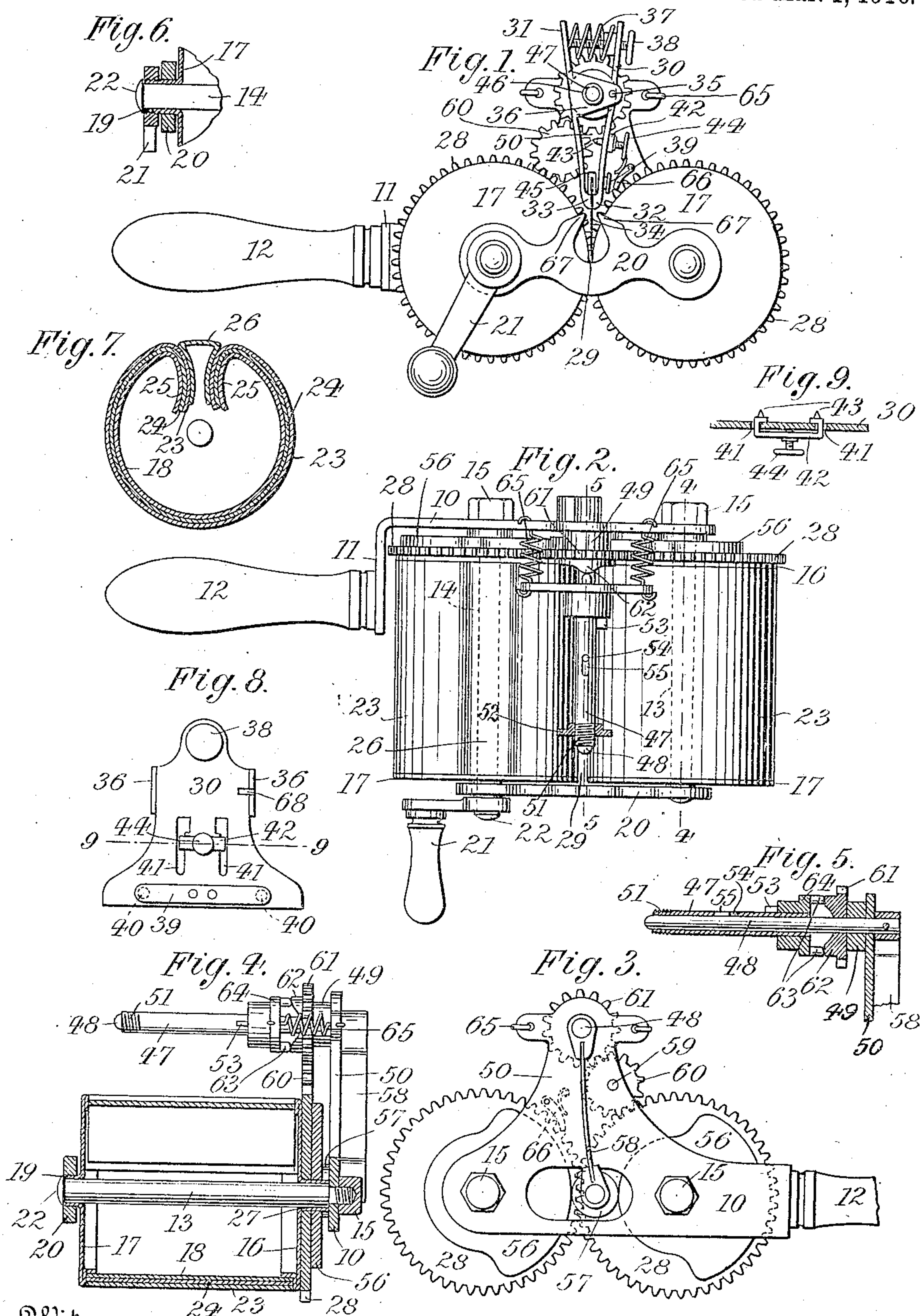


M. H. AVRAM.
 RAZOR STROPPING MACHINE.
 APPLICATION FILED MAR. 25, 1909.

950,830.

Patented Mar. 1, 1910.



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UNITED STATES PATENT OFFICE.

MOIS H. AVRAM, OF NEW YORK, N. Y., ASSIGNOR TO WONDER SALES COMPANY, OF
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RAZOR-STROPPING MACHINE.

950,830.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed March 25, 1909. Serial No. 485,620.

To all whom it may concern:

Be it known that I, MOIS H. AVRAM, a citizen of the United States, residing at New York city, Manhattan, county of New York, State of New York, have invented new and useful Improvements in Razor-Stropping Machines, of which the following is a specification.

This invention relates to an improved machine for stropping razor blades, more particularly adapted for sharpening the blades of safety razors.

The machine consists essentially of a pair of intergeared rollers which may be simultaneously rotated in opposite directions. In proximity to these rollers there is arranged an automatically oscillating and longitudinally reciprocating blade holder which brings the blade carried by said holder into alternate engagement with one or the other roller, so that the blade will be attacked at both sides to uniformly sharpen its cutting edge.

In the accompanying drawing: Figure 1 is a front view of my improved razor stropping machine; Fig. 2 a plan thereof; Fig. 3 a rear view partly broken away; Fig. 4 a section on line 4—4, Fig. 2, with the blade holder omitted; Fig. 5 a section on line 5—5, Fig. 2, with some of the parts omitted; Fig. 6 a detail of part of the roller carrying the handle; Fig. 7 a cross section through a roller; Fig. 8 a face view of the blade holder, and Fig. 9 an enlarged cross section on line 9—9, Fig. 8.

The numeral 10 indicates a rear plate or frame the bent end 11 of which is provided with a handle 12. To plate 10 are secured a pair of relatively fixed shafts or pins 13, 14 passing through corresponding perforations of the frame and firmly held thereto by nuts 15. Upon each of the pins 13, 14, there is loosely mounted a stropping roller comprising a flanged rear disk 16, a flanged front disk 17 and a shell or barrel 18 of substantially cylindrical shape, said barrel engaging the disk flanges to which it is secured. The sleeve or hub 19 of each front disk 17 is received within a corresponding bore of a connecting front piece or plate 20. The hub of that disk 17 which is mounted on pin 14 projects slightly beyond plate 20 for the engagement with a handle 21. Pin 13 as well as pin 14 is provided at its front end with a head 22 which prevents a disengagement of

the stropping roller and plate 20 from said pin. Each shell 18 is covered with a layer 23 of leather or other suitable stropping material, a layer 24 of felt being interposed between shell 18 and layer 23, layer 24 forming a cushion for layer 23. In order to firmly hold the layers to the shell and to render them readily exchangeable I provide the shell with inwardly turned curved jaws 25 between which a longitudinal gap is formed, said gap being adapted for the reception of a concaved key 26. The latter serves to securely wedge the ends of layers 23, 24 into the gap formed between jaws 25, as will be readily understood from Fig. 7. To the hub 27 of each rear disk 16 is secured a toothed wheel 28 meshing into one another so that by turning handle 21, the stropping rollers will be rotated in opposite directions. The distance between pins 13, 14 and the outer diameter of the stropping rollers should be such as to form a narrow gap 29 between said rollers as shown in Figs. 1 and 2.

The blade holder consists essentially of a pair of clamping members 30, 31, the widened lower extremities of which are bent inwardly to form a pair of shouldered jaws 32, 33, respectively, between which the blade 34 to be stropped is inserted. Member 30 is provided with a pair of laterally projecting studs 35 journaled in corresponding ears or lugs 36 formed on member 31. The upper ends of members 30, 31 are normally distended by a spring 37 interposed between said members and tending to force jaws 32, 33 toward one another. To more securely hold the blade between the jaws, a tightening screw 38 is tapped into member 30, said screw being adapted to bear against member 31.

Members 30, 31 are so constructed that the blades of the various forms of safety razors now in the market may be readily secured thereto. For holding the blade of the so-called "Gillette safety razor", a spring 39 is riveted to member 30, said spring being provided with a pair of studs 40 which, by passing through corresponding apertures of member 30, are adapted to engage the holes of said blade. Member 30 is further provided with means for firmly holding the blade of the "Star safety razor" in the proper height. For this purpose member 30 is provided with a pair of

parallel vertical slots 41 within which are fitted the ends of a U-shaped bail 42, said ends carrying a pair of inwardly projecting prongs 43. Into bail 42 is tapped a set screw 44 bearing against member 30 and adapted to hold bail 42 in any height desired. Prongs 43 by engaging the back of the blade, will prevent the same from yielding upwardly during the stropping operation. Other kinds of blades are provided with a rib extending along their rear edge, a blade of this construction being shown in Fig. 1. The rib 45 of this blade rests upon the upper shoulders formed on jaws 32, 33, the latter being pressed against the blades by tightening screw 38.

Lugs 36 are perforated as at 46 for the engagement with a tubular shaft or sleeve 47 slidably mounted upon a pintle 48. The latter is journaled in a bearing 49 formed on an upwardly projecting arm 50 of plate 10. At its forward end, sleeve 47 is threaded as at 51 for the engagement with a nut 52 which secures the blade holder against accidental disengagement from the sleeve during the stropping operation. To prevent a rotation of the holder upon sleeve 47, the sleeve is provided with a nose 53 engaging a corresponding notch 68 of rear lug 36. Pintle 48, carries a pin or feather 54 which is received in a longitudinal slot 55 formed in sleeve 47, so that the latter will participate in the oscillating movement imparted to pintle 48 in the following manner: To each gear wheel 28 is secured a cam disk 56. Between cams 56 is arranged a cam roller 57 carried by the lower end of a resilient cam lever or arm 58 the upper end of which is firmly secured to pintle 48. Cams 56 are so shaped as to impart roller 57 an oscillating movement which thus causes a corresponding oscillation of pintle 48, sleeve 47 and blade holder 30, 31. In this way the blade 34 carried by said holder will be brought into alternate engagement with one or the other stropping roller. By making arm 58 in the form of a spring, the blade will be forced against the rollers with a sufficient pressure so as to effect a quick sharpening thereof. The relative adjustment of the rollers should be such that when the blade contacts with one roller, the key 26 of the other roller passes the blade and vice versa. During this oscillation, an additional longitudinally reciprocating movement is imparted to blade 34 in the following manner: In arm 50 of plate 10 is journaled the axle 59 of a pinion 60 meshing into one of the gear wheels 28. Pinion 60, in turn, meshes into a gear wheel 61 loosely mounted upon pintle 48. Gear wheel 61 carries a cam 62 engaged by a pair of studs 63 projecting rearwardly from a collar 64 which is firmly secured to sleeve 47. Between collar 64 and arm 50, there are arranged a pair of

springs 65 which tend to hold pins 63 in permanent engagement with cam 62. It will thus be seen that by turning handle 21, gear wheel 61 and cam 62 receive rotary movement, which, by pins 63 and collar 64, causes a corresponding longitudinal reciprocation of sleeve 47, blade holder 30, 31, and blade 34 carried by said holder. This reciprocative movement of sleeve 47 upon pintle 48 is rendered possible by providing the longitudinal slot 55 in said sleeve, while pin 54 engaging said slot causes the desired oscillation of the holder during its reciprocation.

In order to prevent any reverse movement of the stropping rollers against the cutting edge of the blade, a spring pawl 66 is pivoted to arm 50, said pawl engaging the teeth of one of the gear wheels 28. To prevent any cutting of layers 23 while inserting the razor blade, plate 20 is provided with a pair of spaced fingers 67 that form a guard for such blade.

It will be seen that by the construction described, novel and effective means are provided for sharpening or stropping the blades of the safety razors now in the market. By bringing the blade to be stropped into alternate engagement with a pair of stropping rollers while simultaneously moving said blade longitudinally, a superior sharpening action is obtained. The interpolation of the springy cam lever between the cam rollers and the blade to be sharpened, permits a slight variation of the distance between its cutting edge and the pintle carrying the blade holder so that the blade requires no minute adjustment within the holder for effecting a perfect sharpening. This advantage is due to the fact that the resilient arm will at all times insure a proper engagement of the blade with the stropping rollers, while simultaneously pressing the blade against said rollers.

I claim:

1. A razor stropping machine comprising a pair of stropping rollers, means for simultaneously rotating said rollers in opposite directions, a blade holder, and yielding means operatively connected to said rollers for oscillating said blade holder.

2. A razor stropping machine comprising a pair of stropping rollers, means for simultaneously rotating said rollers in opposite directions, cams carried by the rollers, a blade holder, a resilient arm operatively connected to said holder and engaging the cams, and means for longitudinally reciprocating the blade holder.

3. A razor stropping machine comprising a pair of stropping rollers, means for simultaneously rotating said rollers in opposite directions, a pair of first cams carried by the rollers, a resilient arm engaging the cams, a second cam intergeared with one of said

rollers, and a blade holder operatively connected to said arm and second cam.

4. A razor stropping machine comprising a pair of stropping rollers, means for simultaneously rotating said rollers in opposite directions, a pair of first cams carried by the rollers, a pintle, a resilient arm secured thereto and engaging said first cams, a second cam rotatably mounted upon the pintle and intergeared with one of said rollers, a spring-influenced sleeve slidably mounted upon the pintle and having a stud that engages the second cam, and a blade holder removably secured to the sleeve.

5. A razor stropping machine comprising a pair of stropping rollers, means for simultaneously rotating said rollers in opposite directions, a pair of first cams carried by the rollers, a pintle having a feather, a resilient arm secured to the pintle and engaging said first cams, a second cam rotatably mounted upon the pintle and intergeared with one of said rollers, a spring-influenced slotted sleeve slidably mounted upon the pintle, the sleeve slot being engaged by the feather, a stud on the sleeve that engages the

second cam, and a blade holder removably secured to the sleeve.

6. In a razor stropping machine, a rear plate, a pair of pins secured thereto, and intergeared stropping rollers rotatably mounted upon the pins, combined with a holder operatively connected to the rollers and adapted to receive a razor blade, a front plate connecting the pins, and a blade guard formed on said plate.

7. In a razor stropping machine, a blade holder comprising a first member having a pair of lugs and a second perforated member pivoted to said lugs and having a pair of parallel slots, a spring secured to the second member, studs on said spring that engage the perforations of said second member, a U-shaped bail engaging slots of the second member and having a pair of inwardly projecting prongs, and a set screw tapped into the bail.

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