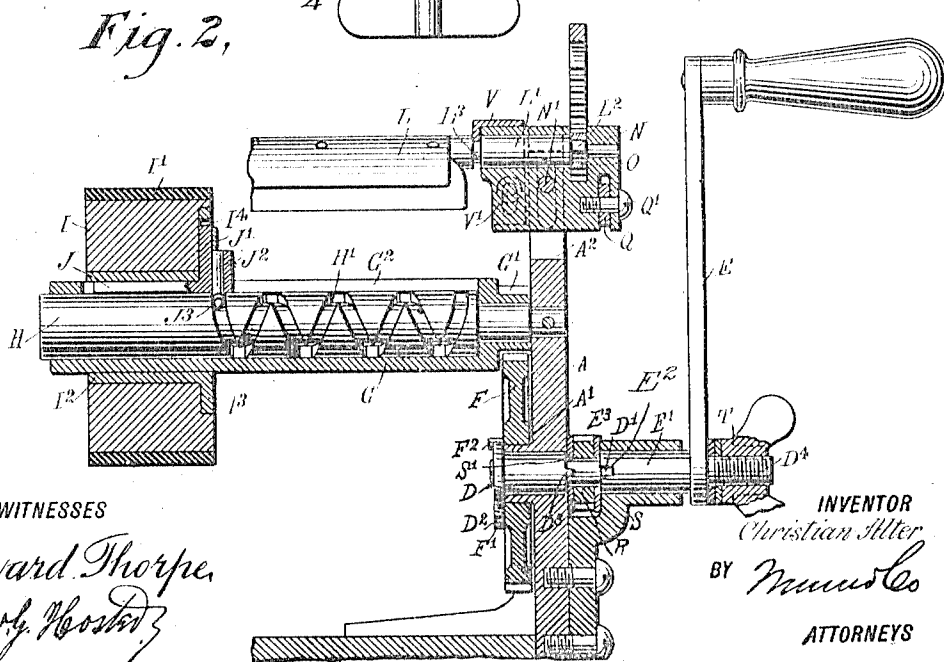
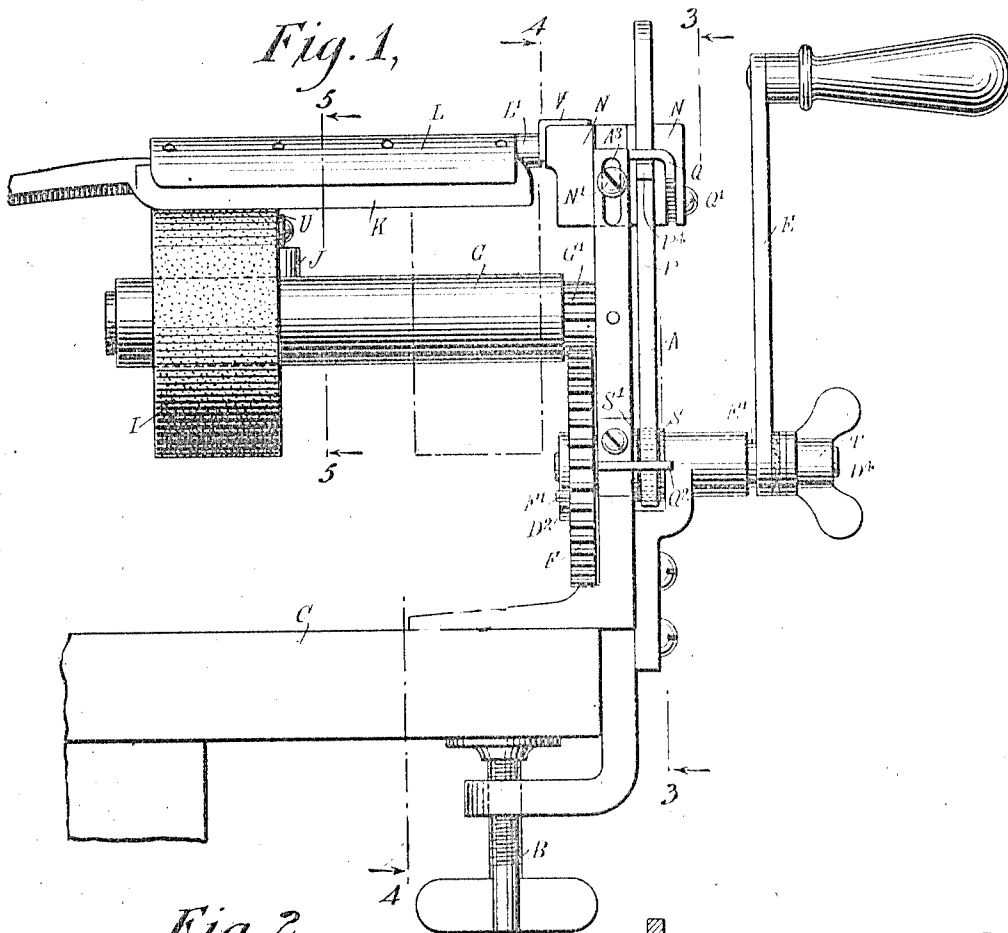


C. ALTER.
 RAZOR STROPPING AND HONING MACHINE.
 APPLICATION FILED OCT. 3, 1910.

1,001,573.

Patented Aug. 22, 1911.

2 SHEETS-SHEET 1.



WITNESSES

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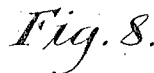
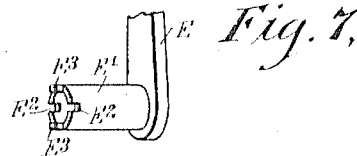
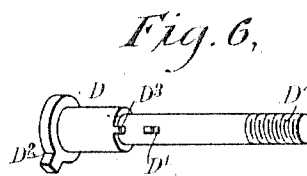
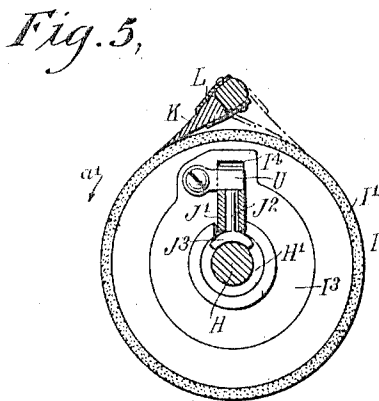
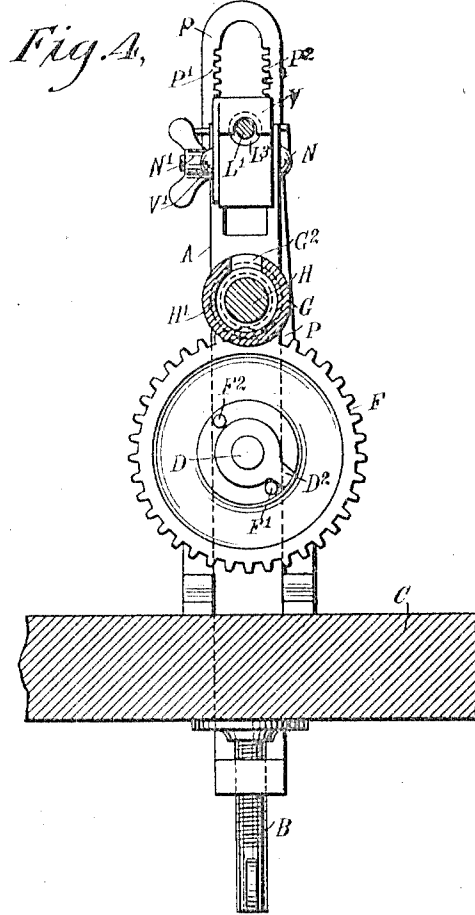
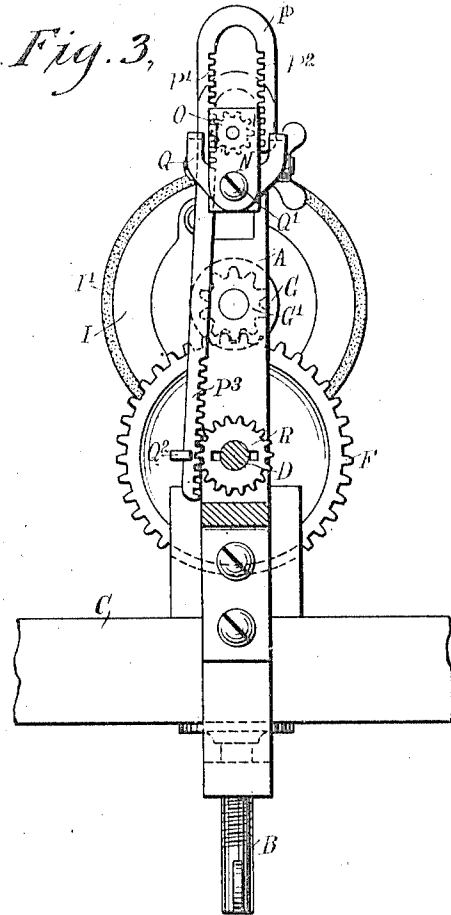
ATTORNEYS

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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

CHRISTIAN ALTER, OF NEW YORK, N. Y.

RAZOR STROPPING AND HONING MACHINE.

1,001,573.

Specification of Letters Patent.

Patented Aug. 22, 1911.

Application filed October 3, 1910. Serial No. 534,933.

To all whom it may concern:

Be it known that I, CHRISTIAN ALTER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Razor Stropping and Honing Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved razor stropping and honing machine, arranged to permit stropping and honing of ordinary razors or the blades of safety razors in a very simple manner, it being only necessary to exchange a stropping wheel for a honing wheel when using the machine either for stropping or honing purposes.

In order to accomplish the desired result, use is made of a wheel having a peripheral stropping or honing face and mounted to turn in either direction and to travel in the direction of its axis, and a holder for the blade mounted to rock to present either side of the cutting edge of the blade to the said peripheral face of the wheel according to the direction in which the wheel is turned.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the razor stropping and honing machine; Fig. 2 is a sectional side elevation of the same; Fig. 3 is a cross section of the same on the line 3—3 of Fig. 1; Fig. 4 is a similar view of the same on the line 4—4 of Fig. 1; Fig. 5 is a like view of the same on the line 5—5 of Fig. 1; Fig. 6 is a perspective view of the driving shaft; Fig. 7 is a like view of the crank for rotating the driving shaft by hand; and Fig. 8 is a face view of one of the friction washers.

The stropping and honing machine is mounted on a suitably constructed frame A having a clamping screw B for removably fastening the machine to a table C, or other support. A driving shaft D is journaled in suitable bearings on the frame A and is provided with lugs D' adapted to be engaged by notches E' formed on the inner end of the hub E' of a crank E, engaging with its hub the shaft D, as plainly indicated in the

drawings. The inner end of the driving shaft D is provided with an arm D' adapted to engage spaced pins F' and F'' formed on a gear wheel F mounted to rotate loosely on a boss A' formed on the frame A, as plainly indicated in Fig. 2. The gear wheel F is in mesh with a pinion G' secured or formed on a sleeve G, mounted to rotate loosely on a traverse screw H attached to the frame A. A stropping or honing wheel I, having a peripheral face I' of leather for stropping purposes or of stone or a like material for honing purposes, is provided with a bushing I'' having a flange I''' formed with a notch I'', into which extends the bearing J' of a key J engaging a lengthwise-extending groove G'' formed in the sleeve G, so that when the latter is rotated motion is given by the key J and its bearing J' to the wheel I so that the latter rotates with the sleeve G. In the bearing J' is mounted the shaft J'' of a shoe J'' engaging the groove H' of the traverse screw H, so that when the sleeve G and the wheel I are rotated and the key J is carried around with the sleeve G then the shoe J'' by traveling in the groove H' causes a traveling movement of the wheel I on the sleeve G in the direction of the axis of the wheel.

The peripheral face I' of the wheel I is adapted to be engaged by the sides of the cutting edge of the razor blade K to be stropped or honed, the said razor blade being removably held in a holder L provided with a shaft L' journaled in suitable bearings arranged in a head N, adjustably secured by a bolt N' in the forked upper end A'' of the frame A, the said bolt N' screwing in the head N and extending through an elongated slot A''' formed in the upper forked end A'' of the frame A. The head N is thus made adjustable up and down in order to accommodate blades of different widths. The shaft L' is provided with a reduced polygonal portion L'' engaged by a pinion O in mesh with either side P' or P'' of a double rack P mounted to slide up and down in a bearing Q fastened by a screw Q' to the head N in such a manner that either side P' or P'' may be moved in contact with the corresponding side of the pinion O. The lower end of the rack P is provided with rack teeth P'' in mesh with a gear wheel R mounted to rotate loosely on the driving

shaft D, and the lower end of the rack P is engaged by a bearing Q² to hold the teeth P² in mesh with the gear wheel R. The gear wheel R is engaged on opposite 5 faces by friction disks S, S' having notches S², of which the notches S² of the disk S are engaged by projections E² formed on the hub E' of the crank E, and the notches S² of the disk S' are engaged by lugs D² 10 formed on the shaft D. Now when the crank E is turned the lugs E² turn the disk S and at the same time the shaft D is rotated its lugs D² turn the disk S', and as the disks S, S' are in frictional contact with the gear 15 wheel R they rotate the latter so that the rack P is caused to move upward and downward according to the direction in which the crank E is turned at the time. The up and down sliding movement given to the rack 20 P causes the corresponding side P' or P² to impart a turning motion to the pinion O, whereby the shaft L' is rocked and with it the holder L so as to swing the razor blade K from one side of the peripheral face I' to 25 the other side thereof.

It is understood that for stropping purposes the wheel I rotates in a direction away from the cutting edge of the blade K, as shown, for instance, in Fig. 5, in which the 30 arrow a' indicates the rotation of the wheel I, it being understood that the crank E is turned for the time being in the inverse direction of the arrow a', and when the motion of the crank E is reversed then the 35 holder L is rocked to swing the razor blade K to the other side, as indicated in dotted lines in Fig. 5, the wheel I then being rotated in the inverse direction of the arrow a'.

40 When it is desired to hone the razor, the operator loosens the screw Q' and swings the bearing Q for the rack P over to the left so as to disengage the side P' from the pinion O and to engage the side P² with the 45 opposite side of the pinion O. After this has been done the screw Q is screwed up to fasten the bearing Q in place, and when the crank E is now turned to rotate the wheel I in the direction of the arrow a' then the 50 cutting edge of the razor blade K is in the position indicated in dotted lines in Fig. 5, that is, the peripheral surface of the wheel I travels toward the cutting edge of the blade K. When the motion of the crank 55 E is reversed the holder L swings the blade K to the opposite side of the wheel I immediately prior to rotating the said wheel in the inverse direction of the arrow a'. It is understood that when the crank E is 60 turned and with it the driving shaft D then the arm thereof engages one of the pins F' or F² to rotate the wheel F, but when the crank E is stopped and turned in the opposite direction, then the gear wheel F and 65 consequently the wheel I remain stationary

for the time being; that is, until the arm D² engages the other pin F² or F' to rotate the gear wheel F in the opposite direction and with it the wheel I. During this time that 70 the gear wheels F and I are stationary, a swinging motion is given to the blade holder L, so as to swing the razor blade K from one side of the wheel I to the other side thereof to prevent the cutting edge from 75 cutting into the peripheral surface of the wheel I. It is further understood that the frictional connection between the rack P and the shaft D and crank E imparts movement to the rack P for rocking the shaft L' 80 and the holder L and for holding the cutting edge and blade K with the desired force in frictional contact with the peripheral face of the wheel I.

In order to increase or diminish the tension between the disks S, S' and the gear 85 wheel R use is made of a wing nut T screwing on the outer threaded end D⁴ of the shaft D and against the crank E so that the hub E' of the latter can be pressed with more or less force in contact with the disk 90 S, to increase or decrease the friction between the gear wheel R and the disks S, S', of which the latter rests against a shoulder on the shaft D, see Fig. 2.

By the arrangement described the sides of 95 the cutting edge of the razor blade K are moved in frictional engagement with the peripheral face of the wheel I, which besides a rotary motion has a bodily sliding movement in the direction of its axis to in- 100 sure a perfect stropping or honing of the cutting edge.

In order to permit a convenient interchange of a stropping wheel and a honing 105 wheel, the wheel I is removably held on the bearing J' by the use of a catch U pivoted on the flange I³ of the bushing I² and extending across the portion of the bearing J' fitting into the notch I⁴. Thus by swinging 110 the catch U upward into a vertical position the wheel I can be lifted off the sleeve G and another wheel can be substituted and locked in place on returning the catch U after the bearing J' is fitted into the notch 115 I⁴. The upward sliding movement of the rack P is limited by a stop lug P⁴ on the rack, engaging the bearing Q, and the downward sliding motion of the rack P is limited by its upper portion engaging the pinion O. The blade holder L is removably mounted 120 on the head N and for this purpose the shaft L' is provided with an annular groove L³ engaged by a slide V held adjustably by a screw V' on the head N.

By the arrangement described holders for 125 different blades can be readily placed in position on the machine. Thus razor blades of ordinary razors, or blades of safety razors may be readily stropped or honed.

Having thus described my invention, I 130

claim as new and desire to secure by Letters Patent:

1. A machine for stropping or honing razors, comprising a wheel having a peripheral stropping or honing face, a fixed traverse screw rod on which the wheel is mounted to turn in either direction and to travel in the direction of its axis, and a holder for the blade mounted to rock to present either side of the cutting edge of the blade to the said peripheral face of the wheel according to the direction in which the wheel is turned.

2. A machine for stropping or honing razors, comprising a wheel having a peripheral stropping or honing face, a fixed traverse screw rod on which the wheel is mounted to rotate in either direction and to travel in the direction of its axis, a blade holder mounted to rock and extending in the direction of the axis of the wheel, and manually-controlled means for rotating the said wheel in either direction, imparting a traveling motion to the same and rocking the said holder in either direction to move either side of the cutting edge of the blade in contact with the peripheral face of the wheel.

3. A machine for stropping or honing razors, comprising a wheel having a peripheral stropping or honing face, a fixed traverse screw rod on which the wheel is mounted to rotate in either direction and to travel in the direction of its axis, a blade holder mounted to rock and extending in the direction of the axis of the wheel, manually-controlled means for intermittently turning the said wheel in opposite directions and imparting a traveling motion to the same, and a friction device connecting the said manually-controlled means with the said blade holder to rock the latter at the time the said manually-controlled means are reversed and prior to rotating the wheel.

4. A machine for stropping or honing razors, comprising a fixed traverse screw rod, a sleeve on the said screw rod, means for turning the sleeve in either direction, a wheel turning with the said sleeve and mounted to travel thereon in the direction of its axis, a shoe engaging the said traverse screw and carried by the said wheel, and a holder for the blade mounted to rock to present either side of its cutting edge to the peripheral face of the said wheel.

5. A machine for stropping or honing razors, comprising a fixed traverse screw rod, a sleeve on the said screw rod, means for turning the sleeve in either direction, a wheel turning with the said sleeve and mounted to travel thereon in the direction of its axis, a shoe engaging the said traverse screw and carried by the said wheel, a holder for the blade mounted to rock to present either side of its cutting edge to the

peripheral face of the said wheel, and turning means for turning the said sleeve in either direction, and actuating means for the said holder and operating in conjunction with the said turning means.

6. A machine for stropping or honing razors, comprising a rocking blade holder for the razor blade, a wheel having its axis parallel to the axis of the said blade holder and adapted to be engaged at its peripheral face by the razor blade, driving means including a driving shaft for imparting a rotary motion to the said wheel, actuating means for moving the wheel in the direction of its axis and alternately in opposite directions, rocking means for rocking the said blade holder to move either side of the cutting edge of the blade into contact with the peripheral face of the wheel, the said means including a gear wheel loose on the said driving shaft and a frictional connection between the said driving shaft and the said gear wheel for rocking the blade holder in harmony with the rotation given to the said wheel.

7. A machine for stropping or honing razors, comprising a rocking blade holder, a wheel having its axis parallel to the said blade holder and adapted to be peripherally engaged by the blade in the said holder, a sleeve rotating with the said wheel and on which the said wheel is mounted to slide in the direction of its axis, a fixed traverse screw on which the said sleeve is mounted to turn, a shoe on the sleeve and wheel and engaging the said traverse screw, a driving shaft, a gearing connecting the said shaft with the said sleeve, and a mechanism connecting the said driving shaft with the said blade holder.

8. A machine for stropping or honing razors, comprising a rocking blade holder, a wheel having its axis parallel to the said blade holder and adapted to be peripherally engaged by the blade in the said holder, a sleeve rotating with the said wheel and on which the said wheel is mounted to slide in the direction of its axis, a fixed traverse screw on which the said sleeve is mounted to turn, a shoe on the sleeve and wheel and engaging the said traverse screw, a driving shaft, a pinion secured on the said sleeve, a gear wheel in mesh with the said pinion, a lost motion connection between the said shaft and the said gear wheel, and a mechanism connecting the said driving shaft with the said blade holder.

9. A machine for stropping or honing razors, having a fixed traverse screw, a rotatable sleeve on the said screw and having a lengthwise-extending slot, a key slidable in the said slot and having a bearing, a shoe engaging the traverse screw, and having a shaft mounted in the bearing of said key and a wheel slidably engaging the said

sleeve and engaged by the bearing of said key.

10. A machine for stropping or honing razors having a fixed traverse screw, a rotatable sleeve on the said screw and having a lengthwise-extending slot, a key slidable in the said slot and having a bearing, a shoe mounted in said bearing and engaging the traverse screw, a wheel slidably engaging the said sleeve and having a bushing provided with a flange formed with a notch, the said bearing of the key extending into said notch, and means for removably holding the wheel on said bearing.

11. A machine for stropping or honing razors provided with a revoluble wheel, a blade holder having a rock shaft and adapted to carry a blade for engagement with the said wheel, a pinion on the said rock shaft, a rack to engage the said pinion, a driving shaft, a gear wheel loose on the said driving shaft and in mesh with the said rack, a connection between the driving shaft and the said wheel, and a friction device connecting the said driving shaft with the said gear wheel.

12. A machine for stropping or honing razors provided with a revoluble wheel, a blade holder having a rock shaft and adapted to carry a blade for engagement with the said wheel, a pinion on the said rock shaft, a rack engaging the said pinion, a driving shaft, a gear wheel loose on the said driving shaft and in mesh with the said rack, a connection between the driving shaft and the said wheel, a friction device connecting the said driving shaft with the said gear

wheel, and means for engaging the said rack with either side of the said pinion.

13. A machine for stropping or honing razors provided with a revoluble wheel, a blade holder having a rock shaft and adapted to carry a blade for engagement with the said wheel, a pinion on the said rock shaft, a rack engaging the said pinion, a driving shaft, a gear wheel loose on the said driving shaft and in mesh with the said rack, a connection between the said driving shaft and the said wheel, a friction device connecting the said driving shaft with the said gear wheel, and means for adjusting the said friction device.

14. A machine for stropping or honing razors provided with a revoluble wheel, a blade holder having a rock shaft and adapted to carry a blade for engagement with the said wheel, a pinion on the said rock shaft, a rack engaging the said pinion, a driving shaft, a gear wheel loose on the said driving shaft and in mesh with the said rack, a connection between the driving shaft and the said wheel for intermittently rotating the said wheel alternately in opposite directions, on turning the driving shaft alternately in opposite directions, and an adjustable friction device connecting the said driving shaft with the said gear wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN ALTER.

Witnesses:

FRED CORAN,

FRANK YENSKOURKY.