

(No Model.)

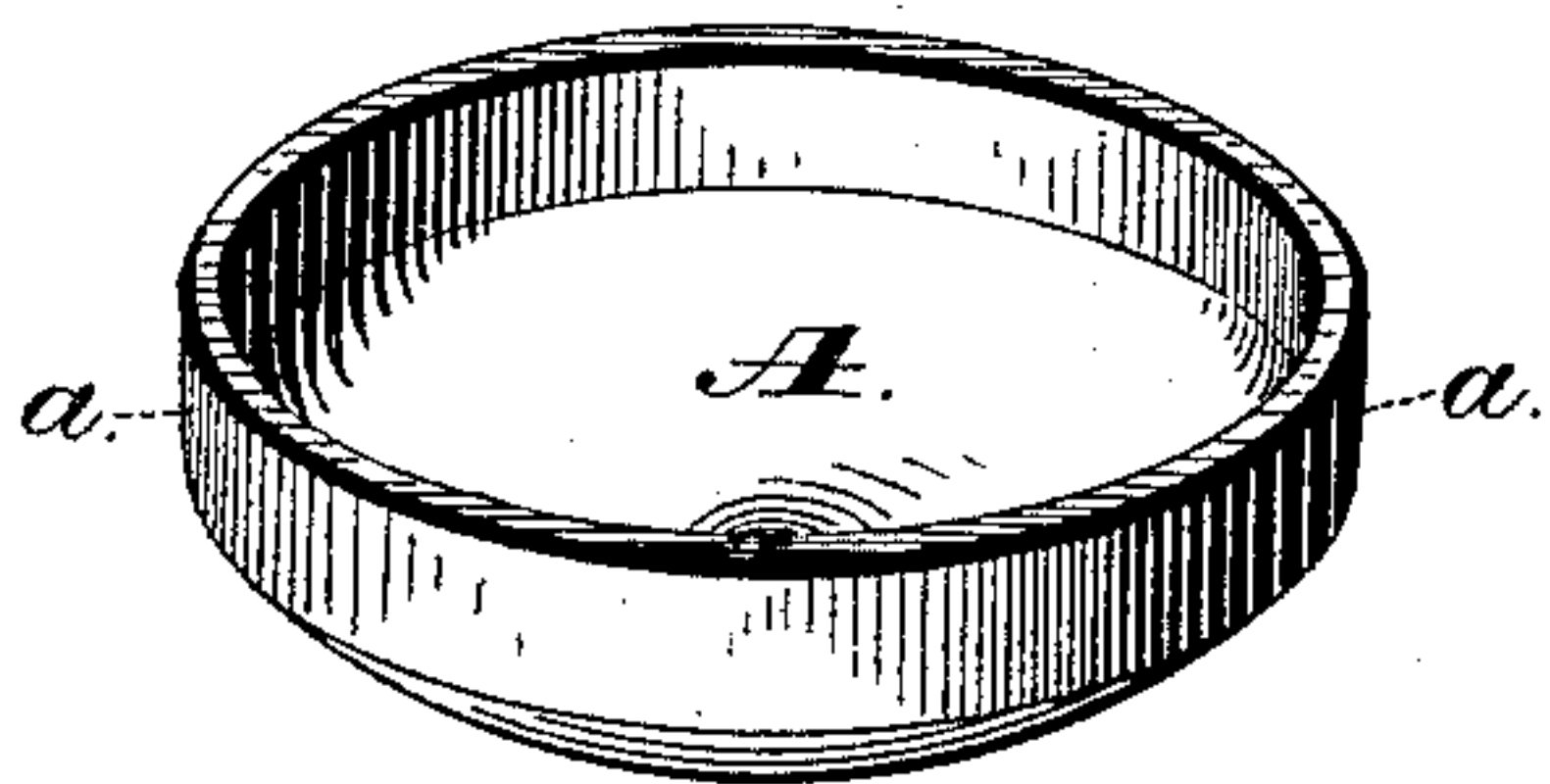
G. E. HART.

MANUFACTURE OF MAINSPRING BARRELS.

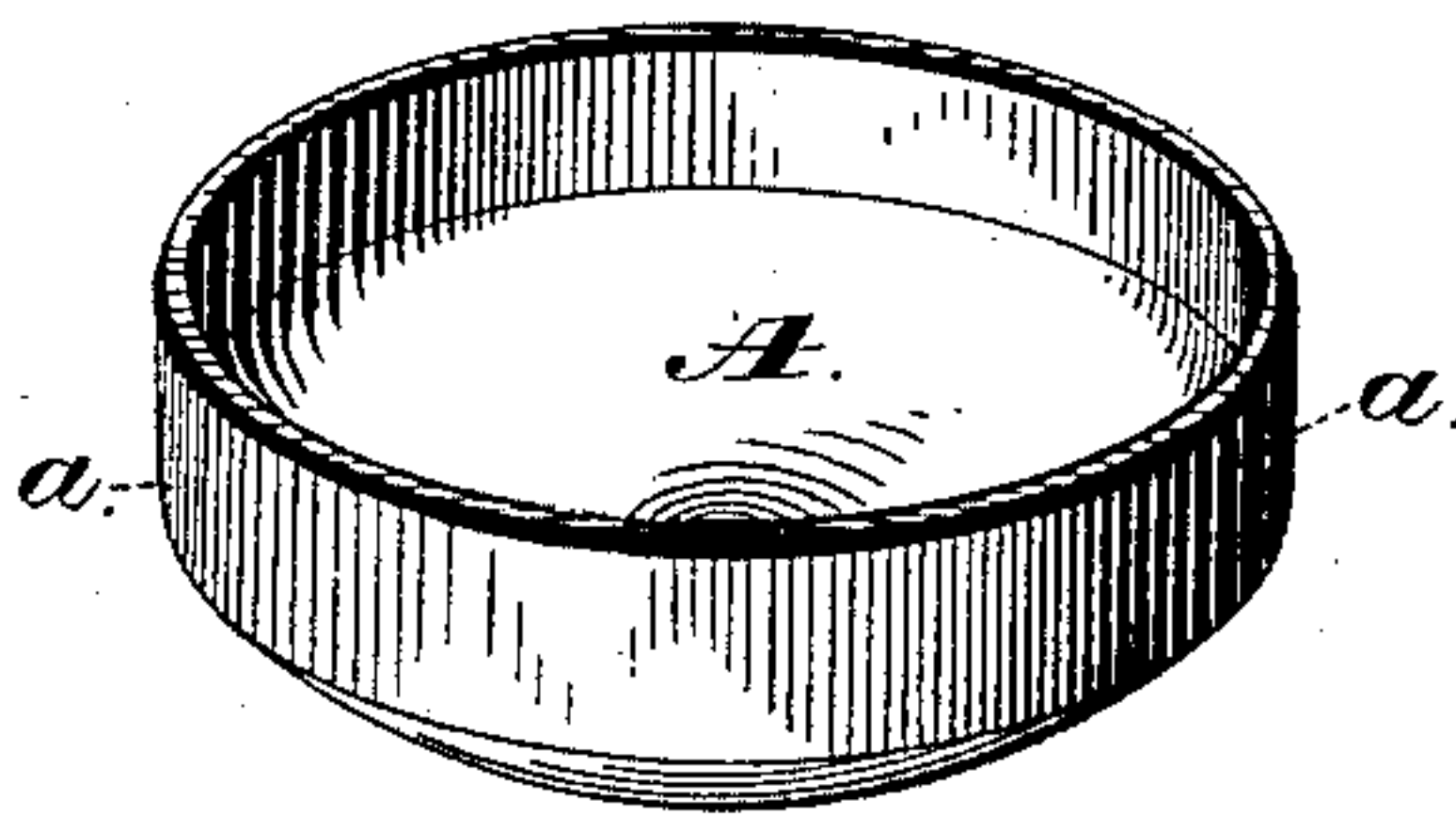
No. 338,963.

Patented Mar. 30, 1886.

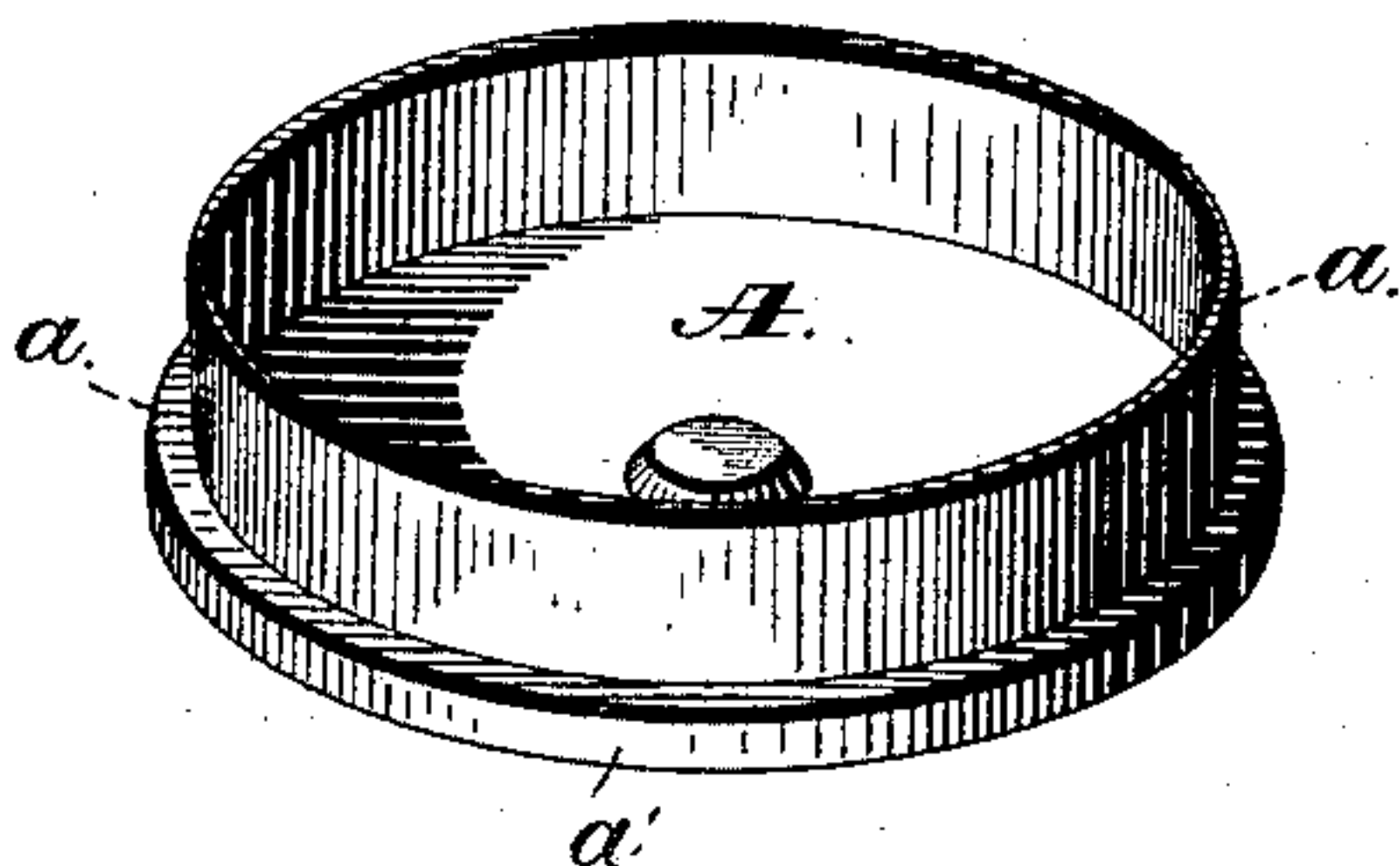
*Fig. 1.*



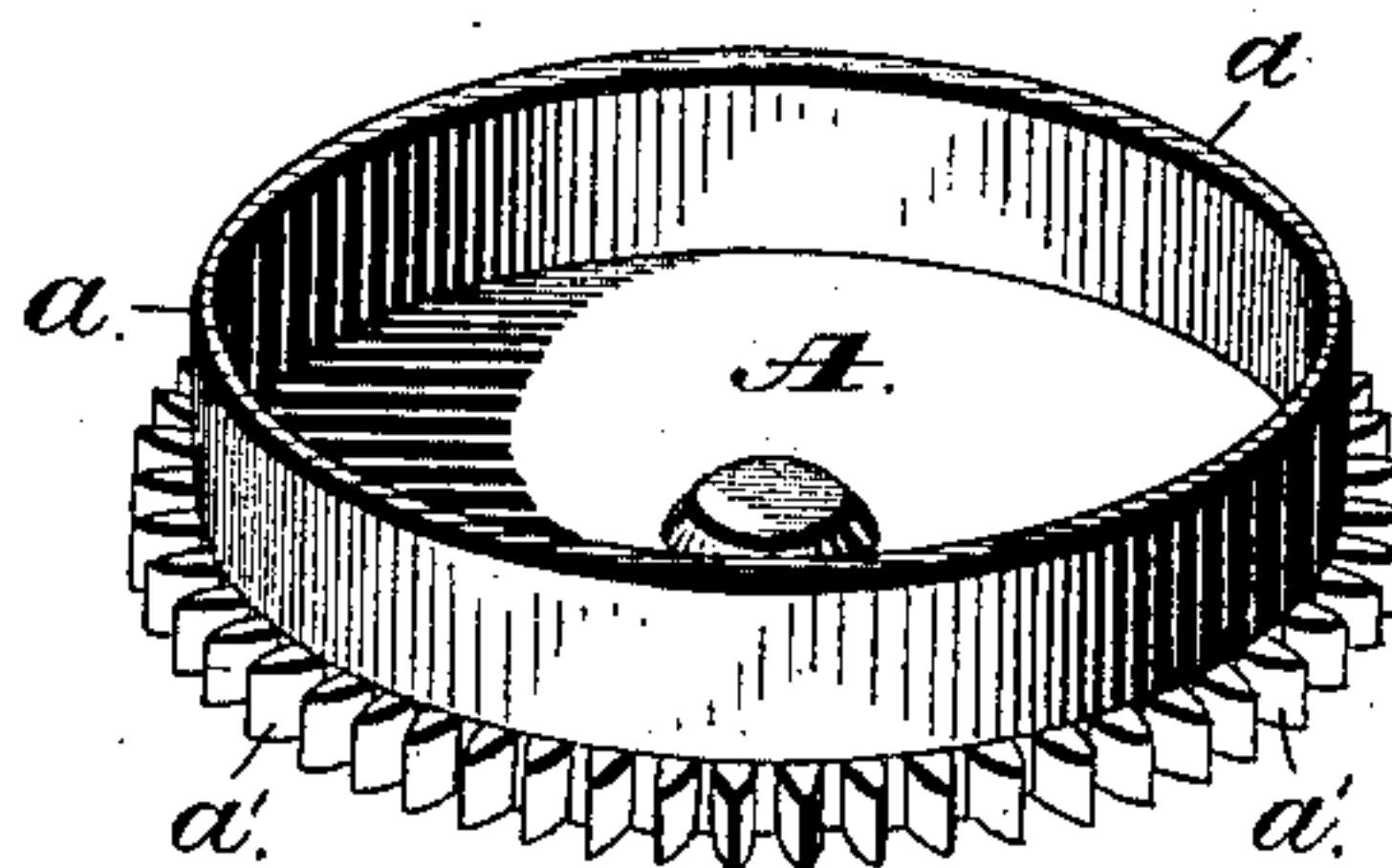
*Fig. 2.*



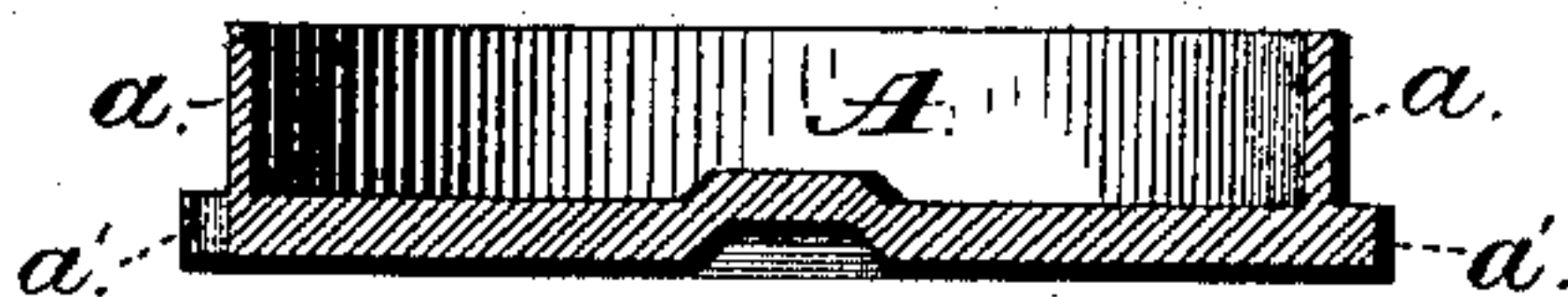
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses:*  
*Jas E Hutchinson.*  
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*Erindred Russell, his Attys*

# UNITED STATES PATENT OFFICE.

GEORGE E. HART, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE  
WATERBURY WATCH COMPANY, OF SAME PLACE.

## MANUFACTURE OF MAINSPRING-BARRELS.

SPECIFICATION forming part of Letters Patent No. 338,963, dated March 30, 1886.

Application filed July 30, 1885. Serial No. 173,056. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. HART, of Waterbury, in the county of New Haven, and in the State of Connecticut, have invented  
5 certain new and useful Improvements in the Manufacture of Mainspring-Barrels for Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accom-  
10 panying drawings, in which—

Figure 1 is a perspective view of a blank for a spring-barrel after it has passed through the first operation. Fig. 2 is a like view of the same after having been operated upon by  
15 the second pair of dies. Fig. 3 is a perspective view of said blank after the operation of the third pair of dies. Fig. 4 is a like view of the completed barrel, and Fig. 5 is a central cross-section of the same.

20 Letters of like name and kind refer to similar parts in each of the figures.

In the manufacture of watches it is customary in forming a mainspring-barrel to first cast a metal blank, then reduce the same to  
25 shape and size by means of turning-tools, and finally to complete the barrel by cutting teeth upon its periphery. This method requires skillful high-priced labor, is very wasteful of metal and time, and as the hard surface of the  
30 metal is all removed by turning, the metal composing the finished barrel is comparatively soft, and a considerable thickness is required in order to enable the article to withstand the strain to which it is subjected when  
35 in use.

The design of my invention is to lessen the expense and to increase the strength and durability of mainspring-barrels for watches; and to this end said invention consists in the  
40 method employed for constructing mainspring-barrels for watches, consisting, first, in the cutting of a disk from a sheet of metal, next in giving to said disk a cup shape, and next in pressing said cup within dies to give to it  
45 the general form of the completed barrel, substantially as and for the purpose hereinafter set forth.

It consists, further, in the method employed for constructing mainspring-barrels

for watches, consisting, first, in cutting a disk 50 from sheet metal, next in giving to such disk a cup shape, next in pressing such cup into the form of a completed barrel, and, lastly, cutting gear-teeth upon the periphery of said barrel, substantially as and for the purpose 55 hereinafter shown and described.

In the carrying of my invention into practice I cut from a sheet of metal a disk, which at the same time or by a subsequent operation of dies is given a slight cup shape, as seen in 60 Fig. 2. The blank A is next subjected to the action of a pair of dies, which increases the height of the side wall, *a*, after which by means of another pair of dies said wall is given the precise height and diameter de- 65 sired. The bottom of the blank is straightened, and a flange, *a'*, is thrown outward around the periphery at the lower edge of said wall. The flange *a'* has such transverse and radial dimensions as to enable it to have 70 gear-teeth formed upon it, and the final operation consists in the cutting of such teeth by any usual means, thereby completing the barrel.

By my method of construction the barrel 75 possesses much greater strength and rigidity for a given weight than it would be possible to obtain by the usual method of casting a blank and dressing it to shape with cutting-tools, and, in addition to such advantage, it 80 can be produced for a fraction of the expense heretofore required and with less waste of material.

Having thus fully set forth the nature and merits of my invention, what I claim is— 85

1. The method employed for constructing mainspring-barrels for watches, consisting, first, in cutting a disk-shaped blank from a sheet of metal, next in giving to said blank a cup shape by means of dies, and finally, by 90 means of other dies, in throwing out around the periphery of said blank a radial flange from which to form gear-teeth, substantially as and for the purpose specified.

2. The method employed for constructing 95 mainspring-barrels for watches, consisting, first, in cutting a disk-shaped blank from a sheet of metal, next in giving to said blank



a cup shape by means of dies, next, by means of other dies, in throwing out around the periphery of said blank a radial flange, and finally cutting gear-teeth from and within  
5 such flange, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I

have hereunto set my hand this 18th day of July, 1885.

GEORGE E. HART.

Witnesses:

CHARLES S. CHAPMAN,

GEO. E. TERRY.