No. 808,946. PATENTED JAN. 2, 1906.

M. REISCH.

RATCHET MECHANISM.

APPLICATION FILED MAY 24, 1905.

Fig. 1.

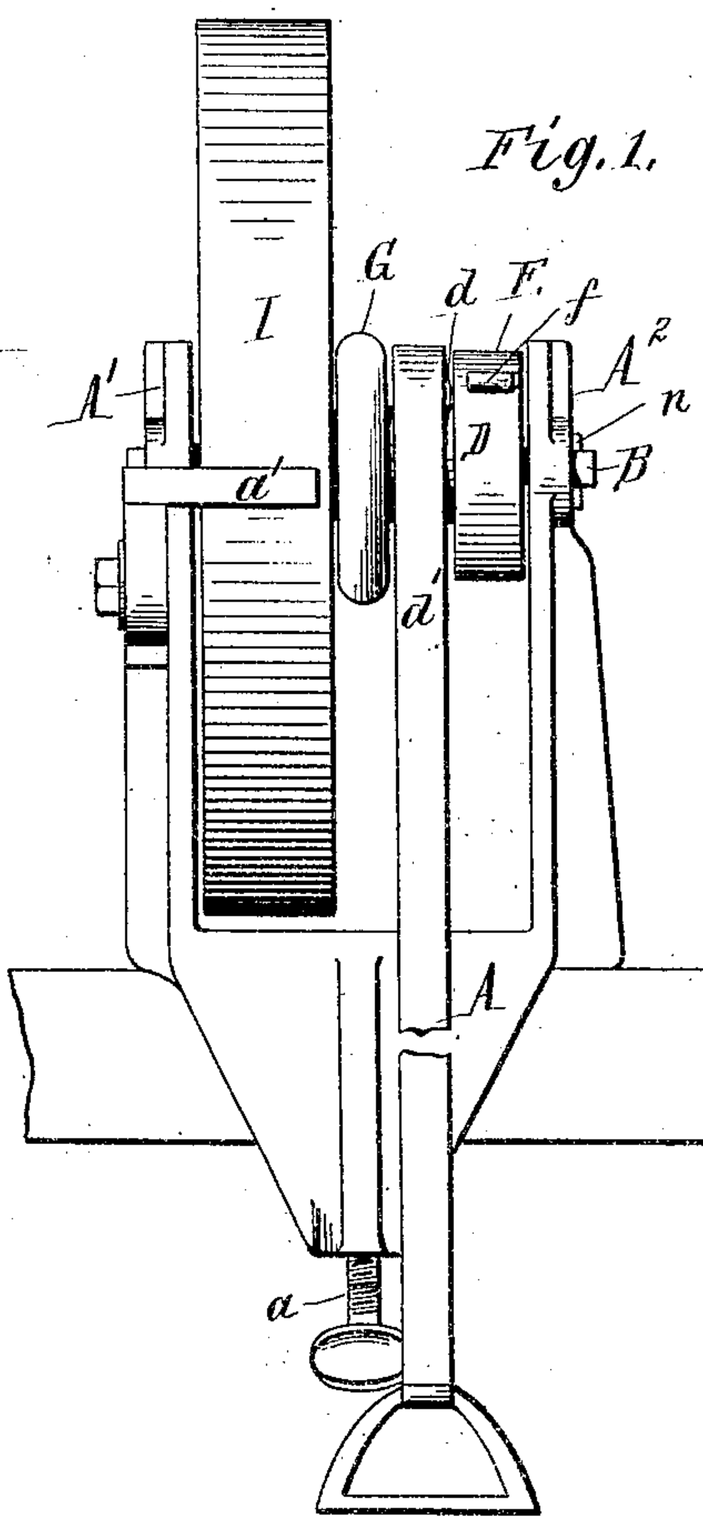


Fig. 3.

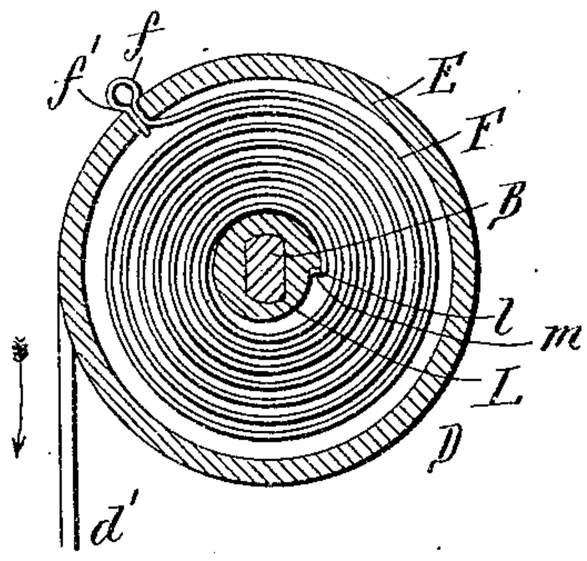


Fig. 4.

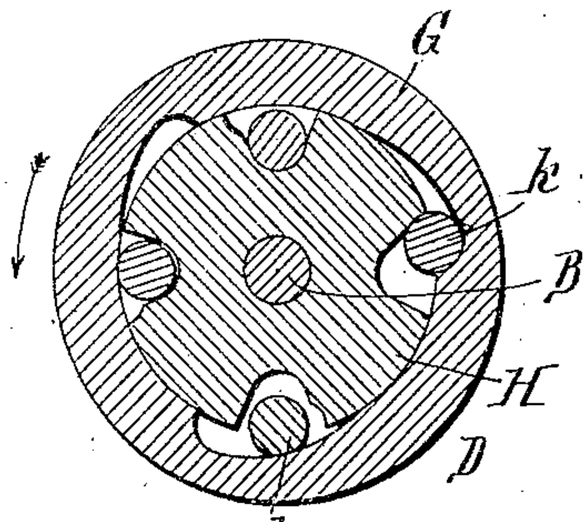


Fig. 5.

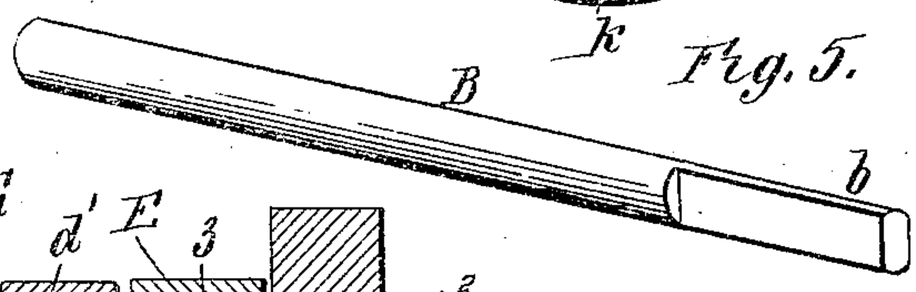


Fig. 6.

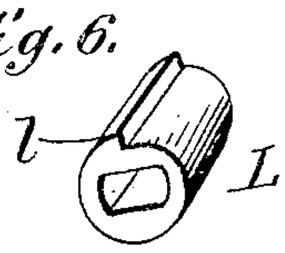


Fig. 7.

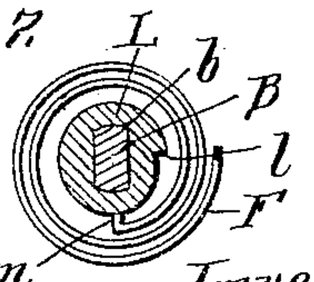
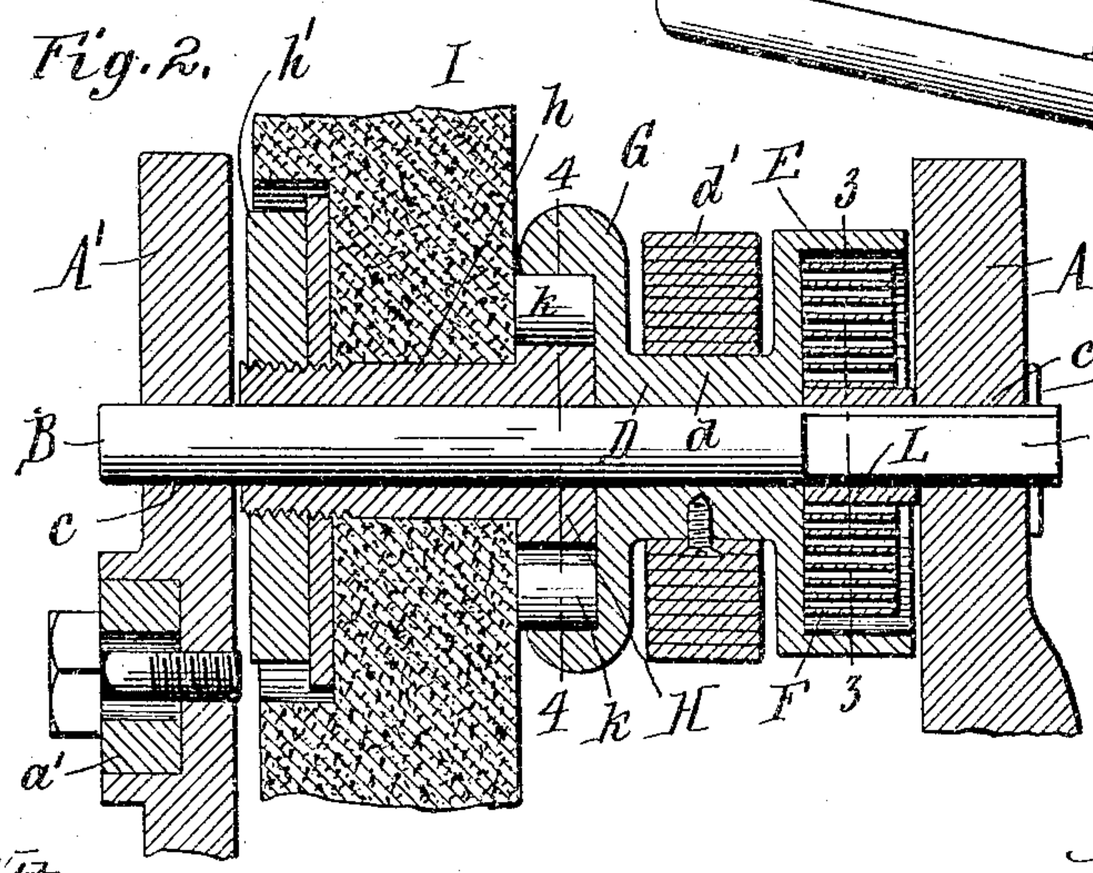


Fig. 2.



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UNITED STATES PATENT OFFICE.

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RATCHET MECHANISM.

No. 808,946. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed May 24, 1905. Serial No. 262,105.

To all whom it may concern:

Be it known that I, MICHAEL REISCH, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Ratchet Mechanisms, of which the following is a specification.

This invention relates to that class of ratchet and spring mechanisms which are employed for operating grinding-wheels and other rotary devices and in which the alternating forward and backward rotation or oscillating movement of the actuating shell, casing, or member is produced in the forward or effective direction by the pull of the actuating strap or band and in the opposite or return direction by a coiled spring which is strained during the forward rotation of the oscillating member. It sometimes happens that an unskilled operator will turn the grinding-wheel by hand in the wrong direction and so far that the spring is buckled or broken.

The objects of this invention are to so construct the spring mechanism that the spring cannot be injured by turning the grinding-wheel in the wrong direction, to render the parts simple, strong, and durable, and to facilitate the assembling and separating of the parts.

In the accompanying drawings, Figure 1 is a front elevation of a grinding mechanism provided with my improvements. Fig. 2 is a longitudinal section of the ratchet and spring mechanism on an enlarged scale. Figs 3 and 4 are cross-sections in lines 3 3 and 4 4, Fig. 2, respectively. Fig. 5 is a detached perspective view of the arbor. Fig. 6 is a detached perspective view of the spring-sleeve. Fig. 7 is a side view showing the lip of the spring disengaged from the tooth of the sleeve.

Like letters of reference refer to like parts in the several figures.

The stationary frame of the grinding or other machine in which the mechanism is embodied may be constructed in any suitable manner and may comprise, as shown, a base A, adapted to be attached to a table or workbench by a set-screw *a* and left and right hand standards A′ A². The left-hand standard A′ may be provided with a tool-rest *a′*.

B represents the horizontal arbor or stationary shaft, which is supported in the standards A′ A² and held against turning. This arbor has a flat or oblong right-hand portion *b* of such size that it can be passed through the round opening *c* in the left-hand standard A′ and inserted into a corresponding flat or oblong opening *c′* in the right-hand standard A², whereby the arbor is supported and held against turning.

D represents the actuating-shell, casing, or hollow member, which is mounted to turn forwardly and backwardly upon the arbor B. This casing comprises a neck or reduced body *d*, upon which the actuating-strap *d′* is wound, and which is provided with a cylindrical bore by which it fits upon the cylindrical part of the arbor adjacent to the oblong part *b* of the latter. The casing D further comprises on the right-hand side of the neck the spring-casing E, containing the coil-spring F, and on the left-hand side of the neck the ratchet-sleeve G, surrounding the ratchet-disk H. I represents the grinding-wheel or other rotary part, to which the ratchet-disk may be secured by any suitable means—for instance, as shown, by a hub *h*, extending through the wheel and secured by a nut *h′*. *k* represents the rollers, which are interposed between the ratchet-sleeve G and the disk H. This ratchet mechanism is preferred and is so constructed that it causes the grinding-wheel to rotate in a downward direction on the front side, so as to deliver the sparks downwardly. Any other suitable ratchet mechanism may, however, be employed.

The coil-spring is secured at its outer end to the spring-casing E by anys uitable means—for instance, as shown, by an enlargement or loop *f*, formed on the end of the spring and preventing the latter from being drawn through a notch *f′* in the casing in which the spring is arranged. The coil-spring is held at its inner end by a sleeve L, which is rigidly attached to the arbor and provided on its periphery with a tooth *l*, with which a hook or holding-lip *m*, formed on the inner end of the spring, engages. The tooth has an abrupt back, against which the hook catches when the spring is strained by the forward rotation of the casing in the direction of the arrow, Fig. 3. The face of the tooth is inclined or curved so as to allow the hook of the spring to slide over the same when the inner end of the spring is moved in the reverse di-

rection. The holding-sleeve L is provided with an oblong bore, which fits the oblong part *b* of the arbor and whereby the sleeve is held in position against the working strain applied to the spring by the actuating strap or band turning the spring-casing forwardly; but if the spring-casing should be turned backwardly contrary to the direction indicated by the arrow in Fig. 3 to such an extent that the strain on the spring is released the inner end of the spring leaves the holding-tooth of the sleeve and travels around the sleeve in the wrong direction, the holding-hook of the spring passing over the inclined or curved face of the tooth of the sleeve without catching, and no buckling or breaking of the spring can take place in these circumstances.

In assembling the parts of the machine the wheel, ratchet-rollers, actuating-casing, spring, and spring-sleeve are placed in position between the standards A' A^2 of the frame, and the arbor is then inserted, its oblong or flat end portion passing into the sleeve L and the oblong opening of the right-hand standard A^2, thus securing the parts in their operative position. The arbor is secured in place by a cotter-pin *n* or other suitable means. If it becomes necessary to separate the parts for cleaning or repairing, the arbor is released and withdrawn, thereby separating the parts. The machine can be assembled or taken apart in a very simple and expeditious manner, and the parts are securely held in their working position when assembled, while injury by improper use is avoided.

I claim as my invention—

1. The combination of a supporting-frame, an arbor held in the same against rotation and provided with a fixed holding-tooth having an inclined face and an abrupt back, an oscillatory actuating-casing mounted on said arbor, a ratchet mechanism actuated by said casing, and a return-spring having its outer end attached to said casing and its inner end provided with a holding-lip which engages the abrupt back of said tooth under the working strain and is free to move away from said tooth when the spring is strained in the opposite direction, substantially as set forth.

2. The combination of a supporting-frame, a removable arbor held therein against rotation, a sleeve having a holding-tooth and having a bore for the insertion of the arbor, said arbor and sleeve being provided with means for preventing the sleeve from turning on the arbor, an oscillatory actuating-casing mounted on said arbor, a ratchet mechanism actuated by said casing, and a return-spring having its outer end attached to said casing and its inner end provided with a holding-lip which engages said holding-tooth under the working strain and is free to move away from said tooth when the spring is strained in the opposite direction, substantially as set forth.

3. The combination of a supporting-frame having arbor-seats, one of which is flat-sided, an arbor adapted to be inserted into said seats and having a flat-sided end portion engaging in said flat-sided seat, a sleeve provided with a holding-tooth and having a flat-sided bore fitting the flat-sided portion of said arbor, an oscillatory actuating-casing mounted on said arbor, a ratchet mechanism actuated by said casing, and a return-spring having one end attached to said casing and the other end provided with a holding-lip which engages the tooth of said sleeve, substantially as set forth.

Witness my hand this 20th day of May, 1905.

MICHAEL REISCH.

Witnesses:

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