

UNITED STATES PATENT OFFICE.

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MANUFACTURE OF INDEX-RINGS.

SPECIFICATION forming part of Letters Patent No. 581,377, dated April 27, 1897.

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To all whom it may concern:

Be it known that I, CURTIS H. VEEDER, a citizen of the United States, residing in the city and county of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Index-Rings, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

Index rings or wheels for cyclometers, registers, and other like purposes are usually covered with paper, upon which are printed the figures. Hitherto, so far as I am aware, the strip of paper was applied to each wheel separately, which not only rendered the operation of applying paper to a great number of wheels laborious and comparatively expensive, but resulted in lack of uniformity and of accuracy. I have sought to provide for application of the covering-paper to the rings or wheels in large numbers at one time and in such a manner as to insure absolute uniformity and accuracy, each wheel or ring, after having been covered and separated from the others, being printed by a rotating type-wheel.

The manner in which I accomplish the desired result and the means which I prefer to employ will be fully described hereinafter with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine or device adapted for accomplishing the result referred to, parts being broken away to show details of construction. Fig. 2 is a transverse section of the same on the plane indicated by the line xx of Fig. 1. Fig. 3 is a partial detail plan view of the same. Fig. 4 is a perspective view of one of the index-rings to which paper is to be applied, also represented in the other figures of the drawings.

In practicing my invention wheels or rings A A, which are to be covered, are assembled upon a common axis to form a cylinder, being preferably strung upon an arbor B. As represented in Fig. 3, the arbor is provided at one end with a head b to form a solid abutment for the wheels or rings and at the other end is screw-threaded, as at b' , to receive a nut, as b^2 , (shown in dotted lines in Fig. 3,) by means of which the rings may be crowded

closely together upon the arbor. Having been thus assembled to form a practically solid cylinder, the rings or wheels are thoroughly cleaned and coated peripherally with any suitable cement, and a strip of paper C or other suitable material is then wound spirally around the cylinder from one end to the other, the meeting edges of such strip of paper abutting closely to form a tight joint. When the cylinder has been thus coated and covered with paper, (a portion of such a cylinder being shown in Figs. 1 and 3,) it is set aside to permit the cement to harden or until it is required for further use.

Whenever a quantity of index rings or wheels are desired for use, one of the previously-prepared cylinders is taken in hand and the paper or other covering is cut clear through in the plane of the meeting faces of two adjacent rings, thereby separating from the cylinder one ring or wheel with its covering. This operation is repeated until the requisite number of separate rings or wheels is secured.

The strip of paper or other material, above referred to, may be laid on by hand, but I prefer to place the cylinder of rings between the centers of a machine or device similar to an ordinary small lathe. The cylinder may then be rotated by hand or otherwise, as may be most convenient. The machine or device which is adapted for this purpose is the same as that which may be employed to advantage in cutting the paper subsequently and will presently be described. As represented in Figs. 1 and 2, suitable head-stocks D D' are mounted upon a suitable base-plate E and are connected by a tie-rod D^2 and a guide-rod D^3 . In the head-stock D is mounted a threaded spindle F, carrying one of the centers f and adjustable by means of a hand-wheel or other suitable means. In the other head-stock D' is mounted a spindle F' , which carries the other center f' , and is free to rotate in the head-stock, but is held from longitudinal movement by suitable collars f^2 and f^3 . This spindle may be provided with a grooved pulley f^4 to be rotated by a belt when desired and with a handle f^5 , so that it may be rotated by hand. A driver G is mounted on the spindle and is preferably free to move longitudinally thereon to a limited extent, having

a slot g engaged by a pin f^6 , projecting from the spindle and being pressed up to its work by a spring g' , interposed between the driver and the collar f^2 . The driver is adapted to
 5 engage the arbor B in the usual manner, and the latter, together with the rings mounted thereon, may be rotated rapidly for the purpose of cleaning and scouring the rings before
 10 applying the cement or slowly for the purpose of winding the paper or other strip C thereon or for cutting the paper, as hereinafter described.

In separating each ring from the others forming the cylinder any suitable means
 15 might be employed to cut the paper, but I prefer the means I have represented in the drawings. Such means comprise a cutting-wheel H, which is fixed to a spindle h , mounted to rotate in a frame h' . The latter is free to
 20 slide longitudinally and to swing upon the guide-rod D^3 , and is provided with a handle h^2 , by means of which the operator can shift it readily. The cutter is brought to bear upon
 25 the paper or other covering as the cylinder is rotated, and is caused to sever the paper in the plane of the meeting faces of the wheels. It is evident that a stationary knife could be
 30 used in place of the revolving knife or cutting-wheel, but the latter is preferred. For the purpose of assisting the operator to cut the paper exactly on the proper line I have
 35 secured to the cutting-wheel H a guard-flange H', which is set at a distance from the cutting edge equal to the thickness of each index ring or wheel. I prefer also to mount the cutter
 40 and guard-flange so that they may rotate upon the spindle h and to interpose between the guard-flange or cutting-wheel at one side of the frame h' a spring h^3 , which presses the
 45 guard-flange against the end of the ring about to be severed from the cylinder formed by the others from the cylinder. As each ring is severed the cutter and guard-flange are swung
 50 out of the way and the newly-severed wheel or ring is slipped along toward the end of the arbor, the nut having been removed from the arbor. Then the cutter is moved along into
 55 position to sever another wheel or ring from the cylinder formed by the others, and so on until all of the rings have been separated.

It is obvious that the figures might be printed upon the rings by means of a rotating type-wheel while the rings are still held together
 60 by the paper, but ordinarily I print the characters upon each ring separately after its removal from the machine just described.

It will be readily understood from the foregoing description that by applying the paper to the rings in the manner described it is possible to secure perfect smoothness without
 65 extraordinary precaution and also to secure contact of the paper with the surface of each ring at all points, and therefore perfect adhesion, so that the starting up of the paper from the ring when in use is prevented. Moreover, the laying of the paper spirally about the cylinder of rings insures a closer and

more even joint between the meeting edges of the paper on each ring than it would be possible to obtain if the paper were applied to
 70 each ring separately.

I claim as my invention—

1. The combination with a series of wheels or rings held together to form a cylinder, of a strip of flexible material wound spirally
 75 about said cylinder and cemented thereto, substantially as shown and described.

2. The combination with two or more wheels or rings assembled so that their edges abut, of a strip of flexible material wound spirally
 80 upon and around the peripheries of said wheels or rings and fastened thereto by cement or other adhesive substance so as to form a cylinder of said wheels or rings, substantially as shown and described. 85

3. In a machine for making index-rings, the combination of means for supporting a cylinder composed of two or more wheels or rings united together by a strip of paper or other flexible material wound and fastened
 90 thereon, means to rotate said cylinder, a cutter and means to support said cutter to move toward said cylinder to sever the same into the separate rings of which it is composed, substantially as shown and described. 95

4. In a machine for making index-rings, the combination of means for supporting a cylinder composed of two or more wheels or rings united together by a strip of paper or other flexible material wound and fastened
 100 thereon, means to rotate said cylinder, a cutting-wheel, a guide-flange carried with said cutting-wheel, and means to support said cutting-wheel and guide-flange to move toward and from said cylinder and in a direction parallel with the axis thereof to sever in succession each separate ring from the cylinder by which it is supported and driven, substantially as shown and described. 105

5. In a machine for forming index-rings, the combination with a shaft or arbor adapted to support thereon two or more rings or wheels, of centers to support said shaft or arbor for rotation, a rod parallel with said shaft or arbor, a frame free to slide longitudinally and
 110 to swing upon said rod, a cutter mounted in said frame, and a guide-flange carried with said cutter, substantially as shown and described. 115

6. In a machine for forming index-rings, the combination of centers to support an arbor for rotation, a rod parallel with the axis of said centers, a frame free to slide longitudinally and to swing upon said rod, a cutting-wheel mounted in said frame, and a guide-flange carried with said cutting-wheel, substantially as shown and described. 120 125

This specification signed and witnessed this 20th day of May, A. D. 1896.

CURTIS H. VEEDER.

In presence of—

ARTHUR PERKINS,
 E. J. HOWARD.