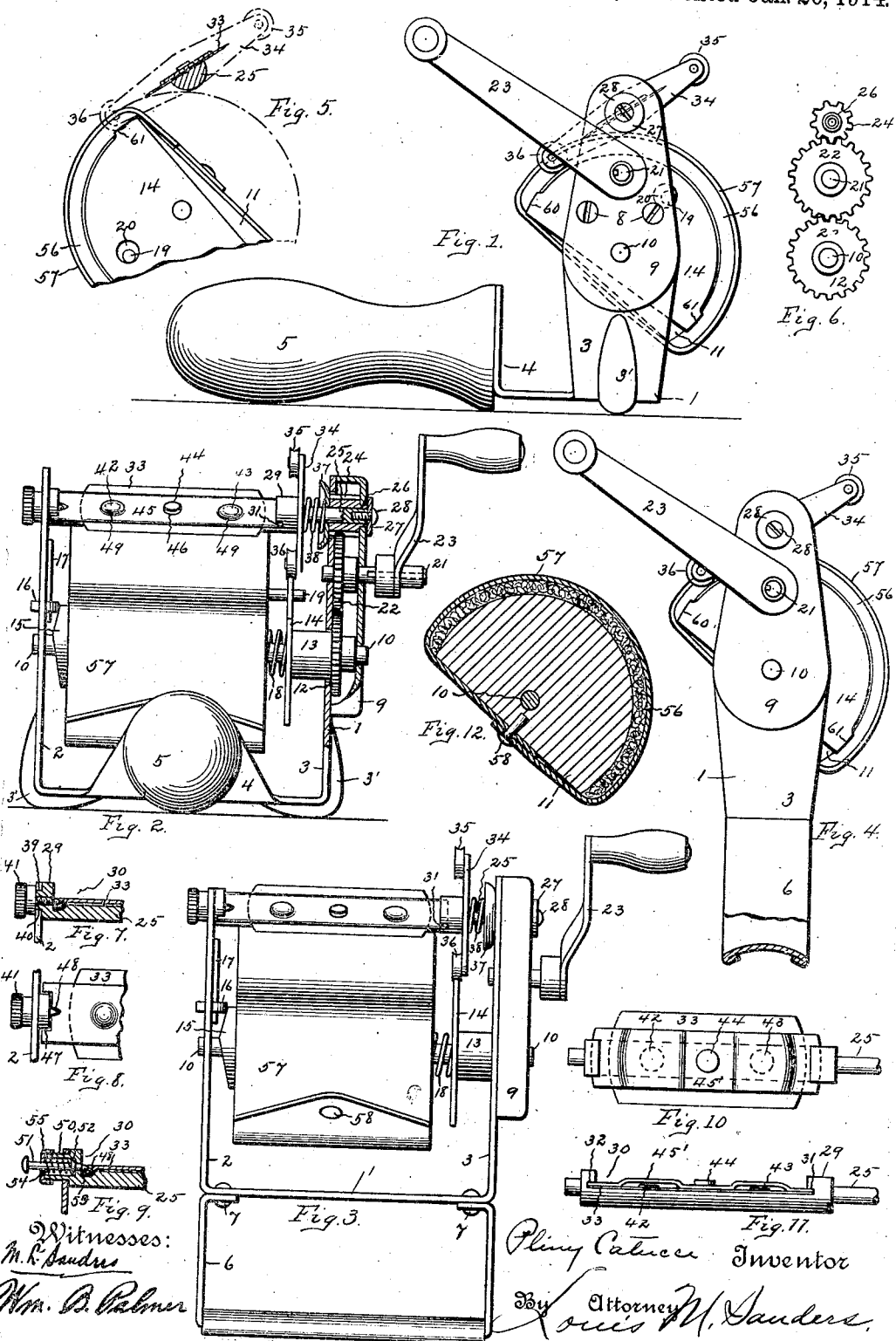


P. CATUCCI.
SAFETY RAZOR STROPPING DEVICE.
APPLICATION FILED JULY 17, 1911.

1,084,694.

Patented Jan. 20, 1914.



Witnesses:
M. R. Sanders
Wm. D. Palmer

Pliny Catucci Inventor
By Attorney M. Sanders.

UNITED STATES PATENT OFFICE.

PLINY CATUCCI, OF NEWARK, NEW JERSEY, ASSIGNOR TO A. F. MEISSELBACH & BROTHER, A CORPORATION OF NEW JERSEY.

SAFETY-RAZOR-STROPPING DEVICE.

1,084,694.

Specification of Letters Patent.

Patented Jan. 20, 1914.

Application filed July 17, 1911. Serial No. 638,812.

To all whom it may concern:

Be it known that I, PLINY CATUCCI, a citizen of the United States, and resident of the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Safety-Razor-Stropping Devices, of which the following is a true and exact description, such as will enable others skilled in the art to which it pertains to make, construct, and use the same.

The object of my invention is to provide a neat, effective and cheap device for sharpening razor blades of the double edged type by means of a single mutilated cylindrical stropping roller.

It further contemplates mechanism for preventing the rounding of the edge of the blade as it leaves the strop and further provides mechanism for reciprocating the strop roller so as to give a "heel to point" movement of the blade.

Another object of my invention is to provide a neat, effective and cheap holder for the blade during the process of stropping.

Other objects will appear during the course of the following detailed description, taken in connection with the accompanying drawings wherein:

Figure 1 is a side elevation of the complete structure. Fig. 2 is a front elevation of the same. Figs. 3 and 4 are respectively front and side elevations illustrating a modified form of the holding device. Fig. 5 is a section through the blade holder and strop roller shaft illustrating the position taken by the blade as it leaves the face of the strop preparatory to reversal. Fig. 6 illustrates the driving gear train. Figs. 7 and 8 illustrate respectively, a sectional and plan view of the blade locking mechanism. Fig. 9 illustrates a modified form in section of the blade locking device. Figs. 10 and 11 illustrate, respectively in plan and side elevation, a still further modified form of blade holding device. Fig. 12 illustrates a cross-sectional view of the strop roller showing the method of securing the strop thereon whereby it may be readily removed and reversed so as to make use of both sides of the strop.

Similar reference numerals refer to like parts throughout the specification and drawings.

In carrying out my invention, I provide a frame 1 of sheet metal bent into the form illustrated in Figs. 1 and 2, so as to provide

the vertical side bearing arms 2 and 3 and the lateral arm 4 bent at right angles as shown in Fig. 1 to which is secured the handle 5.

In Figs. 3 and 4, I have shown, substantially the same form of frame with the exception that I have omitted the lateral arm 4, and secured directly to the bottom of the frame a handle device 6 by means of the rivets 7. Otherwise the operative structure of the device illustrated in the two modifications is the same, and a description of the one will suffice for a description of the other.

Secured to the outer side of the upright arm 3 by means of the screws 8 is the bearing cap 9 of the shape clearly illustrated in Figs. 1, 2, 3, and 4, respectively. This bearing cap 9 is cupped as shown in Fig. 2 so as to form a protecting cover for the driving gears hereinafter described.

Mounted in the vertical side arms 2 and 3 and finding bearings respectively in the arm 2 and the cap 9 is the shaft 10 upon which is slidably mounted the mutilated roller 11. The shaft 10 has at its extreme end, a gear wheel 12 and a sleeve 13 upon which latter is mounted a cam 14 as clearly shown in Figs. 2 and 3. At the left hand end of the roller 11 and concentric with the shaft 10 is a substantially semi-circular cam 15 which coöperates with a small roller 16, the latter being carried upon a bearing 17 secured to the side plate or arm 2. Between the opposite end of the roller 11 and the cam 14, and surrounding the shaft 10 is a coil spring 18 the tendency of which is to crowd the roller 11 with its cam 15 against the roller 16, so that as the roller 11 rotates it is given a slightly reciprocating motion in the direction of its axis. As a means for causing the roller 11 to rotate with the shaft 10 and yet have a small amount of lost motion, I provide a pin 19 projecting from the end of the roller 11 through a somewhat larger aperture 20 in the cam 14.

Mounted in the side plate 3 and the cap 9, is a shaft 21 carrying the gear wheel 22, the latter meshing with and driving the gear 12. The shaft 21 projects somewhat outside of the plate or cap 9 and has splined thereon the hub of the crank 23.

Meshing with the gear 22 is a smaller gear 24, the latter loosely mounted upon a shaft 25. The hub of the gear 24 is reduced at 26 so as to form a bearing in the cap or plate

9 as clearly shown in Fig. 2. The shaft 25 is reduced in diameter where it passes through the gear 24, and has provided at its outer end a washer 27 held in place by a screw 28. The larger portion 29 of the shaft 25 is cut away as at 30 (Fig. 7) to form a seat for the razor blade 33. Rigidly secured to the enlarged portion 29 is a double arm 34 carrying at its outer extremities the two rollers 35 and 36 in alignment with the cam 14. Mounted between the face of the arm 34 and the end of the gear 24 is a friction plate 37 and a spring 38 which form a friction device and permit the rotation of the gear 24 independent of the shaft 25 when the rotation of the shaft 25 is resisted by the blade 33 bearing upon the face of the razor stop. The opposite end of the shaft 25 is reduced as at 39 so as to find a bearing in the upper end of the arm 2. The axis of the reduced portion 39 is bored out and screw threaded as at 40 to receive the locking cone pointed thumb screw 41 for a purpose hereinafter to be described.

Razor blades of the type for which this device is adapted are provided with a middle and two lateral apertures. In order to rigidly hold such blades in the cut-away portion 30 of the shaft 25, I provide two short studs 42, 43 and a longer stud 44 the latter being located in the middle of the cut-away portion 30. I next provide a flat plate 45 having a central aperture 46 to take over the stud 44, and of a length somewhat greater than the length of the cut-away portion 30 so that, when in position, one end of the plate 45 will be received in the undercut slot 31, while the opposite end, being notched as at 47 will straddle the larger portion of the shaft and the slight central depressed notch 48 will project below the axial line of the shaft, in position to receive the cone pointed end of the locking thumb screw 41 which, when screwed home, will rigidly hold the plate 45 in position, thereby clamping the blade 33 in a plane passing through the axis of the shaft 25. The studs 42, 43, ordinarily project somewhat higher than the thickness of the blade 33, and in order that the clamping plate 45 may find a full bearing throughout the length of the blade, I provide depressions 49 in the plate 45 of a depth sufficient to clear the projecting ends of the studs 42, 43.

As a modification of the locking device illustrated in Figs. 7 and 8, I may provide the following structure: The shaft 25 may have its pivot bearing 50 elongated and counter-bored as at 50 (Fig. 9). A pull pin 51 with a collar 52 and projecting cone point 53 is inserted in the counterbored portion with a spring 54 bearing upon the collar 52 and held in position by the centrally apertured cap 55. In this structure, it is only necessary to pull the pin 51, with its

cone point, free from the depression 48 in the head of the clamping plate 45 when such plate will be free to be removed and a fresh blade inserted.

As a further modified form of blade clamping device, I may provide the following structure: The shaft 25 may have both of its ends undercut as at 31, 32 and the plate 45 may be of a length sufficient to take into both of said undercuts 31, 32, as illustrated in Figs. 10 and 11.

The roller 11 as shown in Fig. 12 is only partially cylindrical, having one side cut away as shown, and being surrounded by a considerable thickness of felt as 56 over which is passed the leather strop 57 the ends of which are brought together upon the flat side of the roller 11 and buttoned over the headed pin 58 in a manner which will be readily understood. This method of securing the strop 57 to the roller 11 permits the strop 57 to be readily removed and reversed so that a honing composition may be applied to one side of the strop 57 and the other may be left as a finishing side.

The cam 14 is generally semicircular in plan but has the projections 60, 61 at the extremities of its straight side. These projections 60, 61 extend out into the path of the rollers 35, 36 just at the point where the blade 33 is leaving the face of the razor strop 57 as clearly illustrated in Fig. 5 so that the edge of the blade does not follow the turn of the strop 57 with a resulting rounding of said edge.

The operation of the device is as follows: The razor blade having been clamped in position, the operator turns the crank 23 first in one direction several turns, and then reverses the direction. The rotation of the crank, and with it, the gear 22 causes a simultaneous rotation of the gears 12 and 24. The rotation of the gear 12 causes the rotation of the roller 11 to bring the strop 57 into the path of the blade 33 as clearly illustrated in Figs. 1, 2, 3, and 4. While this rotation continues, the blade will bear with considerable force upon the strop 57, due to the tendency of the shaft 25 to rotate through the friction device 37, 38, but when the cut away portion of the roller 11 comes around to the blade 33 and one of the rollers 35, 36 passes one of the projections 60, 61, then the blade, no longer bearing upon the face of the strop 57 offers no further resistance to the rotation of the shaft 25 through the gear 24, and the friction device 37, 38, with the result that one of the rollers 35, 36 upon the arm 34 will swing across the straight side of the cam 14, during the reversal of the blade, so that when the cylindrical portion of the roller 11, with the strop 57 comes around again, the other edge of the blade is brought into position to bear against the face of the strop 57. This operation takes place no mat-

ter in which direction the crank 23 is turned. It must be understood, however, that each edge of the blade 33 has two faces to be stropped, in other words, four faces in all, and the strop is applied first to one side of the blade at one cutting edge and then to the opposite side at the other cutting edge when the crank 23 is turned in one direction, and vice versa when said crank is turned in the opposite direction. The reversal of the blade takes place during the time when the flat face of the roller 11 is turning next to the shaft 25. In practice, the crank 23 is turned two or three times in one direction, and then the same number of times in the opposite direction. While such stropping is taking place, the holding of the blade in the position shown in Fig. 5 by means of the projections 60, 61 upon the cam 14 at the point where the blade leaves the strop 57, prevents the edge of the blade 33 from following the sharp turn or angle of the roller 11 and thus prevents the rounding of the edge of the blade. During the rotation of the roller 11 with its strop 57, the cam 15 and roller 16 in conjunction with the spring 18 will give the roller 11 a slightly reciprocating motion upon the shaft 10 with a resulting "heel to point" stropping of the blade so much desired in devices of this kind.

It will thus be seen that I have provided a stropping device for double edged blades embodying all of the objects heretofore set out, while at the same time, with automatic machinery for turning the same out in large quantities, the resulting structure is cheap to construct and not liable to get out of order.

I claim:

1. In a razor stropping device, the combination of a semi-cylindrical stropping roller, a blade holder, means for securing a double-edged razor blade thereto, means for rotating said stropping roller in either direction, gear and friction connections between said rotating means and said holder to cause rotation of both holder and roller in the same relative directions, when the flat side of said roller passes adjacent to said holder, and to cause one edge of the razor blade to bear upon the cylindrical stropping surface of said roller during the remainder of the rotation thereof.

2. In a razor stropping device, the combination of a substantially semi-cylindrical stropping roller, a blade holder shaft having means thereon for securing a double edged razor blade thereto, means for rotating said roller in either direction, a pinion mounted upon and in frictional engagement with said blade holder shaft, gear connections between said pinion and said roller rotating means whereby said razor blade may be alternately held in contact with the stropping surface of said roller, and given one half a revolution

when the non-cylindrical surface of said roller is passing adjacent to said blade.

3. In a razor stropping device, the combination of a frame, a roller shaft and a blade holder shaft rotatably mounted in said frame, a substantially semi-cylindrical stropping roller mounted upon said roller shaft to rotate therewith, gear connections between said shafts for normally rotating them in the same direction, friction clutch mechanism between said gear connection and said blade holder shaft whereby a razor blade, secured upon said razor blade holder shaft may be held in contact with the stropping surface of said roller and given a half revolution when the non-cylindrical surface of said roller is passing adjacent to the said blade.

4. In a stropping device for double-edged razor blades, the combination of a substantially semi-cylindrical stropping roller, a shaft upon which said roller is mounted, a blade holder shaft parallel to said roller shaft, means for securing a razor blade to said holder shaft with the path of its edge in the path of the cylindrical surface of said roller, gear and friction connections between said roller shaft and said holder shaft whereby rotation of said roller shaft will cause the edge of said blade to bear upon the stropping surface of said roller, and produce one half a revolution of said holder shaft when the edge of said blade passes the flat side of said stropping roller.

5. In a razor stropping device, the combination of a supporting frame, a stropping roller shaft and a blade holder shaft connections between said roller shaft and said holder shaft for producing one half a revolution of said holder shaft for each revolution of said roller shaft rotatably mounted in said frame, means for securing a double edged razor blade to said blade holding shaft, a substantially semi-cylindrical stropping roller mounted upon said stropping roller shaft to rotate therewith, means upon said roller shaft co-acting with means upon said holder shaft for preventing the edge of the razor blade from following the non-cylindrical surface of said stropping roller, but for permitting the free rotation of said holder and blade while said non-cylindrical surface is passing adjacent to said blade.

6. In a razor blade stropping device, the combination of a blade holder shaft carrying a razor blade thereon and a stropping roller shaft with a semi-cylindrical stropping roller thereon, a frame in which said shafts are mounted parallel to each other, gear mechanism for normally rotating said shafts in the same direction, a cam on the stropping roller shaft and an arm on said blade holder shaft for contact with said cam, to check the rotation of said blade holder shaft.

7. In a razor stropping device, the combination of a single semi-cylindrical stropping

roller, means for rotating said roller in either direction, a razor blade holder having means thereon for holding a double edged razor blade, means for causing the face of one edge of said blade to bear upon the stropping face of said roller, and for rotating said blade holder with the blade therein for reverse contact with said stropping roller, dur-

ing the passing of the flat side of said roller adjacent to said holder.

This specification signed and witnessed this 14th day of July, 1911.

PLINY CATUCCI.

Witnesses:

LOUIS M. SANDERS,
W. B. WALTZINGER.