

H. J. BRASHIER.
KNIFE CLEANING AND POLISHING MACHINE.
APPLICATION FILED MAR. 7, 1910.

963,507.

Patented July 5, 1910.

4 SHEETS—SHEET 1.

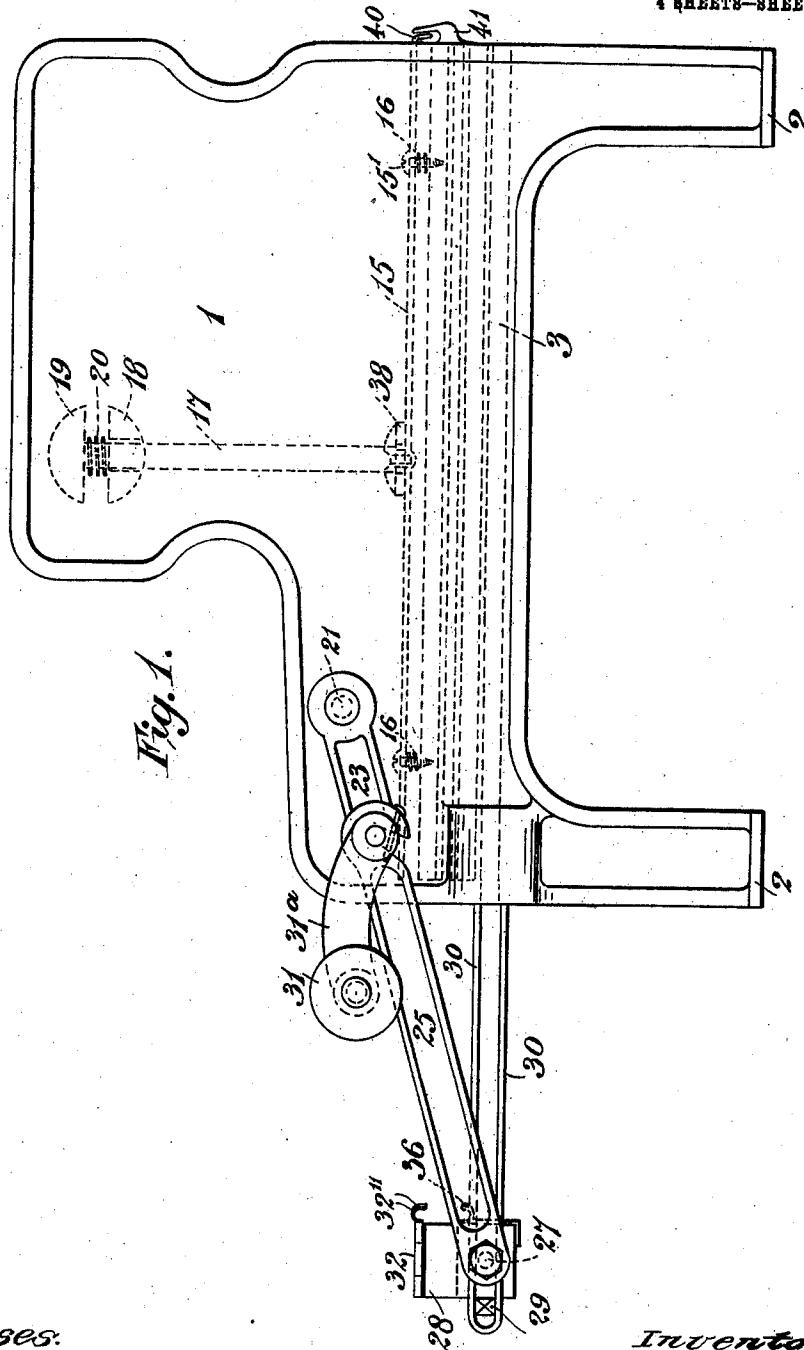


Fig. 1.

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Louis Corns

Inventor:
H. J. Brashier.

By

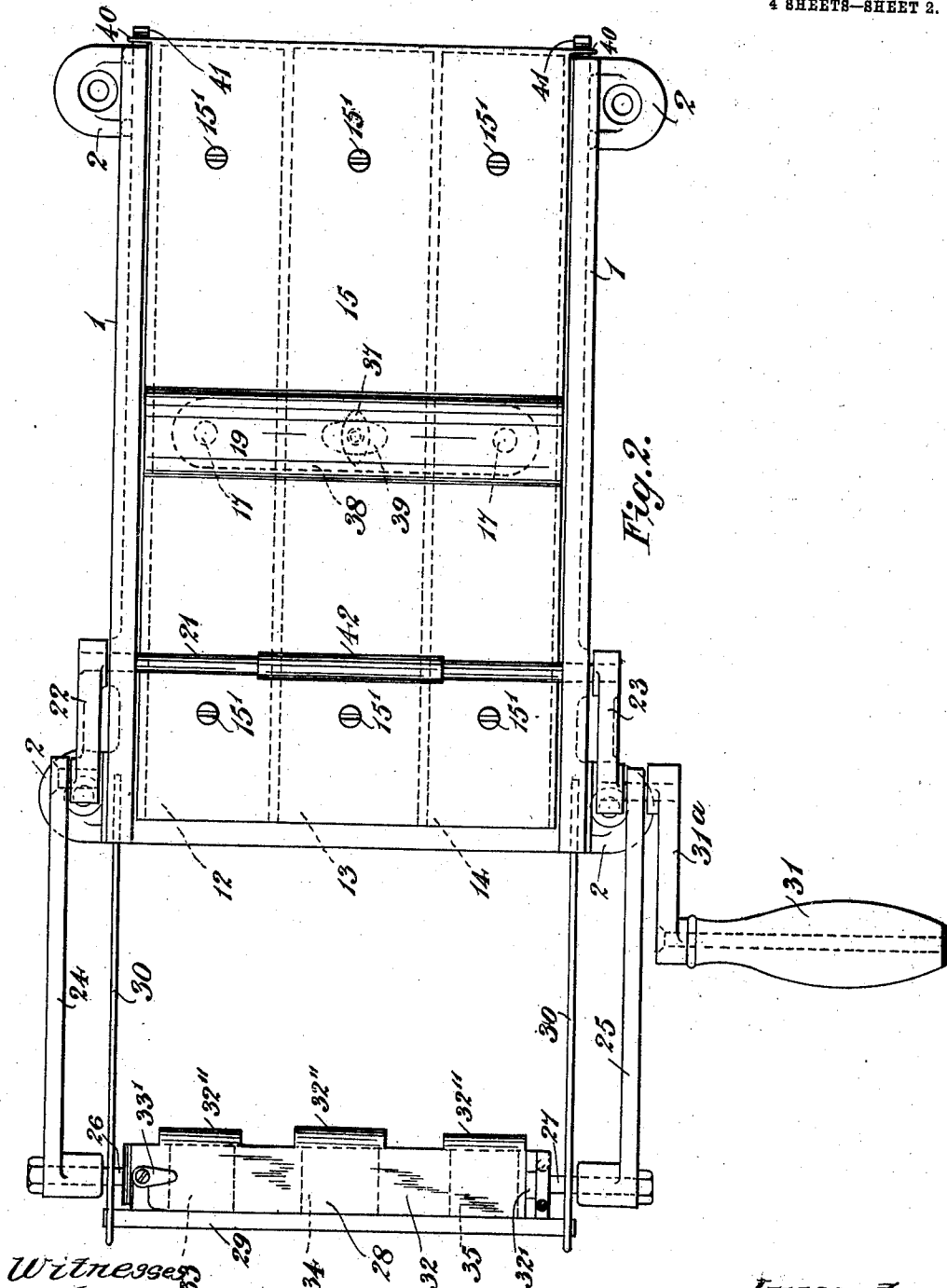
J. H. Moore Atty.

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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

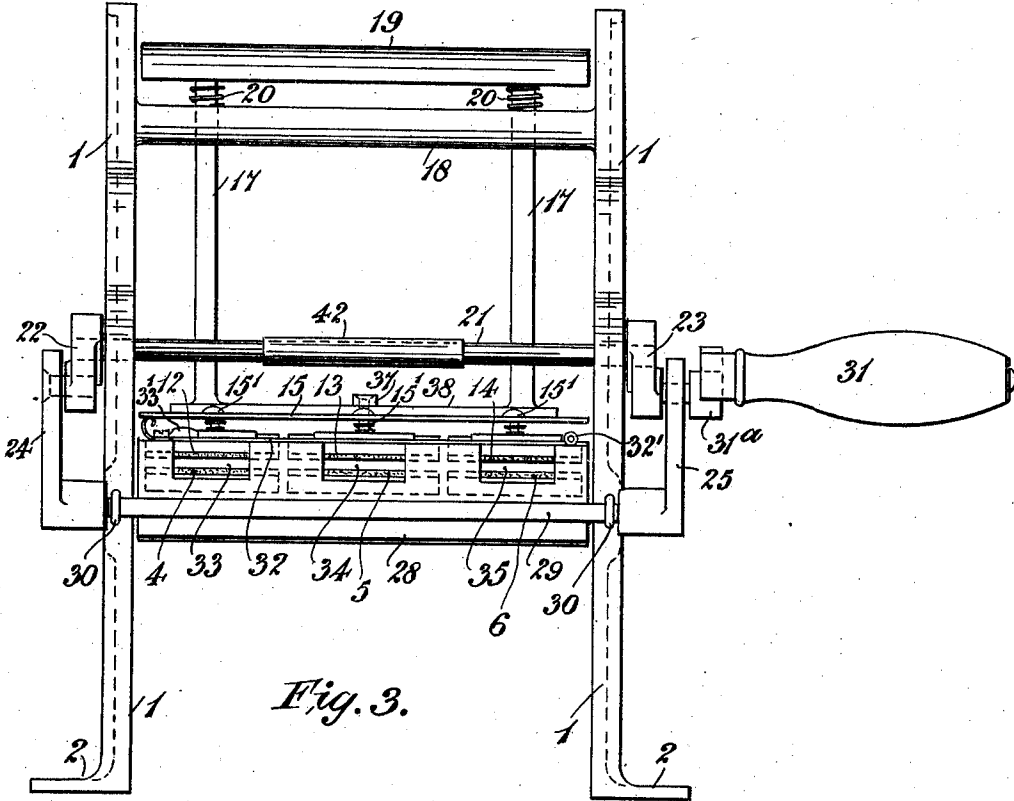


Fig. 3.

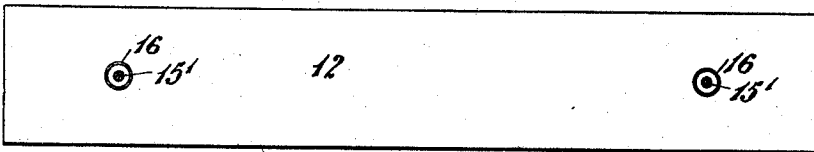


Fig. 4.

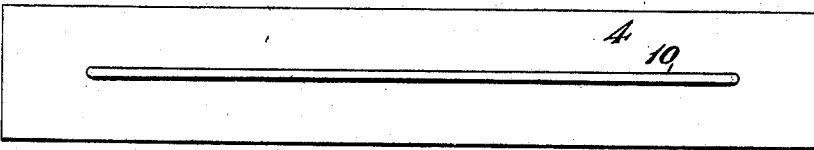


Fig. 5.

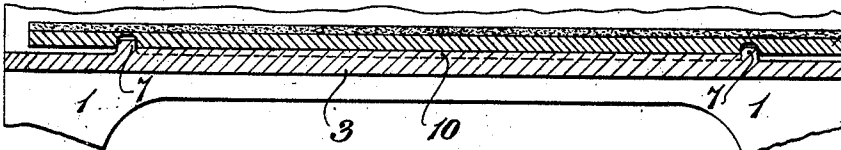


Fig. 11.

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4 SHEETS—SHEET 4.

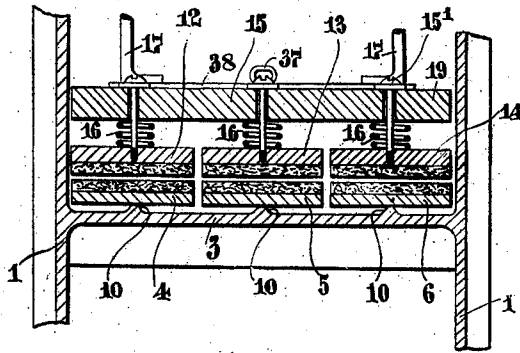


Fig. 8.

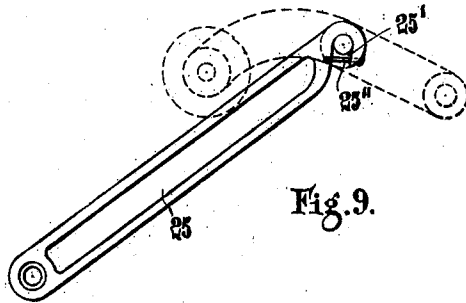


Fig. 9.

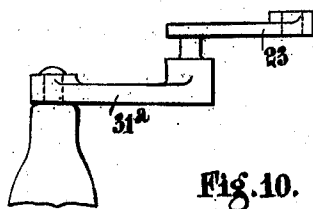


Fig. 10.



Fig. 7.

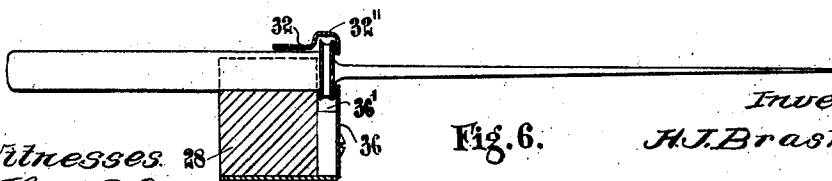


Fig. 6.

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UNITED STATES PATENT OFFICE.

HENRY JAMES BRASHIER, OF LONDON, ENGLAND.

KNIFE CLEANING AND POLISHING MACHINE.

963,507.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed March 7, 1910. Serial No. 547,704.

To all whom it may concern:

Be it known that I, HENRY JAMES BRASHIER, a subject of the King of Great Britain and Ireland, residing at 7 Bartram road, Crofton Park, in the county of London, England, have invented certain new and useful Improvements in Knife Cleaning and Polishing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to knife cleaning and polishing machines of the type in which one or more knives are reciprocated relatively to one or more pairs of pads or rubbers, pressure upon which can be varied by the operator.

In the accompanying drawings Figures 1 and 2 are, respectively, a side elevation, and a plan, of a knife cleaning machine constructed to hold and clean three knives simultaneously. Fig. 3 is a front elevation thereof. Fig. 4 is a plan of one of the upper sectional polishing pads or rubbers and the springs and means for securing them in position. Fig. 5 is an inverted plan of a lower polishing pad or rubber showing a ridge on which the rubber can rock to adapt itself to the varying angles of knife blades. Fig. 6 is a cross section through the knife carrier showing a knife in position and one form of clamping bar for engaging the shoulders of the knives. Fig. 7 is a plan of the clamping bar shown in Fig. 6. Fig. 8 is a detail cross section through the rubbers of a machine, the casing of which is made of cast metal, but the pressing plate of which is made of wood. Figs. 9 and 10 are detailed views illustrating modified forms of a connecting rod and hand crank which may be used. Fig. 11 is a longitudinal section through one of the bottom rubbers and the bed plate.

In carrying out the invention according to one mode a machine is made with two side frames 1, 1, which may be secured to a table or other convenient support by means of the brackets 2, 2. The side frames 1, are connected by a bed plate 3, which supports the lower polishing pads or rubbers 4, 5, 6. The rubbers 4, 5, 6, are free to rock in order that they may independently adapt themselves to knife blades of varying cross section or to

varying angles which the knife blades may assume, and for this purpose they may be provided with ridges 10, on their undersides as illustrated in Fig. 5, the ridges being formed integrally with or secured to the undersides of the rubbers, or being secured to or formed integrally with the bed plate 3 as indicated in Figs. 8 and 11, the latter plan being preferable when the machine framing and bed plate are of cast metal. When the ribs 10, are integral with the bed plate 3, they may end in snugs 7, 7, (Fig. 11) which may engage in corresponding holes in the rubbers 4, 5, 6, and prevent the latter moving longitudinally.

The rubbers may be of any convenient material faced with cleaning or polishing material, such as felt. An upper set of rubbers 12, 13, 14, are adapted to co-act with the lower set 4, 5, 6, and are made of similar material. The upper rubbers are preferably suspended from a pressing plate 15, by means of screws 15' or any other easily detachable means, the screws being a loose fit in the board 15, so that the upper set of rubbers are free to oscillate and adapt themselves to the knives while coacting with the lower set of rubbers. Springs 16, or other suitable resilient means are inserted between the upper set of rubbers and the pressing plate 15, in order that pressure applied to the plate 15, may be transmitted to all the rubbers, but without interfering with their independent adaptability. In order to provide convenient means under the control of the operator for pressing the plate 15, a pair of grips 18, 19, are provided, the former being rigid with the side frames 1, while the latter is connected preferably in a detachable manner to the pressing plate 15, for example, by rods 17, secured to a plate 38, which is provided with a slot 39, through which a stud 37, passes, the stud having a winged head to facilitate manipulation. Springs 20, 20, are interposed between the two grips or any other equivalent means are provided for automatically separating the two grips 18, 19, and raising the pressing plate 15, so that the upper and lower sets of rubbers are automatically kept apart to facilitate insertion of the knives and to thereby avoid injury to the rubbers. The knives to be cleaned may be reciprocated in the rubbers in any convenient manner, either by hand or mechanically. In the latter case they may be inserted within a carrier 28,

which is provided with recesses 33, 34, 35 to receive the handles of the knives, and with a slot 36', (Fig. 6) for the lower shoulders of the knife blades, a front plate or lip 5 36, being mounted on or formed on the carrier against which the said shoulders can abut. The front plate 36, may be corrugated to receive the lower shoulders of the knives and to form the lip, as indicated in Fig. 1, 10 and in a similar manner to the clamping bar hereinafter referred to. The knives are firmly clamped in the carrier by a clamping bar 32, hinged at one side 32', and secured by a button 33', at the other side, or in any 15 other convenient manner. It is preferred to form the clamping bar 32, with one or more corrugations 32'', Fig. 6, to pass over the upper shoulders of the knife blades. In this way the knives are not only firmly secured 20 within the carrier 28, but the thrust is imparted directly from the carrier to the knife blades instead of through the handles, thereby avoiding injury to the latter or loosening of the handles upon the tangs of 25 the knives. The knife carrier is guided at its ends in guides or slide bars 30, for instance by a plate 29 having its ends in the guides, and is reciprocated by a crank shaft 21, having cranks 22, 23, connected by rods 30 24, 25, to the two ends 26, 27, of the carrier 28. The crank 23, is provided with a lever extension 31^a, fitted with a handle 31, whereby a sufficient purchase may be obtained. The shaft 21, may be covered with a suitable 35 material 42, for cleaning the shoulders of the knives. By imparting the necessary motion to the carrier at more than one point and preferably at the ends, there is no tendency for the carrier to rock when a full 40 complement of knives is not inserted in it, and therefore the stress due to the resistance of the knives in the rubbers is tending to twist the carrier in the guides. Binding or jamming of the carrier in the guides is 45 thereby avoided. In order to enable the crank 23, and the extension 31^a, to be made in one piece as indicated in Fig. 10, the connecting rod 25, may be slotted at one end as shown in Fig. 9 at 25', and in order 50 to secure that end of the rod against accidental detachment a pin 25'', may be inserted.

The pressing plate 15, may be retained against longitudinal movement by ears 40, 55 40, engaging behind lugs 41, 41, cast on the frames 1, the arrangement permitting removal of the pressing plate 15, after it has been detached from the plate 38, by suitable manipulation of the winged stud 39. The 60 pressing plate 15, with all its rubbers intact can thus be quickly and easily removed for inspection or repair or for the insertion of polishing powder. It will be obvious that when the plate 15, is removed, or even when 65 it is in its normal position, the lower rub-

bers may be easily removed independently of one another.

It will be obvious that in constructing the machine the length of the stroke to be imparted to the carrier or the length of the 70 rubbers will be designed to suit the length of the knives which it is intended to clean. After the knife blades have been inserted between the rubbers and their handles have been clamped in the carrier the handle 31, 75 is revolved and the hand grips 18, 19, are gripped by the operator with more or less force according to requirements, the operator being free to watch the knife blades during operation and to regulate the pressure to a nicety. Should there be any inequality on the impinging surfaces of the 80 upper and lower polishing pads or rubbers, arising from any cause, the lower rubbers are free to rock until such inequality is taken 85 up by such rocking and the compression springs 16, arranged between the upper rubbers and their pressing plate.

It is to be understood that the invention is not confined to the special type of gripping 90 device hereinbefore described, as a lever, cam, screw or other mechanism may be employed to enable the operator to exert the necessary pressure upon the rubbers.

Having thus described my invention what 95 I desire to secure by Letters Patent is:—

1. In a knife cleaning and polishing machine of the type referred to, the combination of co-acting rubbers and a gripping device for pressing said rubbers together, said 100 gripping device including a stationary member, and a movable member, the movable member being secured to certain of the rubbers.

2. In a knife cleaning and polishing machine of the type referred to, the combination of co-acting rubbers, a gripping device for pressing said rubbers together and including a stationary member and a movable member, the movable member being secured 110 to certain of the rubbers, and means for normally separating said rubbers for the purpose hereinbefore set forth.

3. In a knife cleaning and polishing machine of the type referred to, the combination of co-acting rubbers, a gripping device for pressing said rubbers together, and including a stationary member and a movable member, the movable member being connected to the rubber, a knife carrier, and 120 means for reciprocating said carrier in relation to said rubbers, and comprising a crank shaft and two connecting rods, substantially as and for the purpose hereinbefore set forth. 125

4. In a knife cleaning and polishing machine of the type referred to, the combination of co-acting rubbers, a gripping device for pressing said rubbers together, a knife 130 carrier formed of two sections, each section

having a groove, the two grooves forming a seat to receive the shoulders of the knife blades, means for clamping the knife handles in the carrier, and means including a crank shaft and two connecting rods for reciprocating the carrier relatively to the aforesaid rubbers, substantially as and for the purpose hereinbefore set forth.

5. In a knife cleaning and polishing machine of the type referred to, the combination of a frame provided with guides, two sets of co-acting rubbers, means for independently supporting each set of rubbers, means for pressing said rubbers together, and which includes stationary and movable members, a knife carrier operating in the guides, and means for reciprocating said carrier in said guides and relatively to the aforesaid rubbers, comprising a shaft having two cranks and rods connecting said cranks to the aforesaid carrier, substantially as and for the purpose hereinbefore set forth.

6. In a knife cleaning and polishing machine of the type referred to, the combination of co-acting rubbers automatically adaptable to knives inserted between them and including means for adapting said rubbers to rock independently, and a gripping device for pressing said rubbers together, the gripping device comprising stationary and movable members.

7. In a knife cleaning and polishing machine of the type referred to, the combination of an independent rubber adapted to rock in the direction in which the knives are positioned, a second rubber co-acting therewith, and a gripping device for pressing said rubbers together.

8. In a knife cleaning and polishing machine of the type referred to, the combination of a set of rubbers each adapted to rock independently in the direction in which the knives are positioned, a second set of rubbers each adapted to co-act independently with one of the aforesaid rubbers, a gripping device for pressing said rubbers together, and springs for returning the rubbers to normal position.

9. In a knife cleaning and polishing machine of the type referred to, the combination of a set of rubbers each adapted to rock independently, a second set of rubbers each adapted to co-act independently with one of the aforesaid rubbers, a gripping device for pressing said rubbers together, and means for normally separating the rubbers for the purpose hereinbefore set forth.

10. In a knife cleaning and polishing machine of the type referred to, the combination of a set of rubbers each adapted to rock independently in the direction in which the knives are positioned, a second set of rubbers each adapted to co-act independently with one of the aforesaid rubbers, a gripping de-

vice for pressing said rubbers together, a carrier to support a series of knives and means for reciprocating said carrier to present the knives lengthwise of the rubbers for the purpose hereinbefore set forth.

11. In a knife cleaning and polishing machine of the type referred to, the combination of a set of rubbers, means to permit each of the rubbers of said set of rock independently, a second set of rubbers each adapted to co-act independently with one of the aforesaid rubbers, a gripping device for pressing said rubbers together and including a stationary member and a movable member, the movable member being connected to the rubbers, means for normally separating the rubbers, a knife carrier and means for reciprocating said carrier relatively to the rubbers, substantially as and for the purpose hereinbefore set forth.

12. In a knife cleaning and polishing machine of the type referred to, the combination of a set of removable rubbers each adapted to rock independently, a second set of rubbers adapted to co-act therewith, a common pressing plate therefor, springs between said plate and second set of rubbers, and a gripping device for pressing said plate, for the purpose hereinbefore set forth.

13. In a knife cleaning and polishing machine of the type referred to, the combination of a set of removable rubbers each adapted to rock independently, a second set of rubbers adapted to co-act therewith, a common pressing plate therefor, springs between said plate and second set of rubbers, a gripping device for pressing said plate, and means for detaching said plate from the gripping device, for the purpose hereinbefore set forth.

14. In a knife cleaning and polishing machine of the type referred to, the combination of a set of rubbers each adapted to rock independently, a second set of rubbers co-acting therewith, a pressing plate common to all the rubbers of said second set, springs between said plate and the second set of rubbers, means for depressing said plate and automatic means for raising it, substantially as and for the purpose hereinbefore set forth.

15. In a knife cleaning and polishing machine of the type referred to, the combination of a set of independent and removable rubbers each having a ridge on its underside, a second set of independent rubbers co-acting with the aforesaid set, a pressing plate common to the second set of rubbers, springs between the said plate and its rubbers, a grip connected with said plate, a stationary grip, and means for normally separating said grips, substantially as and for the purpose hereinbefore set forth.

16. In a knife cleaning and polishing machine of the type referred to, the combination of a set of independent and removable

rubbers each having a ridge on its under-
side, a second set of independent rubbers
co-acting with the aforesaid set, a pressing
plate common to the second set of rubbers,
5 springs between the said plate and its rub-
bers, a grip connected with said plate, a
stationary grip, means for normally separ-
ating said grips, a knife carrier, guide bars
for the ends of said carrier, rods connected
10 to said ends, and a crank shaft for recip-
rocating said rods, substantially as hereinbe-
fore set forth.

17. In a knife cleaning and polishing ma-
chine of the type referred to, the combina-
15 tion of a set of independent and removable
rubbers each having a ridge on its under-
side, a second set of independent rubbers
co-acting with the aforesaid set, a pressing
plate common to the second set of rubbers,
20 springs between the said plate and its rub-
bers, a grip connected with said plate, a
stationary grip, means for normally separ-
ating said grips, a knife carrier including
two members, each of the members having a
25 groove which form a seat to receive the
shoulder of a knife, guide bars for the ends

of said carrier, rods connected to said ends,
a crank shaft for reciprocating said rods,
and a handle extension on one crank, sub-
stantially as and for the purpose herein- 30
before set forth.

18. In a knife cleaning and polishing ma-
chine, the combination of a support, a set
of rubbers, means interposed between each
rubber and the support to permit rocking 35
movement, means for holding each rubber
against endwise movement on the rockers,
a second set of rubbers each adapted to co-
operate independently with one of the afore-
said rubbers, a movable support on which 40
the second set of rubbers are mounted, a
gripping device secured to the latter sup-
port for pressing the rubbers together, and
means for normally separating the rubbers.

In testimony whereof I have signed my 45
name to this specification in the presence
of two subscribing witnesses.

HENRY JAMES BRASHIER.

Witnesses:

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HERBERT D. JAMESON.