W. SCHMIDT.

APPARATUS FOR STROPPING RAZOR BLADES.

APPLICATION FILED SEPT. 15, 1909.

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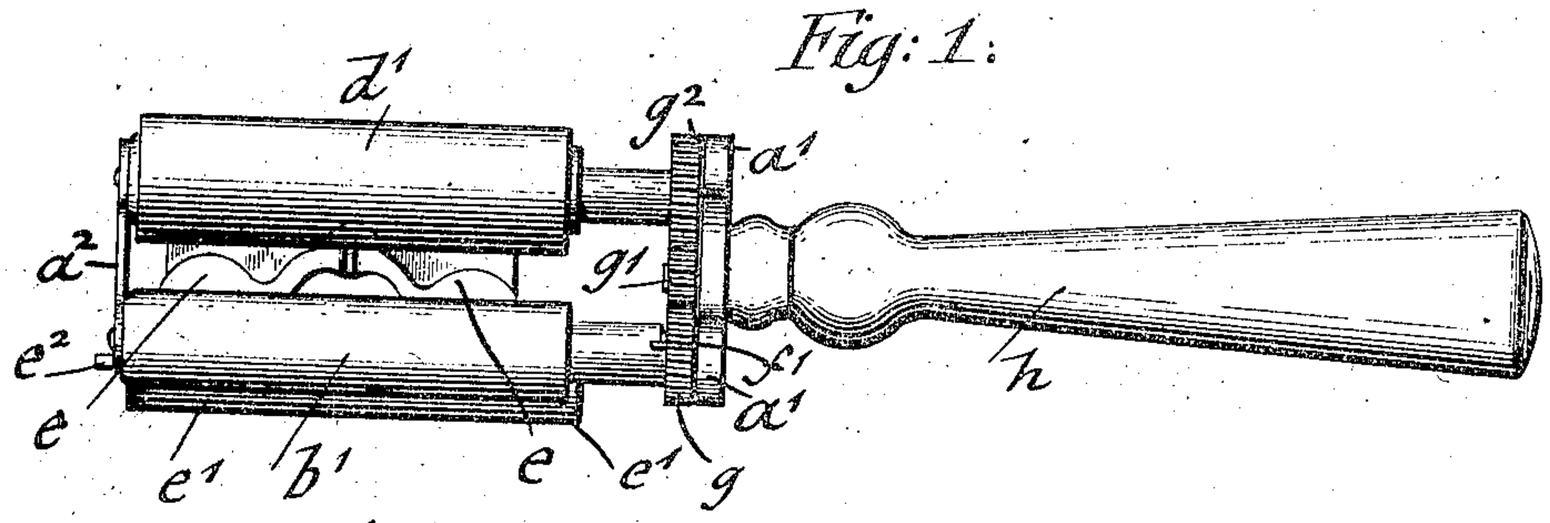
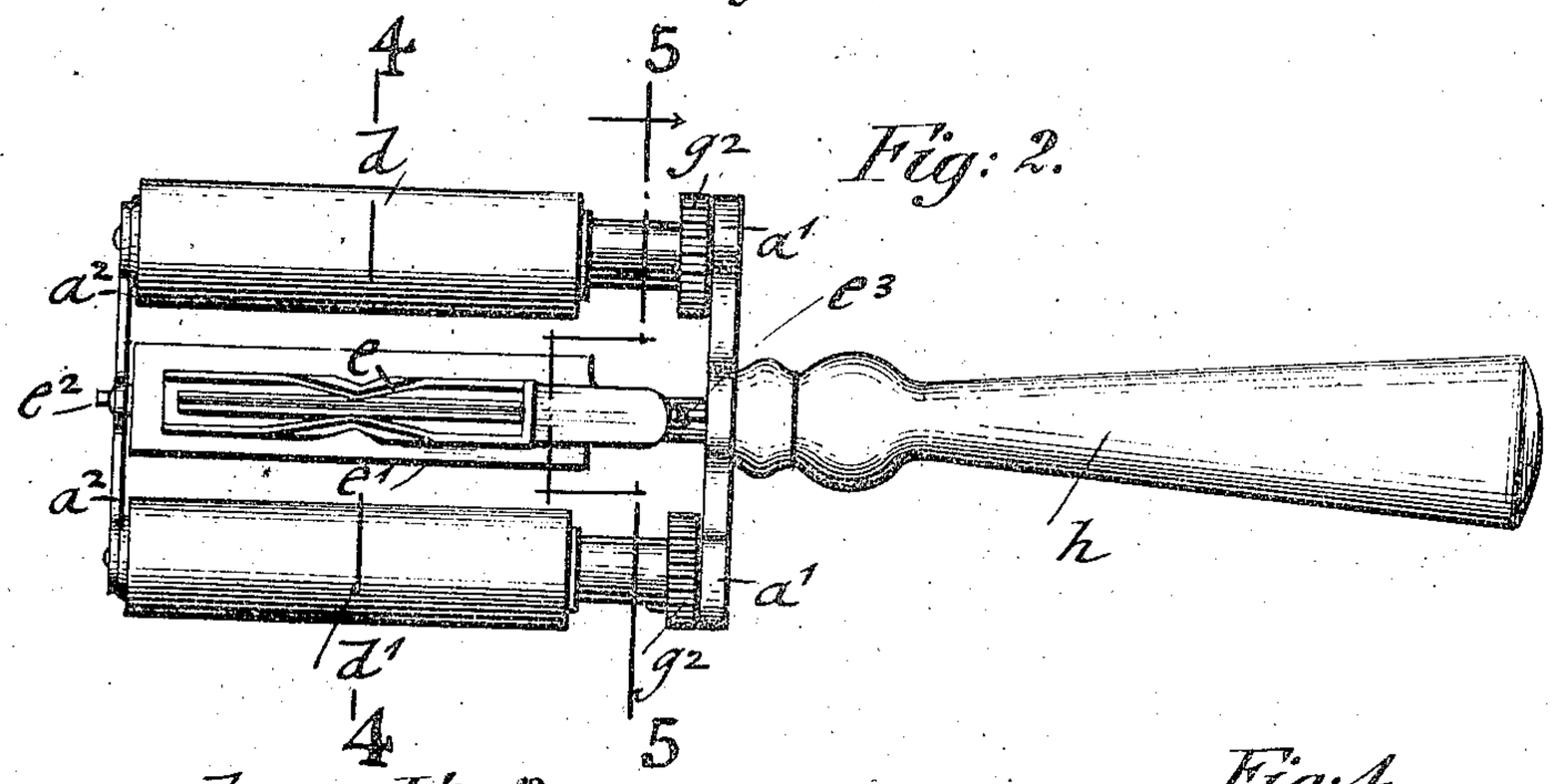
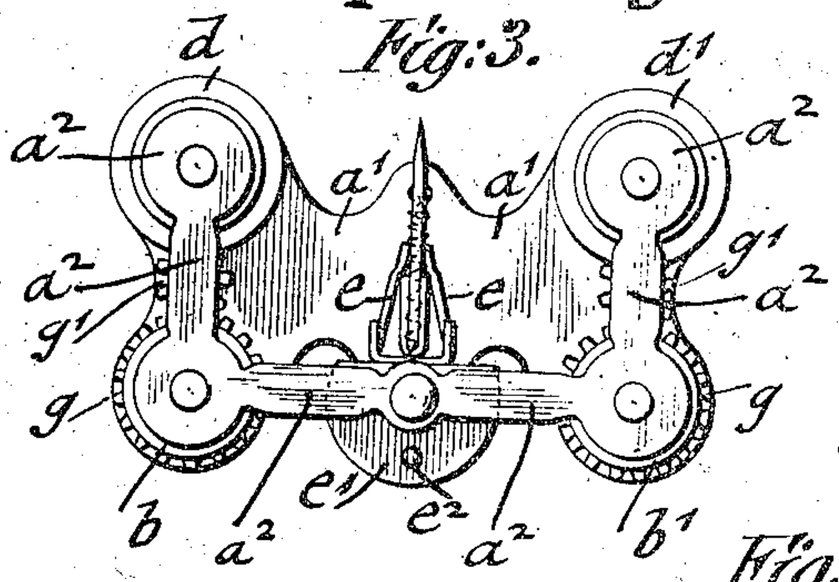
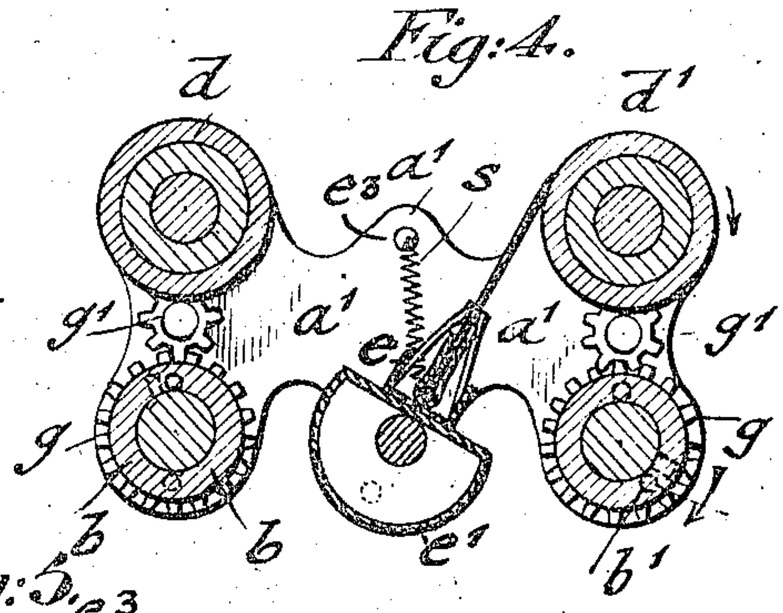
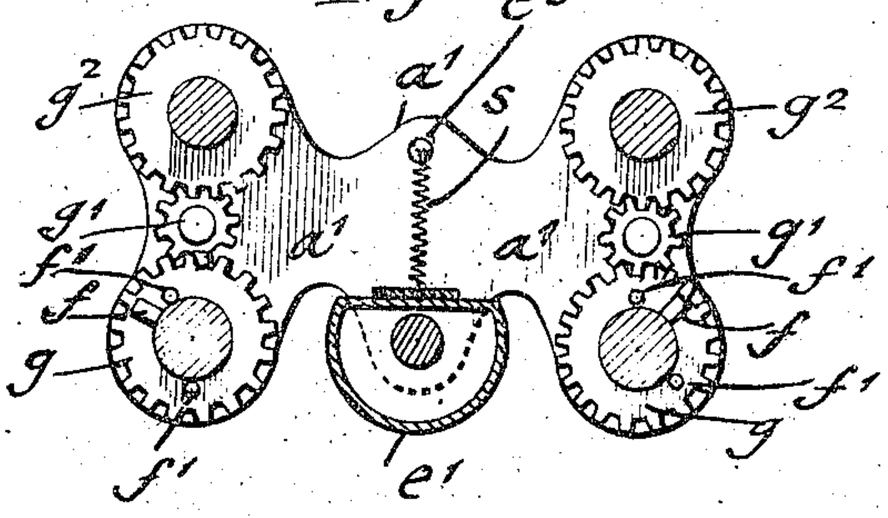
Fig: 1.











Witnesses:
Morris Lesser
S. Drucker

Inventor
William Schmidt
By his Attorneys
Howell & Gosper.

UNITED STATES PATENT OFFICE.

WILLIAM SCHMIDT, OF JERSEY CITY HEIGHTS, NEW JERSEY, ASSIGNOR TO SIMON ZINN, OF NEW YORK, N. Y., A FIRM.

APPARATUS FOR STROPPING RAZOR-BLADES.

944,282. Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed September 15, 1909. Serial No. 517,790.

To all whom it may concern:

Be it known that I, WILLIAM SCHMIDT, a citizen of the United States of America, residing in Jersey City Heights, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Stropping Razor-Blades, of which the following is a specification.

This invention relates to an apparatus for stropping razor-blades by which the stropping of blades is accomplished in an effective manner, without bringing the blade into contact with an ordinary strop, the instrument containing in itself the stropping means, and being capable of operation on any suitable pliable or yielding surface; and for this purpose the invention consists of a stropping apparatus which comprises a supporting frame, drive-rollers supported in the lower part of said frame, stropping rollers supported above said drive-rollers, actuating gear-wheels between the drive-rollers and stropping rollers, an independently oscillating blade-holder pivoted to the frame between the pairs of driving-rollers, means for arresting the blade-holder when swung in either direction, means for returning the blade-holder into upright position, and means for imparting rotary motion to the stropping rollers, before or after the contact, of the edge of the razor-blade, with one stropping roller or the other has been made.

The invention consists further of certain details of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawing, Figure 1 represents a side-elevation of my improved razor-blade stropping apparatus, Fig. 2 is a plan-view of the same, Fig. 3 is an end-elevation, and Figs. 4 and 5 are vertical transverse sections respectively on lines 4, 4 and 5, 5, Fig. 2, Fig. 4 showing the blade in contact with one of the stropping-rollers for stropping.

Similar letters of reference indicate corresponding parts throughout the several figures.

Referring to the drawing, a^1, a^2 represent front and rear plates of the supporting frame of my improved apparatus for stropping razor-blades. The front-plate a^1 is attached to a handle, while the rear-plate a^2 is made U-shaped, both plates being provided with suitable bearings for the shafts of a pair of lower driving rollers b, b^1 and a pair of upper stropping rollers d, d^1. An independently oscillating blade-holder e is located midway between the drive-rollers b, b^1 and pivoted to the front and rear-plates a^1, a^2. The blade-holder e is supported on the flat upper surface of a roller e^1 which is of a larger diameter than the driving-rollers b, b^1 so as to project somewhat below the lower surface of the same. The blade-holder e is connected at its inner end by a helical spring s with a pin e^3 on the front or head-plate a^1 of the supporting-frame a, said spring serving for holding the blade-holder in upright position when the apparatus is not required for stropping. The opposite end of the blade-holder supporting roller e^1 is provided with a stop-pin e^2 that abuts against the lower cross-piece of the supporting frame so as to arrest the blade inserted into the holder e at the proper angle of inclination to either one of the stropping-rollers for the stropping action, as shown in Fig. 4.

The lower driving-rollers b, b^1 are preferably made of hard rubber or other suitable material, while the stropping rollers are made of prepared stropping leather or other material, the stropping rollers being of suitable diameter for imparting the proper shaving angle. Motion is imparted from the shafts of the driving-rollers b, b^1 by means of gear-wheels g which are mounted loosely on the shafts of the driving-rollers and intermediate pinions g^1 mounted loosely on short stud-shafts on the front or head-plate a^1 to gear-wheels g^2 keyed to the shafts of the stropping-rollers. On the shafts of the driving-rollers are placed radial pins f which engage pins f^1 attached to the gear-wheels g so as to take the same along and impart by the transmitting gearing motion to the stropping-rollers in one or the other direction according to the direction of motion of the rollers of the stropping apparatus. The pins on the shafts of the driving-rollers are located between the two pins on the lower gear-wheels g, so that the rotary motion of the stropping rollers in one or the opposite direction is started as soon as the pin f on the shaft of one driving roller engages one or the other of the pair of pins f^1 on the lower gear-wheel g.

When the stropping apparatus is to be op-

erated, it is moved over any suitable contacting surface, first in one and then in the opposite direction after the blade to be stropped has been inserted in the blade-holder. As soon as motion is imparted to the stropping apparatus by the contact of the contacting friction surface with the lower part of the blade-holder carrying roller, the latter moves the blade-holder in one direction and the blade in inclined position toward one of the stropping-rollers, as shown in Fig. 4, so that the edge of the blade forms contact with the same, as shown in Fig. 4. During the positioning of the inclined blade on the stropping-roller, no motion is imparted to the stropping roller with which the blade has formed contact. As soon as the blade is set in inclined position on the stropping-roller, the driving-roller then below the stropping-roller is rotated by the pin on the shaft, which engages one of the pins on the gear-wheel of the driving-roller below the stropping roller and imparts rotary motion to the stropping-roller, so that stropping action is exerted on one side of the edge of the blade. By the return-motion of the stropping-apparatus over the contacting friction-surface, the blade-holder is swung over, with its blade in contact with the opposite stropping roller, and as soon as the contact is accomplished the driving-roller is rotated and motion transmitted by the pin or its shaft to one of the pins on the lower gear-wheel to the other stropping-roller, so that the opposite side of the edge of the blade is subjected to the stropping action of the rotating stropping roller. The motion of the stropping apparatus over the contacting friction surface in one direction or the other is continued until the stropping of the blade is accomplished. As soon as the apparatus is moved out of contact with the contacting surface, the blade-holder is then returned into upright position between the driving and stropping-rollers by means of its spring. By moving the blade over into contact with one or the other stropping-rollers, the edge of the blade forms contact with one of the other stropping-rollers before the rotary motion takes place owing to the lost motion produced before the pin on the shaft of the driving-roller engages the pin on the gear-wheel, so that the surface of the stropping-roller is not injured by the contact of the blade with the same as no motion in either direction is imparted to the stropping roller until the engagement of the pin on the driving-roller with one of the pins on the transmitting gear-wheels g is accomplished. The oscillating motion of the blade-holder and its contact with one or the other stropping roller is accomplished by the frictional contact with any contacting surface, so that the stropping of the edge of the blade is accomplished and a very effective stropping action obtained. The stropping apparatus has also the further advantage that it is utterly imposible to injure either the blade or the stropping rollers even when the apparatus should be brought into inverted position for application, as the stropping rollers would rotate freely, while the blade remains stationary, as it is not brought into contact with one of the stropping rollers or a contacting surface.

The stropping apparatus is mainly intended for the blades of safety-razors, but it is obvious that it can be used for stropping the blades of ordinary razors provided that the stropping-device is made of a sufficient size for taking up and holding the blade.

It is understood that slight modifications in detail of the parts shown, as for instance the substitution of frictional contacting wheels instead of gear-wheels will be within the scope of this invention.

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

1. A razor-blade stropping apparatus comprising a supporting frame, a pair of driving and stropping rollers supported on said frame, an oscillating blade-holder, means for bringing the blade-holder back to upright position, and motion transmitting means between the shafts of the driving and stropping rollers for rotating the latter.

2. A razor-blade stropping apparatus comprising a supporting frame, an independently-oscillating blade-holder pivoted to said frame, a stop for arresting the oscillating motion of the blade-holder when moved in one or the opposite direction, a pair of driving rollers, a pair of stropping rollers and means for transmitting motion between the driving and stropping rollers for actuating the latter.

3. In a razor-blade stropping apparatus, the combination of a supporting frame, an independently-oscillating blade-holder pivoted to the frame, a roller supporting the blade-holder, a centering spring engaging the blade-holder and frame, means for arresting the motion of the blade-holder, driving-rollers supported in the frame, stropping rollers supported in the frame above the driving rollers, gear wheels for transmitting motion from the driving rollers to the stropping rollers and mechanism between the driving rollers and the stropping rollers for imparting rotary motion to the stropping rollers.

4. In a razor-blade stropping apparatus, the combination of a supporting frame, a pair of driving-rollers, one at each side of the frame, a pair of stropping rollers above and parallel with the driving-rollers, an independently oscillating blade-holder, a

blade-holder supporting roller pivoted to the frame between the pairs of driving and stropping rollers, said supporting roller being of proper diameter, a centering spring between the rotary-shaft and frame, gear-wheels for transmitting rotary motion from the shafts of the driving-rollers to the stropping rollers, engaging pins on the shafts of the driving-rollers and a pair of pins on the gear-wheels of the driving-rollers, one on each side of the radial pins for permitting a certain lost motion before setting the trains of gear-wheels in motion when the apparatus is moved in either direction of motion.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

WILLIAM SCHMIDT.

Witnesses:
PAUL GOEPEL,
FANNIE FISK.