

E. G. ELLIOT.
Clock Escapement.

No. 29,959.

Patented Sept. 11, 1860.

Fig. 1.

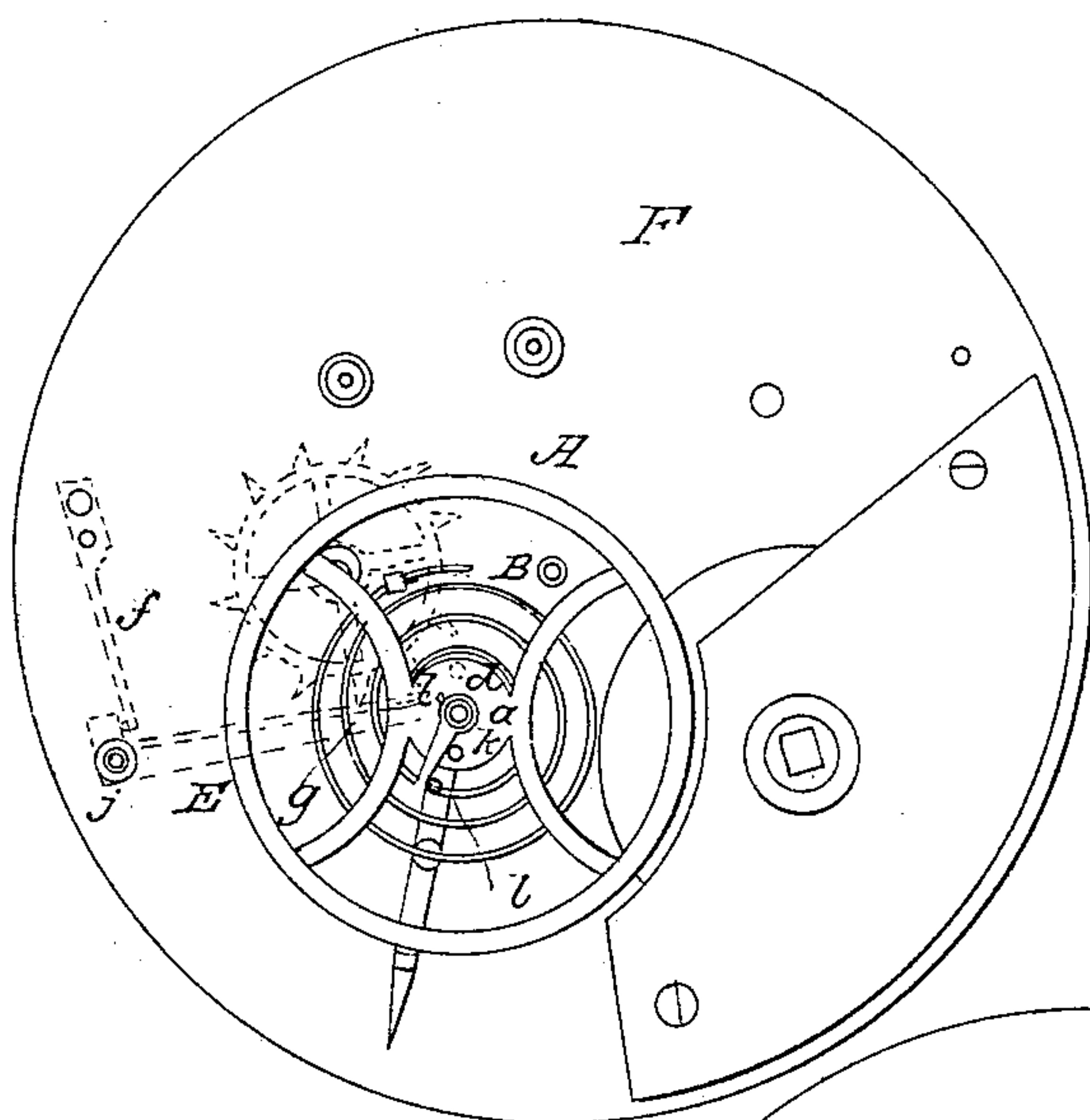


Fig. 2

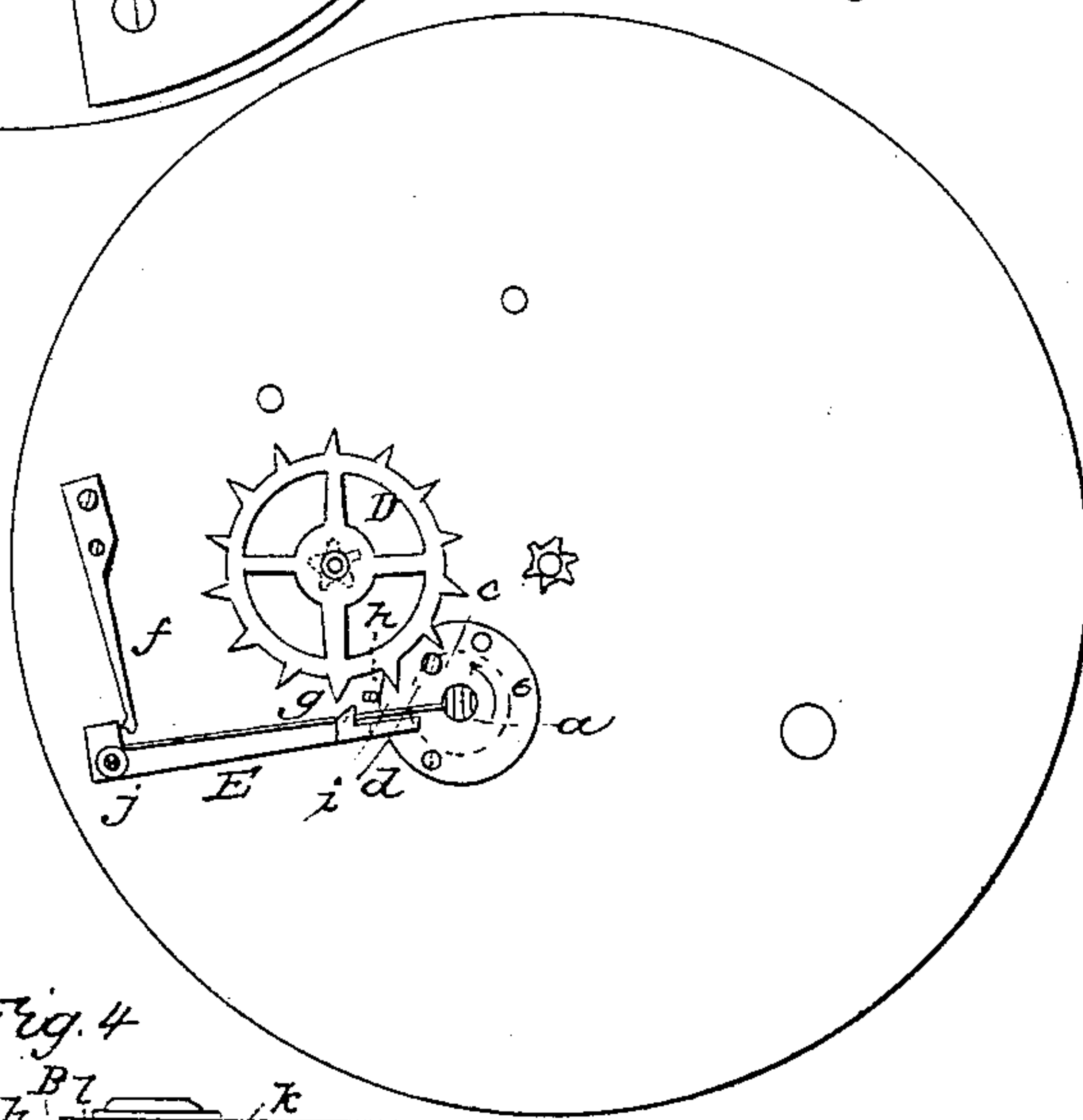


Fig. 3

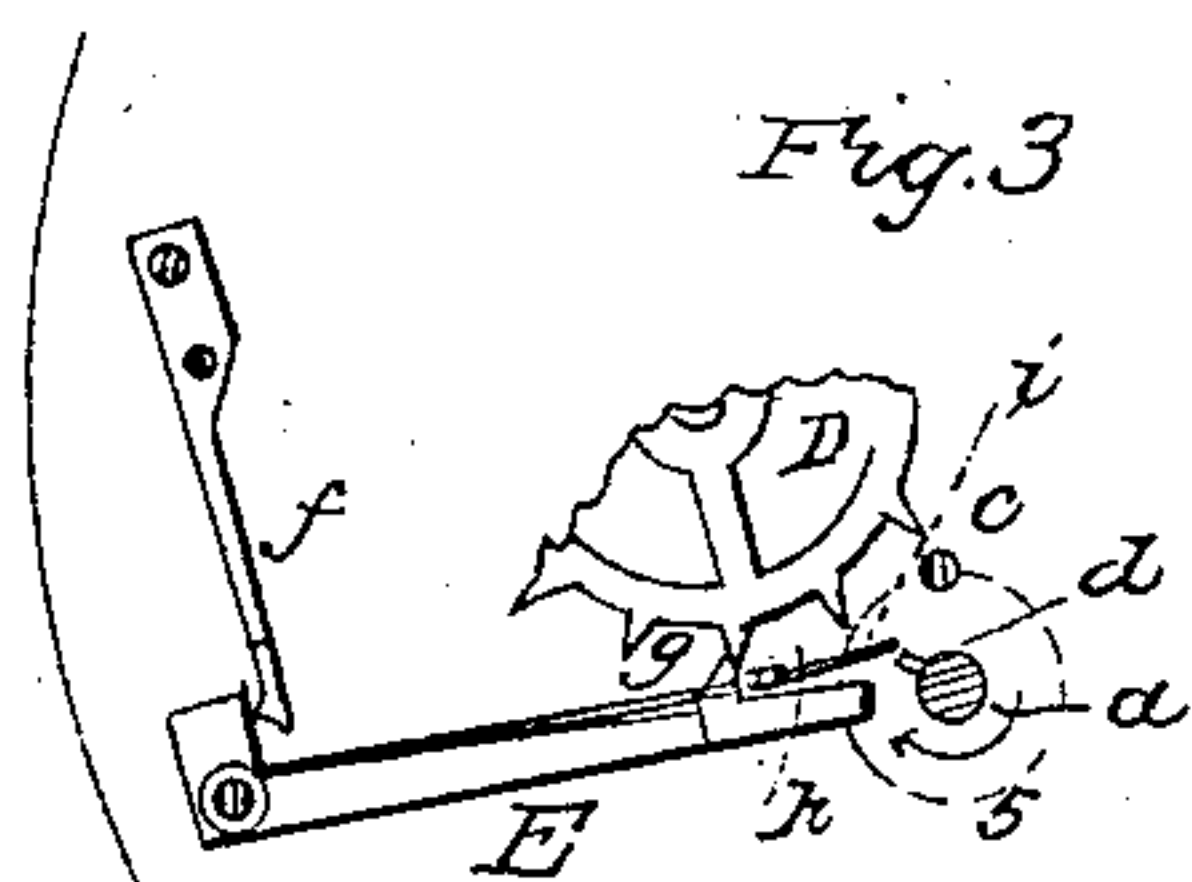
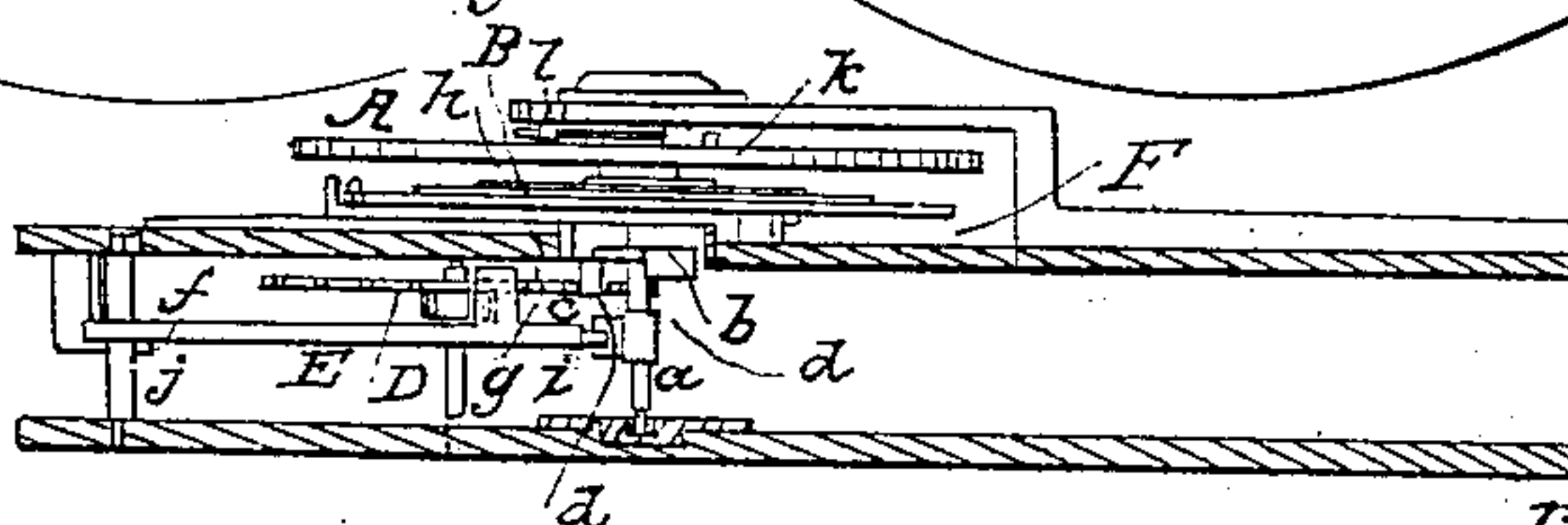


Fig. 4



Witnesses
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UNITED STATES PATENT OFFICE.

E. G. ELLIOTT, OF ELKHORN, WISCONSIN.

WATCH.

Specification of Letters Patent No. 29,959, dated September 11, 1860.

To all whom it may concern:

Be it known that I, E. G. ELLIOTT, of Elkhorn, in the county of Walworth and State of Wisconsin, have invented a new and Improved Escapement for Timekeepers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a back view of a watch with my improved escapement the cock which contains the outer jewel of the balance staff being omitted to expose the escapement to view. Fig. 2 is a section taken immediately within and parallel with the potence plate omitting all the movement but the escapement. Fig. 3 is a view of similar character to Fig. 1 showing the parts in a different position. Fig. 4 is a section of the escapement parallel with the axis of the balance.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to obtain for the balance wheel a very high speed and a great range of vibration of so positive a character that no shaking can change it; and to these ends it consists in a revolving banking piece applied to the staff of the balance and operating in combination with the other parts of the escapement substantially as hereinafter described.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

a, is the staff of the balance wheel *A*, arranged in the usual position in the watch and furnished with a roller *b*, which carries the cylinder or pin *c*, and with a beveled tooth *d*, and having fitted loosely to it the revolving banking piece *e*, which is capable of turning freely upon it. The hair or balance spring *B*, is applied to this staff in the usual manner.

D, is the 'scape wheel having its teeth of the common form and having its plane of revolution parallel with the plane of revolution of the balance wheel, and so arranged relatively to the balance wheel that its teeth may act directly upon the cylinder or pin *c*, to give the necessary impulse to the balance wheel.

E, is the detent lever made of an elbow form attached to a staff *j*, and having applied to it a spring *f*, which is attached to the potence plate *F*, and which acts upon

it in such a manner as to tend to place its detent *g*, in a position to stop the revolution of the 'scape wheel. *h*, is a fixed stop so arranged as to prevent the detent *g*, entering too deeply between the teeth of the 'scape wheel. *i*, is a light spring attached to the detent lever on the side next the 'scape wheel and projecting beyond the extremity thereof in such a manner that the tooth *d*, of the balance staff will catch it in its revolution, the lever itself not being long enough to be caught by the said tooth.

k, is a pin attached to the balance wheel in such a position that it may come in contact with the revolving banking piece *e*; and *l*, is a stationary banking pin secured to the inside of the cock *G*, in such a position that the revolving banking piece *e*, may come in contact with it.

When the cylinder or pin *c*, is in such position that it does not detain the 'scape wheel or has not a tooth of the 'scape wheel pressing against it, the spring *f*, keeps the detent lever *E*, in such a position that its detent *g*, detains the 'scape wheel as represented in Fig. 3. While the lever is in this position the balance would be free to make any number of revolutions in the direction of the arrow 5, in the above mentioned figure without liberating the 'scape wheel, as the spring *i*, yields to the pressure of the tooth *d*, and allows the said tooth to pass it, but as the balance moves in the opposite direction the tooth *d*, coming into contact with the said spring *i*, presses it against the lever and so moves the lever far enough to liberate the 'scape wheel, one of whose teeth immediately follows up and overtakes the cylinder or pin *c*, and so, gives the impulse to the balance in the direction of the arrow 6, shown in Fig. 2. The movement of the 'scape wheel is however arrested before its next tooth arrives in position to interfere with the pin or cylinder *c*, by means of the detent *E*, which after the tooth *d*, has passed its spring *i*, is thrown back against the stop *h*, by the spring *f*, but the impulse it has given to the balance is sufficient to cause it to receive nearly a complete revolution when it is arrested by the banking piece *e*, having been brought by the revolving banking pin *k*, that is attached to the balance wheel into contact with the stationary banking pin *l*. The hair spring whose coil has been contracted by the action of the balance now reacts upon it and carries it back again in the

direction of the arrow 5, and by such re-
action of the hair spring and the momentum
which the balance acquires the latter is
caused to make about one revolution and
5 three quarters of another revolution, the
revolving banking pin making nearly a com-
plete revolution before coming in contact
with the banking piece *e*, and afterward
making nearly another complete revolution
10 before it brings the said piece into contact
with the stationary banking pin. The hair
spring which has now its coil expanded be-
yond its normal condition again reacts on
the balance and causes it to move back again
15 in the direction of the arrow 6, shown in
Fig. 2, and bring its tooth *d*, into operation
on the detent E, to unlock the 'scape wheel,
and the next tooth of that wheel immedi-
ately overtaking and coming into action on

the pin *c*, gives the balance another impulse. 20
The 'scape wheel it will be understood re-
mains locked by the detent E, during the
whole of the time occupied by the movement
of the balance in the direction of the arrow
5, and during a considerable portion of the 25
time occupied by its movement in the oppo-
site direction.

What I claim as my invention and desire
to secure by Letters Patent is:

The combination of the revolving banking 30
piece *e*, the pin or projection *k*, on the bal-
ance wheel or staff and the stationary bank-
ing pin *l*, substantially as and for the pur-
pose herein specified.

E. G. ELLIOTT.

Witnesses:

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