Oct. 11, 1927. 1,645,385

M. L. KAPLAN

PERFORATING WHEEL

Original Filed Aug. 3, 1926 2 Sheets-Sheet 1

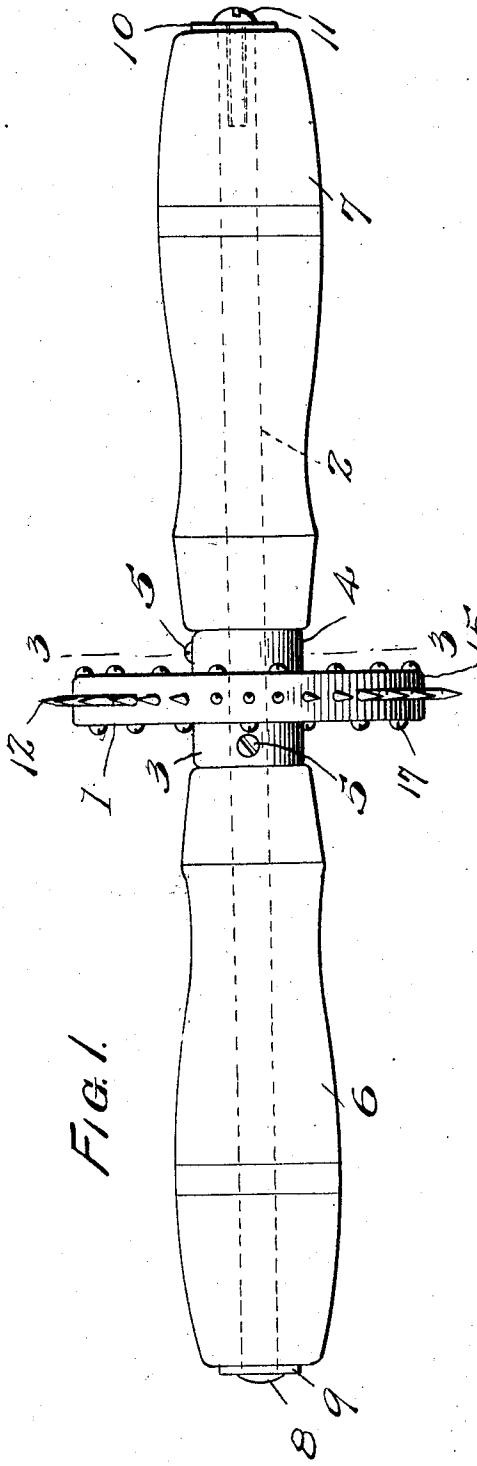

FIG. 1.

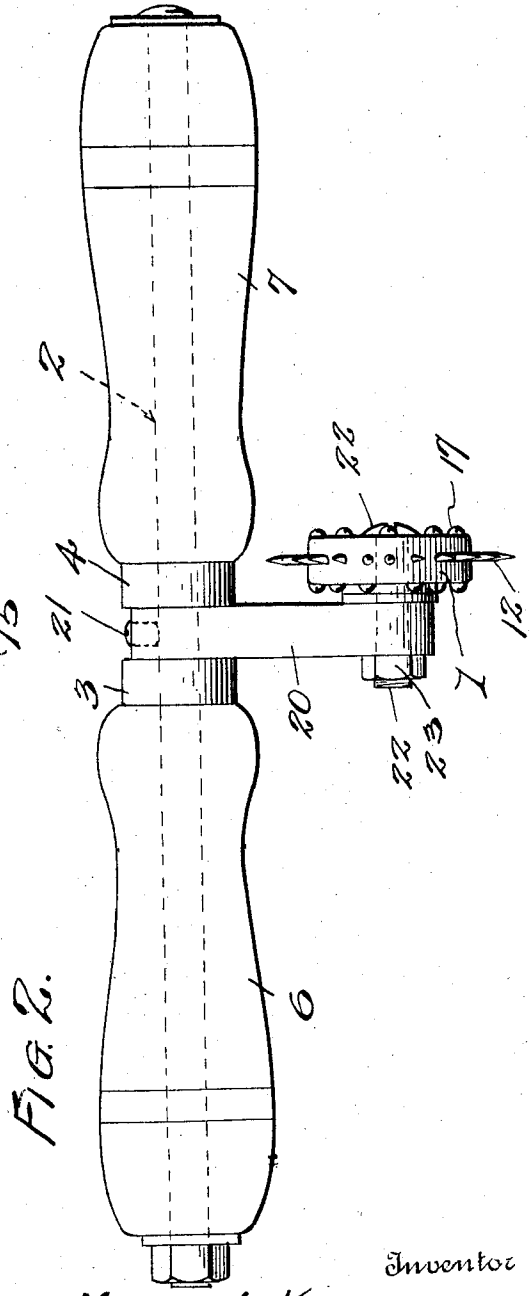

FIG. 2.

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FIG. 3.

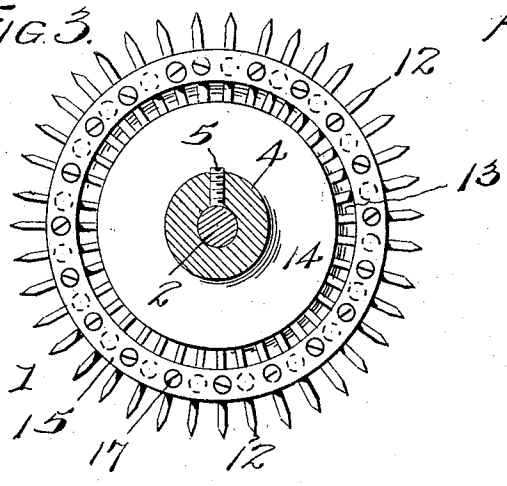

FIG. 4.

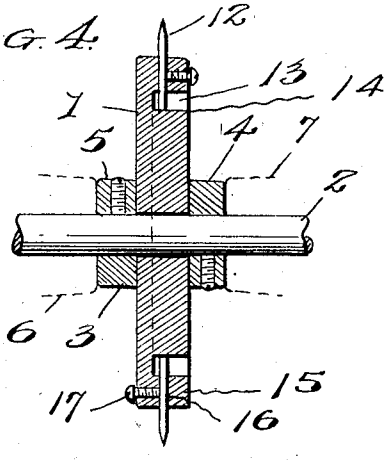

FIG. 5.

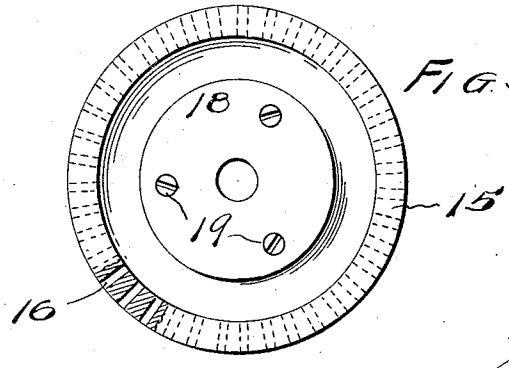

FIG. 6.

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UNITED STATES PATENT OFFICE.

MORRIS L. KAPLAN, OF HAZLETON, PENNSYLVANIA.

PERFORATING WHEEL.

Application filed August 3, 1926, Serial No. 126,808. Renewed July 19, 1927.

My present invention relates to improvements in perforating wheels of the hand operated type employing a roller or wheel with radiating pins and designed to be run over a stationary surface to perforate it. While the implement of my invention is capable of various uses, it is particularly adapted for use in marking patterns for garments of personal wear, as shirts, clothing, suits, dresses, etc., where a master pattern is utilized in connection with the perforating wheel for producing numbers of perforated patterns. The implement is used with a master pattern which is placed upon a lay or pile of sheets, as paper sheets, and the master pattern and these sheets are perforated along the lines or marks of the master pattern by running the hand operated perforating wheel along the lines of the master pattern. In the manufacture of shirts, a master pattern comprising all the parts of the shirt, is first laid out with a pencil or chalk; the master pattern is placed upon a number of sheets of paper; and then the perforating wheel is manually guided, preferably by the use of both hands, to accurately reproduce by perforations, the pencil or chalk marks. A set of the implements, as three in number, are utilized, for convenience and accuracy in turning sharp corners, or for selective use by the operator along straight, curved, long, and short, lines of the marked master pattern.

The invention consists in certain novel combinations and arrangements of parts in the construction of the wheel or implement, as will hereinafter be more fully pointed out and claimed. In the accompanying drawings I have illustrated a set of wheels or implements, three in number, in which the improvements of my invention are physically embodied, and in which the parts are combined and arranged according to various modes I have devised for the practical application of the principles of my invention.

Figure 1 is a view showing a double-handled implement having a central perforating wheel.

Figure 2 is a view of a double-handle implement with a small size perforating wheel journaled on a bracket arm and thus off-set from the handles for convenience in tracing lines of small compass.

Figure 3 is a transverse sectional view at line 3—3 of Figure 1.

Figure 4 is a sectional detail view of the perforating wheel showing its axle in elevation.

Figure 5 is a face view partly broken away for convenience of illustration showing a modified form of the wheel.

Figure 6 is a view showing a long handled implement, and illustrating the utility of the wheel.

The wheel 1 is a circular disk of metal, mounted to revolve on the transversely arranged axle 2 between a pair of side collars 3 and 4 which are secured to the axle as by set screws 5.

In the two-hand type of wheel shown in Figures 1 and 2 a pair of alined handles 6 and 7 are loosely carried on the axle, one at each side of the guide collars for the wheel, and in Figure 1 the parts on the axle are assembled and retained in proper relation by means of a head 8 at one end of the axle or bolt 2 and washer 9 between the head and handle 6. At the other end of the axle a washer 10 is provided against the end of the handle 7, and a retaining screw 11 passed through the washer is threaded into a complementary bore in the end of the axle. The axle upon which the wheel is journaled and the two guide collars 3 and 4 are thus rigidly connected together, while the wheel and the two handles are loosely carried on the axle in order that the wheel may revolve and the handles remain stationary when grasped by the two hands of the operator.

The wheel is equipped with a suitable number of radially projecting pins 12 which are removable and interchangeable for various purposes. These pins are carried at the periphery of the wheel, which, at one side is fashioned with an annular groove 13, which forms an inner disk 14 with an annular bearing face within the groove for the inner or butt ends of the pins, and it will be apparent that the pressure applied to the wheel by the operator is transferred from the butt ends of the pins to the bearing face of the disk, thus insuring a rigid arrangement between the pins and the wheel as a whole. At the periphery of the wheel the groove forms a side ring 15 in which are bored, or otherwise fashioned, a series of radial sockets 16 for the reception of the pins, and transversely extending retaining screws 17 are threaded in the wheel for retaining the pins against displacement. The screws 17 are preferably entered, alternately, from opposite sides of the wheel, one passing

through the ring for engagement with a pin and the next screw passing through the main portion of wheel 1 for engagement with the next pin, for convenience in assembling and to prevent excessive weakening of the wheel.

The diameter of the disks 14 on different wheels may be varied to insure a longer or shorter projection of the pins from the periphery of the wheel, and the same pins may be used in different wheels with these disks of varying dimensions, and as in Figure 5, the wheel may be modified by using detachable disks as 18. These disks 18 may be in various sizes and provided with screw holes for the accommodation of the screws 19, in order that a selected size of disk may be attached to a wheel for changing the projection of the pins. In all cases the pins are entered in their sockets butt end first and pushed into engagement with the bearing face of the disk, and inasmuch as the pins of a series are of the same length, all the pins will project the same distance from the wheel, regardless of the size of the bearing disk. When secured by the retaining screws 17 the pins are prevented from becoming displaced or from dropping from their sockets. The points of the pins may have various shapes to insure proper entrance and exit to and from the lay that is being perforated.

In Figure 2 the perforating wheel is offset from the axle 2 and the handles 6 and 7 and is supported from a bracket arm 20 that is rigidly secured at the approximate center of the implement by means of a set screw 21.

The perforating wheel 1 in this instance is journaled on a bolt 22 passing transversely through the end of the bracket arm and secured by a nut 23, and this offset arrangement of the small perforating wheel enables the operator to accurately trace the lines or marks of the master pattern along short lines, as well as permits inspection of the work as it progresses.

In Figure 6 the long handle 24 which projects transversely from the axis of the wheel enables the operator to attain a long reach and manipulate the perforating wheel by the use of one hand. To guide and steady the wheel, a laterally projecting handle 25, secured by means of an axially extending screw 26 to the axle of the wheel, may be grasped in the other hand of the operator as the wheel is run over the lay. In this figure of the drawing the master pattern, upon which the pencil or chalk lines are laid out, is indicated by the numeral 27, and the sheets of paper to be perforated are indicated as 28. The lay, including the master pattern and the sheets 28 are supported on top of a suitable pad which may be made up of flexible, comparatively soft layers of material as 29. These layers may be of felt, card-board, or other suitable material that will permit penetration of the pin points and prevent contact of the points with a hard supporting surface, as a table, for the cushion or pad.

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

1. A perforating wheel having an annular groove in one face forming a disk having an exterior bearing face and provided with radially extending, peripheral sockets, pins in said sockets with their butt ends extending across said groove and engaging said bearing face, and means for retaining the pins in said wheel.

2. A perforating wheel having a series of radially extending, peripheral sockets, a detachable bearing disk and attaching means therefor within the series of sockets, pins in said sockets having their butt ends engaging said disk, and retaining means for the pins.

In testimony whereof I have affixed my signature.

MORRIS L. KAPLAN.