

C. JEREMIAS.
MACHINE FOR STROPPING RAZORS.
APPLICATION FILED OCT. 21, 1910.

1,047,646.

Patented Dec. 17, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

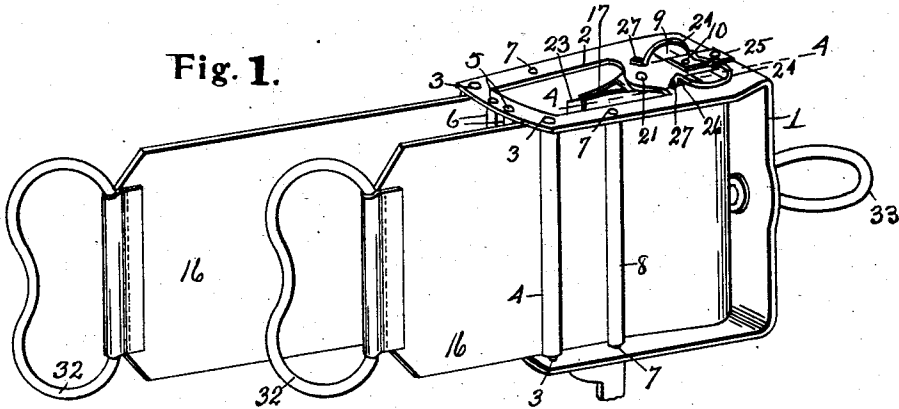


Fig. 3.

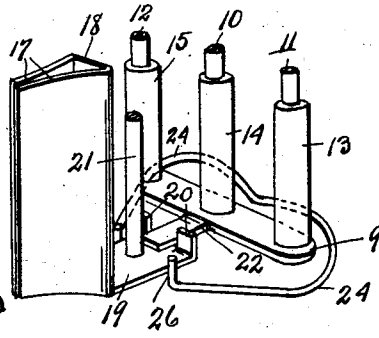


Fig. 4.

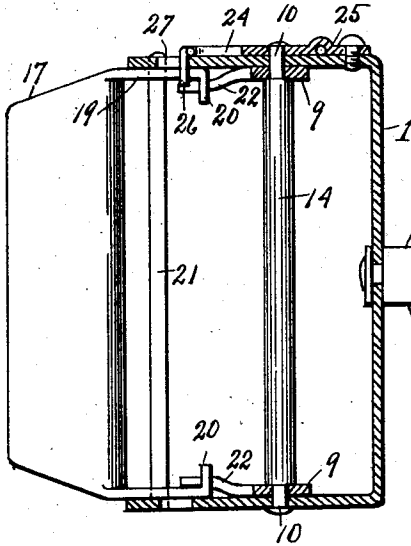


Fig. 6.

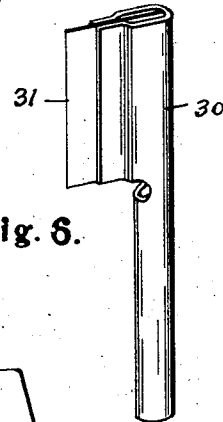
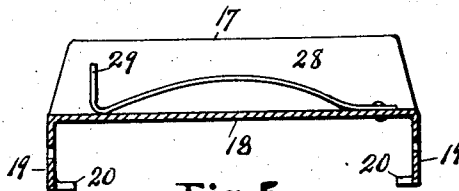


Fig. 5.



Witnesses

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2 SHEETS—SHEET 2.

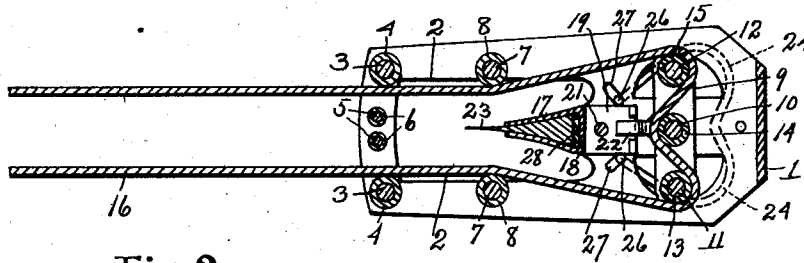


Fig. 2.

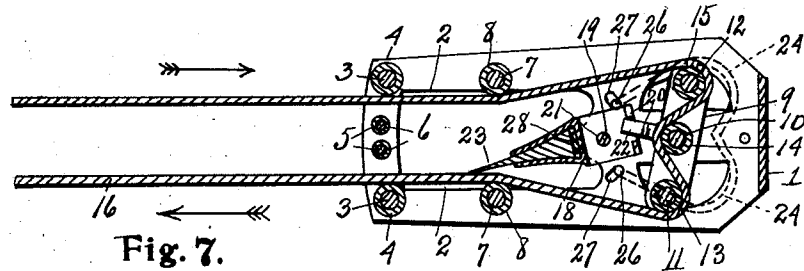


Fig. 7.

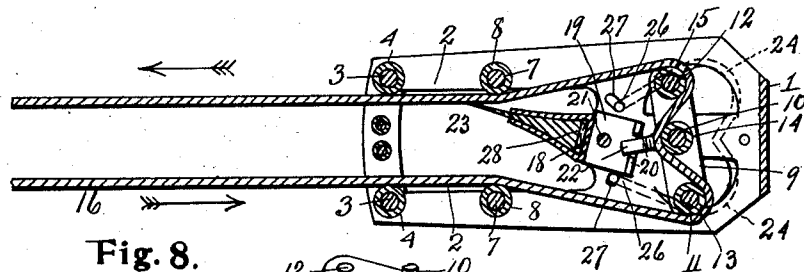


Fig. 8.

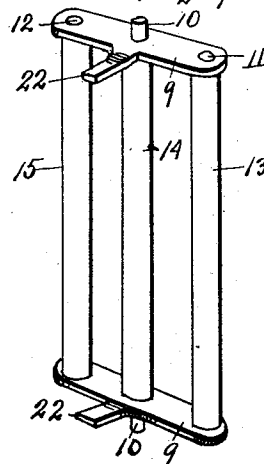


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES JEREMIAS, OF FREMONT, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NEVER FAIL COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

MACHINE FOR STROPPING RAZORS.

1,047,646.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed October 21, 1910. Serial No. 588,259.

To all whom it may concern:

Be it known that I, CHARLES JEREMIAS, a citizen of the United States, residing at Fremont, in the county of Sandusky, State of Ohio, have invented certain new and useful Improvements in Machines for Stropping Razors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to machines for stropping razors, and consists in the construction and arrangement of parts hereinafter more fully set forth and pointed out particularly in the claims.

The object of the invention is to provide a simple and efficient device for automatically stropping razor blades, wherein the arrangement is such as to enable the blades of ordinary razors, and the thin blades of safety razors to be stropped with equal facility, provision being made for swinging the edge of the blade into proper contact with the surface of the strop as the strop is drawn longitudinally through the machine in the operation of stropping.

The above object is attained by the device illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of a razor-stropping machine embodying my invention, showing the blade of an ordinary razor held therein. Fig. 2 is a central horizontal section through Fig. 1. Fig. 3 is a fragmentary view in perspective of details of the mechanism employed for swinging the blade-holder upon its pivot as the strop is drawn longitudinally through the machine. Fig. 4 is a fragmentary view through one end of the machine as on line 4—4 of Fig. 1. Fig. 5 is a longitudinal sectional view through the main blade-holder. Fig. 6 is a perspective view of an auxiliary holder insertible in the main holder and adapted to hold the thin blades of safety razors while being stropped. Fig. 7 is a horizontal sectional view, showing the position of parts when the strop is being drawn in one direction through the machine. Fig. 8 is a similar view, showing

the position of parts when the strop is being drawn in the opposite direction. Fig. 9 is a perspective view of the oscillatory frame over which the strop passes and through the medium of which the blade-holder is actuated to carry the blade successively into engagement with the opposite parallel faces of the strop as it is drawn through the machine.

Referring to the characters of reference, 1 designates a U-shaped frame in which the operative mechanism is mounted, said frame having openings 2 in its end portions through which razors or razor blades may be inserted into and withdrawn from the blade-holder. Connecting the ends of the frame at the front are rods 3 on which are mounted rotatable sleeves 4. Also connecting the ends of the frame between the rods 3 are the smaller rods 5 which are also embraced by rotatable sleeves 6. Spaced inwardly toward the back of the frame from the rods 3 and connecting the end portions of the frame are the rods 7 which are disposed in substantially parallel alinement with the rods 3 and are embraced by rotatable sleeves 8. Located within the main frame at the rear thereof is an oscillatory frame comprising the end cross bars 9 connected by the three parallel rods 10, 11 and 12, respectively. The central rod 10 is secured at its ends in the end portions of the main frame and serves as a pivot on which the oscillatory frame swings. Embracing the rods 10, 11 and 12 are the rotatable sleeves 13, 14 and 15, respectively, which serve as antifriction rollers over which the strop 16 is adapted to pass as it is drawn longitudinally through the machine in the operation of stropping.

The main blade-holder comprises the opposed spring jaws 17 projecting from the back piece 18, the ends of said back piece being bent at right angles thereto to project rearwardly, as shown at 19, the terminals of said end portions being provided with the projecting lugs 20. Secured at its ends in the ends of the main frame and passing through the end portions 19 of the main blade holder is the rod 21, said rod serving as a pivotal support for the blade-holder upon which it is adapted to swing from side to side. Projecting from each of the cross bars 9 is an arm 22 whose free end engages loosely between the lugs 20 on the end por-

tions 19 of the main blade-holder in a manner to swing said holder upon its pivot rod 21, when the oscillatory frame, of which the cross bars are a part, is actuated in the operation of stropping.

The strop 16 is placed in operative position in the machine by passing it over the rotatable sleeves 13 and 15 on the rods 11 and 12, and under the rotatable sleeve 14 on the central rod 10 of the oscillatory frame, as clearly shown in Figs. 2, 7 and 8, the end portions of the strop passing within the frame in contact with the rotatable sleeves 4 and 8 upon the rods 3 and 7, respectively, the rods 5 carrying the small rotatable sleeves 6 lying between the end portions of the strop at the point where they pass from the frame. The length of the cross bars 9 of the oscillatory frame carrying the rotatable sleeves 13 and 14 over which the strop passes, affords considerable leverage when the end portions of the strop are successively drawn upon to swing said frame upon its central pivot rod 10, the position of the rods 7 carrying the rotatable sleeves 8, being such as to bring the parallel end portions of the strop closer together in a manner to cause the razor blade 23 to swing properly into contact with the face thereof when the machine is actuated, as illustrated in Figs. 7 and 8, while the leverage exerted by the draft necessary to draw the strop through the machine is such as to urge the blade forcibly against the strop from side to side and hold the edge of the blade in contact therewith, under sufficient stress to effect the necessary abrasive action. To hold the blade-holder centrally in place between the sides of the strop and prevent the edge of the blade accidentally coming in contact therewith, there is employed a heart-shaped spring 24 which is secured at the loop thereof under a binding plate 25 on the end of the main frame, as shown in Fig. 1. The terminals of said spring are provided with right angle portions 26 which pass through slots 27 in the ends of the frame and lie in contact with the opposite edges of the end portion 19 of the blade-holder, a position clearly illustrated in Fig. 3. As the blade-holder is swung through the movement of the oscillatory frame, the end portions of the heart-shaped spring will yield as the part 19 of the blade-holder is swung into engagement therewith, the resiliency of the spring, however, returning said parts to the position shown in Fig. 2, when the operating stress or draft upon the razor strop is relieved. As the spring terminals are moved through the movement of the swinging end portion 19 of the blade-holder, they travel in the inclined slots in the ends of the main frame. On referring to Fig. 5, it will be noted that a bowed spring 28 is located in the blade-holder be-

tween the jaws 17, the purpose of which is to urge the blade 23 outwardly when inserted endwise between said jaws and securely clamp it therebetween. The free terminal of the spring 28 is bent at right angles, as shown at 29, and serves to close the opening between the jaws of the blade-holder, thereby making it impossible to insert a blade in the holder except at the right end thereof.

When it is desired to strop a thin blade, such as is commonly used in safety razors, an auxiliary holder 30 is employed, as shown in Fig. 6 adapted to receive and hold a thin blade 31. The auxiliary holder with the blade therein is insertible endwise into the main holder, thereby making possible the stropping of a thin blade for a safety razor as well as the blade of an ordinary razor.

The ends of the strop are provided with rings 32 adapted to be grasped by the hands of the operator, and enabling the strop to be drawn longitudinally through the machine in opposite directions in reciprocal succession.

It will be noted that the arrangement of the operative mechanism is such that the edge of the blade will be carried into engagement with the surface of the strop which is moving away from said edge, thereby producing the desired wiping effect thereon, and preventing the possibility of the strop being cut. As the direction of the course of the strop is changed by alternately drawing upon the ends thereof, the blade will be alternately swung, as shown in Figs. 7 and 8, to carry its edge into engagement therewith. By passing the strop under the central rotary sleeve 14 and over the outer sleeves 13 and 15, sufficient tension is placed upon the strop as it is drawn longitudinally through said rollers to insure rocking or oscillating of the oscillatory frame and the consequent swinging of the blade-holder to the limit of its lateral movement in each direction in advance of the longitudinal drawing of the strop through the machine; the initial movement causing the blade-holder to swing, and the succeeding movement resulting in the running of the strop between the rollers of the oscillatory frame and through the opening at the front of the frame in contact with the rotatable sleeves 4 and 8, which cause the end portions of the strop to travel in substantially parallel lines after passing the sleeves 8, so that that portion of the strop with which the edge of the blade comes in contact is always correctly positioned to produce upon the blade the desired abrasive action.

A swiveled ring 33 is attached to the back of the frame for the purpose of fastening the stropping device to some permanent object during the operation of stropping.

Having thus fully set forth my invention,

what I claim as new and desire to secure by Letters Patent, is:—

1. A razor blade sharpening device comprising a casing, a frame pivotally mounted in the casing, a blade holder pivotally mounted in said casing, engaging members effecting a jointed connection between said frame and blade holder, a strop mounted over said frame to swing the latter on its pivot, guide rollers for said strop, said casing having spaced openings, a spring secured to the outer side of the casing having its ends bent and projected inwardly through said openings to provide tension members on the inner side of the casing which are engageable by one of said engaging members between the pivoted frame and blade holder to return the blade holder to the central position after a movement thereof by the swinging frame, the cross-sectional diameter of said openings being larger than the cross-sectional diameter of said spring so as to permit limited lateral movement of the inwardly projecting ends of the spring in said openings.

2. In a stropping machine, a rigid main frame, a blade holder pivotally mounted therein and having a rearwardly projecting end portion, an oscillatory frame pivotally mounted in the main frame, said oscillatory frame comprising end cross bars and longitudinal shafts extending between and connecting said cross bars, an arm extending from a cross bar of the oscillatory frame and actuatably engaging the rearwardly extend-

ing end portion of the blade holder, a longitudinally movable strop passing over the shafts of the oscillatory frame and lying upon opposite sides of said blade holder, and a looped spring having bent terminal portions which pass through openings in the main frame and engage with tension the opposite edges of the extension of the blade holder to normally retain said holder centrally of the main frame.

3. A stropping machine comprising a main frame, a blade holder pivotally mounted therein having a rearwardly projecting end portion, an engageable member on said end portion, an oscillatory frame pivotally mounted in the main frame, an arm projecting radially from the axis of the oscillatory frame and cooperating with the engageable member on the projection of the blade holder to transmit movement to said holder from said oscillatory frame, a looped spring rigidly mounted on the main frame, said spring having bent terminal portions which pass through openings in the main frame and engage with tension the opposite edges of the extension of the blade holder to normally retain said holder centrally of the main frame.

In testimony whereof, I sign this specification in the presence of two witnesses.

CHARLES JEREMIAS.

Witnesses:

E. MEHEN,
H. GROB.