E. KOEPPEN.

KNIFE CLEANING AND POLISHING MACHINE.

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1,093,437.

Patented Apr. 14, 1914.

Fig. 1.

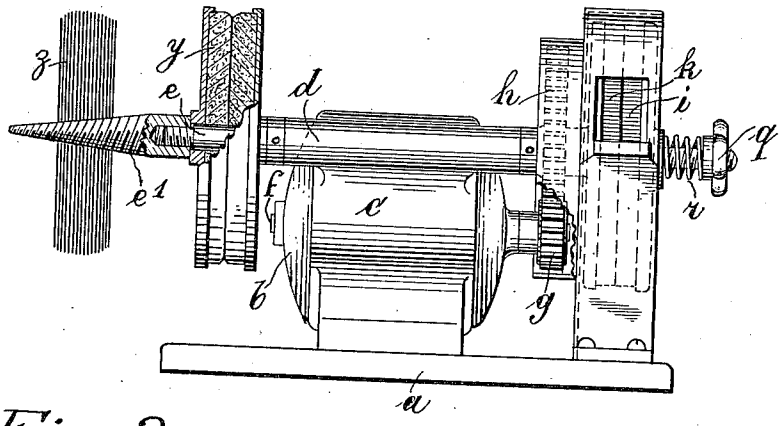


Fig. 2.

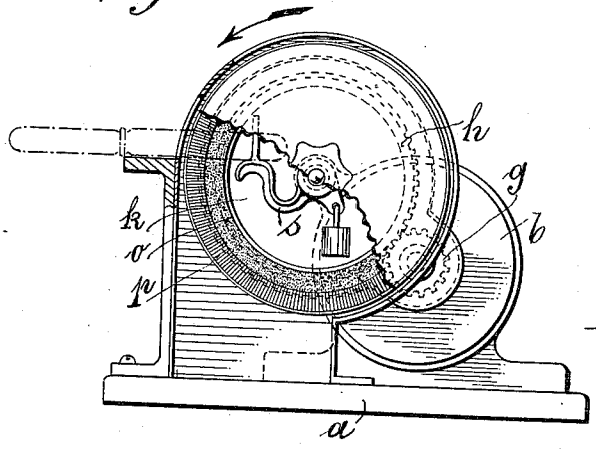


Fig. 3.

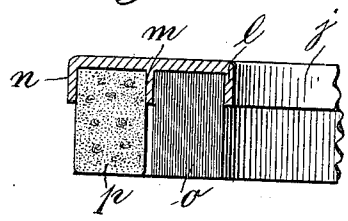


Fig. 4.

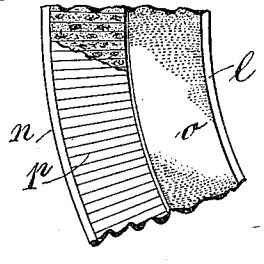
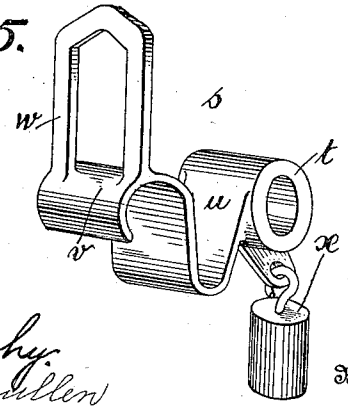


Fig. 5.



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KNIFE CLEANING AND POLISHING MACHINE.

1,093,437. Specification of Letters Patent. Patented Apr. 14, 1914.

Application filed September 19, 1913. Serial No. 790,615.

To all whom it may concern:

Be it known that I, ERNST KOEPPEN, a citizen of the German Empire, and a resident of Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Knife Cleaning and Polishing Machines, of which the following is a specification.

This invention has reference to improvements in knife cleaning and polishing machines.

It pertains particularly to a machine of this kind which is provided with cleaning, polishing and buffing devices for various purposes so that the present machine is complete in itself.

The machine is power driven and comprises a novel cleaning and polishing device for steel knives which device is of the rotary type and permits of cleaning and polishing a knife in a single operation while heretofore usually two separate operations were required for finishing a knife. This steel knife cleaning and polishing device is mounted on the end portion of a driving shaft, the opposite end portion of which is provided with a felt wheel for cleaning and polishing silver plated knife blades and a buffer may be attached for buffing the plated handles of better grades of knives. There is further provided a knife guide in connection with the novel steel knife cleaning and polishing device and care has been taken to produce a neat and compact machine, all as will be fully described hereinafter with reference to the accompanying drawing in which:

Figure 1 represents in elevation, partly broken away, a knife cleaning and polishing machine embodying in desirable form the present improvements. Fig. 2 illustrates the machine in side end view, partly broken away. Fig. 3 is a partial sectional view of the novel cleaning and polishing device. Fig. 4 shows part of same in plan view. Fig. 5 is a perspective view of a knife guiding device.

Similar characters of reference denote like parts in all the figures.

The machine illustrated in Fig. 1 is mounted on a wooden base or support *a*. Upon the base there is a small electric motor *b* inclosed in a casing *c* which has cast thereon a support or bearing *d* for the driving shaft *e* of the machine. The shaft *f* of the electric motor is extended at one side and supports a pinion *g* and the driving shaft *e* of the machine is provided with a gear wheel *h* meshing with the pinion. In this manner power is transmitted from the electric motor to the driving shaft of the machine. The desired speed of the driving shaft *e* is obtained by selecting a proper relation between the diameters of the pinion and of the gear wheel.

The novel cleaning and polishing device is of the rotary type and comprises two wheels *i*, *k* both mounted on the driving shaft *e* of the machine with their operative face portions adjoining each other, as usual. Each single wheel comprises a supporting disk *j* having centrally a strengthening disk k^1. Both disks are provided with coinciding openings in the center so as to allow of shifting the wheel on the driving shaft. The peripheral part of the disk *j* supports two annular chambers formed of the sheet metal rings *l*, *m*, *n*. Between the rings *l*, *m* the bristles are mounted forming thus an annular section *o*, while between the rings *m*, *n* pieces of leather or felt are jammed together which thus form an annular section *p*. The section *o* composed of bristles is the inner section, while the section *p* composed of leather or felt pieces is the outer section for reasons to be explained hereinafter. Both wheels are constructed alike and mounted with their operative faces adjoining each other, as shown in Fig. 1. The contacting surfaces of the wheels are adjustable by means of a nut *q* having a coil spring *r*, which nut is applied to the threaded end portion of the driving shaft *e*. As a knife blade has to be first cleaned and then polished, the arrangement of this bristle section and the section of leather or felt pieces must be made in the order described so that a knife when inserted is first cleaned and then polished while gradually being withdrawn from the machine. In the described manner a steel knife is cleaned and polished during a single operation and need not be handled twice nor does it require two separate machines for finishing the knife.

When a knife is inserted between the contacting faces of the two wheels, it sometimes happens that the knife is drawn in by the friction exerted on the knife blade by the rotating surfaces of the wheels *i*, *k*. To prevent this so-called drawing in of the knife I have provided a knife blade guiding device which is loosely mounted on the driv-

ing shaft of the machine and located in the inner space of the wheels, *i*, *k*. This device is illustrated in detail in Fig. 5. The blade guide *s* comprises a tubular portion *t* having an opening which is somewhat larger than the diameter of the driving shaft so that the guide is loose thereon and does not rotate with the wheels. From the tube *t* a curved portion *u* extends outwardly and forms a reversely curved portion *v*, both forming a V-shaped portion, which carries the knife blade guide proper *w* on its outer end. As the curved portions and the blade guide are extending on one side the guide would sink down and not be in the proper location for inserting a knife. To balance the guide a weight *x* is attached to the tubular portion *t*. The guide *w* always is before the opening of the casing which houses the wheels *i*, *k*, as shown in Fig. 2. The opposite end portion of the driving shaft *e* is adapted to support a felt wheel *y* for cleaning and polishing silver plated knife blades. A tapering screw e^1 is attached to the outer end portion of the driving shaft *e* to which a buffer *z* is secured for buffing the plated handles of better grades of knives. The felt wheel and the buffer are removable and if desired a grinding stone may be attached in place of the felt wheel.

In the described manner I have produced a complete machine for cleaning and polishing steel and silver plated knives and buffing the knife handles especially of the better grades. The cleaning and polishing of the steel knives is effected in a single operation by virtue of the construction of the novel cleaning and polishing steel knife arrangement whereby time and labor is saved.

I claim as my invention:

1. In a knife cleaning and polishing machine, a set of cleaning and polishing wheels consisting each of supporting disks with a peripheral portion forming two chambers, an annular section of knife cleaning means in the inner chamber, and an annular section of knife polishing means in the outer chamber.

2. In a knife cleaning and polishing machine, a set of cleaning and polishing wheels consisting each of supporting disks with a peripheral portion forming two chambers, an annular section of bristles in the inner chamber, and an annular section of jammed leather pieces in the outer chamber.

3. In a knife cleaning and polishing machine, a driving shaft, a set of cleaning and polishing wheels consisting each of supporting disks with a peripheral portion forming two chambers, an annular section of bristles in the inner chamber, an annular section of jammed leather pieces in the outer chamber, and a knife blade guiding device loosely mounted on the shaft within the cleaning and polishing wheels.

4. A knife cleaning and polishing machine comprising a casing, a bearing cast on the top side portion of said casing, a driving shaft in said bearing, a larger separate casing, a set of cleaning and polishing wheels on the shaft in the separate casing comprising each a peripheral portion forming two chambers, an annular section of bristles in the inner chamber, a similar section of jammed leather pieces in the outer chamber, and a knife blade guiding device loosely mounted on the shaft within the cleaning and polishing wheels.

Signed at Pittsburgh, Pa., this 12th day of September, 1913.

ERNST KOEPPEN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."