H. W. HILL.

LENS POLISHING MACHINE.

APPLICATION FILED JUNE 3, 1914. RENEWED DEC. 8, 1915.

1,166,639. Patented Jan. 4, 1916.

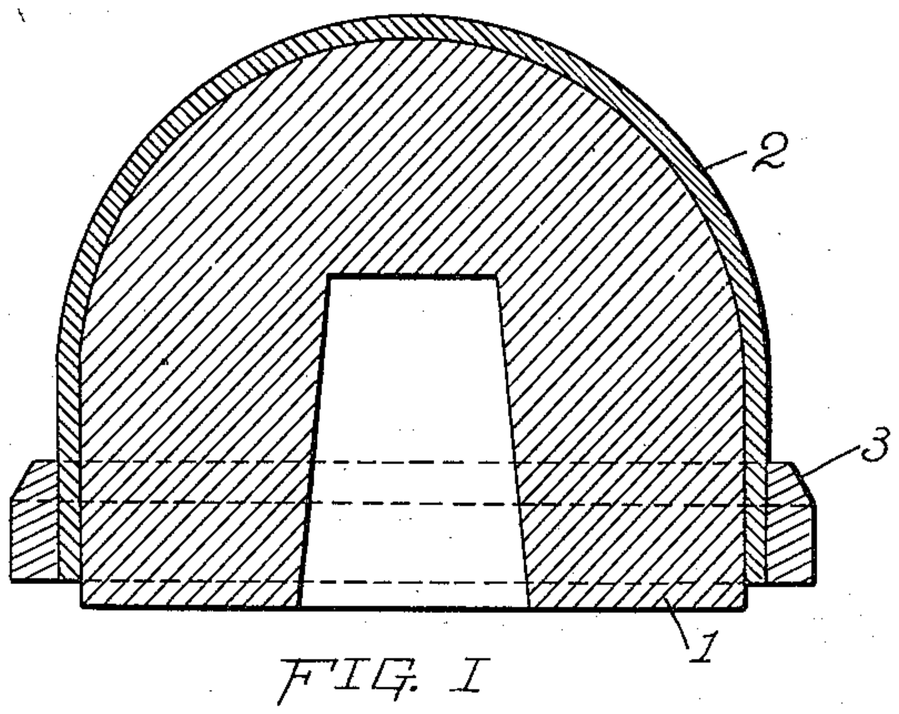

FIG. I

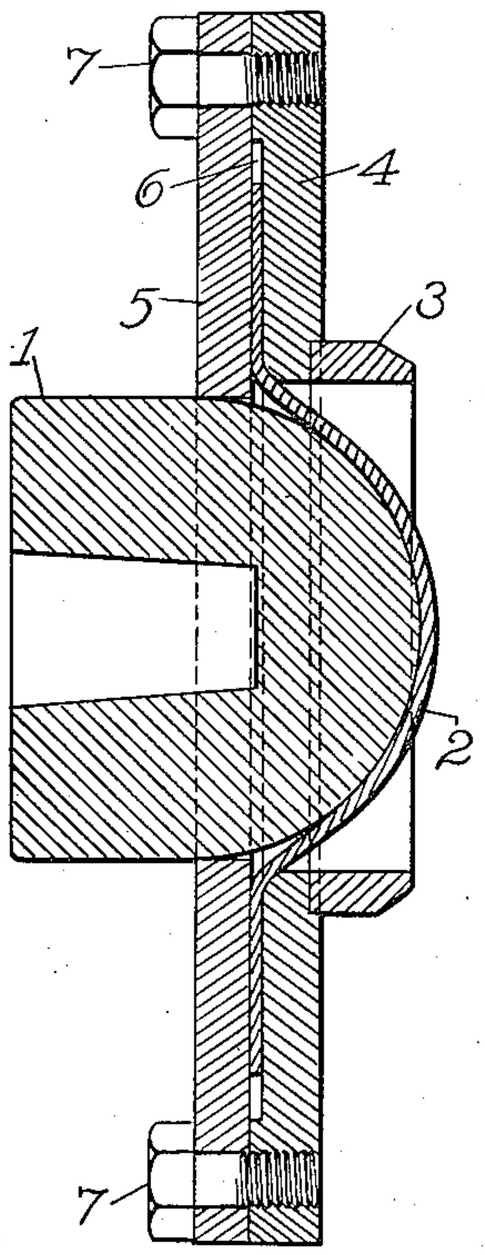

FIG. II

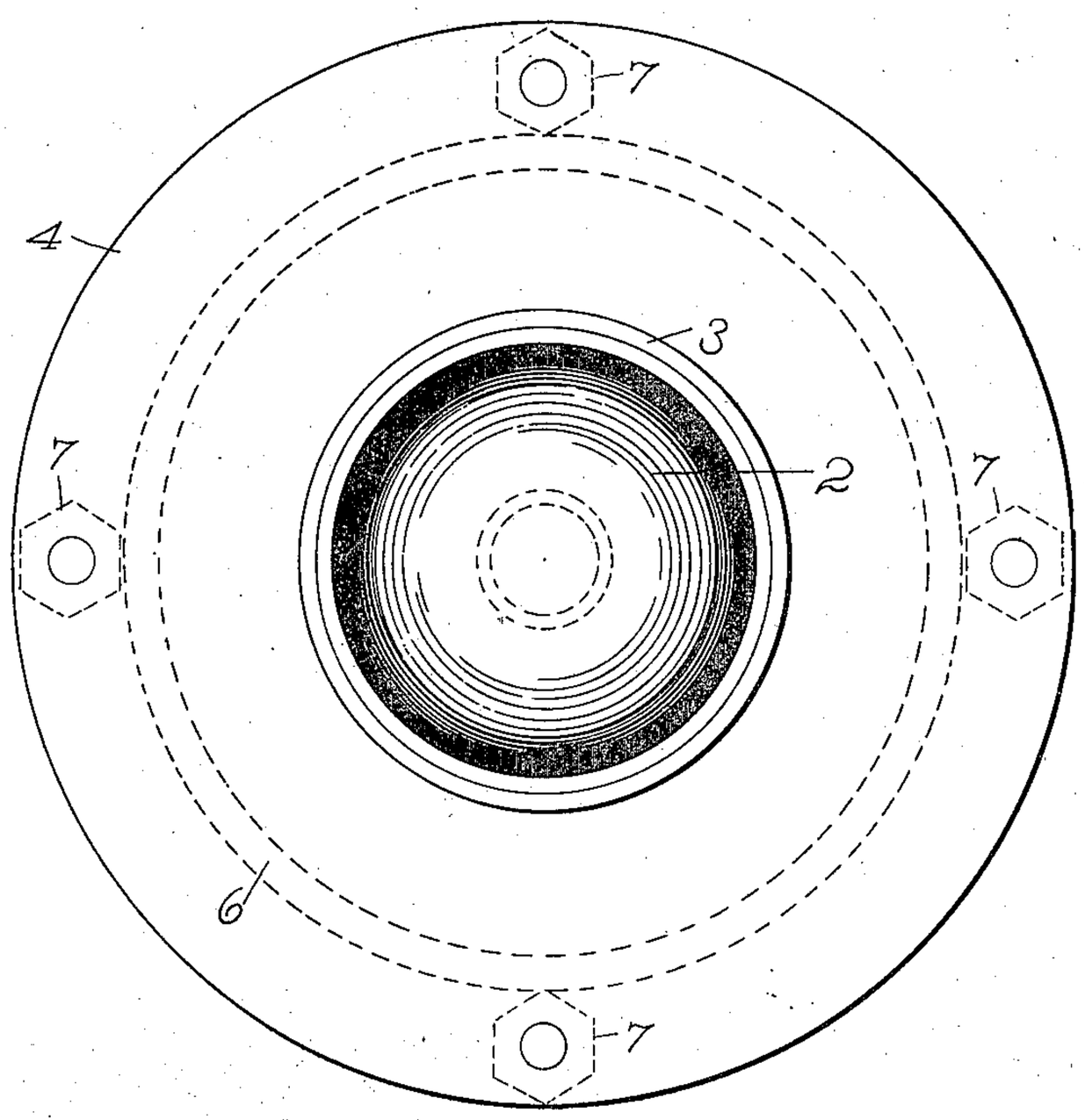

FIG. III

WITNESSES:

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LENS-POLISHING MACHINE.

1,166,639. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed June 3, 1914, Serial No. 842,575. Renewed December 8, 1915. Serial No. 65,865.

To all whom it may concern:

Be it known that I, HARRY W. HILL, a citizen of the United States, residing at Southbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Lens-Polishing Machines, of which the following is a specification.

My invention relates to improvements in lens polishing devices, and has for its leading object the provision of an improved polisher which will satisfactorily hold its shape under all service conditions.

A further object of my invention is the provision of an improved manner and process of forming a polisher and of an improved polisher resulting from this process, which polisher shall have the shape or curvature of the lens or lenses to be polished thereby, and will be so formed as to satisfactorily hold said shape when in use.

Another object of my invention is the provision of an improved process for forming of said polishers with a covering of fabric or like material which shall fit smoothly thereover without any wrinkles, seams or creases.

Other objects and advantages of my improved construction and process of producing the same should be readily apparent by reference to the following description taken in connection with the accompanying drawings, and it will be understood that I may make any modifications in the specific details of construction shown and described within the scope of the appended claims without departing from or exceeding the spirit of my invention.

Figure I represents a sectional view of my completed polisher. Fig. II represents a sectional view illustrating the same when partially formed, and Fig. III represents a front elevation of the parts as illustrated in Fig. II.

In the drawings, the numeral 1 designates the main or shaped portion of the lap, having drawn thereover the fabric or similar material covering 2 which is retained in position by the locking member 3 illustrated in the present instance as a ring.

Previous to the employment of my invention a number of attempts have been made to produce satisfactory polishers, but all of the previous polishers have possessed certain defects. Among the various kinds which have been hitherto used have been those made from pitch or the like which is molded to the exact shape desired. These have proved satisfactory to a certain degree, the difficulty being that when run at a high rate of speed they would heat and thus get out of shape, or even when run at slower rates of speed the friction and pressure would gradually force the pitch out of exactly correct shape and therefore careful attention was necessary to be given the past operation at all times to check up and see that the polisher was retaining its proper shape and thus was correctly polishing the lenses in place of giving the same a wavy effect or polishing them slightly off the correct curvature.

Another form which had been experimented with previous to my invention was that of a felt or other fabric polisher of soft material which would yield and automatically conform to the shape of the lens. This possessed, however, the same disadvantage as the form previously mentioned, in that extreme care and skill must be exercised to see that a concave curve was not flattened on account of the spreading out of the polisher and consequently this form also was not entirely satisfactory. With my improved form of polisher, however, the basal portion or lap 1 is formed from metal or other material which will hold its curvature under all conditions of service, while I stretch thereover the fabric or similar covering 2 which is so forced over the lap as to assume the exact curvature thereof without any bumps, creases, seams or other inequalities, and which consequently will satisfactorily polish the lens or lenses to the exact correct curve and will not entail any liability of grinding the curve either too strong or too weak, this result being attained without the exercise of the skill and care necessary to produce the lenses prior to my invention with the forms of polishers known to the prior art such as those just described.

By reference particularly to Figs. II and III the method of forming my improved polisher should be readily apparent, and it will be seen that after the member 1 has been shaped to correct form the material 2 is cut to approximately the desired size and is then placed between the clamping members 4 and 5. These members are so constructed as to provide a space therebetween somewhat less than the thickness of the material 2, this space allowing the material 2

to be gradually drawn therefrom upon tension on the central portion thereof and at the same time keeping a steady tension thereon to cause the material to be drawn to fit tightly over the member 1 in place of loosely sliding thereonto and leaving creases or folds on the surface thereof.

The material 2 having been placed in the recess 6 of the frame I tighten the bolts 7 to secure the material in position as previously mentioned, and place on the frame 4 the clamping member 3, here illustrated as a ring. It will be noted that the aperture of the clamping member 4 is slightly greater than that in the member 5, the member 5 being constructed to exactly fit the lap 1, while the aperture of the member 4 is sufficiently larger to allow for the thickness of the material 2, this aperture being sufficiently small, however, to bind against the material 2 all around the polisher 1 and thus to stretch the same smoothly over the lap and eliminate all wrinkles, creases or the like, so that the material will closely and smoothly fit the lap and exactly conform to the shape thereof. It is to be noted that the ring 3 has its aperture as a continuation in the portion 4, the ring 3 preferably resting against a suitable support, as the member 1 is forced through the apertures, and being removed with the covered lap to secure the material in position, as is clearly illustrated in Fig. I.

From the foregoing description taken in connection with the accompanying drawings, the construction and method or process of forming my improved polisher should be readily apparent, and it will be seen that I have provided a simple device which may be readily and inexpensively constructed, and which will provide an extremely durable, practical and efficient polisher, which will maintain its curvature under all conditions and will thus insure more accurate polishing of lenses while reducing the care and amount of labor necessary for such polishing.

I claim:

1. The process of forming a polisher consisting in shaping a foundation lap to the desired curve, cutting covering therefor to size, clamping the edges of the material between a pair of clamping frames, mounting a locking member on the frames, and forcing the lap through the locking member and frame, whereby the material is tightly drawn over the lap and automatically secured in position thereon, substantially as described.

2. The process of forming a polisher consisting in shaping a lap, placing a covering thereover, and forcing the lap and covering through a ring to cause the covering to smoothly fit the lap and leaving the ring surrounding the base of the lap to secure the parts together.

3. The process of forming a polisher consisting in shaping a lap to the desired curve, cutting a covering material to approximate size, employing a pair of clamping members for engaging the material, securing the material therebetween for gradual sliding movement, forcing the clamping members onto the polisher to tightly stretch the material thereover, and forcing a ring over the lap and material for securing the parts together.

4. The process of forming a polisher, consisting in shaping a lap to the desired curvature, employing an apertured clamping frame of size to fit over the lap, employing a second frame of slightly greater size than the lap, clamping a piece of covering material between the two frames, forcing the two frames downward over the lap, whereby the first frame serves to center and guide the lap while the second frame smooths, presses and stretches the material over the lap, and forces a locking member over the lap and stretched material to retain the material in stretched position covering the lap.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY W. HILL.

Witnesses:
JOSEPH J. DEMERS,
H. K. PARSONS.