C. B. COLLINS.

ROTARY SAFETY RAZOR.

APPLICATION FILED MAY 9, 1914.

1,127,409.

Patented Feb. 9, 1915.

2 SHEETS—SHEET 1.

Fig. 1

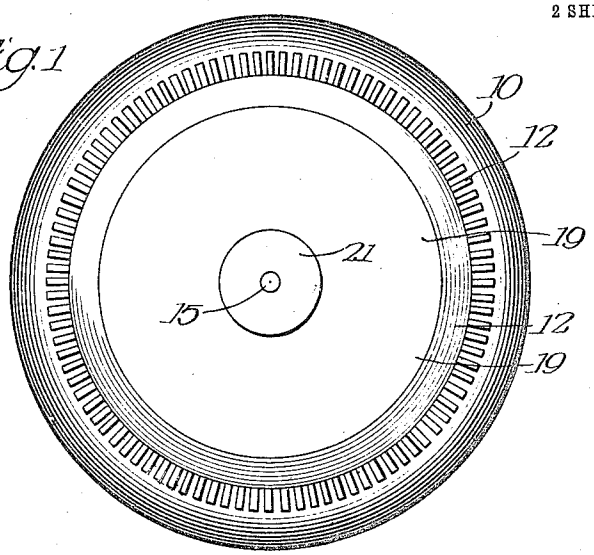


Fig. 2

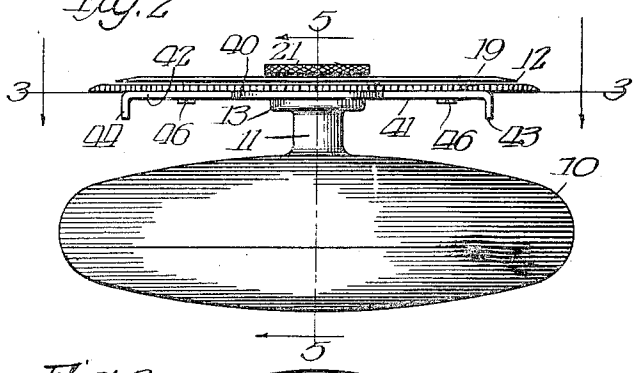
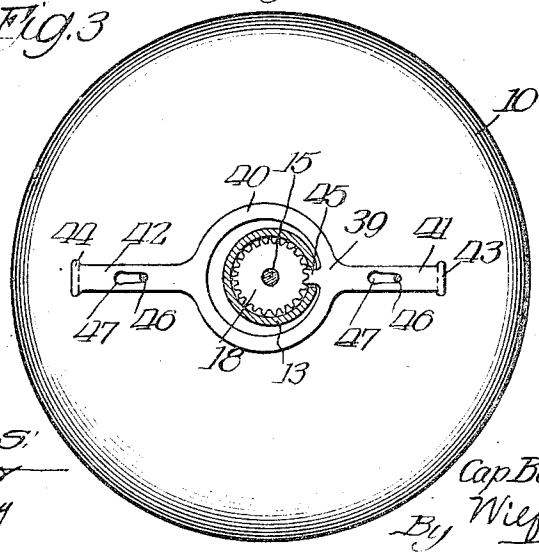


Fig. 3



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 4.

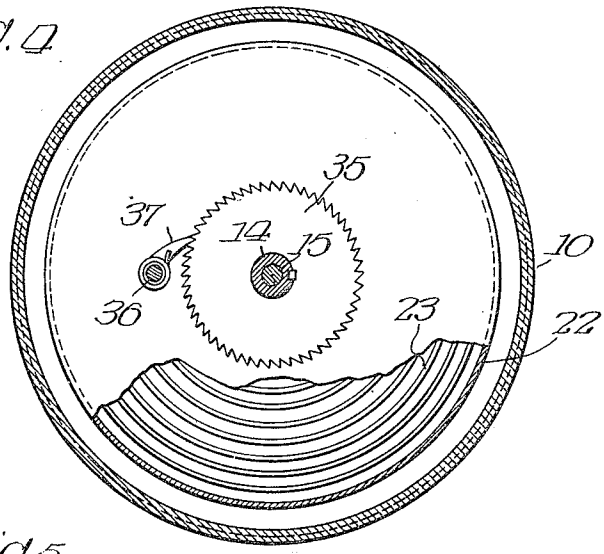


Fig. 5.

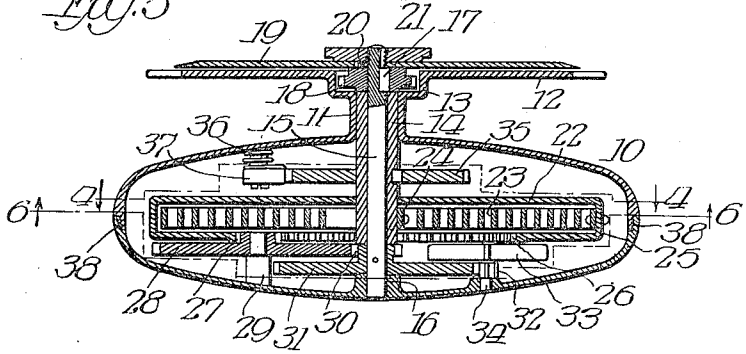
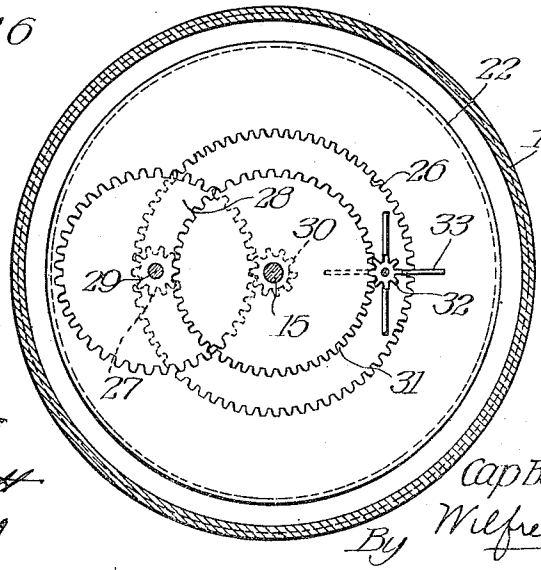


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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ROTARY SAFETY-RAZOR.

1,127,409. Specification of Letters Patent. Patented Feb. 9, 1915.

Application filed May 9, 1914. Serial No. 837,415.

To all whom it may concern:

Be it known that I, CAP BERTRAND COLLINS, a citizen of the United States, residing at Des Moines, county of Polk, and State of Iowa, have invented certain new and useful Improvements in Rotary Safety-Razors, of which the following is a specification.

This invention relates to improvements in rotary safety razors, and one of the objects of the same is to provide an improved self-contained motor propelled device of this character having a rotary circular blade.

A further object is to provide an improved device of this character having a blade of disk shape provided with a continuous non-serrated cutting edge, and a guard for the blade.

A further object is to provide improved means for controlling the operation of the blade.

To the attainment of these ends, and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the invention, and in which—

Figure 1 is a top plan view of an improved device of this character, constructed in accordance with the principles of this invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a sectional view taken on line 3—3, Fig. 2. Fig. 4 is a sectional view taken on line 4—4, Fig. 5. Fig. 5. is a vertical sectional view taken on line 5—5, Fig. 2. Fig. 6 is a sectional view taken on line 6—6, Fig. 5.

Referring more particularly to the drawings and in the present exemplification of this invention, the numeral 10 designates generally a casing or housing of any desired size and configuration, preferably of a size and shape to fit the hand and by means of which the device may be manipulated.

The housing is preferably constructed in sections and connected with one section by means of a reduced portion 11 is a guard 12, of circular configuration having spaced peripheral teeth. The guard is shaped to form a recess or chamber 13 for a purpose to be hereinafter set forth and the reduced portion 11 between the guard and the casing is tubular for the reception of a hollow shaft 14. Passing through the hollow shaft 14, which extends beyond the guard 12 and also into the casing 10 is a shaft 15 which may have a bearing 16 supported by one of the sections of the casing, and removably secured to the shaft 15, within the chamber 13 such as by means of a key 17, is a toothed wheel or element 18, that is adapted to rotate with the shaft 15.

The cutting blade 19 is in the form of a disk and is connected to the shaft 15 to rotate therewith preferably through the medium of the element 18, which latter may be provided with a stud 20 adapted to enter a recess in the blade, and the blade together with the element 18 are secured to the shaft 15 preferably by means of a nut or collar 21 which has a threaded engagement with the extremity of the shaft 15 and serves to clamp the blade between the element 21 and the element 18. Obviously the blade 19 is of a diameter slightly less than the diameter of the guard.

Arranged within the casing 10 is a spring barrel 22 which is mounted loosely upon the hollow shaft 14, the latter being mounted loosely upon the shaft 15. Inclosed with the spring barrel 22 is a spring 23 which is anchored as at 24 to the hollow shaft 14 and is also anchored as at 25 to the barrel 22. A portion of this barrel is shaped to form an internal toothed gear 26 with which a pinion 27 meshes and which pinion is connected with a gear 28 for rotation therewith, the latter being journaled upon a stub shaft 29 preferably supported by one of the members of the casing. Connected with the shaft 15 to rotate therewith is a gear 30 which meshes with the gear 28 and connected with the gear 30 to rotate therewith is a gear 31, the latter meshing with a gear 32 which is connected with a fan or governor 33, the fan or governor and the gear 32 being rotatably mounted upon a stub shaft 34 also connected with one of the sections of the casing 10. Connected with the shaft 14 for rotation therewith is a ratchet element 35 and mounted upon a support 36 carried by the other section of the casing 10 is a dog or pawl 37 which coöperates with the ratchet element 35. The sections of the casing 10 are preferably removably secured together by means of a threaded connection 38, so as to permit ready access to the interior of the casing.

In use, the spring 23 is wound by holding one hand against the blade and the fasten-

ing device 21 to hold it against rotation, and then rotating the casing 10 by the other hand. This will cause the spring 23 to be wound, and the pawl and ratchet elements 35, 37 will lock them against retrograde movement. As the spring 23 unwinds, the spring barrel and the gear 26 will be rotated, and this in turn will rotate the pinion 27 and the gear 28, and the gear 28 meshing with the gear 30 which is secured to the shaft 15, will rotate the blade 19, the device being held in the hand by means of the casing 10. The unwinding movement of the spring is retarded by the governor 33 which is connected with the gear 31 through the medium of the pinion 27. Thus it will be manifest that while the blade is being rotated, the user may manipulate the razor in the manner in which all safety razors are operated, thereby giving a shearing action to the blade, as well as the ordinary movement which will be imparted to the blade by the hand of the operator.

In order to control the rotation of the blade, a stop device is provided which cooperates with the toothed element 18. This stop device preferably comprises a shiftable member 39 provided with an annular central portion 40 which surrounds the outside of the recess 13 of the guard, and the extremities of the annular member are extended as at 41, 42 and are provided with projections 43, 44. The annular portion 40 is provided with a tooth or projection 45 which is adapted to be moved into and out of engagement with the teeth of the element 18, and the shifting device may be supported by means of pin and slot connections 46, 47. Thus when it is desired to permit the spring to rotate the blade, the stop device is shifted by the finger of the operator by engaging the projection 43 to move the projection 45 out of engagement with the teeth of the element 18, and when it is desired to stop the blade, the device is shifted in the opposite direction by the finger of the operator engaging the projection 44.

With this improved construction it will be manifest that a simple, durable, compact and efficient device is provided, one in which all of the parts are concealed and protected, and one which may be readily manipulated, while at the same time, the blade 19 may be readily removed and replaced when desired.

Obviously many changes may be made in the details of construction and in the combination and arrangement of the several parts without departing from the spirit of this invention.

What is claimed as new is:—

1. A self-contained device of the character described, embodying a substantially flat circular motor casing, said casing constituting a housing, a stem projecting from and arranged perpendicularly to one of the walls of the casing, a guard connected with the stem and disposed adjacent the casing, a driving shaft extending from the casing and through the said stem, a blade detachably connected with the shaft and disposed adjacent the guard, a stop device adjustably supported by the guard, said stem provided with a lateral opening therethrough adjacent the guard, a portion of said stop device projecting through said opening, and means on the shaft with which the said portion of the stop device coöperates.

2. A self contained razor of the character described, embodying a motor propelled rotatable disk shaped blade, a guard for the cutting edge of the blade, said guard having a chamber therein, an element disposed within the chamber, and rotatable with the blade, and means coöperating with the said element for controlling the operation of the motor.

3. A self contained razor of the character described, embodying a motor propelled rotatable disk shaped blade, a guard for the cutting edge of the blade, said guard having a chamber therein, a rotatable toothed element disposed within the chamber and connected with the motor, and an element shiftable into and out of engagement with the toothed element for controlling the motor.

4. A self contained razor of the character described, embodying a motor propelled rotatable disk shaped blade, a guard for the cutting edge of the blade, said guard having a chamber therein, a rotatable element disposed within the chamber, and connected with the motor, and an element supported by the said guard, and movable into and out of operative relation with the said element for controlling the operation of the motor.

In witness whereof, I hereunto subscribe my name to this specification in the presence of two witnesses.

CAP BERTRAND COLLINS.

Witnesses:

WM. BREYETTE,

P. A. S. SMITH.