. 465,695, dated December 22, 1891.

Application filed May 2, 1891. Serial No. 391,360. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FRIEDEL, a citizen of the Kingdom of Württemberg, residing at Stuttgart, Württemberg, Empire of Germany, have invented a new and useful Improvement in Machines for Grinding Oval Glasses, of which the following is a specification.

My present invention relates to that class of grinding-machines in which articles of a circular or oval form are ground or beveled, and more especially to that class of machines in which a chuck or clamp which clamps the article to be ground is adapted to rock with respect to a fixed abrading-wheel or grindstone.

The object of my invention is to produce a simple and effective means for mounting the parts, whereby the article is pressed against the abrading-wheel and caused to slowly revolve; and it consists in the features and combination of parts hereinafter described, and covered in the claims.

In the accompanying drawings, Figure 1 represents a side elevation, and Fig. 2 a front elevation, of a machine embodying my invention; Fig. 3, a plan with the clamping device removed to expose certain parts of the apparatus; and Fig. 4 a plan, on an enlarged scale, of the arrangement for pivoting the chuck and its actuating mechanism.

The machine consists, broadly, in a stationary abrading-wheel S^o and a chuck or clamping device O, journaled in a rocking frame A and adapted to be held up against the abrading or grinding wheel S^o by a weighted lever H, preferably journaled with the rocking frame in the manner hereinafter set forth, while the actuating mechanism for slowly revolving the chuck transversely to the revolution of the abrading-wheel is mounted in said rocking frame. For this purpose the vertically-adjustable support S terminates in a forked bracket, into whose ends s are threaded pointed screws d , upon which is journaled a spindle B, adapted to revolve with ease. Upon this spindle is mounted the forked carrier A for the oval apparatus, keyed thereto at both ends a . This carrier is designed for the reception of the oval apparatus or chuck O, as well as its actuating device. The latter consists of a sleeve B' , provided with the worm-

wheel C' , integral therewith and situated below the oval apparatus and the worm C, together with the stepped pulley F^2 , cast integral with sleeve B' . The two latter parts are adapted to turn loosely on the spindle B and are held in determined position by the steel ring c . The worm-wheel C' is journaled in an eye of the carrier A and actuates the superimposed chuck or oval apparatus O, carrying the article to be ground. A lever H is keyed to the spindle B. This lever is provided with an adjustable counter-weight G at one end, said weight being for the purpose of balancing the weight of the carrier A, oval apparatus O, together with the article operated on and the actuating device or motor, and also for pressing the said article against the grinding-disk S^o . The other end of this lever H impinges against a set-screw h after the grinding operation has been completed. So long as this is not the case, the article is pressed against the grinding-disk S^o , the points of the screws d forming the pivot on which the carrier A turns during the grinding operation. When the lever H bears against the set-screw h , the pressure of the article to be ground ceases and an elliptical motion of the same on the oval apparatus ensues, the grinding-point and plane of grinding remaining unchanged. Hence the same angle of grinding—i. e., the same breadth of bevel—is preserved. The eccentricity of the ovals is produced by means of threaded spindle V^3 in the support S^2 , the latter being connected with the oval apparatus.

The adjustment of the angle of the bevel to be imparted to the glasses may be effected by raising or lowering the support S by means of the screw-spindle V.

In order to grind glasses of different sizes, the support S' is vertically and horizontally adjustable by the screw-spindles V^1 and V^2 . Rotation is imparted to the stepped pulley F^2 on spindle B from the stepped pulley F^1 , mounted on the axle of the grindstone, the said stepped pulley also serving to adjust the velocity of rotation of the article to be ground. The supports S and S' are attached to a frame F. The clamping and pressing of the article against the grindstone is performed in the well-known manner by means of the device designated by E.

I again point out as novel and distinguish from the known and existing oval grinding-machines the fixed unchangeable position of the center of the grindstone during the grinding operation, the pivoted and rocking arrangement of the article to be ground, together with the oval apparatus and actuating device for the same, and also the adjustability of the pressure of the article on the grindstone and the automatic suspension of the latter as soon as the article has attained a certain angle.

I claim—

1. In a grinding-machine, the combination of an abrading-wheel and a spindle journaled in a support, as S, with a carrier, as A, keyed to the spindle, a clutch for the article to be ground, mounted thereon, a sleeve loosely mounted on the spindle, and connections between the sleeve and the clutch for rotating the said clutch, substantially as set forth.

2. In a grinding-machine, an abrading-wheel mounted on a fixed support, a forked bracket, as S, and a spindle journaled in the forked bracket, in combination with a forked support, as A, keyed to the spindle and having a chuck provided with a worm-wheel journaled therein, and a sleeve loosely mounted on the spindle and provided with a worm engaging the worm-wheel on the chuck, substantially as set forth.

3. In a grinding-machine, the combination of a fixed abrading-wheel with a chuck mounted in a rocking frame, and means for yieldingly holding the chuck against the abrading-wheel, substantially as set forth.

4. In a grinding-machine, the combination of an abrading-wheel and a rocking frame arranged below the abrading-wheel, with a chuck mounted in the rocking frame, and a weighted lever extending oppositely to the chuck journaled with the rocking frame, substantially as set forth.

5. In a grinding-machine, the combination, with a fixed abrading-wheel and a chuck mounted on a rocking support, of a lever keyed to the journal of the rocking support and provided with a counter-weight arranged oppositely to the chuck, substantially as set forth.

6. In a grinding-machine, the combination, with a fixed abrading-wheel and a chuck mounted on a rocking support, of a lever keyed to the journal of the rocking support and provided with an adjustable counter-weight arranged oppositely to the chuck, substantially as set forth.

7. In a grinding-machine, the combination, with a fixed abrading-wheel and a chuck mounted on a rocking support, of a lever keyed to the journal of the rocking support and provided with a counter-weight and a stop, as h, against which the lever impinges to arrest the grinding action, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ROBERT FRIEDEL.

Witnesses:

AUGUST B. DROUTZ,
ANT HERRMANN.