C. E. DUNN.

STROPPING MACHINE.

APPLICATION FILED SEPT. 11, 1907.

1,047,393.

Patented Dec. 17, 1912.

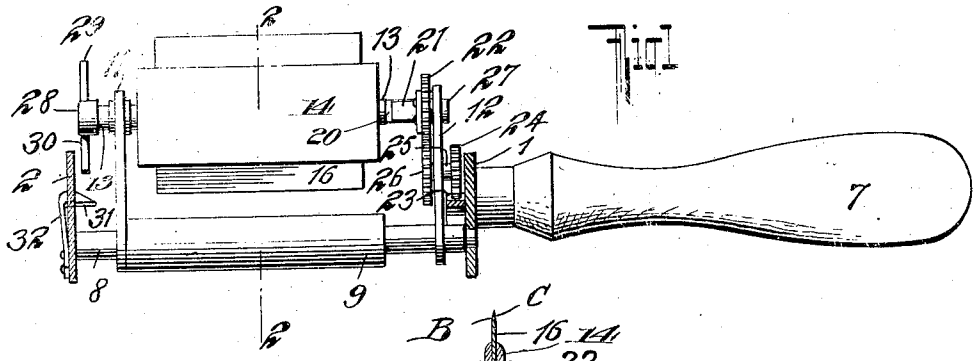

Fig. 1.

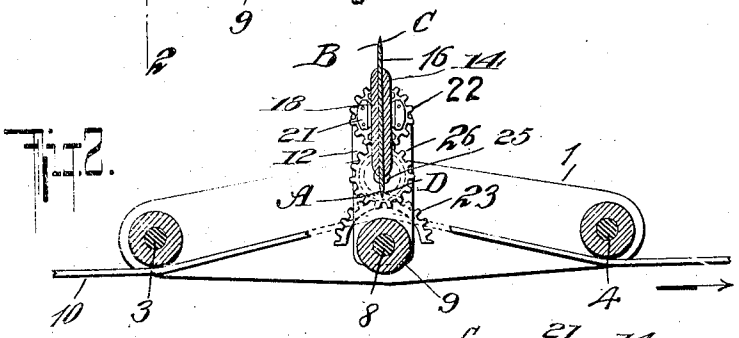

Fig. 2.

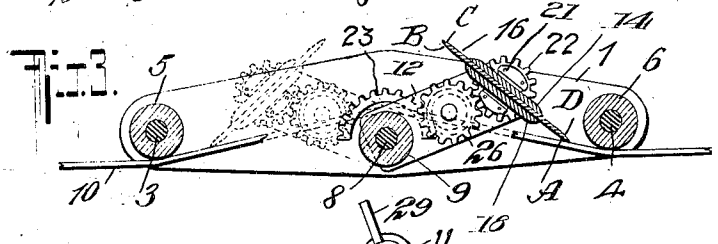

Fig. 3.

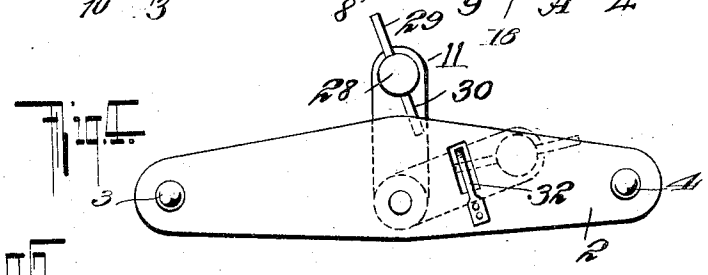

Fig. 4.

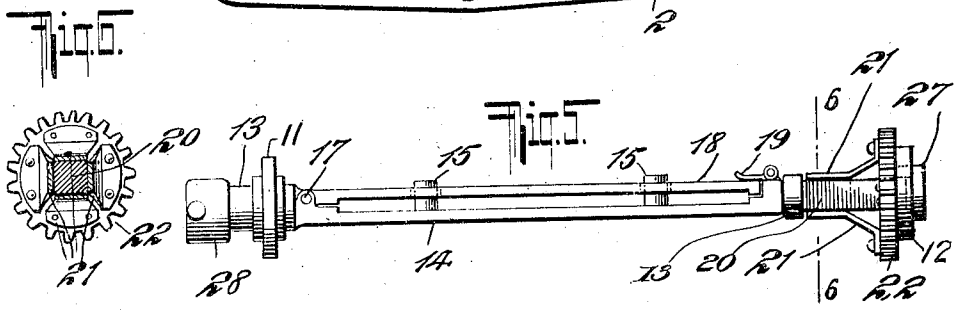

Fig. 5.

Fig. 6.

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# UNITED STATES PATENT OFFICE.

CLIFFORD E. DUNN, OF NEW YORK, N. Y.

## STROPPING-MACHINE.

1,047,393. Specification of Letters Patent. Patented Dec. 17, 1912.

Application filed September 11, 1907. Serial No. 392,258.

*To all whom it may concern:*

Be it known that I, CLIFFORD E. DUNN, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Stropping-Machines, of which the following is a full, clear, and exact specification.

My invention relates to razor stropping machines, and particularly to machines for stropping double-edge blades, and it is well adapted to hold and strop such blades when they are formed of thin and flexible plates having a thickness of about seven one-thousandths of an inch, although it is likewise adapted to blades of greater thickness.

My invention has for its object to provide means for holding such blades in a stropping frame and for causing the edges of the blades to be successively brought into contact with an abrading surface, whereby they are all sharpened, and to this end my invention consists in the combination of devices and mechanical elements hereinafter described and claimed, and one embodiment of which is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of my device with a razor blade therein partly in section. Fig. 2 is a cross-section looking to the right on the line 2—2 of Fig. 1, a strop being added. Fig. 3 is a similar view illustrating different positions of the blade. Fig. 4 is an end view. Fig. 5 is an enlarged top view of the blade-holder, and Fig. 6 is a cross-sectional detail view of the slipping connection in the blade support, taken on the line 6—6 of Fig. 5.

Like reference numerals indicate corresponding parts in the different figures of the drawing.

My stropping machine has inner and outer end frames or plates 1, 2, connected by rods 3, 4, which are suitably secured, as by being riveted to said plates, and which carry loose strop-guiding sleeves or rollers 5, 6.

A handle 7 is suitably attached to a convenient point, as plate 1. A shaft 8 is mounted in suitable bearings in plates 1 and 2 and has fast upon it a strop-guiding, friction roller 9. The shaft and friction roller are rotated or rocked by the passage of the strop 10 over the friction roller. This strop passes under the outside rollers 5, 6, and is thereby, when held taut, caused to have a tenacious grip upon friction roller 9.

A pair of rocking arms 11, 12, are fixed upon shaft 8 and carry at their outer ends the blade support. The blade-support in the present illustration comprises a shaft 13 mounted in bearings in said arms and having fixed to it, intermediate said bearings, the blade-carrying plate 14, having retaining lugs 15, which are adapted to enter perforations in the blade 16. Hinged to said shaft at 17 is a retaining plate 18, perforated to permit the lugs 15 to pass through, and held in closed position by an arm 19 hinged to the shaft. Shaft 13 has a squared end 20 (seen in section in Fig. 6), and is retained in position by four spring fingers 21, which are pinned to the gear 22, and the free ends of which hug said squared end 20 and provide a slipping engagement which is used in reversing the position of the blade.

The means for turning the blade so as to bring its edges to stropping position comprise a semi-circular rack 23, fixed to frame-plate 1 underneath and in position to mesh with a pinion 24, which is fixed upon one end of a short axle 25, mounted to turn in rock arm 12, and having fixed to it at its outer end a pinion 26. Pinion 26 meshes with gear wheel 22, which is fixed upon axle 27, and this axle is carried in a bearing in arm 12, in which it is free to turn.

The means for reversing the blade-holder comprise a socket 28, fixed on shaft 13, and carrying reversing pins 29, 30. These pins revolve upon the rotation of shaft 13. The motion of the pins is arrested by detent 31, which lies in their path of revolution. The detent 31 is shown carried by a spring arm 32, secured to the outer side of the frame-plate 2 by riveting. The said detent passes through a perforation in the frame plate 2 to permit it to lie within the path of the pins.

The operation of my device is as follows: A blade having been inserted between plates 14, 18, and being held therein, we will assume that the machine is moved to the left (Fig. 2). This will cause a clockwise rotation of roller 9 and will move rocking arms 11, 12 to the right in said figure. Pinion 24 will thereupon be rotated clockwise through its engagement with fixed rack 23, causing a corresponding rotation of pinion

26 and a counter revolution of pinion 22. This will cause the blade-holder and blade to be rocked toward the strop and to be turned as it is rocked. For convenience I will designate the opposite sides of the two edges of the blade, as illustrated in Fig. 2, by the letters A, B, C, D. When the parts are in position illustrated in Fig. 2, and the pins 29, 30 canted as illustrated in Fig. 4, the turning motion of the blade-holder into the dotted line position of Fig. 4 will be such that the lower edge A, D, of the blade will swing to the right and approach the strop, bringing edge A to stropping position.

The blade is then in the position illustrated in full lines in Fig. 3, with the pin 29 under the detent and the side A of the blade being stropped. Upon a reversal of the relative movement of the blade and strop, the arms will rock away from the strop and the tendency of pin 29 will be to turn upward. This will be resisted by the detent, which will cause the blade support to slip in the connection 20, 21, thereby trailing the pin 29 over the outer face of the detent as the arms are rocked and reversing the position of the blade, and causing the blade to again assume the position of Fig. 2, with the edges A, D, uppermost and edges C, B, lowermost. A continuation of this reversed movement will cause a reverse of the previously described operation; *i. e.*, the strop then moving to the left (as in Fig. 4) will cause friction roller 8 to rotate counter clockwise, thereby swinging arms 11, 12 in the same direction and causing a corresponding rotation of gears 24, 26 through contact of the former with rack 23. This will cause a clockwise movement of gear 22, bringing the lower edge B to stropping position. Upon a reversal of the relative movement of strop and stropping device, the parts will then be returned as they came to starting position, with the edges D, A, uppermost and C, B, lowermost, and the parts will then again be in the original position, with the difference that the edge which originally was underneath is now on top. A repetition of the original operation will now take place, wherein edge C, which now occupies the position originally occupied by edge A, will be brought to stropping position, and upon the return the blade will again be reversed by the detent leaving the parts at the conclusion of the third movement, with the edges again in the original position, with B, C, uppermost and A, D, below, and the fourth movement will cause the edge D to be stropped, as it caused edge B to be stropped when in that position. The parts will then be returned to starting position with the edges in the original locations, and the operations may be repeated indefinitely. It will therefore be perceived that four movements are provided, in two of which the blade position is reversed, whereby the four edges of the blade are successively stropped.

The pinion 24, it will be observed, is smaller than gear 26, which is for the purpose of slowing the revolution of pins 29, 30.

The squared end 20 and spring fingers 21 are provided to insure a correct position of the blade relative to the strop, and their spring fingers, while stiff enough to hold the blade in stropping position, yet will readily yield and permit the blade to be reversed when the pins engage the detent.

It is obvious that many modifications and changes may be made in my invention without departing from the spirit thereof, and I do not mean to limit myself to the precise construction shown and described, but

What I claim and desire to secure by Letters Patent is:

1. A machine for sharpening double-edge razor blades, comprising a blade-holder having blade-positioning members located in position for causing both edges of the blade held thereby to be exposed, and mechanism for actuating the holder to present both sides of both edges of such blade in position to be engaged by the same abrading surface.

2. A machine for sharpening double-edged razor blades, including a blade-holder adapted to receive and hold a double-edged blade with both edges exposed to a common abrading surface, and suitable automatic mechanism for actuating the holder so as to present the sides of both exposed edges successively to the action of said common abrading surface.

3. A machine for sharpening double-edge razor blades comprising a rocking support for the blade adapted to expose both its edges, means for rocking said support relative to an abrading surface, and means for automatically reversing the position of said blade.

4. In a machine for stropping double edged razor blades, the combination of a blade holder constructed and adapted for exposing both edges of a double edged blade held thereby, and mechanism operative upon such holder for automatically reversing the relative sides of the holder for reversing the relative position of the edges of the blade with respect to an abrading surface.

5. In a machine for sharpening double-edge razor blades, a rocking blade support and means for rocking same adapted successively to cause opposite sides of an edge to engage an abrading surface, and means for automatically reversing the position of the blade whereby the opposite sides of the other edge will be similarly treated.

6. In a machine for sharpening double-edge razor blades, a rocking blade support and means for rocking same actuated by a relative movement between the strop and the

machine, means for turning said blade into stropping position as it rocks, and means for automatically reversing the relative position of the edges of the blade.

7. In a machine for stropping double-edge razor blades, a frame, a friction roller, rocking arms actuated thereby, a blade support carried by said arms, means on the frame for turning said support as it rocks, and means for automatically reversing the position of said blade support.

8. In a machine for stropping double-edge razor blades, a frame, a friction roller, rocking arms actuated thereby, a blade support carried by said arms, a rack on said frame, a pinion on the blade support turned from said rack, a slipping connection between said pinion and said blade support, and means on the frame for reversing the position of the blade support.

9. In a machine for stropping double-edge razor blades, a frame, a friction roller, rocking arms actuated thereby, a blade support carried by said arms, means on the frame for turning said support as it rocks, a slipping connection between said blade support and said turning means, a projection on said blade support and a detent on the frame adapted to reverse the position of said blade support.

10. In a machine for stropping double-edge razor blades, a frame, strop-guiding rods therein, a friction roller, rocking arms actuated thereby, a blade support carried by said rocking arms, a semi-circular rack in the frame, a pinion engaging the periphery thereof, a second pinion on the blade support actuated thereby, a slipping connection between said pinion and blade support, a strop on the frame, and a projection on the blade support engaging the same and adapted to reverse the position of the blade.

11. A machine for stropping double-edge razor blades having a blade holder adapted to expose both edges of the blade, means for causing a rocking movement of the blade holder toward the strop, and means for reversing the position of the blade every other movement.

12. In a machine for stropping double-edge razor blades, a frame, a friction roller, rocking arms actuated thereby, a blade support carried by said arms, a rack on said frame, a pinion on the blade support turned from said rack, a slipping connection between said pinion and said blade support, means for holding the blade in correct position, and means on the frame for reversing the position of the blade support.

13. In a machine for stropping double-edge razor blades, a frame, a friction roller, rocking arms actuated thereby, a blade support carried by said arms, means on the frame for turning said support as it rocks, a slipping connection between said blade support and said turning means, a projection on said blade support, and a spring detent on the frame adapted to permit the said projection to pass over it in one direction and to reverse the position of said blade support.

14. In a machine for stropping double-edged razor blades, the combination of a blade-holder constructed and adapted to expose both edges of a double-edged blade held thereby, and mechanism operative upon said holder for automatically reversing the relative sides of the holder and blade with respect to an abrading surface.

15. In a machine for stropping double-edged razor blades, the combination of a frame, a stropping element, a blade-holder mounted in said frame constructed and adapted for exposing both edges of a double-edged blade held thereby to the action of the stropping element, a pair of rotary members mounted in the frame, and means for automatically reversing the blade-holder upon the movement of said rotary members.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

CLIFFORD E. DUNN.

Witnesses:
ADOLPH F. DINSE,
CLAUDE C. NEVILLE.