

(Model.)

C. C. HINKLEY..

WATCH PLATE.

No. 249,356.

Patented Nov. 8, 1881.

Fig. 1.

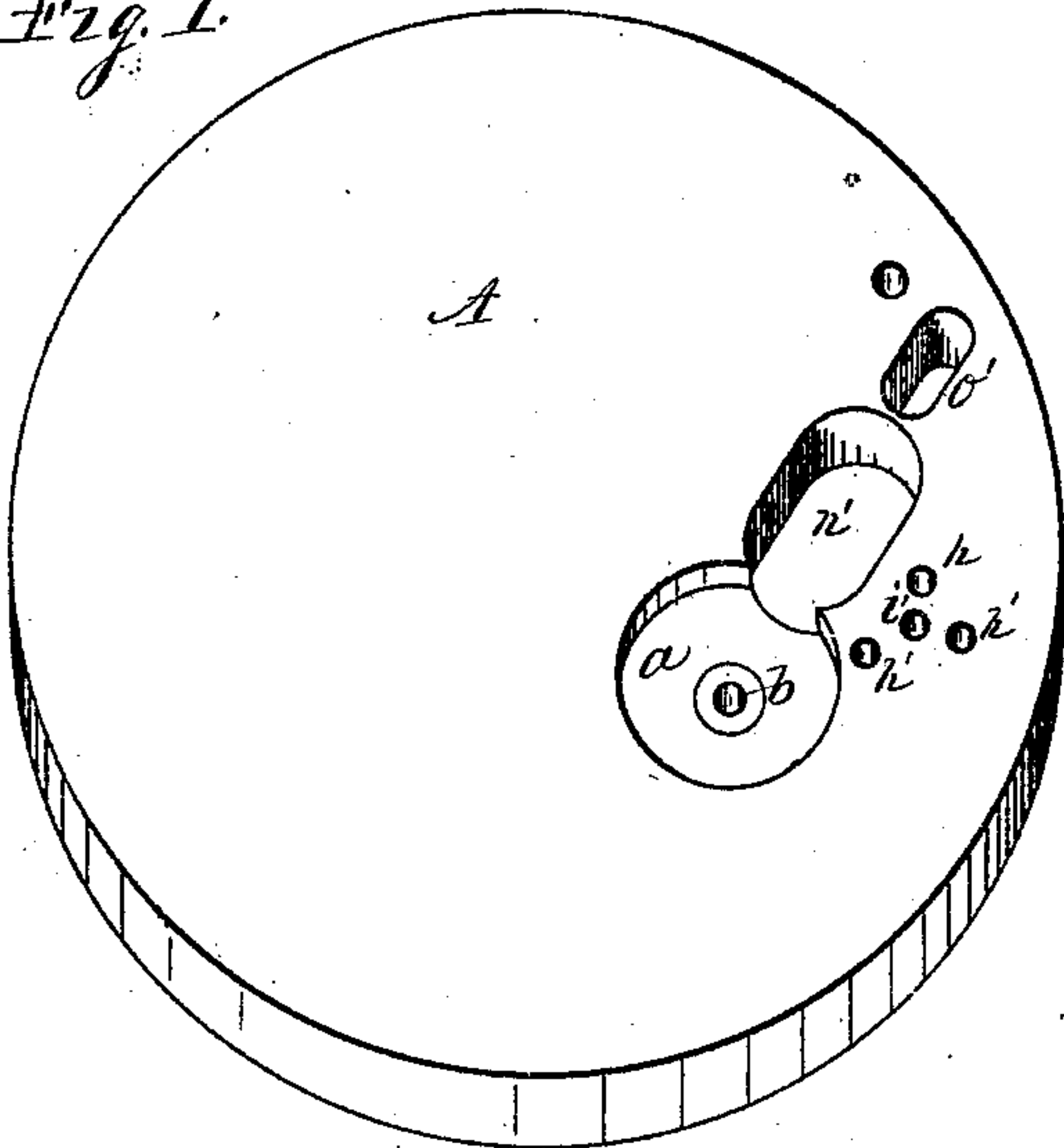


Fig. 2.

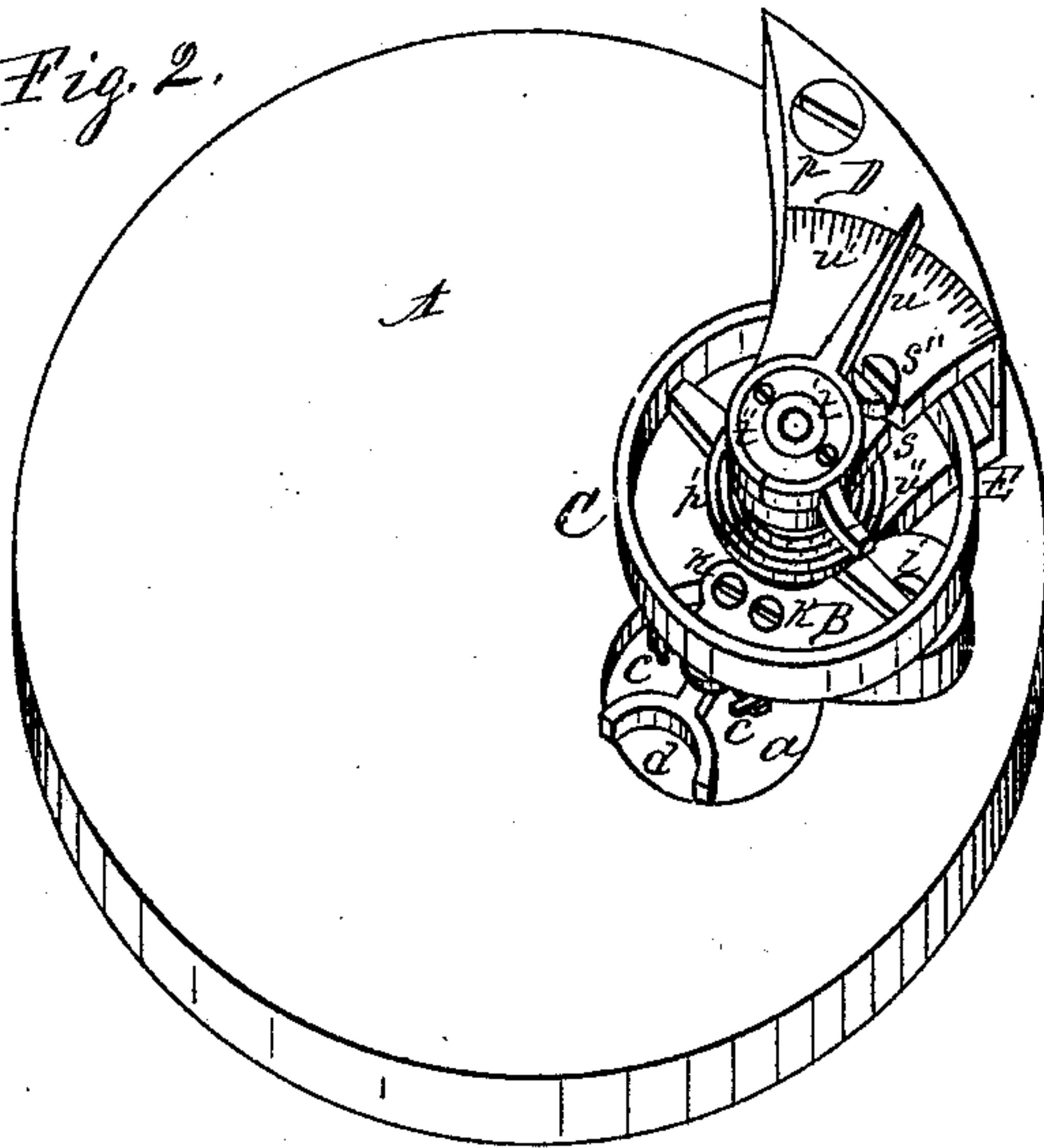


Fig. 3.

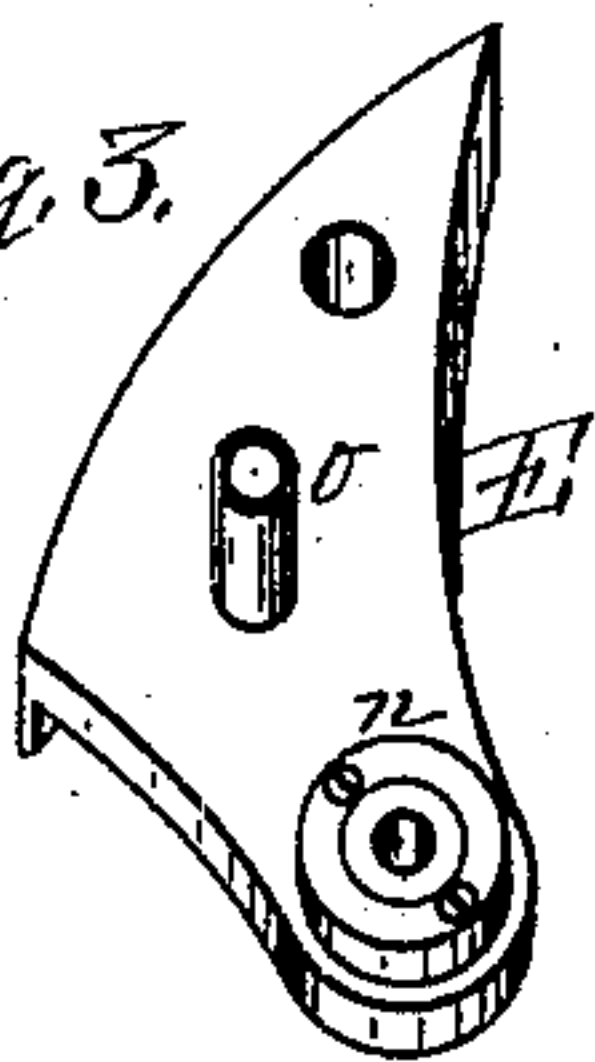


Fig. 4.

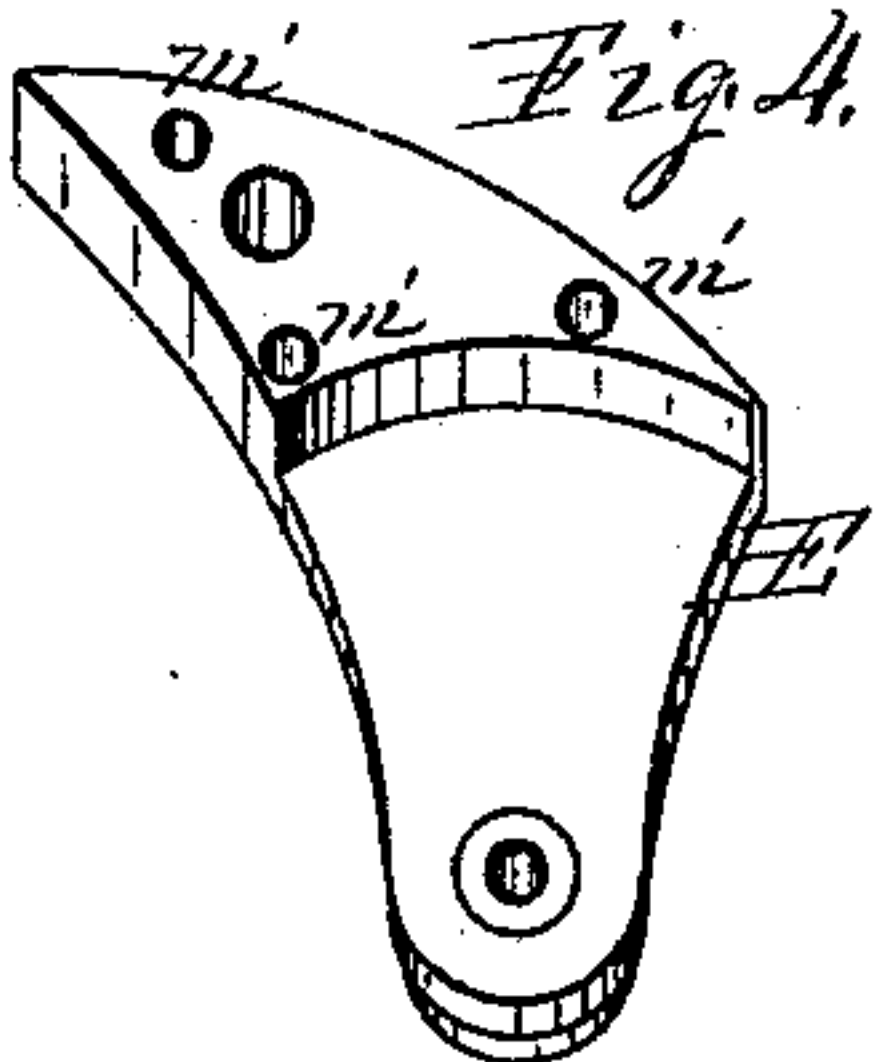


Fig. 5.

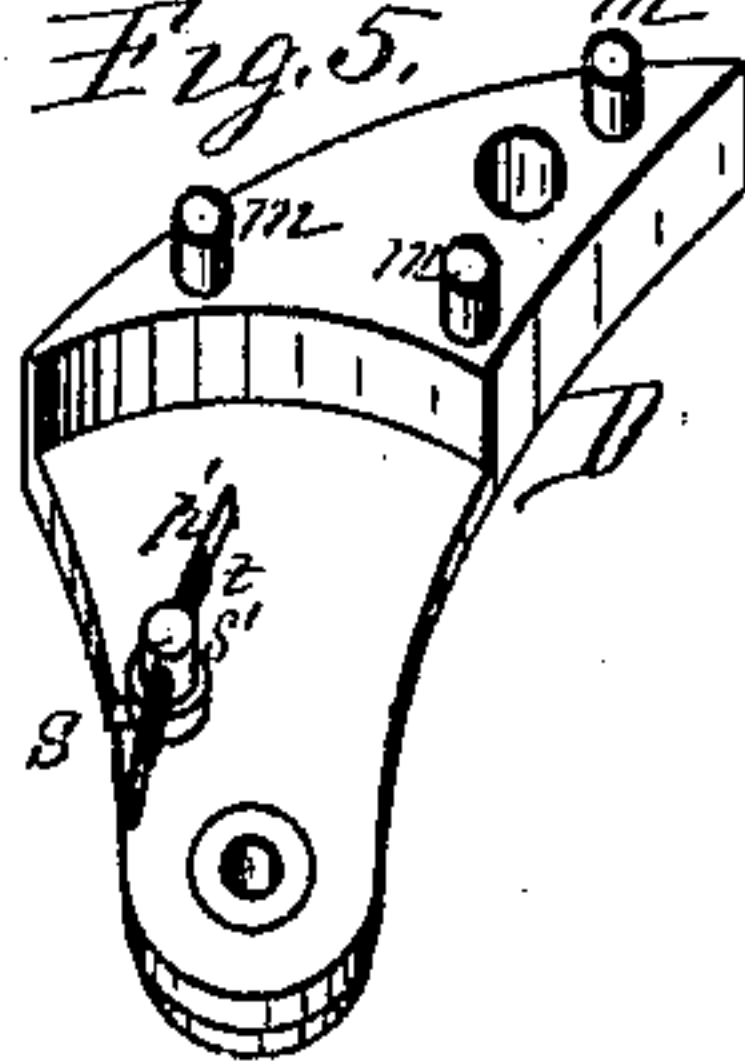


Fig. 6.

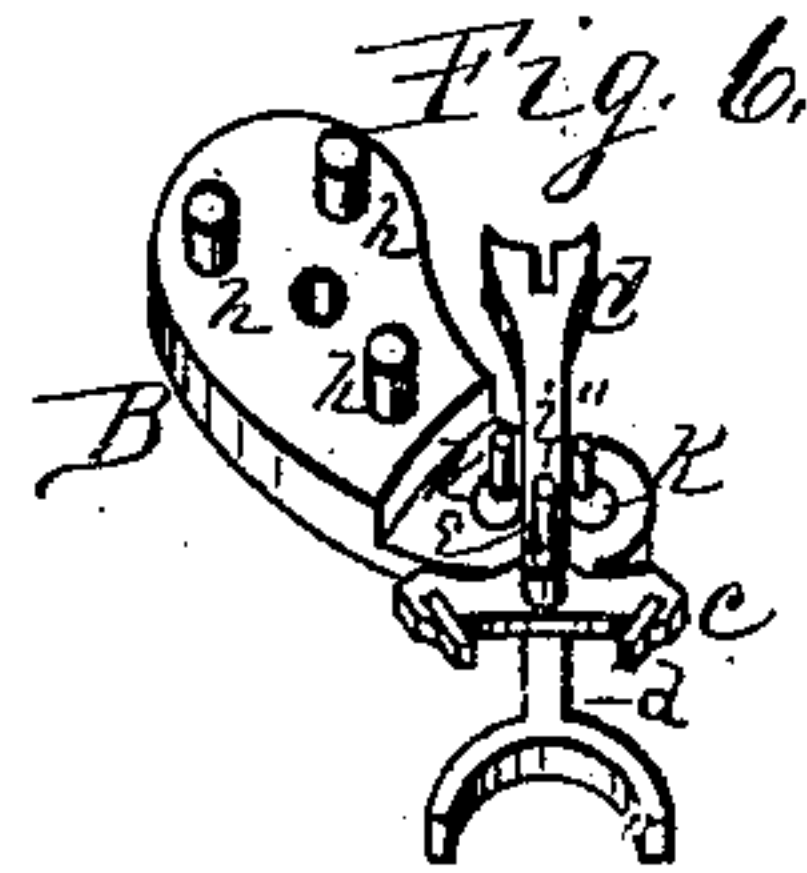


Fig. 8.



Fig. 10.

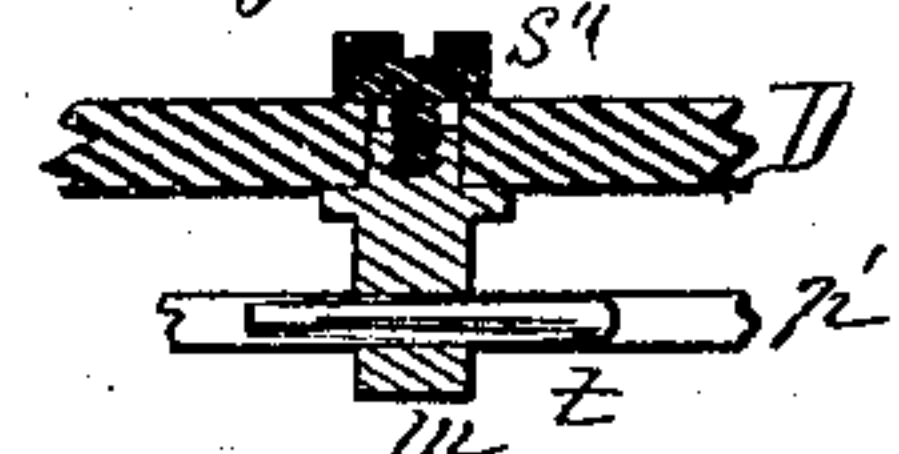


Fig. 7.

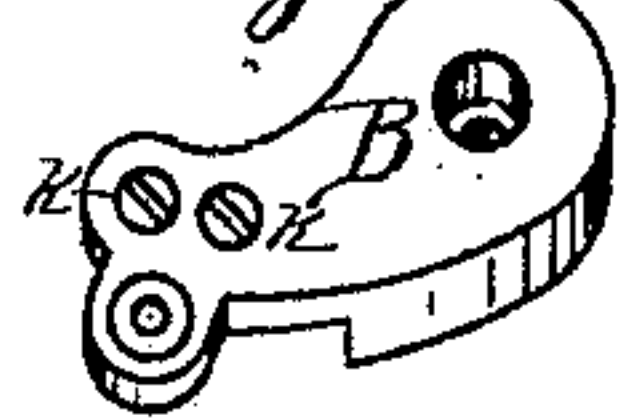
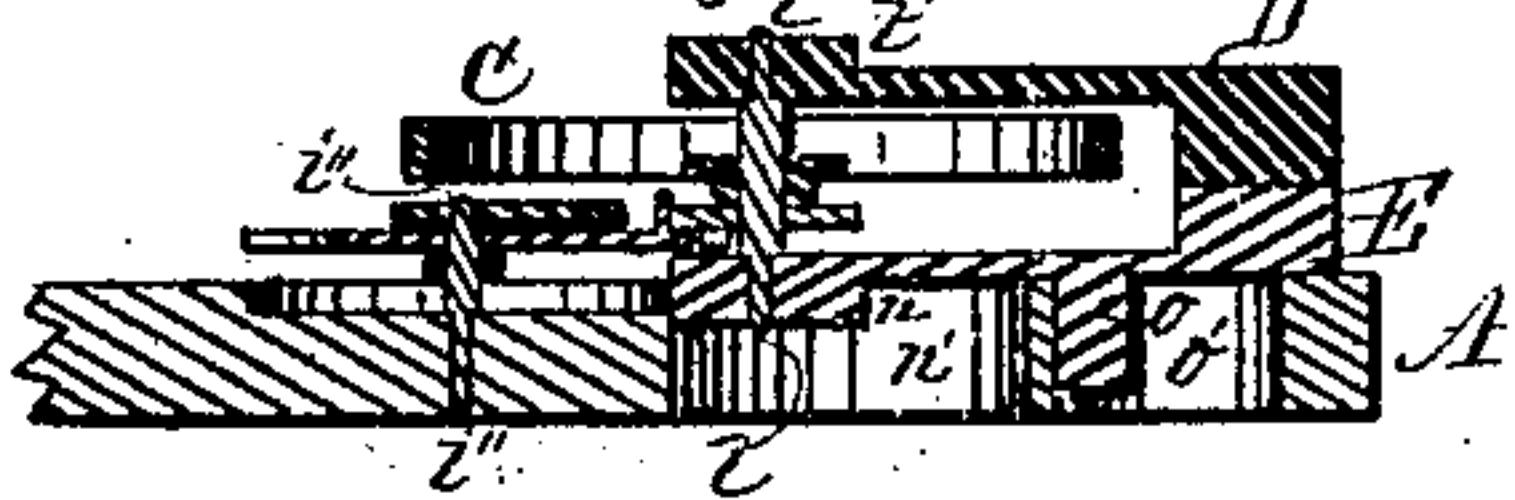


Fig. 9.



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UNITED STATES PATENT OFFICE.

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WATCH-PLATE.

SPECIFICATION forming part of Letters Patent No. 249,356, dated November 8, 1881.

Application filed December 23, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHARLES C. HINKLEY, a citizen of the United States, residing in Rockford, in the county of Winnebago and State of Illinois, have invented new and useful Improvements in Watches, of which the following is a specification.

My invention relates to improvements in watches; and it consists in providing the cock-bearing of the lever-balance with banking-screws accessible from its outer face, in supporting the balance-wheel in cock-bearings made removable, and in a two-part hair-spring stud. These and other improvements, all of which will be hereinafter more fully described, constitute the subject-matter of this specification.

In the accompanying drawings, Figure 1 is an isometrical representation of the pillar-plate of a watch fitted to receive my improvements. Fig. 2 is also an isometrical representation of the pillar-plate of a watch with my improvements mounted in position thereon. Fig. 3 is an isometrical under-face representation of the under portion of the balance-wheel cock-bearing. Fig. 4 is an isometrical upper-face representation of the under portion of the balance-wheel cock-bearing. Fig. 5 is an isometrical under-face representation of the upper portion of the balance-wheel cock-bearing. Fig. 6 is an isometrical under-face representation of the pallet-balance and its cock-bearing. Fig. 7 is an isometrical outer-face representation of the pallet-balance cock-bearing. Fig. 8 is an isometrical representation of one of the banking-screws. Fig. 9 is a vertical section cut on a line passing through the center, on which the balance-wheel and pallet-balance are mounted to oscillate. Fig. 10 is a vertical central section of the hair-spring stud cut lengthwise of the hair-spring.

In the figures, A represents the pillar-plate of a watch, which is of the usual outline form, circular in plan, having its disk-face on the gear-train side recessed, as at *a*, to receive the pallet-balance, and the center of this recess is fitted with a bearing, *b*, to receive the pivot-journal of the pallet-balance.

At *c* is represented the pallet-balance mounted on the forked lever *d*, and provided with a pivot-shaft, *e*, having its ends fitted with piv-

ot-journals, all of which are substantially the same as like parts commonly employed in the manufacture of watches.

At B is represented the cock-bearing of the pallet-balance, the position of which on the pillar-plate is fixed by means of steady-pins *h* projecting from its under face, and arranged to enter the holes *h'* in the pillar-plate. This cock-bearing is removably fixed in position to the pillar-plate by means of a holding-screw, *i*; which is passed through the cock-bearing and its screw-threaded portion entering the screw-threaded hole *i'* in the pillar-plate. This cock-bearing and the pillar-plate together furnish the bearings to receive the pivot-journals *i''* of the pallet-balance, which is made removable independent of the gear-train. This pallet-balance cock-bearing is provided with eccentric banking-screws *k*, (represented enlarged at Fig. 8,) which are placed in the overhanging portion of the cock-bearing, one on each side of the forked lever of the pallet-balance, with their eccentric stud portions depending from the lower side of the overhanging or cock arm of the bearing, one on each side of the forked lever, with their slotted screw-heads accessible from the outside, by means of which the screws may be turned to change the position of the eccentric studs to regulate and limit the throw of the pallet, the movement of which is arrested by means of the forked lever coming in contact with the depending eccentric studs of the banking-screws.

At C is represented the balance-wheel, which is of the usual form of such parts commonly used in the manufacture of watches, having its journals *l* supported in a two-part cock-bearing consisting of an outer portion, D, and an under portion, E, the relative positions of which are fixed by means of steady-pins *m*, depending from the inner face of the outer portion, and adapted to enter the holes *m'* in the inner face of the under portion. The under portion, E, of this cock-bearing is provided at its journal-bearing end, on its under side, with a depending boss, *n*, concentric with its journal-bearing, which boss is adapted to enter an elongated opening, *n'*, in the pillar-plate. This portion of the cock-bearing is also provided with a stud, *o*, depending from its under side, adapted to enter an elongated or slot-like open-

ing, o' , formed in the pillar-plate. These parts serve to fix the cock-bearing supporting the balance-wheel in position on the pillar-plate, in which position the two portions thereof are
 5 removably fixed to the pillar-plate and to each other by means of a holding-screw, p , and support the balance-wheel to oscillate freely in its bearings in position to engage the pallet-lever in the usual manner to control its vibrations.
 10 This balance-wheel is provided with a hair-spring, p' , in the usual manner, having its inner end suitably connected to the shaft of the balance-wheel, or to a collar or hub thereon. The outer portion, D , of the balance-wheel cock-
 15 bearing is provided with a vertical slot, s , entering from its edge and extending crosswise thereof, and of suitable dimensions to receive a hair-spring stud made adjustable therein.

At s' is represented the main portion of my
 20 improved hair-spring stud, having its outer portion fitted to enter the slot s' in the cock-bearing, with a shoulder resting against its under side, and its axial center is fitted with a screw-threaded hole to receive the threaded
 25 portion of a clamping-screw, s'' , the head of which overlaps the edge portions of the slot, and operates to hold the stud in position therein, by means of its screw-clamping action, in such a manner as to be readily adjusted. The
 30 depending portion of the stud is provided with a transverse or radial hole or opening to receive the outer end portion of the hair-spring p' , which is fixed in position in the stud by key-pin t , in the usual manner. The outer por-
 35 tion, D , of this balance-wheel cock-bearing is fitted with a boss, u' , concentric with the journal-bearing of the balance-wheel, and the under edge portion of this boss is slightly beveled under to receive the spring-ring clamp t''
 40 of the index-finger, to hold it in position by frictional contact. From the side of this spring clamping-ring extends an index-finger, u , the free end of which extends to the graduated index u' , formed on the outer face of the cock-
 45 bearing.

At u'' is represented an arm extending from the side of the spring clamping-ring, and from the under side of its free end depend pins to embrace the outer coil of the hair-spring.
 50 These parts constitute the regulator, and are substantially the same as like parts heretofore in common use for the same purpose in the same manner.

From the foregoing it will be seen that by means of my improved two-part cock-bearing 55 the balance-wheel, with the hair-spring, hair-spring stud, and regulator, are made removable independent of the other parts of the watch, and that these parts are suitably supported in their relative position, so as to be properly ad- 60 justed relatively with each other before they are placed in the watch, and by means of my improved two-part hair-spring stud, in its connection with the slotted cock-bearing, is made adjustable in perhaps every required direc- 65 tion, by which means it may be adjusted to best utilize the spring action of the hair-spring to obtain the best results therefrom.

I claim as my invention—

1. The combination, with the pallet-balance, 70 of eccentric banking-screws located on opposite sides of the pallet-lever, and adapted to form adjustable stops for the pallet-lever, substantially as set forth.

2. A two-part balance-supporting cock-bearing 75 operating to support the balance-wheel in position, and made removable, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the balance-wheel 80 cock-bearing, constructed with an elongated open slot, of the herein-described two-part hair-spring stud, located in said open slot, and rendered adjustable therein by the fastening-screw s'' and key t , for retaining the hair-spring in place, substantially as set forth. 85

4. The combination, with a removable two-part cock-bearing, of a balance-wheel mounted to oscillate therein on pivotal supports, and made removable independent of the gear-train, 90 substantially as hereinbefore set forth.

5. The combination, with a removable two-part cock-bearing and a balance-wheel mounted to oscillate therein on pivotal bearings, of a hair-spring and the herein-described two-part adjustable hair-spring stud, substantially 95 as and for the purpose hereinbefore set forth.

6. The combination, with a pallet-balance made independently removable, of a balance-wheel supported to oscillate on pivotal centers in a two-part cock-bearing made independ- 100 ently removable, substantially as and for the purpose hereinbefore set forth.

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Witnesses:

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