

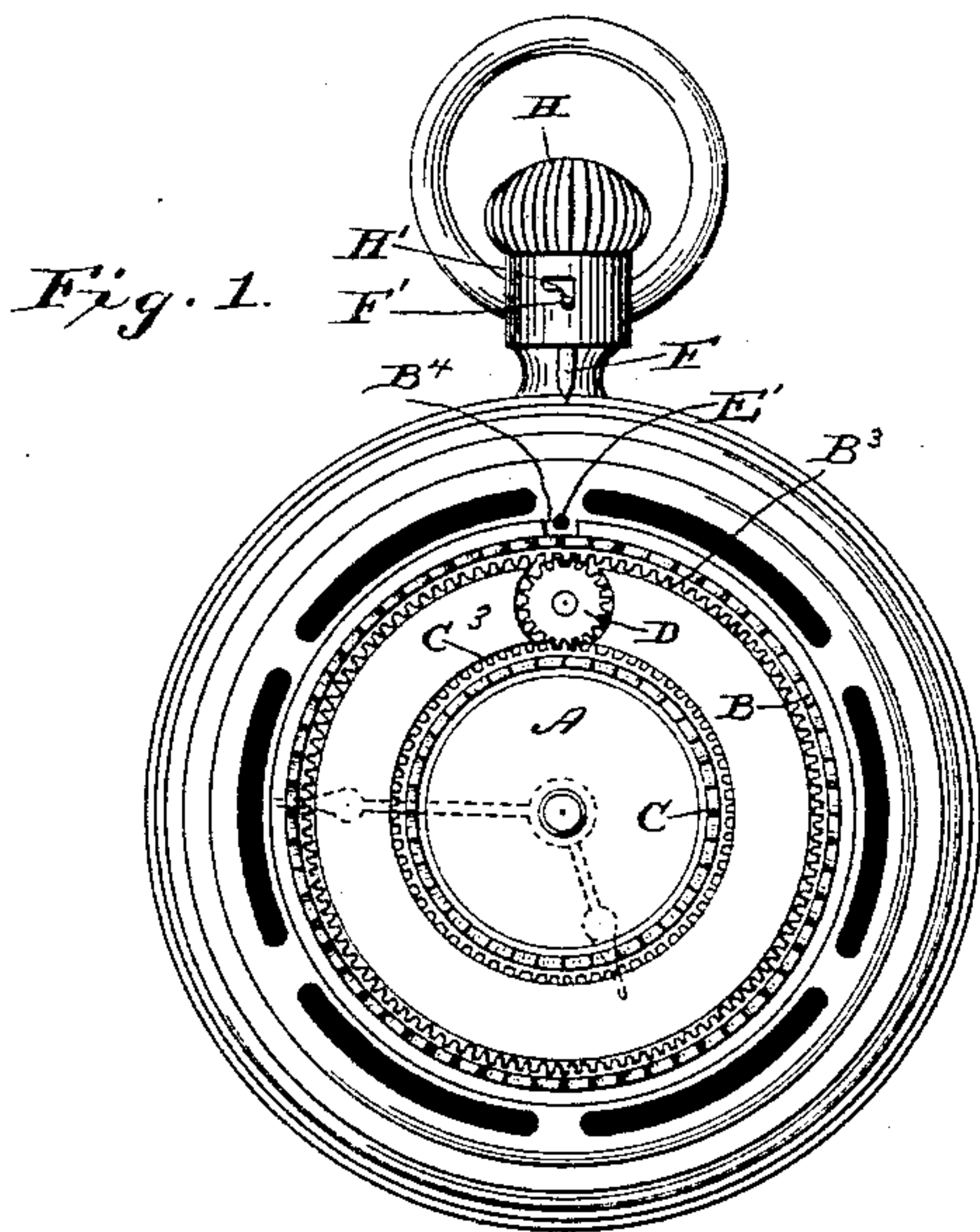
(No Model.)

A. FISCHER.

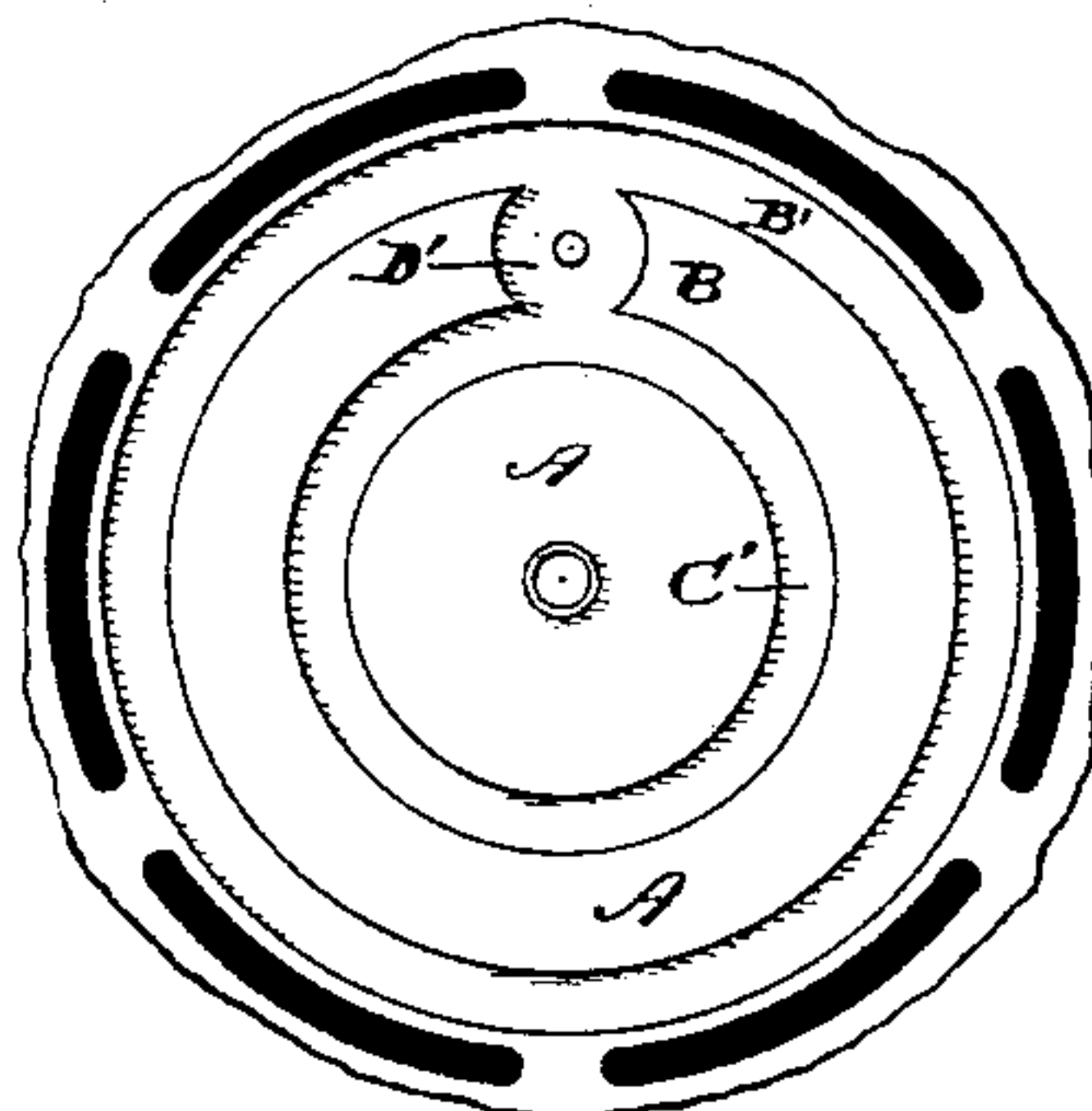
SETTING MECHANISM FOR WATCHES.

No. 388,404.

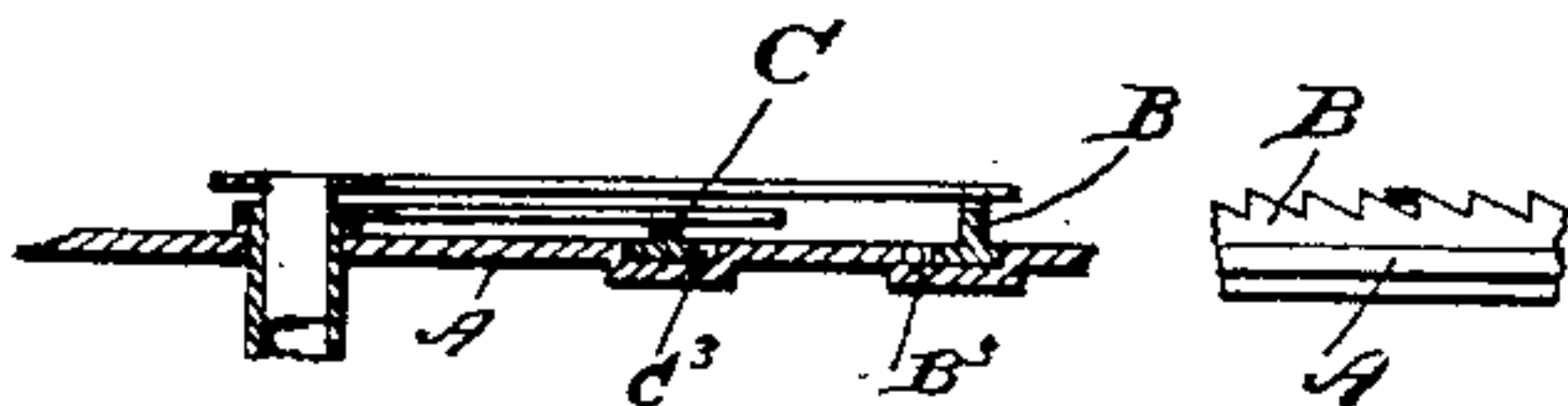
Patented Aug. 28, 1888.



*Fig. 2.*



*Fig. 4.*



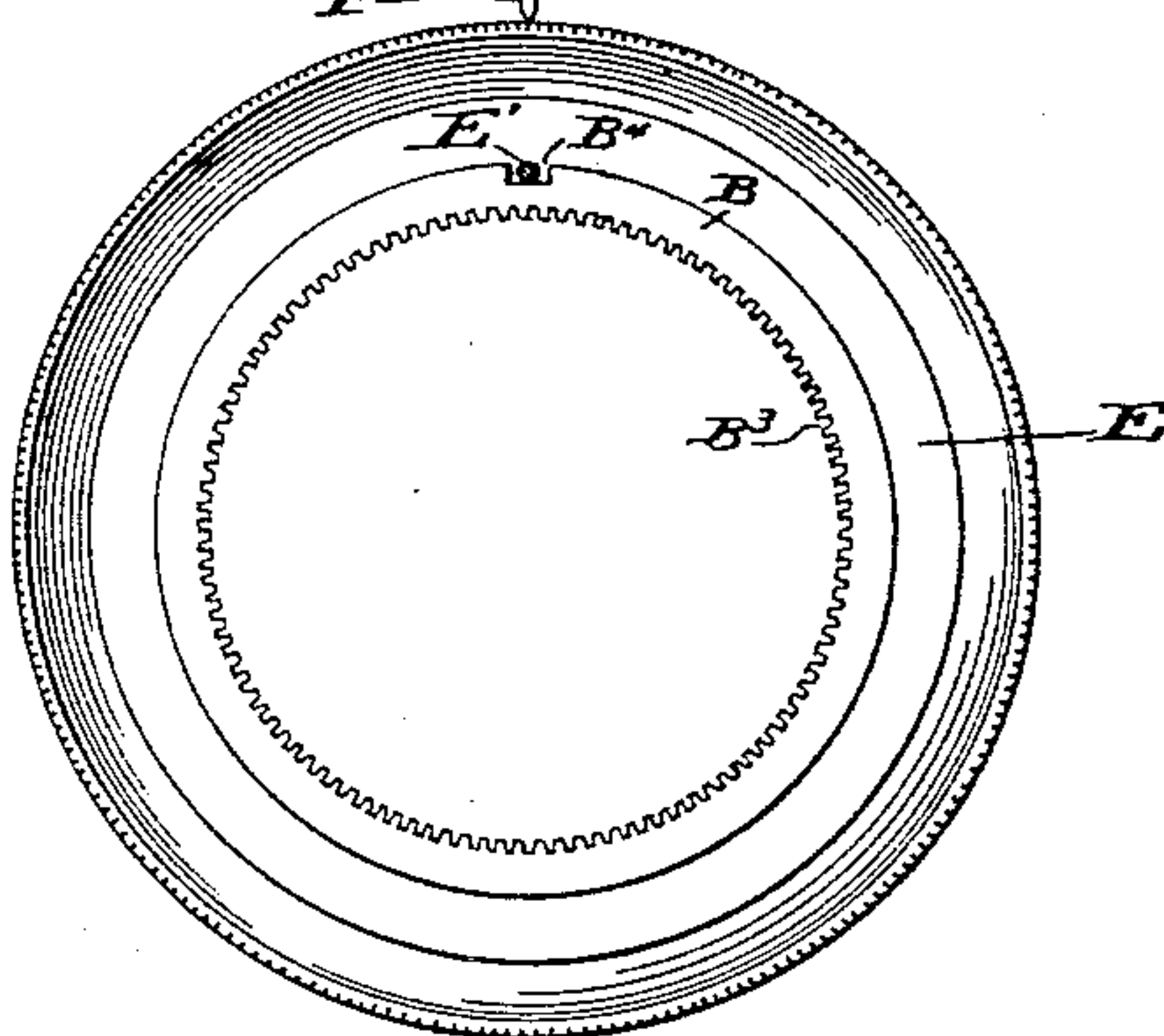
*Fig. 5.*



*Fig. 6.*



*Fig. 3.*



Witnesses.

Chas. R. Burr.  
C. F. Murdock

Inventor.

August Fischer.  
per Murdock & Murdock,  
his Attorneys.



# UNITED STATES PATENT OFFICE.

AUGUST FISCHER, OF WINCHESTER, ILLINOIS.

## SETTING MECHANISM FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 388,404, dated August 28, 1888.

Application filed March 2, 1888. Serial No. 265,996. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST FISCHER, a citizen of the United States, residing at Winchester, county of Scott, State of Illinois, have  
5 invented new and useful Improvements in Watches and Clocks, of which the following is a full and exact description, reference being had to the accompanying drawings, making part of this specification.

10 This invention relates to improvements in watches and clocks, but more especially to that class in which the hands move independently and are required to be set separately.

It consists in providing an attachment by  
15 means of which each hand is separately engaged and moved to its destination and left in position while the other hand is being moved.

It further consists in providing a transparent dial by which the mechanism for setting  
20 the hands is engaged, capable of being revolved in either direction, whereby the said hands may be set separately by revolving the bezel in opposite directions; and it further consists in providing a locking device by means  
25 of which the said transparent dial is retained stationary.

In the drawings, Figure 1 is a plan view of a watch having this invention applied. In this view the bezel and figured dial are removed  
30 to show the operative parts of the invention. Fig. 2 is a plan view of the under side of the bezel, showing the connection between it and the principal wheel of the setting mechanism. Fig. 3 is a plan view of the under side of the bezel, showing the connection between it and  
35 the principal wheel of the setting mechanism. Fig. 4 is a detail view in section, showing the relative position of the hands and setting mechanism. Fig. 5 is a detail view of a modification of the invention. Fig. 6 is a detail  
40 view of another modification of the invention.

In the drawings, the letter A designates a plate which is placed under the time-dial and forms a part of the frame of the watch. In  
45 the upper surface of this plate are cut annular grooves B' and C' and the recesses D'. In the former of these grooves is placed the crown spur-wheel B. The said wheel is provided with crown ratchet-teeth set at an angle like  
50 ratchet-teeth. The said teeth extend high enough to engage the minute-hand of the watch when moving in the direction of the inclina-

tion of the said teeth. About the outer side and at the base of the teeth is a plane surface, substantially as shown, while upon the inner  
55 side of the said wheel is provided cogs. The outer and plane surface is provided at one point with a recess, B<sup>1</sup>, for the reception of a pin, E', depending from the transparent dial which covers the face of the watch. 60

Set in the annular groove C' is a smaller crown spur-wheel, C. The said wheel is provided with teeth extending above the figured dial high enough to engage the hour-hand of the watch when moving in the direction of the  
65 inclination of the teeth. The teeth in this wheel are inclined in the same direction as those of the wheel in contact with the minute-hand, and consequently adapted to move the hour-hand with which it is engaged in none  
70 other than the direction in which the minute-hand is moved. From the outer side of the base of the teeth extend cogs C<sup>3</sup> on a level with the cogs B<sup>3</sup> on the inner side of the spur-wheel B. The teeth in both wheels are similar. 75 In each they are adapted to engage their assigned hands when moved in the direction of the inclination of the teeth and to pass under the same when moving in the opposite direction. The teeth do not extend far above the  
80 path of the hands, and so do not impede the natural movement of the hands or displace them while moving backward, as hereinafter set forth.

Mounted in the recess D' is the cog-wheel D, 85 which is geared with the cogs B<sup>3</sup> and C<sup>3</sup> of the wheels B and C, respectively. By means of this wheel D any motion imparted to the wheel B is reversed in being transmitted to the wheel C. The figured dial is mounted upon  
90 the plate A, inside of the wheel C and between the wheels B and C, with the teeth of the respective wheels protruding above the same. Covering this dial and the hands, as in ordinary constructions, is the bezel-glass E. From  
95 under the surface of the said bezel extends a small pin, E', which is inserted in the recess B<sup>1</sup> of the wheel B. The bezel is so mounted upon the frame of the watch as to be capable of being rotated in either direction. 100

The operation of the invention to set the hands separately is as follows: As shown in the drawings, the inclination of the teeth of both wheels B and C is in the direction of the



movement of the hands upon the face of the watch, and I will describe the action as so constructed. If it is desired to set the hour-hand first, the bezel E is rotated in the direction opposite that which the hands travel. This imparts, through the wheel D, a reverse movement to the wheel C, which being in the direction of the inclination of the teeth of that wheel the sharpened edge of the teeth immediately engage the assigned, or hour, hand, which it moves to the desired position.

During the operation herein described of setting the hour-hand it will be observed that the teeth of the wheel B have been moving in the direction opposite to the movement of the hands, and therefore not engaging the minute-hand, but passing under, lifting it gradually over its shoulder in doing so. When it is now desired to set the minute-hand, the reverse of the operation herein described is pursued, the wheels D and C being reversed and the teeth of the latter avoiding contact with the hour-hand, leaving that in the position in which it places it in the former movement.

When the bezel E is not employed for setting the hands, as herein described, it is locked in position by the small bolt F. The said bolt is provided upon the end next the said bezel with a sharpened edge for resting in the serrations which are provided in the edge of the bezel to hold the bezel in a stationary position, so that the watch may be handled without fear of disadjustment of the hands. The bolt is mounted in the stem H, and is provided upon the side with a small pin, F', extending through a slot, H', in the side of the said stem. This slot is angular in form, allowing the bolt to be raised from engagement of the serrations in the periphery of the bezel E and the pin F' in the side of the said bolt to be moved into a continuation of the slot at an angle to the first part thereof, in which position the bolt F is prevented from engaging the said bezel. Upon the said bolt is coiled a spring adapted to throw the same into engagement with the said bezel when the pin F' is moved out of the divergent portion of the slot H' of the stem H. By means of this attachment the bezel may be freed for operation with ease and speed, while at the same time it is retained, when not in operation, stationary.

The modifications shown in Figs. 5 and 6 of the drawings are mainly in the means of engaging the hands of the watch to the rings B and C when in operation. In the former small hinged pawls I are attached to each hand directly over their assigned wheels and extending to the side of the hands opposite to the line of their movement. In this modification the wheels B and C are not provided with the teeth, as hereinbefore described, but with smooth surfaces. The operation of the invention, in so far as the gearing between the wheels B and C and the bezel E are concerned, is the same as that hereinbefore described. When either of the wheels B and C is rotated in the direction of the line of

movement of the hands of the watch, the pawls I operate as a wedge between the said wheels and their respective hands to cause the latter to move with the wheel moving in the direction above stated. In the reverse of this movement the freed end of the pawl, resting upon the smooth surface of the wheels B and C, glides over the same without affecting the position or the movement of the hands.

The modification shown in Fig. 6, like that of the former, is provided with wheels B and C having a smooth surface instead of the teeth shown in the other figures.

Mounted upon each of the wheels in this modification is an upright pin, K, extending into the path of the assigned hands of each wheel. This pin is so constructed—of light spring metal—that it does not alter the position on the hands when moving in the direction opposite that normally pursued by them; but, by reason of the shoulder K' at the rear of the said pin, when it comes in contact with them, moving in the direction so pursued by them, it engages the hand and moves it to the desired position.

It is obvious that while I have described in this specification several forms of the construction of my invention I do not confine myself to any of them, as the construction may be changed indefinitely without altering the essential features of the same, which are the two wheels B and C, intermediate gearing between the two for moving them in opposite directions synchronously, and a connection between the hands of the watch or clock, accordingly as the invention is applied, for engaging the said hands while the wheels are moving in one and a predetermined direction only.

What I claim is—

1. In a watch such as described, the combination of the hands of the watch, an attachment for setting the hands independently, adapted to engage each separately when moved in opposite directions, and a bezel adapted to be rotated in both directions for moving the setting attachment, substantially as described.

2. In a watch such as described, the combination of the hands of the watch, two rings adapted to be moved in both directions and to move the hands in one direction only, and intermediate connections for causing the said rings to move in opposite directions, substantially as described.

3. In a watch such as described, the combination of the hands of the watch, two rings provided with cogs upon the opposite edges and adapted to be moved in both directions and to move the hands in one direction only, and an interposed cog-wheel the cogs of which are geared with the cogs of the said rings to move them in opposite directions synchronously, substantially as described.

4. In a watch such as described, the combination of the hands of the watch, two crown ratchet-wheels provided with cogs upon the opposite edges and the teeth inclined in the same direction on both wheels and adapted to



engage said hands only when moved in the direction of the inclination of the said spurs, and an interposed cog-wheel geared with said wheels to move them in opposite directions 5 synchronously, substantially as described.

5. In a watch such as described, the combination of the hands of the watch, two rings provided with cogs upon the opposite edges and adapted to move in opposite directions, intermediate connections between the said hands 10 and rings for causing the hands to be moved by the rings when moving in one direction only, an interposed cog-wheel geared with the said wheels to move them in opposite directions synchronously, and a bezel adapted to 15 be rotated in both directions for moving the said rings, substantially as described.

6. In a watch such as described, the combination of the hands of the watch, a setting 20 mechanism for setting the hands separately, a

bezel adapted to be rotated in both directions for operating the setting mechanism, and a spring locking attachment for retaining the said dial in position, substantially as described.

7. In a watch such as described, the combination of the hands of the watch, a setting 25 mechanism for setting the hands separately, a bezel adapted to be rotated in both directions for operating the setting mechanism and provided with a serrated edge, and a spring-actuated foot adapted to set in the said serrations 30 and lock the said dial, substantially as described.

In testimony whereof I have hereunto set my hand this 16th day of February, A. D. 1888.

AUGUST FISCHER.

Witnesses:

CHARLES WEIS,

CHARLES H. JOHNSON.