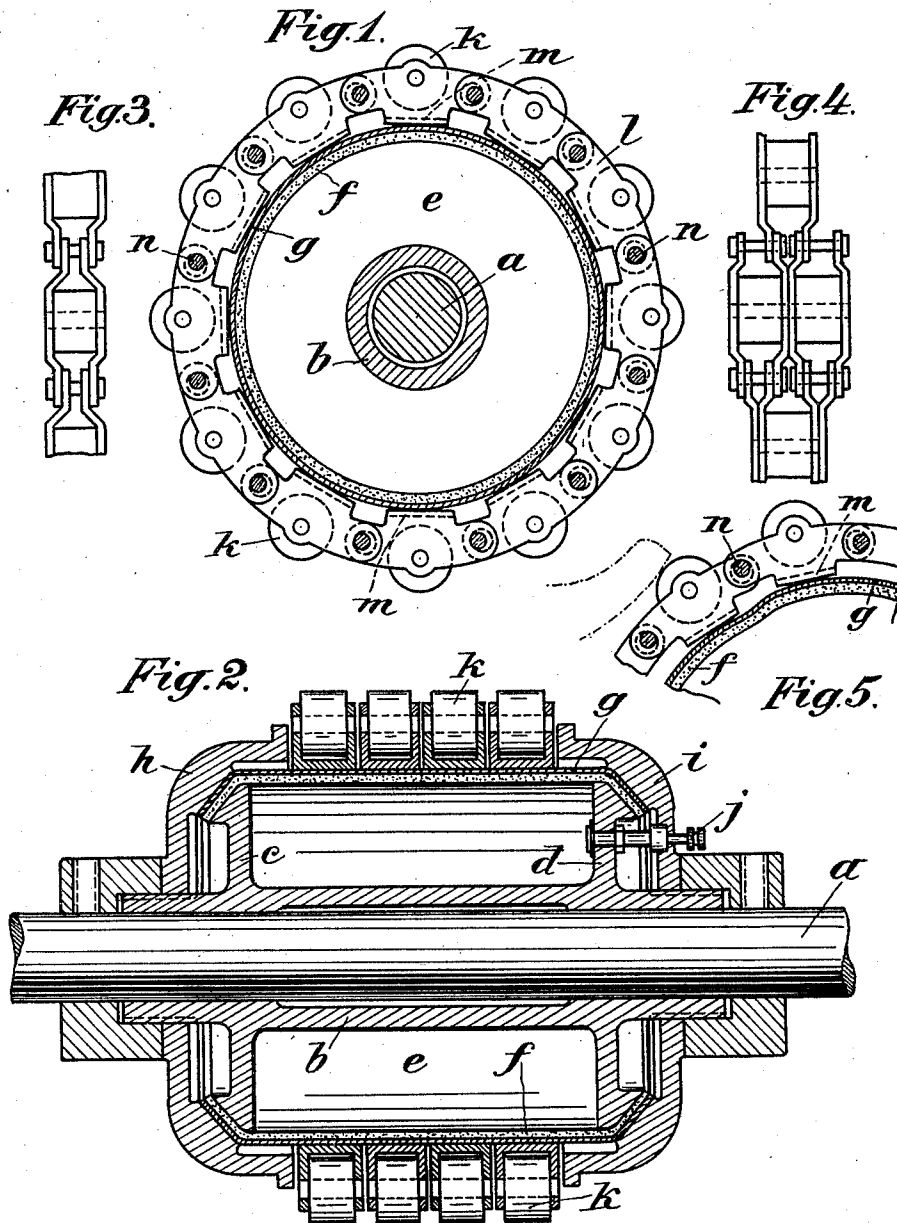


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 ROTATABLE TOOL FOR BEATING UPPERS ON LASTS.
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UNITED STATES PATENT OFFICE.

RUDOLF ERNST CRAIN, OF OBERURSEL-ON-THE-TAUNUS, AND HEINRICH LUDWIG HECKMANN, OF OFFENBACH-ON-THE-MAIN, GERMANY, ASSIGNORS TO MOENUS MACHINE COMPANY, OF FRANKFORT-ON-THE-MAIN, GERMANY.

ROTATABLE TOOL FOR BEATING UPPERS ON LASTS.

1,039,033.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed April 11, 1912. Serial No. 690,151.

To all whom it may concern:

Be it known that we, RUDOLF ERNST CRAIN and HEINRICH LUDWIG HECKMANN, the former a subject of the Grand Duke of Saxe-Weimar, residing at 18 Kumeliusstrasse, Oberursel-on-the-Taunus, in the Kingdom of Prussia, and the latter a subject of the King of Prussia, residing at 28 Karlstrasse, Offenbach-on-the-Main, in the Grand Duchy of Hesse, both in the Empire of Germany, have invented new and useful Improvements in Rotatable Tools for Beating Uppers on Lasts, of which the following is a specification.

This invention relates to rotatable tools used for beating uppers on lasts, and has for its object to overcome disadvantages which apply to such tools as hitherto made for example with beating rollers mounted yieldingly on an endless band guided on a disk, or drum, or on disks or drums. A disadvantage of such tools is that they cannot be satisfactorily adapted to suit leathers of different characters or degrees of hardness; moreover, the blows do not take place with sufficient elasticity, and, in the case of heavy leathers, they do not act with sufficient intensity and also, especially with heavy leathers, the hands of the operator are subjected to strong and very injurious vibrations.

This invention is especially an improvement upon, or further development of, the known beating machines in which an endless band, or chain, provided with beating rollers is guided over a yieldingly mounted disk, so that the rollers can have a yielding action.

In the accompanying drawing Figure 1 is a transverse section, and Fig. 2 is a longitudinal section of a tool constructed in accordance with the aforesaid invention. Figs. 3 and 4 show parts of chains, or carriers, of rollers for this tool. Fig. 5 is a fragmentary detail view showing the beating rollers in use.

On the shaft *a* is secured a hub *b* provided with two flanges, or disks, *c* *d*, against which are clamped the ends of a resilient covering forming a cylinder, and consisting preferably of a layer of rubber *f* and a protecting envelop *g* of suitable fabric, the clamping being effected by caps *h* and *i*

which are movable on the shaft and adapted to engage the ends of the boss *b* and secured in place.

The space *e* within the cylindrical covering *f* *g* constitutes an air cushion, the valve *j* being provided for admitting compressed air, or discharging it, so that the pressure within the space *e* can be adjusted as required in accordance with the character of the leather being treated. Around the periphery of the cylindrical air cushion are arranged the independent endless chains carrying the beating rollers *k* mounted on center pins between the links *l*. The beating rollers *k* can be arranged in single series, as shown in Fig. 3, or they can be staggered in the well-known manner, as shown in Fig. 4, so that the space between two rollers arranged parallel to each other is covered by the following roller. The links *l* of the chains are provided with cross connections *m* which bear against the covering of the air cushion with a force in accordance with the degree of pressure of the air against the roll. As the tool rotates the beating rollers *k* are carried around by friction with the air cushion and can yield in the direction of the motion and, in order to allow the rollers to yield inward sufficiently, when the work is acted upon, the joints of the chains have a certain amount of play—see Figs. 1 and 5—by making the holes in the inner, or outer, attached links larger than the diameter of the connecting pins *n*.

By pumping in air, or exhausting air from the cushion, the operation of the tool can be readily altered to adapt it to the work and to the kind of leather operated upon and the hereinbefore mentioned disadvantages are overcome.

If desired the cushion can be filled with a suitable liquid, or yieldable mass, other than air.

We claim:

1. A rotatable tool of the character described, comprising an air cushion, and beating rollers mounted thereon.

2. In a rotatable tool of the character described, an air cushion, means for regulating the resiliency thereof, and beating rollers mounted on the said cushion.

3. In a rotatable tool of the character described, an air cushion, beating rollers, and roller carriers adapted to bear against the said cushion.

5 4. In a rotatable tool of the character described, an air cushion, beating rollers, and roller carriers adapted to bear against the said cushion so as to yield in the direction of rotation of the tool.

10 5. In a rotatable tool of the character described, an air cushion, beating rollers, and roller carriers adapted to bear against the said cushion so as to yield inwardly, and in the direction of rotation of the tool.

15 6. In a rotatable tool of the character described, an air cushion, means for regulating the resiliency thereof, beating rollers, and roller carriers linked together, as set forth.

7. In a rotatable tool of the character described, an air cushion, beating rollers, and roller carriers adapted to bear against the said cushion and forming endless chains. 20

8. In a rotatable tool of the character described, an air cushion, beating rollers, and roller carriers adapted to bear against the said cushion, the said carriers forming endless chains with loosely connected links, as specified. 25

9. In a rotatable tool of the character described, an air cushion, an air valve adapted for regulating the resiliency of the cushion, beating rollers, and roller carriers. 30

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