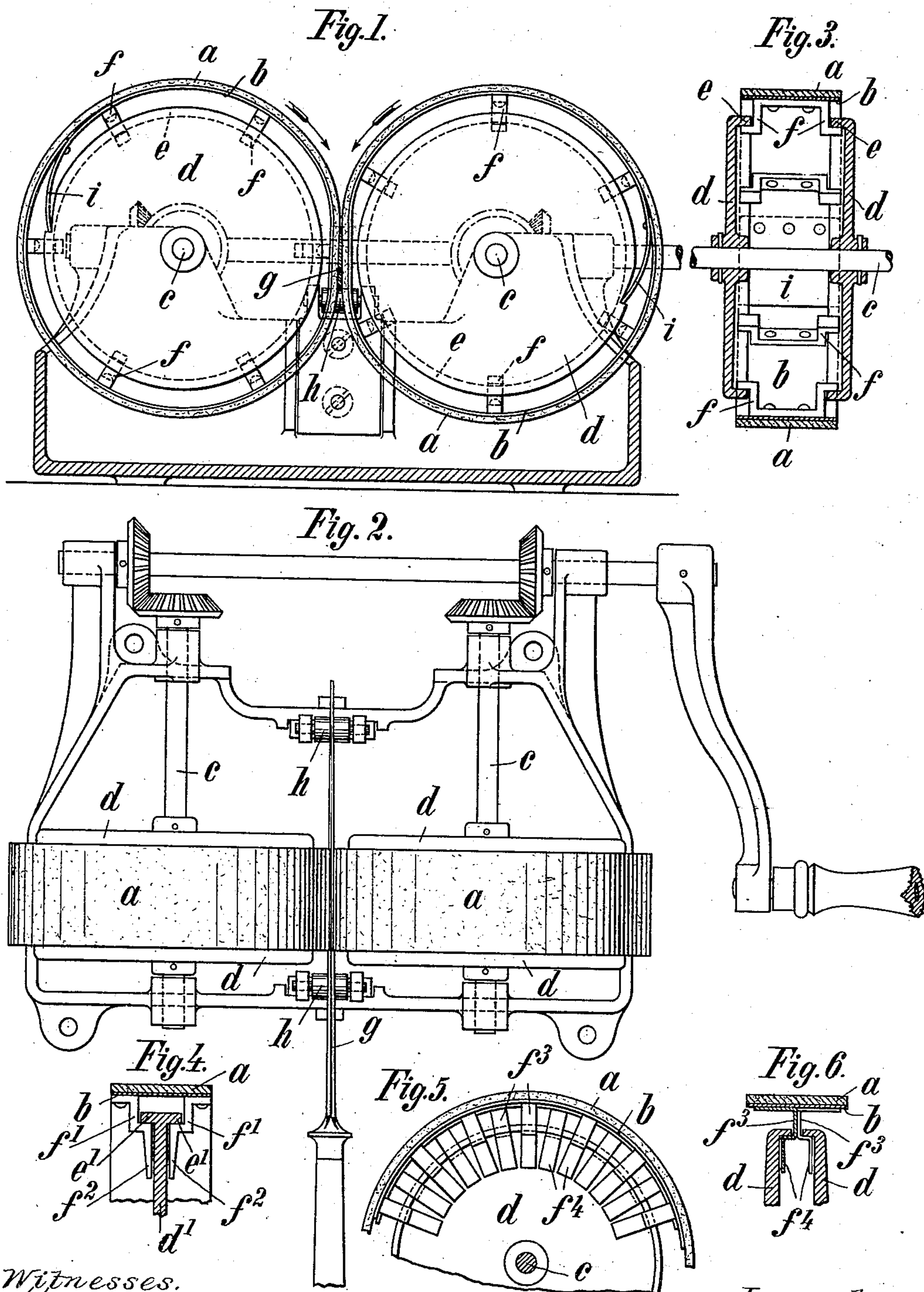


No. 886,602.

PATENTED MAY 5, 1908.

H. F. HAMBRUCH.
KNIFE CLEANING AND POLISHING MACHINE.

APPLICATION FILED MAR. 22, 1906.



Witnesses.
H. L. Amer,
O. Rommels

Inventor.
Heinrich Friedrich Hambruch
by Henry Orth J. atty

UNITED STATES PATENT OFFICE.

HEINRICH FRIEDRICH HAMBRUCH, OF HAMBURG, GERMANY.

KNIFE CLEANING AND POLISHING MACHINE.

No. 886,602.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed March 22, 1906. Serial No. 307,411.

To all whom it may concern:

Be it known that I, HEINRICH FRIEDRICH HAMBRUCH, a citizen and resident of the Free and Hanseatic town of Hamburg, in the German Empire, have invented certain new and useful Improvements in Knife Cleaning and Polishing Machines, of which the following is a specification.

The present invention relates to improvements in machines or devices for cleaning and polishing, or even sharpening, knives, forks and similar articles, of that class in which in well known manner two disks by their relative rotation clean, polish or sharpen the objects held between the contacting rims or circumferential surfaces of the said disks.

In accordance with the present improvement, the employment of india rubber is dispensed with altogether. The cleaning bands are arranged upon the two disks or other rotatable supports of the machine in such a manner that these bands may consist of thin inexpensive material and yet bear against or contact the sides of the articles to be acted upon, with wide or broad cleaning surfaces. In the improved device each of the cleaning bands is passed onto a flexible steel ring which is attached to the part or support producing its rotation in such a manner, that it is able to depart from its normal circular form, and further, the axes of rotation of the two supports forming at the same time driving members, are situated somewhat closer together than the length of the sum of the two outer diameters of the two cleaning bands.

In order that my invention may be more fully understood, I shall now proceed to describe the same in detail, reference being taken to the accompanying sheet of drawings, in which

Figure 1 is a lateral elevation, partly in section, of my improved device constructed in accordance with and embodying my invention; Fig. 2 is a plan of the same; Fig. 3 is a vertical central section through one of the rotatable disks or supports of the cleaning bands; Fig. 4 is a similar sectional view illustrating a constructional modification of the rotatable support and the means for attaching the cleaning band thereto; Figs. 5 and 6 show in elevation and section respectively a further modification of the means for attaching the cleaning band.

Similar reference letters refer to similar parts throughout the several figures.

Upon each of the driving shafts *c* there is mounted a disk-like body, this being constituted in Figs. 1 to 3 by two disks *d d* with peripheral flanges *e e* directed one towards the other. Surrounding these flanges is a yielding ring *b* of thin sheet steel covered with a cleaning strip *a* of leather. Angle pieces *f* fixed to the steel ring *b* and underlapping or engaging the flanges *e* of the disks, connect the ring *b* with the body or support formed by the disks *d* in such a manner that the steel ring *b* with its cleaning band *a* is circularly held upon the disk-like body by its own tension, except at the operative place, where the two leather armored steel rings come into contact and flatten each other, because the external diameters of the cleaning strips or bands are together longer than the interval or distance separating the centers of the shafts *c*. As at the place where this flattening occurs the circular arc of each ring *b* is transformed into a shorter chord, the remaining, larger circular arc of the ring will become lengthened by the amount of this difference between the arc and the chord, whereby the hooks or angular retaining portions of a number of the parts *f* will be held or pressed against the flanges *e* of the disks *d* so firmly that the ring *b* with its cleaning band is carried round by the rotating disk-body *d*, the ring invariably flattening out at that part of its length at which the work takes place. The sides of a knife *g* situated between the cleaning bands and supported, if desired, by adjustable rollers *h h*, is therefore acted upon with the same pressure everywhere.

If desired a pawl or dog *i* may be provided between the ring *b* and the disk-body *d*, but this is not essential.

As shown in Fig. 4 the disk-body may also consist of a single disk *d'* with two peripheral flanges *e' e'* beneath which the angle pieces *f' f'* engage. These angle pieces may be provided with guide extensions *f² f²* adapted to contact or engage the end or side faces of the disk *d'*.

In the modification shown by Figs. 5 and 6 the connection between the steel ring *b* and the disks *d* is performed by the aid of angle-pieces *f³ f⁴* attached to the steel ring *b* in such a manner as to alternately engage the flanges

of the disks *d*, as this is obvious from the drawing without further explanation.

I claim:

1. In a machine for cleaning and polishing
5 knives, the combination with a pair of oppositely rotatable rigid disks mounted in fixed bearings, flexible bands surrounding the disks forming an annular space between the disks and bands, a portion of the outer faces
10 of said bands contacting and moving parallel to each other, of a plurality of connecting members carried by the bands engaging projecting surfaces on the disks at points other than the points of contact of the bands.
- 15 2. In a machine for cleaning and polishing knives, the combination with a pair of oppositely rotatable rigid disks mounted in fixed bearings, flexible bands surrounding the disks forming an annular space between the
20 disks and bands, a portion of the outer faces of said bands contacting and moving parallel to each other, of a plurality of connecting members carried by the bands engaging projecting surfaces on the disks at points other
25 than the points of contact of the bands, and pawls fixed on the inner faces of the bands engaging the peripheries of the disks to prevent relative movement of the bands and disks.
- 30 3. In a machine for cleaning and polishing knives, the combination with a pair of oppositely rotatable rigid disks mounted in fixed bearings, flexible bands surrounding the disks forming an annular space between the
35 disks and bands, a portion of the outer faces

of the bands contacting and moving parallel to each other; of means connecting the disks and bands adapted to maintain said outer faces parallel to the axis of rotation of the disks.

4. In a machine for cleaning and polishing
40 knives, the combination with a pair of oppositely rotatable rigid disks mounted in fixed bearings, flexible bands surrounding the disks forming an annular space between the
45 disks and bands, a portion of the outer faces of the bands contacting and moving parallel to each other; of a plurality of rigid connecting members rigidly connected to the bands engaging projecting faces on the disks, whereby the flexible bands are maintained
50 parallel to the axis of rotation of the disks.

5. In a machine for cleaning and polishing
55 knives, the combination of a pair of oppositely rotatable rigid disks having peripheral flanges and mounted in fixed bearings, flexible bands surrounding the disks forming an annular space between the disks and bands, a portion of the outer faces of the bands contacting and moving parallel to each other, a
60 plurality of angle-pieces rigidly connected to the inner faces of the bands near each edge and extending under the flanges on the disks, and extensions on the angle-pieces projecting below the flanges to engage the sides of
65 the disks.

HEINRICH FRIEDRICH HAMBRUCH.

Witnesses:

MAX F. A. KAEMPF,
 OTTO W. HELLMRICH.