No. 712,384. Patented Oct. 28, 1902.

F., R. & O. KAMPFE.

MACHINE FOR STROPPING RAZOR BLADES.

(Application filed May 7, 1902.)

(No Model.)

Fig: 1.

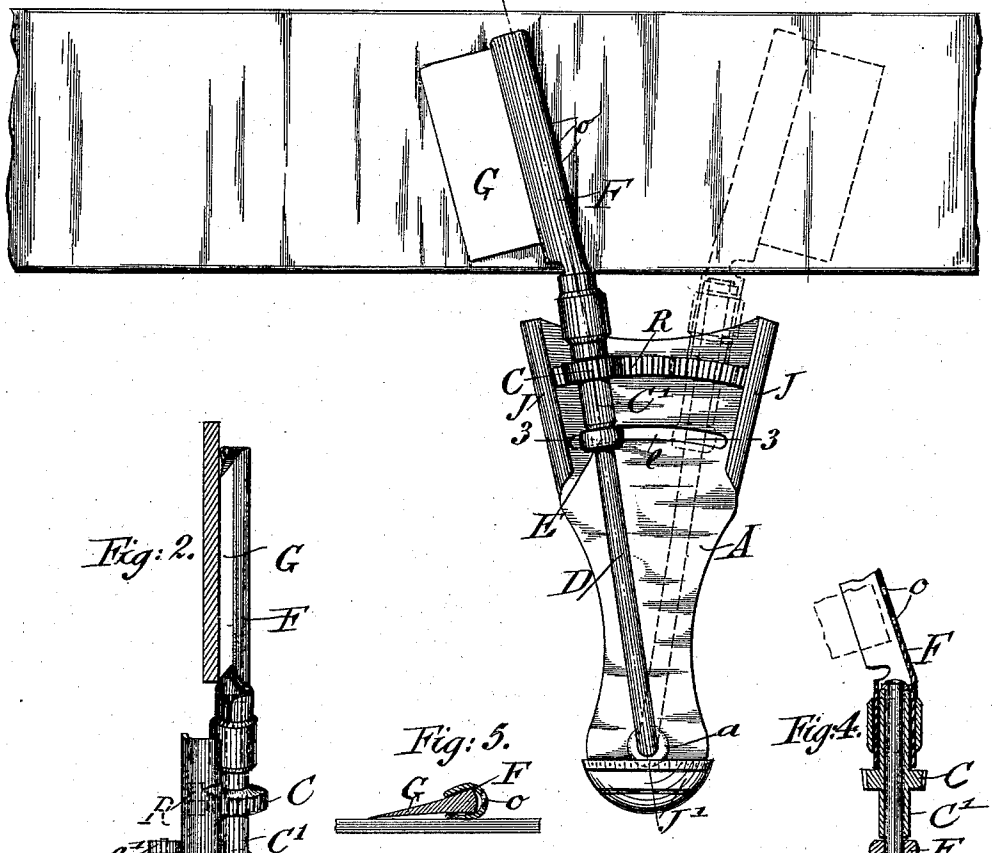


Fig: 2.

Fig: 5.

Fig: 4.

Fig: 3.

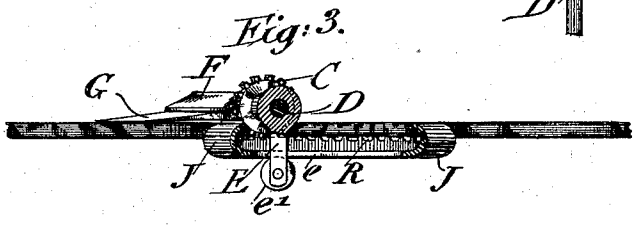


Fig: 6.

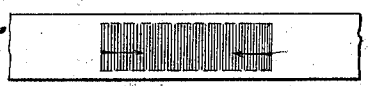


Fig: 7.

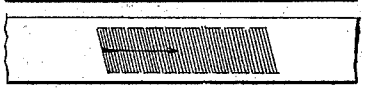
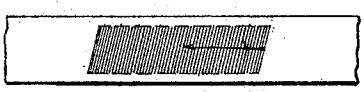


Fig: 8



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MACHINE FOR STROPPING RAZOR-BLADES.

SPECIFICATION forming part of Letters Patent No. 712,384, dated October 28, 1902.

Application filed May 7, 1902. Serial No. 106,233. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, citizens of the United States, residing in New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Stropping Razor-Blades, of which the following is a specification.

This invention relates to certain improvements in the machine for stropping razor-blades, for which Letters Patent were granted to us on September 25, 1900, No. 656,649, said improvements being designed with the view of simplifying the construction of the stropping device and of facilitating the operation without any liability of injuring the strop during the stropping action; and for this purpose the invention consists of a machine for stropping razor-blades which comprises a handle-frame, a segmental rack on said frame, a rod pivoted to said frame concentric with the rack, a blade-holder on said rod provided with a pinion engaging the rack, and a retaining-arm on the rod extending through an arc-shaped slot in the handle-frame and provided with an antifriction-roller for engaging the under side of the handle-frame.

The invention consists, further, of a stropping device for razor-blades in which the blade-holder is arranged at an obtuse angle of inclination to the axis of the rod pivoted to the handle-frame; and the invention consists, lastly, of certain details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of our improved stropping-machine shown with the blade applied flat to the strop. Fig. 2 is a side elevation, partly in section, through the strop. Fig. 3 is a vertical transverse section on line 3 3, Fig. 1. Fig. 4 is a detail vertical section showing the connection of the blade-holder and pivot-rod. Fig. 5 is a vertical transverse section through the blade-holder and blade. Fig. 6 is a diagram illustrating the action of an ordinary reciprocating stropping device, and Figs. 7 and 8 are diagrams illustrating the action of our improved stropping device.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a sector-shaped handle-frame, which is provided on its face at a short distance from its edge with a segmental rack R, engaging a pinion C, that is mounted on a sleeve C′, which is placed loosely on the free end of a rod D, so as to turn axially thereon. The opposite end of the rod D is pivoted to the opposite end of the handle-frame A concentric with the rack R in such a manner that the rod D can swing over the frame A. The rod D is preferably bent up at right angles at its pivoted end and fitted into a socket *a* of the handle-frame, the end of the pivot being upset and a washer *a′* interposed between it and the under side of the handle-frame A and said end, as shown clearly in Fig. 2.

The pivot-rod D is provided adjacent the sleeve C′ of the pinion C with a stationary arm E, that extends in downward direction through a segmental slot *e*, concentric with the rack R in the handle-frame A, to the under side of the same, said arm being provided at its lower end below the handle-frame with an antifriction-roller *e′*, so that the pivot-rod D can move freely from one side of the handle-frame to the other, while it prevents the rod D from moving away from the frame A by keeping the pinion C in engagement with the rack R at all times in opposition to the pressure exerted on the same during the stropping of the blade, which would tend to disengage the pinion from the rack.

To the sleeve C′ is applied the socket of the blade-holder F, which is of substantially **U** shape in cross-section and adapted to receive the back of the blade G. The back of the blade-holder F is provided with a series of openings *o* for the purpose of increasing its resiliency and facilitating the insertion and removal of the blade.

For facilitating the handling of the device a convex bent-up finger-rest J is attached to each side of the frame A, near the segmental end of the same, and a button-shaped rest J′ for the palm of the hand to the opposite end of the frame near the pivot of the rod D, as shown clearly in Fig. 1.

The blade-holder is not placed in line with the axis of the pivot-rod D, but at an obtuse angle of inclination thereto. This serves for the purpose of facilitating the oscillations of the blade in either direction, following the motion of the oscillating handle-frame as soon as pressure is exerted on the back of the blade-holder when the same is lying on the strop. By the obtuse angle of inclination given to the blade-holder toward the pivot-rod D the sliding of the blade-holder and blade over toward the grain of the strop and the consequent cutting or injuring of the strop by the edge of the blade is prevented and the instant turning of the blade-holder following the motion of the handle-frame on the strop is produced.

The stropping is accomplished in the usual manner by drawing the blade over the strop so that its cutting edge is moved in backward direction until it arrives at the end of the strop, when the blade is reversed—*i. e.*, the device is moved in inverse direction—and as the pressure on the implement causes the blade-holder to retain its position the frame-handle moves in inverse direction until the right-hand edge of the frame arrives at the blade-holder, whereupon the pressure is exerted in inverse direction on the blade-holder, so that owing to the friction between the blade-holder and strop the entire device is moved in inverse direction, so that by the alternating movements of the blade-holder over the strop and the coaction of the handle-frame with its segmental rack and the pinion on the pivot-rod of the blade-holder the blade is turned through an angle of one hundred and eighty degrees on its back and the blade placed in backward direction on the strop, &c. This oscillating motion of the blade-holder from one side to the other is greatly facilitated by the inclined position of the same to the pivot-rod of the stropping device, as by the simultaneous pressure exerted on the back of the blade-holder and the movement of the handle-frame with its rack and pinion the immediate reversing of the blade on the blade-holder takes place at each end of the stropping motion of the blade, so that the ready setting of the teeth of the blade is obtained. This is more specifically illustrated by Figs. 6, 7, and 8, in which Fig. 6 illustrates the motion of the blade over the strop by the ordinary mechanical stropping device, while Figs. 7 and 8 indicate the motion of the blade by the improved blade-holder, first in one direction, then in inverse direction, as indicated by the arrows. As the blade is held at an inclination to the longitudinal axis of the strop, its motion in forward or backward direction over the frame produces a cutting edge that is far superior to that produced by mechanical stroppers and one that approaches closely to the cutting edge produced by motion of the blade over the strop by hand. The inclined position of the blade on the strop during the stropping motion in either direction is due to the angle of inclination of the blade-holder toward the axis of the pivot-rod, which also facilitates greatly the quick response of the blade-holder on the strop from one side to the other when the motion of the handle-frame is reversed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a razor-blade-stropping device, the combination, with a handle-frame, of a stationary segmental rack on said frame, a rod pivoted to said frame concentric with the rack, a blade-holder mounted on said rod, a pinion on the shank of the blade-holder engaging with the rack, and a retaining-arm on the pivot-rod extending through a segmental slot of the handle-frame and provided with an antifriction-roller at the under side of the frame, substantially as set forth.

2. In a razor-blade-stropping device, the combination, with a handle-frame, of a finger-rest upon each side of the frame, a palm-rest button at the end of the frame, a segmental rack secured on said frame extending between the finger-rests, a rod pivoted on said frame concentric with the rack, a pinion on said rod engaging the rack, a blade-holder connected with said pinion, and a retaining-arm attached to the pivot-rod and extending through the slot of the handle-frame, said arm being provided with an antifriction-roller at its under side, substantially as set forth.

3. In a razor-blade-stropping device, the combination, with a handle-frame, of a stationary segmental rack on said frame, a rod pivoted to the handle-frame, a blade-holder connected with said pivot-rod, a sleeve connected with the blade-holder and provided with a pinion engaging said rack, and means for retaining the pinion in engagement with the rack, said blade-holder being arranged at an obtuse angle of inclination toward the axis of the pivot-rod, substantially as set forth.

4. In a machine for stropping razor-blades, the combination of a blade-holder and a pivot-rod connected therewith, said blade-holder being arranged at an obtuse angle of inclination to the axis of the pivot-rod, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

FREDERICK KAMPFE.
RICHARD KAMPFE.
OTTO KAMPFE.

Witnesses:
PAUL GOEPEL,
C. BRADWAY.