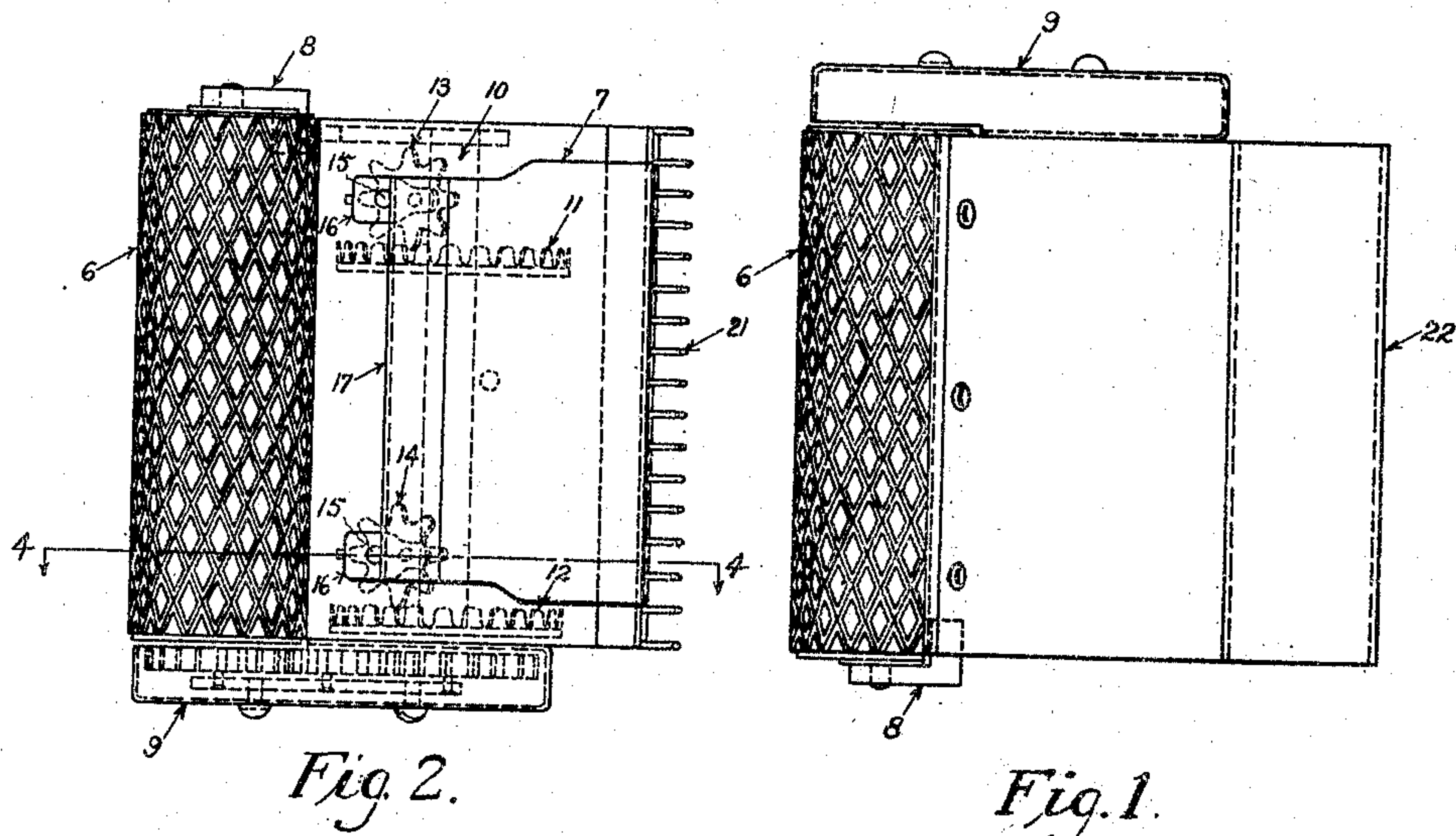
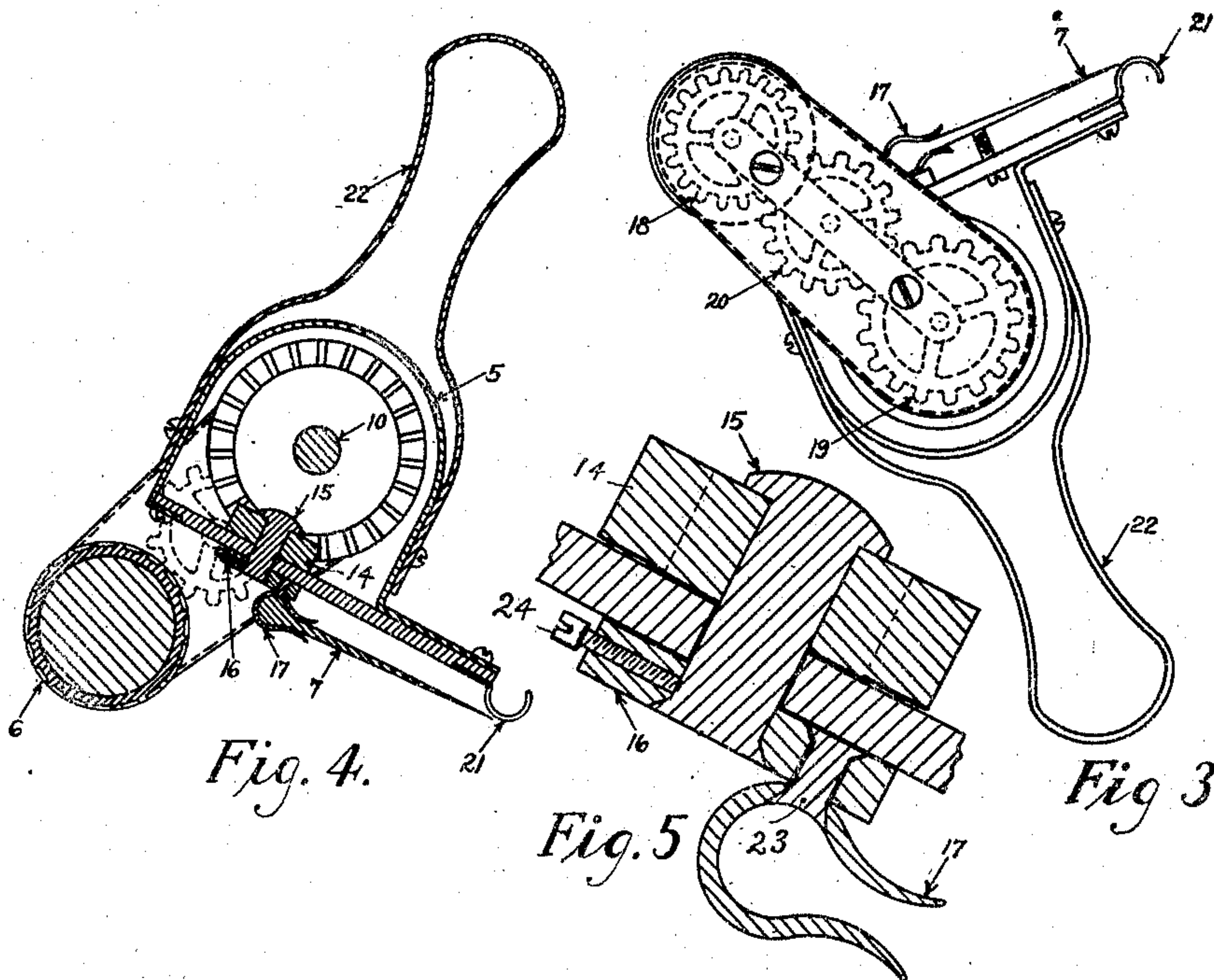


No. 850,529.

PATENTED APR. 16, 1907.

F. X. GEORGE, JR.  
SAFETY RAZOR.  
APPLICATION FILED DEC. 21, 1906.



WITNESSES:

Clarence W. Decker.  
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INVENTOR  
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BY  
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# UNITED STATES PATENT OFFICE.

FRANK X. GEORGE, JR., OF BROOKLYN, NEW YORK.

## SAFETY-RAZOR.

No. 850,529.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed December 21, 1906. Serial No: 348,964.

*To all whom it may concern:*

Be it known that I, FRANK X. GEORGE, Jr., a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to improvements in safety-razors, and has for its principal object the production of a safety-razor or shaving device in which the blade may have a motion simulating that of the razor-blade in an ordinary hand-razor—that is, a motion oblique to the general direction of the razor.

Another object of the invention is the automatic production of this oblique movement of the blade as the razor is moved over the face.

With these and other objects in view the invention consists in the structure and in the combination of parts substantially as herein-after described and claimed.

In the accompanying drawings, which form a part of this specification, Figure 1 represents the improved shaving device in plan. Fig. 2 is a view from the under side thereof. Fig. 3 is an end elevation of the device in the position represented in Fig. 2, and Fig. 4 is a transverse section taken in the plane indicated by the line 4-4, Fig. 2. Fig. 5 is a sectional detail view of the blade-holder and reciprocating mechanism.

This idea of producing automatically a movement of the razor-blade oblique to the general direction of the razor may be embodied in variously-formed structures. The one conceived as best adapted for the purpose consists of a suitable casing in which is journaled a roller to be rolled over the face and to which roller the blade is connected through gearing suitable for giving thereto the desired oblique movement. This casing is indicated in the drawings by 5, the roller by 6, and the blade by 7. A bracket, as 8, is attached to the casing at one end and in it is journaled one end of the roller 6, while the other end of said roller is journaled in the gear-housing 9, attached to the opposite end of the casing. Within the casing and parallel to the roller is journaled the shaft 10, upon which are the two crown-gears 11 and 12, with which mesh the pinions 13 and 14, fixed to stud-shafts 15 in the floor of the casing. To the lower ends of these stud-shafts are secured crank-disks 16, held in adjustment by set-screws 24, carrying suitable ro-

tary wrist-pins, to which are attached at its ends the razor-blade clamp 17, preferably a spring-clamp, as indicated. Within the housing 9 is the train of gearing by which the shaft 10 is connected to the roller 6. This train may, as shown, consist of the gears 18 and 19, mounted, respectively, upon the axle of the roller and shaft 10, and an idle gear 20, mounted between said gears. The base of the casing 5 may project forwardly, as shown, and upon its forward edge bear the curved toothed guard-plate 21. To insure proper frictional engagement of the roller upon the face, it may be provided with an irregular surface, as by placing thereon a pitted rubber jacket, substantially as represented in the drawings.

Any suitable handle may be provided for this shaving device, the one represented at 22 consisting of sheet metal secured by screws at its lower end to the sides of the casing.

In drawing the razor over the face sufficient pressure is applied so that the roller 6 will transmit through the gearing described to the crank-disk 16 a rotary motion, and as these disks rotate they will give to the blade 7 a reciprocating motion, longitudinally as well as transversely, and in the forward transverse movement the edge of the blade will travel obliquely against the hair to be cut and obviously will cut it more readily than when moved straight against it, as in the ordinary safety-razor. This motion of the blade is that of the ordinary razor in the hands of the experienced barber and which insures a clean and comfortable shave.

The invention claimed is—

1. In a safety-razor, the combination with the blade and casing of means for giving the blade a cutting stroke in a direction oblique to the line of travel of the razor.
2. In a safety-razor, the combination with the blade and casing of means for giving to the blade a reciprocating motion longitudinally and transversely.
3. In a safety-razor, the combination with the casing, of a roller, a reciprocating blade and gearing connecting the blade with the roller.
4. In a safety-razor, the combination with a casing, of a clamp for holding a razor-blade, rotary crank-disks, to which said clamp is connected at its ends, a roller journaled in said casing and gearing for transmitting motion from the roller to said crank-disks.



5. In a safety-razor, the combination with a casing, of a razor-blade clamp, a roller journaled to said casing, gearing connecting said roller with said clamp for giving to the latter  
5 a longitudinal and transverse reciprocating motion and a guard on said casing opposite to said roller.

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

FRANK X. GEORGE, JR.

Witnesses:

B. F. NORRIS,  
C. T. CORNER.