(No Model.) 2 Sheets—Sheet 1.

H. T. FIELD.

KNIFE CLEANING AND POLISHING MACHINE.

No. 548,046. Patented Oct. 15, 1895.

Fig 1

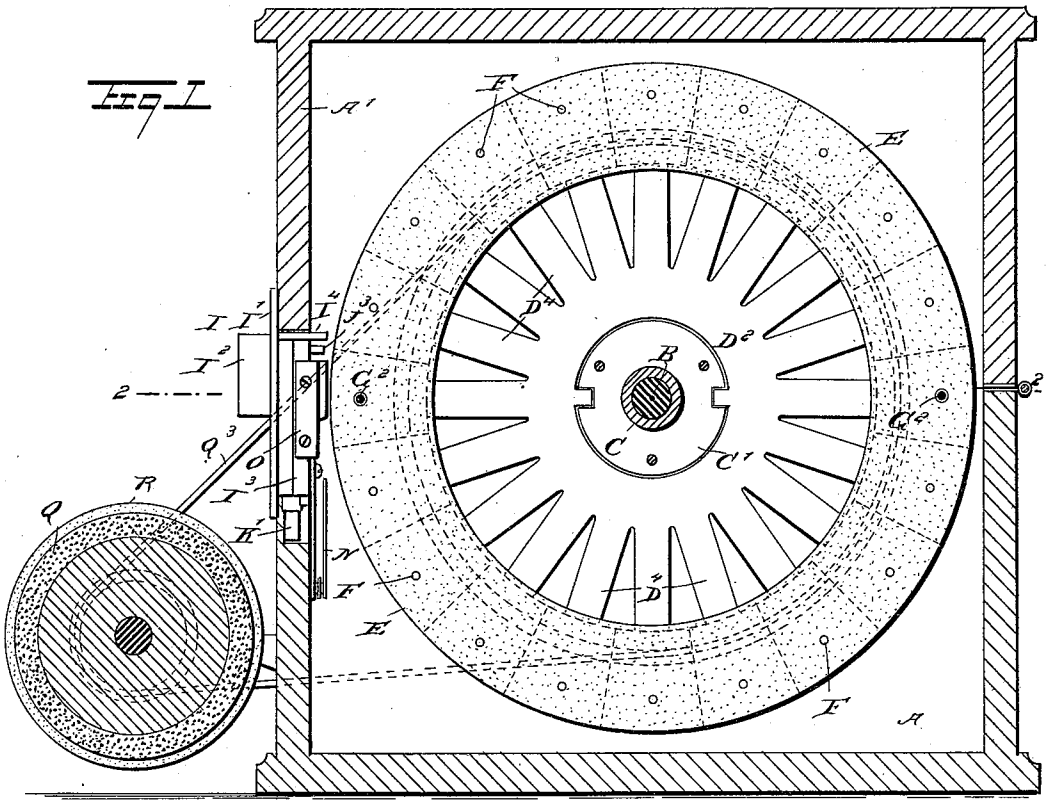
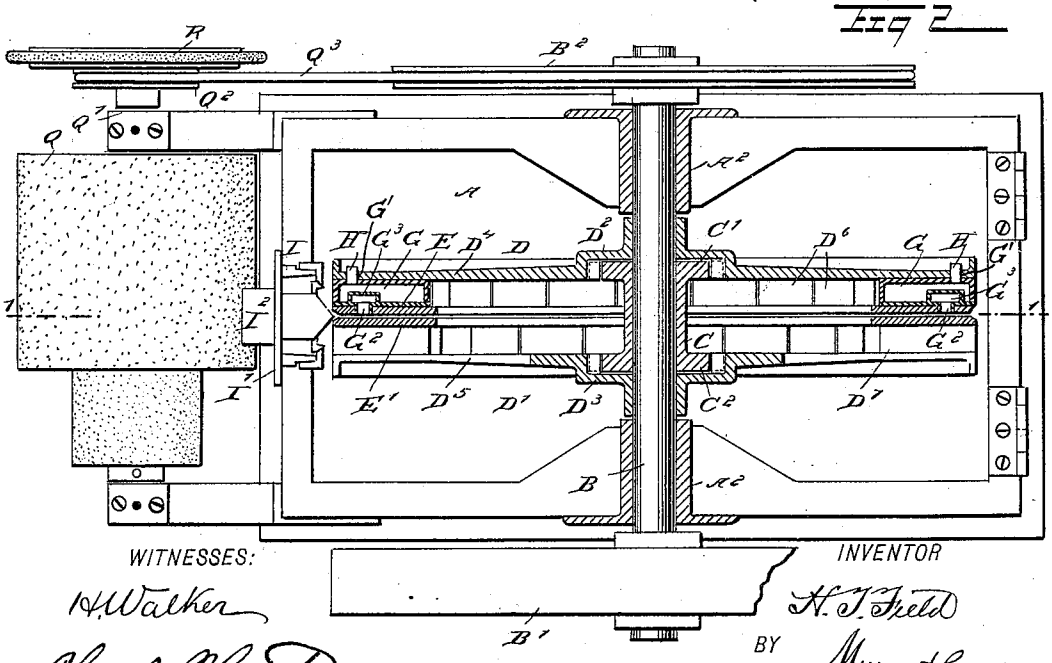


Fig 2



WITNESSES:

H. Walker

Rec'd. Houston

INVENTOR

H. T. Field

BY Munn & Co

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

H. T. FIELD.

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Fig 3

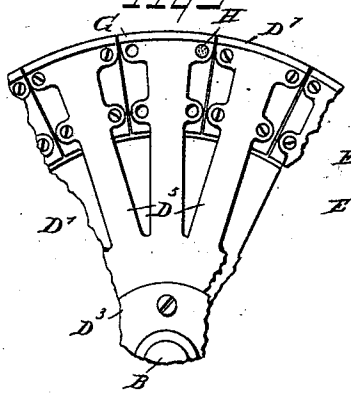


Fig 4

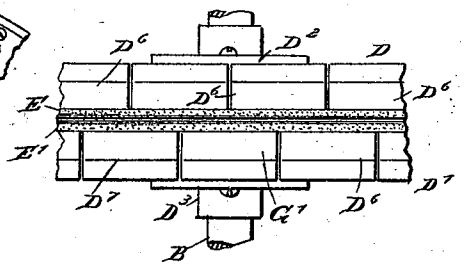


Fig 5

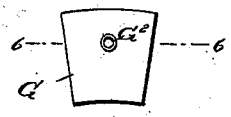


Fig 6

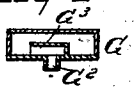


Fig 7

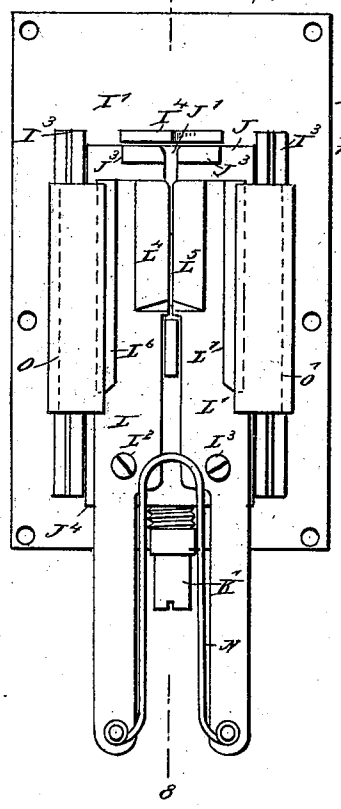


Fig 8

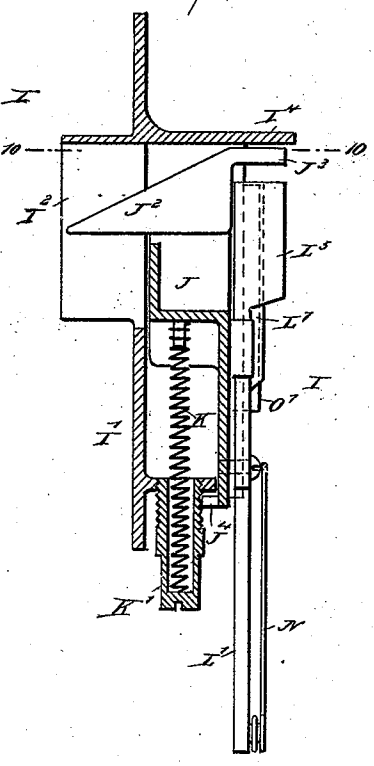


Fig 9

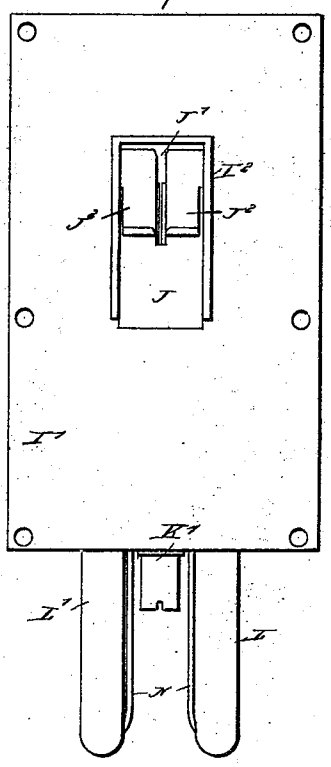
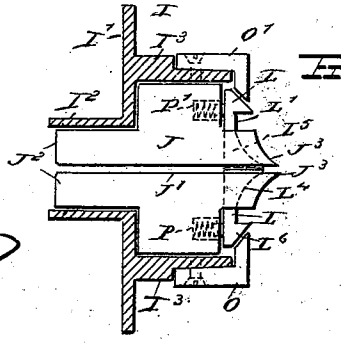


Fig 10



WITNESSES:

H. Walker

Geo. H. Graves, Jr.

INVENTOR

H. T. Field

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HORACE TIFFANY FIELD, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO LUCY PARSONS JONES, OF SAME PLACE.

KNIFE CLEANING AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,046, dated October 15, 1895.

Application filed June 25, 1895. Serial No. 553,984. (No model.)

To all whom it may concern:

Be it known that I, HORACE TIFFANY FIELD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Knife Cleaning and Polishing Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved knife cleaning and polishing machine arranged to quickly and thoroughly clean and polish table-knives.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a face view of part of the wheels. Fig. 4 is a plan view of the same. Fig. 5 is a face view of one of the powder-receptacles. Fig. 6 is a sectional plan view of the same on the line 6 6 of Fig. 5. Fig. 7 is an enlarged rear face view of the knife-holder. Fig. 8 is a sectional side elevation of the same on the line 8 8 of Fig. 7. Fig. 9 is a front face view of the same, and Fig. 10 is a sectional plan view of the same on the line 10 10 of Fig. 8.

The improved knife-cleaning machine is provided with a suitably-constructed casing A, provided with a hinged cover A′ and with bearings A^2, in which is journaled a transversely-extending shaft B, carrying at one end a fly-wheel pulley B′, connected by belt with other machinery for imparting a rotary motion to the shaft B. When the machine is to be driven by hand, then a crank-arm is attached to the shaft B.

On the shaft B, within the casing A, is secured a collar C, formed with flanges C′ and C^2, on which are fastened the hubs D^2 and D^3, respectively, of two wheels D and D′, mounted to rotate with the shaft B within the casing A. The wheels D and D′ are provided with radial unconnected spokes D^4 and D^5, respectively, supporting at their outer ends blocks D^6 and D^7, preferably made of wood and forming a sectional rim for each wheel. The adjacent sides of the blocks D^6 and D^7 are covered by linings E and E′, made of leather or other suitable material, preferably continuous and in the form of rings and attached to the several blocks by pins F, as is plainly indicated in Fig. 1. The blocks D^6 and D^7 on each wheel D or D′ are placed suitable distances apart, so that the blocks are free to yield laterally, owing to the disconnected spokes, to permit knives of various thicknesses to pass between the linings E and E′ and to prevent sticking of the knife between the closely-pressed linings at the time the wheels are rotated and the knife to be cleaned is between the two linings. By this arrangement the linings E and E′ are firmly pressed in contact with the knife-blades to completely engage the faces of the said blades as the latter are moved in and out between the linings, the blocks adjusting themselves readily to the various cross-sections of the knife-blades as the latter are moved in and out between the linings, owing to the spokes being free to yield, as they project from the hubs and are not connected with each other.

In each wheel D or D′ several blocks are omitted and powder-boxes G are placed in their stead. (See Figs. 2, 5, and 6.) The powder-boxes G are preferably made of metal and of a shape corresponding to one of the wooden blocks D^6 or D^7, each powder-box being held loosely on the corresponding spoke D^4 or D^5—that is, it is not fastened thereon by screws, as the wooden boxes are to their respective spokes. (See Fig. 3.)

Each of the powder-boxes G is provided in its outer face with an opening G′, registering with a corresponding opening in the spoke to permit of filling the box with emery, crocus, or other powder, without removing the boxes from the wheels. On the inner face of each box G is formed a small nozzle G^2, fitting into a corresponding opening in the lining E or E′, (see Fig. 1,) to permit the powder contained in the box to pass through the said nozzle G^2 upon the faces of the linings E and E′. The inner end of the nozzle G^2 does not open directly into the interior of the box, but into a small chamber G^3, opening at its forward end into

the interior of the box, as plainly indicated in Fig. 6. Now it will be seen that when the wheels are rotated the powder in the box is thrown outwardly by centrifugal force, so as to strike the top of the box and to be deflected downward and rearward through the front opening of the chamber G^3 to the interior thereof to pass from the latter through the nozzle G^2 to the face of the lining.

The blocks D^6 of the wheel D are arranged to break joints with the blocks D^7 of the other wheel, as plainly indicated in Fig. 4, and the powder-boxes of one wheel are arranged diametrically opposite each other and at right angles to the powder-box of the other wheel, so that four nozzles G^2 open into the space between the linings equal distances apart. The filling-openings G′ for the powder-boxes are normally closed by stoppers H, as indicated in Fig. 2. The outer ends of the linings E and E′ are beveled, as indicated in Fig. 2, to permit the knives to readily pass between the linings upon the rubbing and polishing faces thereof.

In order to conveniently and properly introduce a knife between the linings I provide a knife-holder I, shown in detail in Figs. 7 to 10 inclusive, the said knife-holder being set in the front end of the casing A, at or near the middle thereof, as shown in Fig. 1. The knife-holder I is provided with a plate I′, fastened to the casing and formed on its front face with a hood I^2, into which the knife-blade is passed to enter a slot J′, formed in a block J, fitted to slide in guideways I^3 on the rear face of the plate I′. This block J is pressed into a normal uppermost position by a coil-spring K, (see Fig. 8,) resting with its lower end in a hollow screw K′, screwing in a connecting-bar for the lower ends of the guideways I^3.

The block J is provided at its upper end with two inclined and forwardly-projecting arms J^2, placed such distance apart as to form the slot J′ for the passage of a knife-blade, and at the same time permitting the hilt or butt-end of the knife-blade to ride up on the inclined surfaces of the arms J^2 to press the block downward against the tension of the spring K to permit of pushing the knife inward within the hood I^2 to bring the entire knife-blade in contact with the cleaning-faces of the linings E and E′.

The slot J′ is sufficiently wide to permit the passage of the back of the knife-blade, and in the rear of the said slot J′, at the back of the block J, are arranged two levers L and L′ fulcrumed at L^2 and L^3, respectively, on the block J, as is plainly shown in Fig. 7. The lower ends of the levers L and L′ are pressed on by a spring N, so as to bring the cheek-pieces L^4 and L^5 together in alignment with the slot J′, so that a knife-blade entering the slot passes between the cheek-pieces L^4 and L^5 before passing between the linings E and E′. The cheek-pieces L^4 and L^5 fit with their inner thin edges close to the faces of the linings to readily guide the knife-blade between the linings.

The levers L and L′ are provided on their sides with beveled flanges L^6 and L^7, adapted to engage correspondingly-beveled guideways O and O′, respectively, secured to the guideways I^3, so that when a knife-blade presses the cheek-pieces L^4 and L^5 apart the said flanges L^6 and L^7 move in contact with their guideways O and O′ to bind the levers L and L′ in position. It is understood that when the block J is pressed downward the levers L and L′ free the block, and consequently an up-and-down swinging motion can be given to the knife-blade by the operator working the handle in an up-and-down direction, and with the hilt of the knife resting on the arms J^2 and forming the fulcrum. The arrangement also permits drawing the knife-guides or cheek-pieces back from the wheel, so that the knife guides or cheeks will strike the wheel when the hilt of the knife goes down—*i. e.*, to let the hilt of the knife pass by. The upward sliding motion of the block J is limited by flanges J^4 on the lower end of the block, as plainly indicated in Figs. 7 and 8. A rearward projection I^4 on the plate I′ forms a resting-place for the back of the knife-blade as the latter is pushed inward to engage the cheek-pieces L^4 and L^5. The springs P and P′ are set in the block J to press against the inner faces of the levers L and L′ and assist in holding the flanges L^6 and L^7 in contact with the guideways O and O′, respectively.

In front of the knife-holder I, on the outside of the casing A and near the base thereof is arranged a polishing-roller Q, of felt or other material, for polishing the knife-blade after the latter is cleaned by the wheels D and D′. This roller Q has its shaft Q′ journaled in suitable bearings projecting from the casing, and on the rear end of the said shaft is secured a pulley Q^2, connected by a belt Q^3 with a pulley B^2 on the rear end of the shaft B. Thus when the shaft B is rotated a rotary motion is given to the roller Q, so that the knives can be readily pressed in contact with the roller Q for polishing the blade of a knife after cleaning the same between the linings E and E′. On the shaft Q′ is secured a disk R, arranged for cleaning forks, the said disk being sufficiently narrow to permit of pressing the prongs of the fork into the disk.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A knife cleaning machine provided with a wheel having yielding spokes, blocks on the free ends of certain spokes and powder boxes on the corresponding parts of the other spokes, and a lining for the blocks and boxes, the said boxes discharging through the lining, substantially as described.

2. A knife cleaning machine provided with a shaft having a collar provided with parallel flanges, the wheels having hubs receiving and

secured to said flanges, radial spokes projecting from said hubs and provided at the adjacent faces of their outer ends with rubbing linings and peripheral powder boxes discharging through said linings, substantially as described.

3. A knife cleaning machine, provided with a wheel formed on one side of its rim with a lining, and powder boxes held in the said rim and formed with nozzles passing through the lining to the face thereof, substantially as shown and described.

4. A knife cleaning machine, provided with a revoluble wheel carrying powder boxes, each powder box being provided with a discharge nozzle, and a chamber arranged in the box and into which opens the said nozzle, the said chamber being open at its front side, substantially as shown and described.

5. A knife cleaning machine, provided with a knife holder comprising a spring-pressed block mounted to slide and formed with a transverse slot for the passage of a knife blade, and spring-pressed levers fulcrumed on the said block and having cheek pieces between which the knife blade passes when inserted in the said slot, substantially as shown and described.

6. A knife cleaning machine, provided with a knife holder comprising a spring-pressed block mounted to slide and formed with a transverse slot for the passage of a knife blade, and spring-pressed levers fulcrumed on the said block and having cheek pieces between which the knife blade passes when inserted in the said slot, the said levers being provided with beveled flanges adapted to engage fixed beveled guideways, substantially as shown and described.

7. A knife cleaning machine, provided with a knife holder having two spring-pressed levers provided with cheek pieces for engagement with the sides of a knife blade, substantially as shown and described.

8. A knife cleaning machine, provided with a knife holder comprising a fixed plate having a hood, a block fitted to slide on the said plate and provided with parallel arms forming a slot for the passage of a knife blade, the said arms extending into the said hood being beveled inwardly and upwardly, a spring for pressing the said block, and spring pressed levers fulcrumed on the block and provided with cheek pieces adapted to engage the side of the knife blade when inserted between the arms of the block, substantially as shown and described.

HORACE TIFFANY FIELD.

Witnesses:
NELLIE WHITING,
E. S. SMITH.