(No Model.)

J. C. GILBERT.

SPINNING RING.

No. 598,200. Patented Feb. 1, 1898.

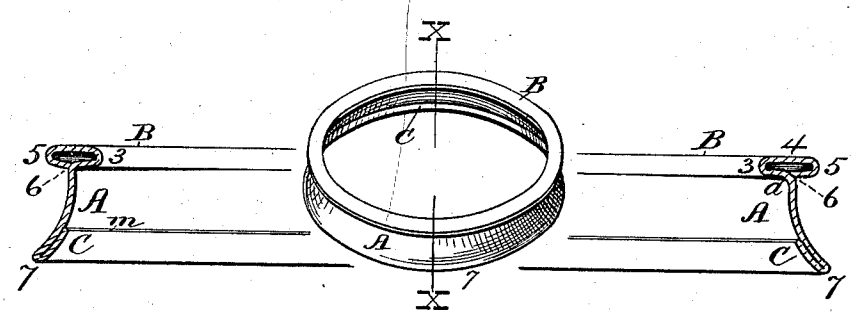

FIG. 1

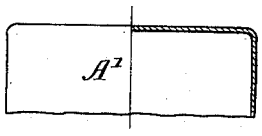

FIG. 3

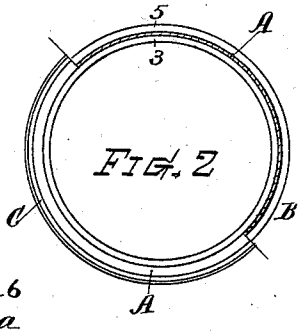

FIG. 2

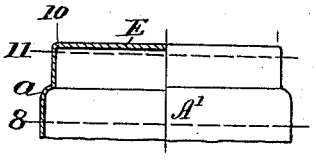

FIG. 4

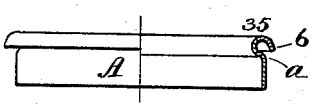

FIG. 5

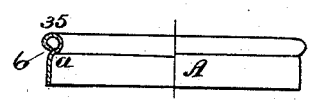

FIG. 6

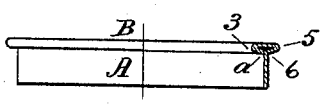

FIG. 7

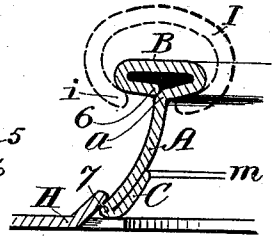

FIG. 10

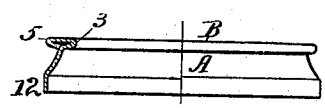

FIG. 8

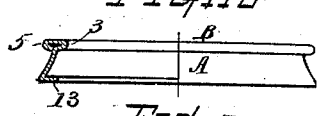

FIG. 9

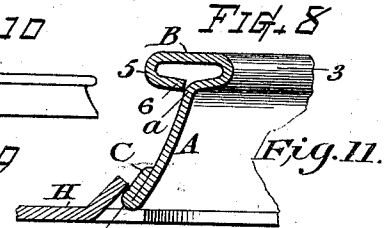

Fig. 11.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN C. GILBERT, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO EDMUND L. PARKER, OF SAME PLACE.

SPINNING-RING.

SPECIFICATION forming part of Letters Patent No. 598,200, dated February 1, 1898.

Application filed April 26, 1897. Serial No. 633,839. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. GILBERT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Spinning-Ring, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The prime object of my invention is to produce a strong, inexpensive, and more desirable and efficient sheet-metal spinning-ring for continuous spinning or twisting machines.

Another object is the construction of a sheet-metal spinning-ring with a double-folded flanged top rim in which the edge joint of the metal is disposed with an inward fold and abutting against the shoulder at the outer side of the ring, where it will not be chafed by the ring-traveler.

Another object is to provide a sheet-metal spinning-ring with a reinforced foot, substantially as shown, thereby obviating liability of the ring becoming fractured or cracked at the bottom edge when forced into the ring-holder.

These objects I attain by a spinning-ring constructed in the manner substantially as hereinafter explained and illustrated in the drawings, wherein—

Figure 1 shows a perspective view of my improved spinning-ring, also an enlarged section at line X X. Fig. 2 shows a plan, one-half bottom view, and one-half horizontal section, looking upward. Figs. 3 to 9, inclusive, illustrate the shapes of the material at various stages in the process of formation of the ring, each figure showing one-half in side view and one-half in section. Fig. 10 is an enlarged section through one side of the ring, also having the relation of the ring holder and traveler indicated thereon; and Fig. 11 is a sectional view showing the reinforce foot-fold as laid upon the exterior surface of the ring.

My improved sheet-metal spinning-ring consists of a thin circular web or body portion A, having at its top a traveler-guiding rim B, comprising a folded inwardly-projecting flange 3, a flattened or substantially level top surface 4, and a folded outwardly-projecting flange 5, the metal in which is turned under and its edge 6 abutted on or pressed against the outer side of the ring, the line of junction being close under the rim. The body portion A, which is slightly flared, giving a standing splay or incline at the foot to fit into the ring-holder H, is formed with a folded bottom edge, the thin metal being reversed in a sharp close-pressed bend and laid firmly and flatly against the splayed or outwardly-inclined web portion of the ring, as shown, thus providing a continuous smooth and perfect narrow rounded edge at 7 and a double ply or reinforced footing-rim C about the bottom of the ring, which is thus rendered not liable to check in hardening nor to become cracked or injured when forcing the ring into its holder or by upsetting the lips of the holder against the foot of the ring.

The reinforce C is in the present instance and preferably folded inward and laid against the inner surface of the web A, but can, if in any instance preferred, be folded against the exterior of the web, and I desire to include such structure as within the scope of my invention.

The method of forming sheet-metal spinning-rings in accordance with my invention is as follows: A disk of sheet-steel or other metal of suitable thickness is first passed through suitable drawing-dies and shaped into a plain cylindrical cup A′, as Fig. 3, approximately of the diameter required for the body of the ring. The head of the cup is then condensed, forming an annular rounded offset or shoulder *a*. (See Fig. 4.) The rim is then squared off to the proper dimension at line 8, the disk-head E punched out at line 10, and the top edge squared off at line 11, leaving sufficient material above the shoulder for forming the head or traveler guiding rim B of the spinning-ring.

The top edge 6 is, by means of suitable dies, stretched or distended and curled or rolled outward, as at 35, giving thereto the shape substantially as shown in Fig. 5. The next step is to bend inward the extreme edge 6, forcing and crimping it close against the shoulder *a* at the exterior of the ring, as in Fig. 6. The head of the ring is then pressed between flattening-dies, which close the folds and compress the roll 35 into the final shape,

(see Fig. 7,) forming the inwardly-projecting folded flange 3 and the outwardly-projecting folded flange 5 on the upper portion of the circular web A, the meeting joint 6 at the edge of the sheet metal being on the outside of the ring close in the neck and abutting against and supported by the shoulder or inward bend *a* of the web metal where it merges into the inward flange or fold, as more clearly shown in Figs. 1 and 10. This manner of forming the head of a sheet-metal spinning-ring is a feature of my invention.

For producing the bottom part or foot of the ring the lower part is swaged in suitable dies and distended, as at 12, for about one-third of the height, more or less, and to a diameter corresponding or approximating to the required dimension of the finished form, or as shown in Fig. 8. The body portion A by this distention assumes a downwardly-flared form. The lower distended edge is then crimped or turned by appropriate closing-dies into a horizontal flange or to the form indicated at 13 in Fig. 9. By a subsequent operation the flange 13 is forced upward and outward and permanently laid and set against the surface of the body portion, forming the close-folded edge at 7 and the reinforce C at the foot of the ring. The meeting edge *m* and surfaces are then smoothed off or buffed to the desired finish and the rings subsequently case-hardened and polished by usual means. The ring B may be more or less closely compressed, according to the size required. The ring-traveler runs thereon, as indicated by dotted lines I in Fig. 10, its end *i* clear from the edge joint 6 of the ring metal.

Sheet-metal spinning-rings have heretofore been produced of different formation, and I do not, therefore, broadly claim a sheet-metal spinning-ring irrespective of its structure.

What I claim, and desire to secure by Letters Patent, is—

1. A spinning-ring formed of thin metal and having a folded top rim comprising an inwardly-projecting folded flange, and an outwardly-projecting underfolded flange in which the under fold of the metal is returned inward to the web, with the edge joint disposed at the exterior of the ring and inwardly abutting against the neck-shoulder, substantially as set forth.

2. A sheet-metal spinning-ring having the downwardly-distended body portion adapted for support within a lipped plate-holder, and provided with a reinforce-fold formed as shown around its edge, which fits under the holder-lips.

3. A spinning-ring formed from thin metal, having the downwardly-splayed ring-body its bottom edge folded inward and laid, as a reinforce, firmly and flatly against the splayed inner face of the web portion of the ring, substantially as set forth.

4. A spinning-ring made of thin sheet metal and having the flat-topped traveler-race rim formed by a double-fold inwardly-projecting flange and a double-fold outwardly-projecting flange with an underfolded edge abutting against the exterior of the neck-shoulder, the web or ring body outwardly splayed at its base and having its lower edge upturned in a close fold laid and permanently set flat against the splayed surface of the web, for the purpose set forth.

Witness my hand this 23d day of April, A. D. 1897.

JOHN C. GILBERT.

Witnesses:
CHAS. H. BURLEIGH,
EDMUND L. PARKER.