

(No Model.)

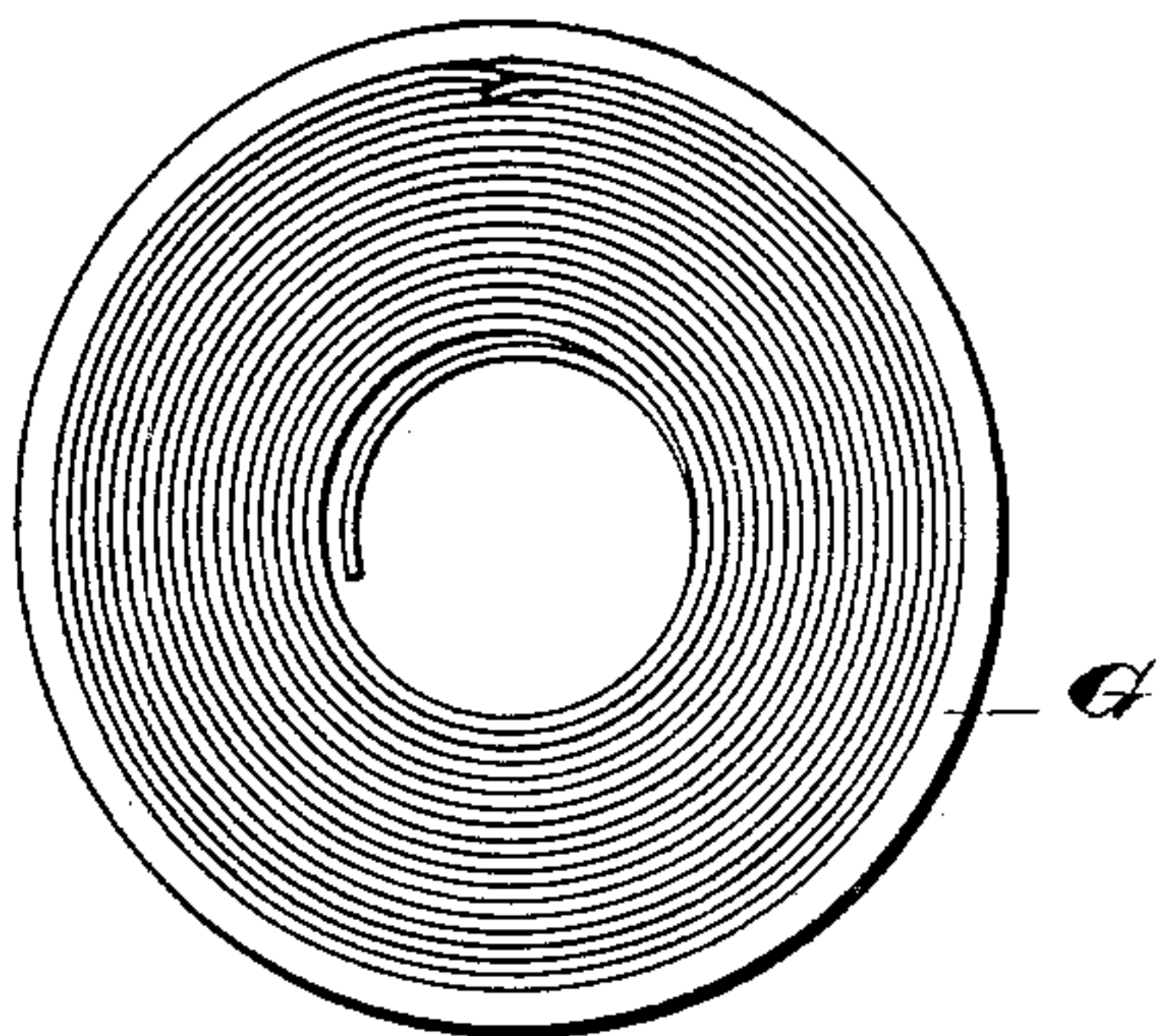
E. KARTHAUS.

METHOD OF INSERTING MAINSPRING AND REMOVING THE SAME.

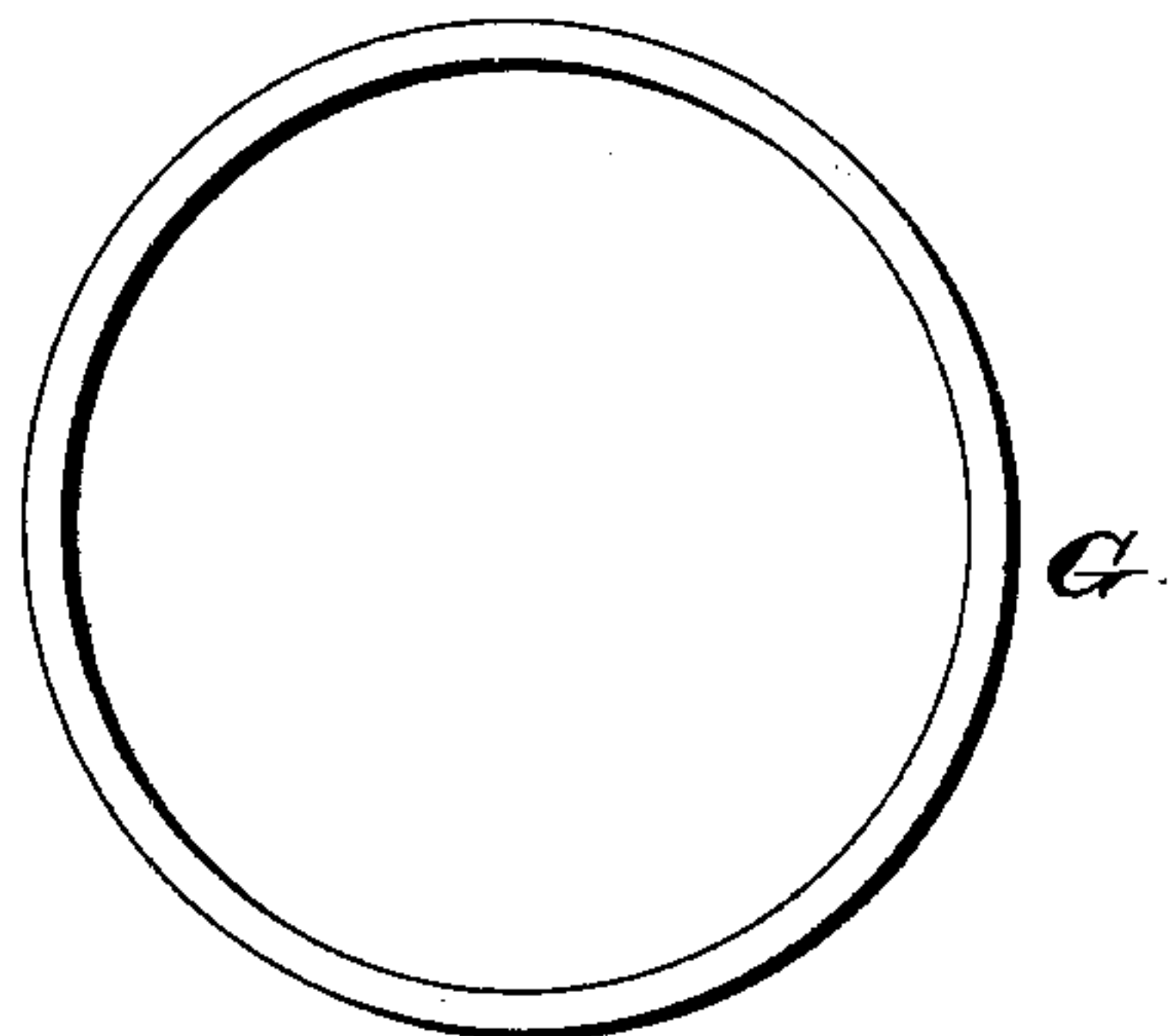
No. 397,505.

Patented Feb. 12, 1889.

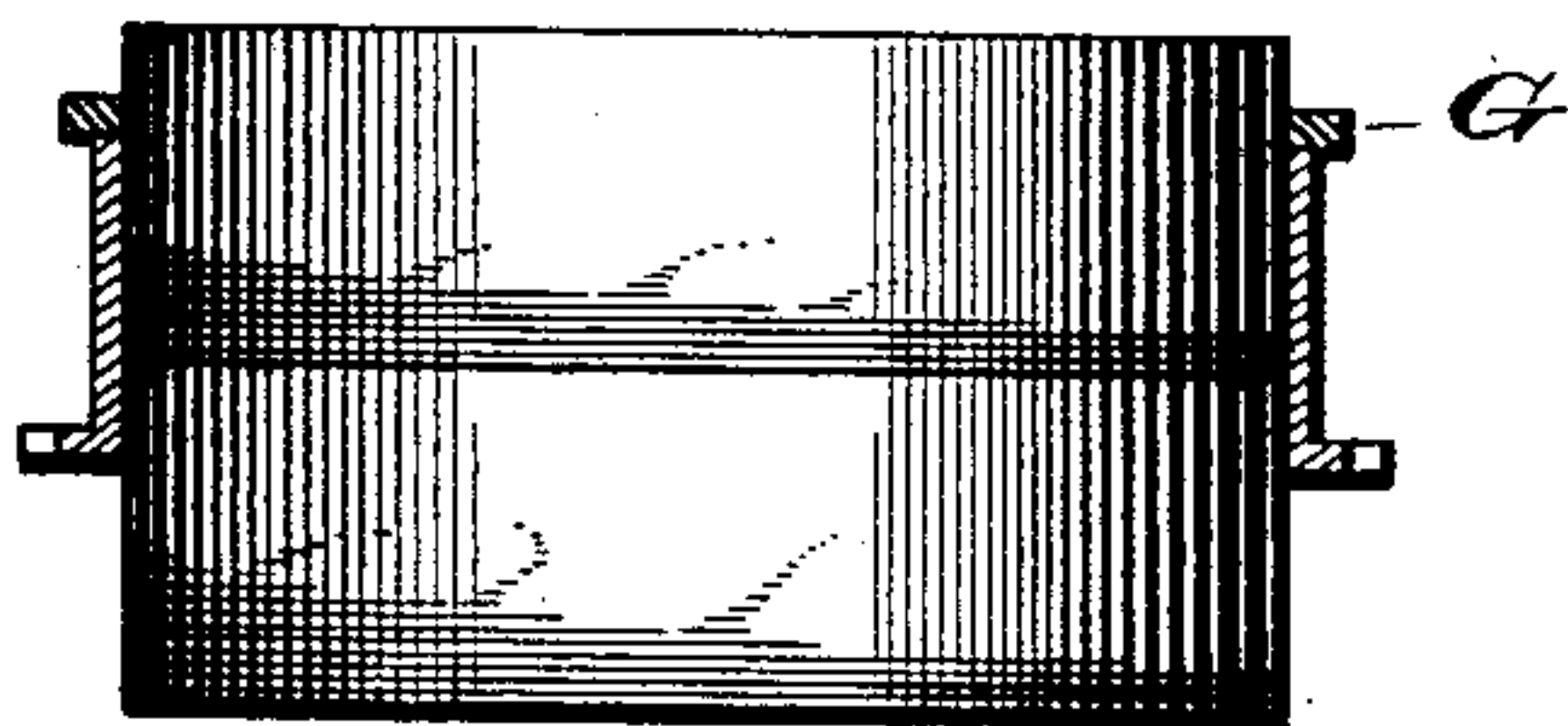
~~FIG. 1.~~



~~FIG. 2.~~



~~FIG. 3.~~



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

ERNEST KARTHAUS, OF HUNTSVILLE, ALABAMA.

METHOD OF INSERTING MAINSPRINGS AND REMOVING THE SAME.

SPECIFICATION forming part of Letters Patent No. 397,505, dated February 12, 1889.

Application filed April 25, 1888. Serial No. 271,863. (No model.)

To all whom it may concern:

Be it known that I, ERNEST KARTHAUS, a citizen of the United States, residing at Huntsville, in the county of Madison and State of Alabama, have invented certain new and useful Improvements in the Method of Inserting Mainsprings and Removing the Same; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a method of inserting and removing the mainsprings into and from the barrels of watches and other time-keepers, that will be hereinafter fully described and claimed.

The object of my present invention is to facilitate the insertion and removal of mainsprings of watches and other time-keepers while they are in a coiled or wound-up state, and to enable this result to be attained without the use of special instruments for coiling and inserting such springs.

In the accompanying drawings, Figure 1 is a plan view of a mainspring having a detachable encircling ring for holding it in a coiled or wound-up state in a condition ready for insertion into a watch-barrel according to my improved method. Fig. 2 is a detached view of the ring adapted to receive the coiled mainspring, and Fig. 3 illustrates my method of simultaneously inserting a coiled mainspring at one end of a barrel and removing another spring at the opposite end thereof.

Like letters of reference denote corresponding parts in all the figures.

The common practice of placing mainsprings upon the market is to wind wire around the same to prevent the uncoiling thereof, these wires being removed before the springs are placed in the barrels.

It is apparent that special means must be resorted to for preventing the uncoiling of the springs after the wires are removed, and the appliances of a watch-maker are required to fit the springs in place properly and make the required connection with the barrels.

In order to facilitate the ready insertion and removal of springs, I resort to the use of a ring-shaped clasp, G, which is made of metal or other suitable material, and which is fitted closely and snugly around the mainspring, as clearly shown in Fig. 1.

The exterior diameter of the clasp-ring is made slightly larger than the interior diameter of the watch-barrel in order that the clasp-ring will strike the end of the barrel when the spring is placed therein, while the interior diameter of the clasp-ring is equal to or slightly smaller than the interior diameter of the barrel in order that the mainspring can be easily inserted therein, it being understood, also, that the mainspring thus coiled and clasped is also slightly smaller in diameter than the clasp-ring and the barrel it is to enter.

It frequently happens that springs originally inserted into watch-barrels must be replaced by weaker or stronger ones, and in order to permit the change to be easily and expeditiously made without the aid of special tools or great skill I have provided a watch-barrel with two removable heads, which, however, is not claimed herein.

In practicing my improved method of inserting and removing mainsprings into and from the barrel of a watch a specially-gaged clasp-ring, G, is selected and fitted closely around the new mainspring that is to be inserted, the mainspring having been first wound up or coiled to the required size.

It will be understood that the clasp-ring selected has its exterior diameter slightly larger than the interior diameter of the barrel, and that the interior diameter of the ring corresponds to or is slightly smaller than the corresponding diameter of the barrel. After one or both of the removable heads of the watch-barrel have been removed one edge of the mainspring is forced into one end of the barrel and displaces the old spring therein a corresponding distance, the clasp-ring striking against the end of the barrel when the spring is partially inserted.

The new mainspring is finally forced completely into the barrel and the old mainspring expelled from the opposite end of the barrel, the clasp-ring being slipped from the first mainspring, when the latter is forced com-

pletely into the barrel, by reason of the end of the barrel offering resistance to the movement of the clasp-ring with the mainspring when the latter is forced completely into the barrel.

5 If desired, a clasp-ring may be fitted around the second mainspring before its complete expulsion from the barrel, in order to prevent the mainspring from uncoiling.

10 In a common watch-barrel having only one detachable end head the broken old spring in the barrel is first removed in the ordinary manner, and then the new spring is inserted by forcing it from its clasp-ring into the barrel, in the manner hereinbefore set forth.

15 I claim—

1. The herein-described method of inserting mainsprings into the going-barrels of watches and other time-keepers, which consists, first, in placing a non-expansible clasp
20 around the mainspring to be inserted, the interior diameter of said clasp being of corresponding or slightly smaller diameter than the barrel into which the mainspring is to be inserted, and then forcing the mainspring into
25 the barrel and causing the clasp to strike the end of the barrel, whereby the clasp is removed from the mainspring by the operation of forcing the mainspring into the barrel, sub-

stantially as described, for the purpose set forth. 30

2. The herein-described method of inserting and removing mainsprings into and from the going-barrels of watches and other time-keepers, which consists, first, in placing a non-expansible clasp-ring around the mainspring
35 to be inserted, the interior diameter of said clasp-ring being of corresponding or slightly smaller diameter than the barrel into which the mainspring is to be inserted, then partially forcing the mainspring into one end of
40 the barrel and partially forcing another mainspring already fitted in the barrel from the opposite end thereof, and finally forcing the first mainspring completely into the barrel and entirely expelling the second mainspring
45 therefrom, the clasp-ring being removed from the first mainspring, when the latter is forced completely into the barrel, by striking against one end thereof, as and for the purpose described. 50

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

ERNEST KARTHAUS.

Witnesses:

T. A. THURSTON,
J. W. COOPER, Jr.