

No. 686,209.

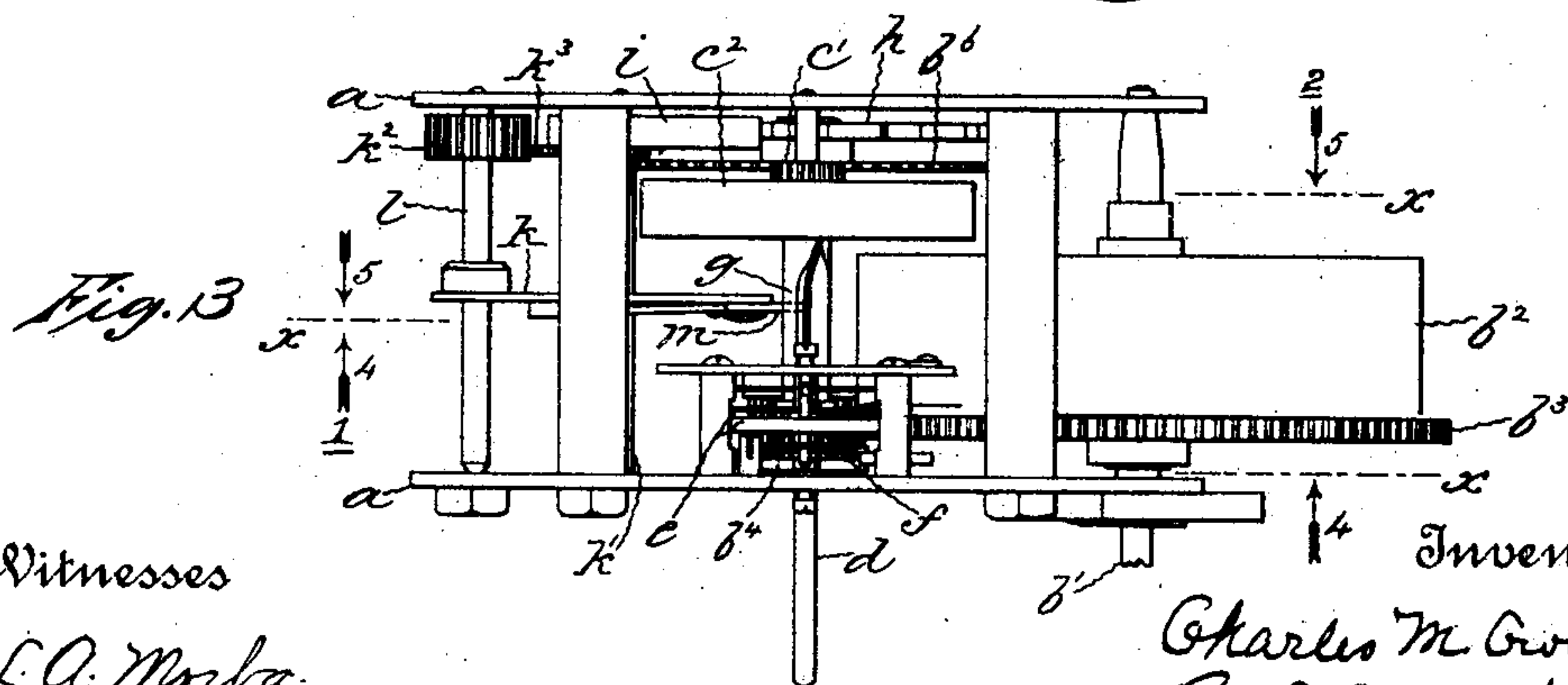
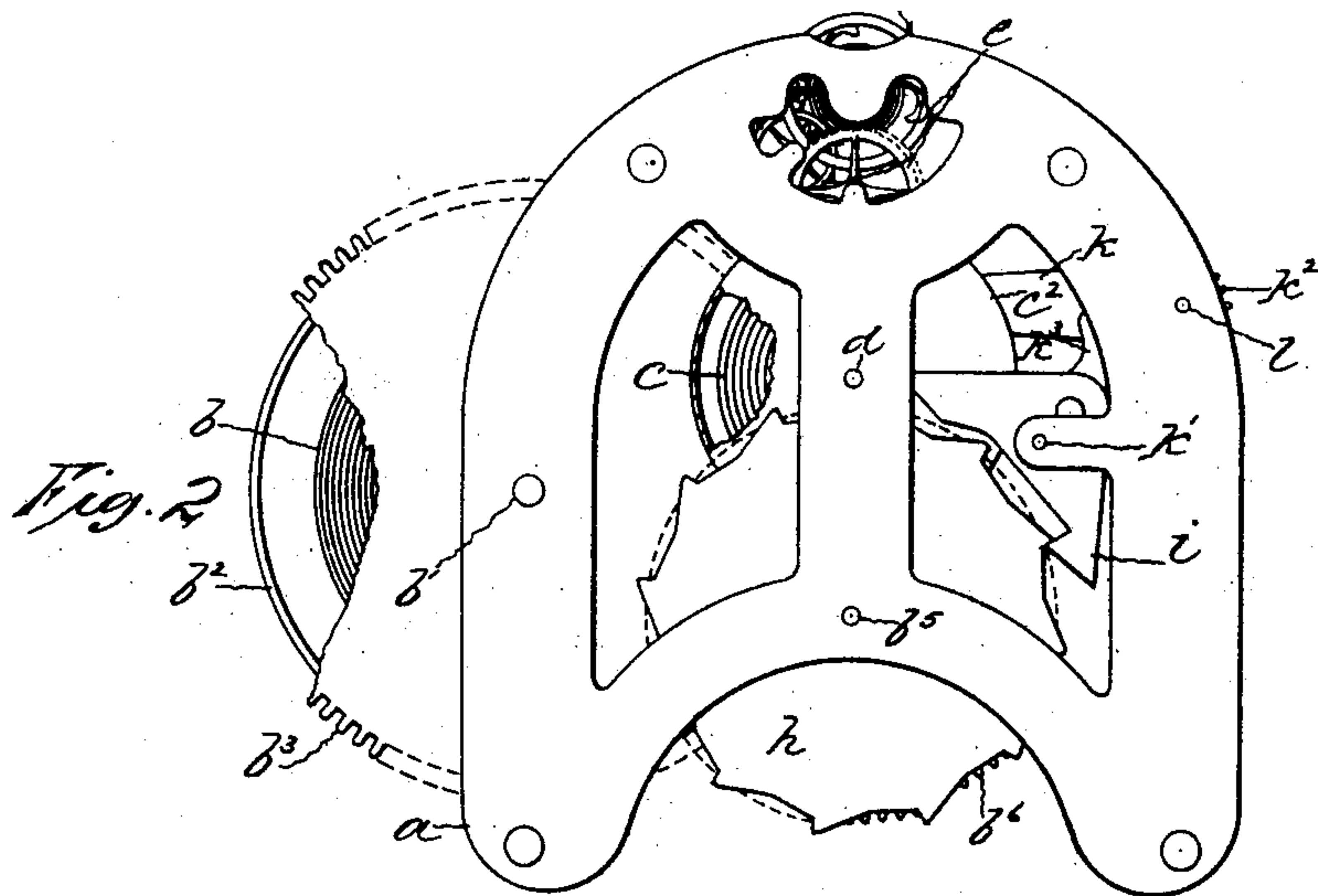
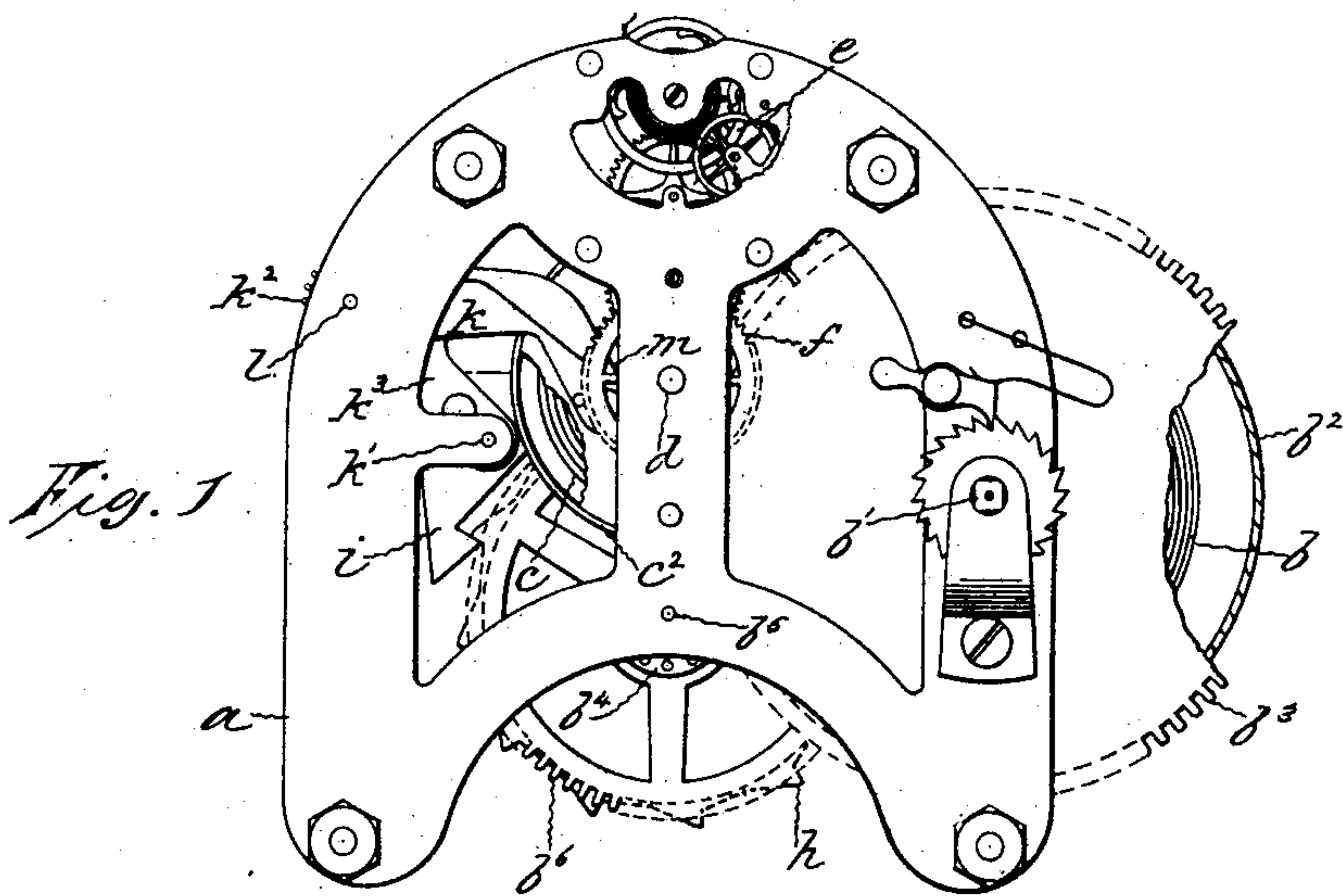
Patented Nov. 5, 1901.

C. M. CROOK.
CLOCK WINDING MECHANISM.

(Application filed Mar. 19, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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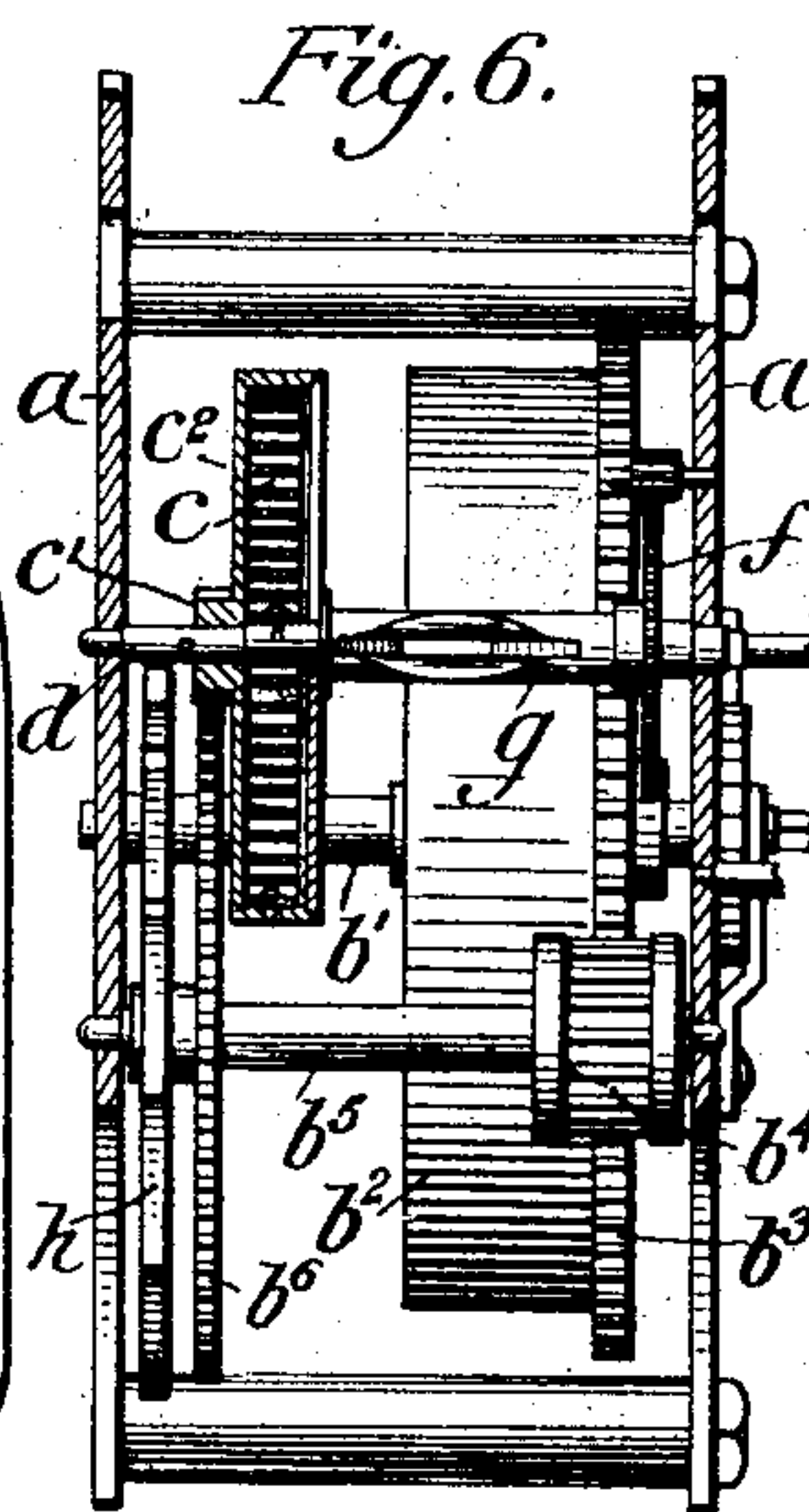
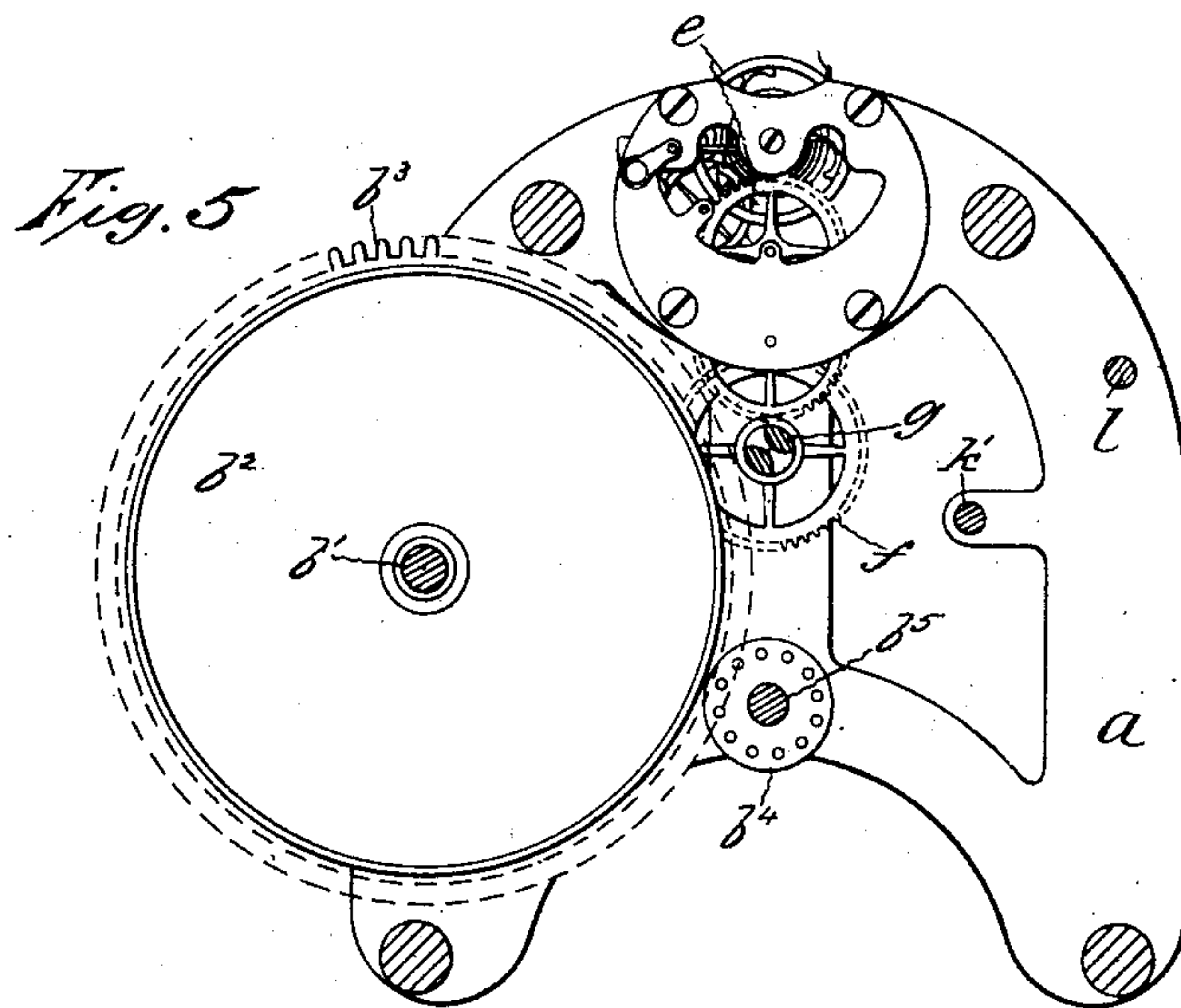
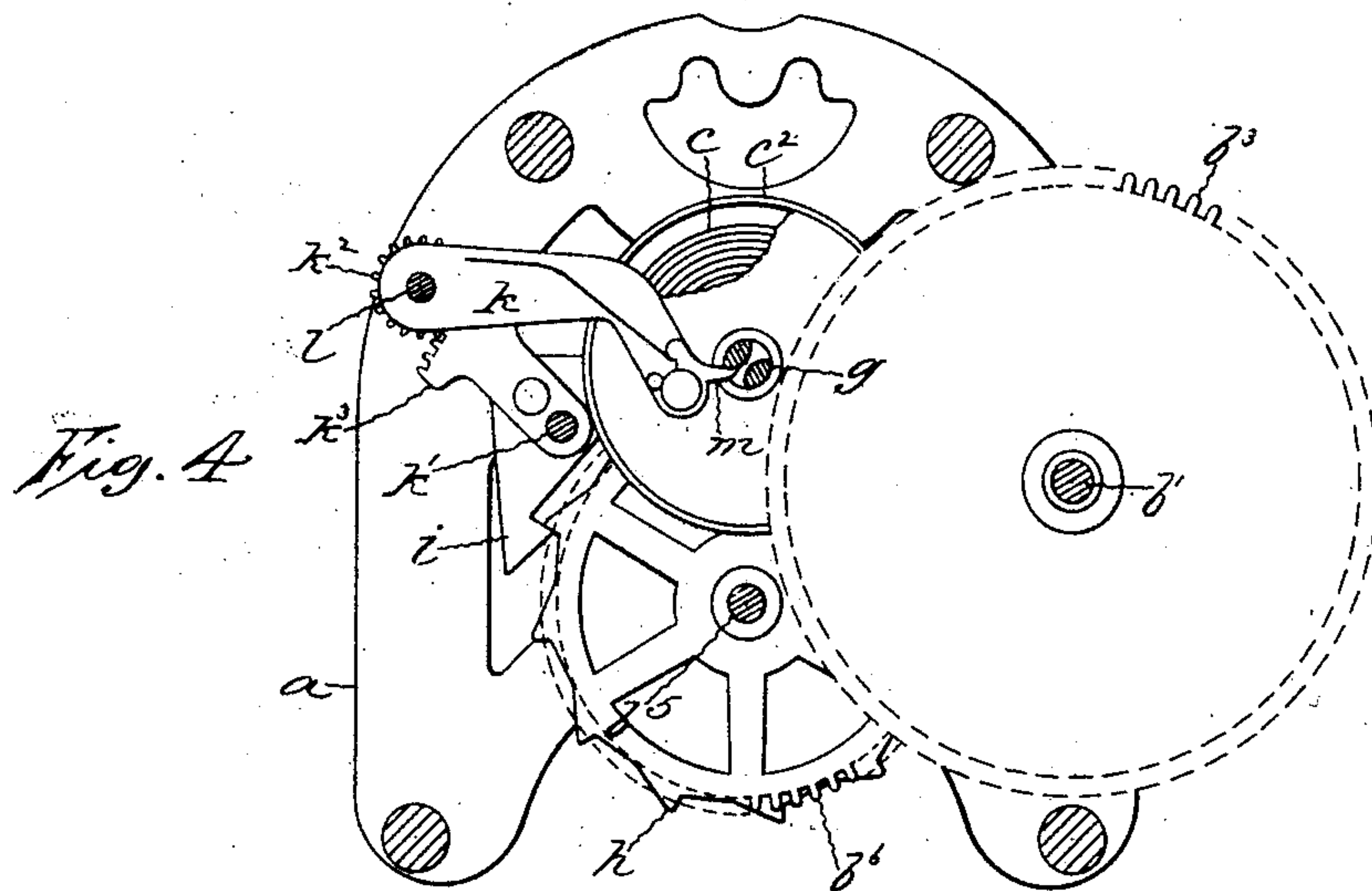
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(Application filed Mar. 19, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

CHARLES M. CROOK, OF BRISTOL, CONNECTICUT.

CLOCK-WINDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 686,209, dated November 5, 1901.

Application filed March 19, 1901. Serial No. 51,899. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. CROOK, a citizen of the United States of America, residing at Bristol, in the county of Hartford and State of Connecticut, have invented a certain new and useful Improvement in Clockwork Mechanisms, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a front face view of mechanism embodying said improvement. Fig. 2 is a rear face view of the same. Fig. 3 is a top view of the same. Fig. 4 is a view of the same mechanism in vertical section on the plane xx looking in the direction indicated by the arrow 1. Fig. 5 is a view of the same mechanism in vertical section on the plane xx looking in the direction indicated by the arrow 2.

The object of the improvement is the production of a spring-clock which needs rewinding only at comparatively long periods and embodying a subsidiary spring which is rewound by the mainspring at frequent intervals.

In the accompanying drawings the letter a denotes the frame of a clockwork mechanism.

b denotes the mainspring, and c the subsidiary spring. The mainspring is intended to be wound by a key in the ordinary way applied to the shaft b' , to which one end of the mainspring is attached, the other being attached to the drum b^2 . Through drum b^2 , gear b^3 , pinion b^4 , shaft b^5 , gear b^6 , pinion c' , and drum c^2 the mainspring is geared to the subsidiary spring in such fashion that the former will rewind the latter when permitted at certain predetermined intervals. This train of parts between the two springs is referred to in the claims at the end of this specification as "gearing," a word which in that connection means any proper train of connecting parts for the purpose in hand between the two springs. The subsidiary spring c is fastened at one end to the drum c^2 and at the other end to the hand-shaft d . The shaft d is called a "hand-shaft," because adapted to carry one of the clock-hands, preferably the minute-hand. From it the other hand is driven in the ordinary manner.

The letter e denotes the time-train, (a well-known thing as a whole.) It is driven by the

gear f , which is rotarily fast with the hand-shaft.

The letter g denotes a rotary cam which is driven by the subsidiary spring. Practically it is best that it should be a part of the hand-shaft, and in its preferred form it is perforated.

The letter h denotes a ratch-wheel which is rotarily fast to the gear b^6 .

The letter i denotes a dog which coöperates with the ratch-wheel h and prevents the mainspring from rewinding the subsidiary spring except at predetermined intervals.

The letter k denotes a thing which may well be called a "detent"—a vibratory detent. By preference it is a lever-arm fast to the shaft l . This vibratory detent carries a spring-pressed pawl m , which coöperates with the cam, and in the case of the mechanism shown in the drawings, where the cam is practically one with the hand-shaft of the minute-hand, the pawl m will spring from one side to the other in the cam-shaft once in every half-hour. This tripping action of the pawl m is communicated to the dog i through the detent k , shaft k' , pinion k^2 , and gear-sector k^3 .

The operation of the device has practically been given in describing the construction and function of the separate parts. Once in every half-hour the pawl m springs from one side to the other of the cam. In that operation the dog releases one tooth of the ratch-wheel and the mainspring rewinds the subsidiary spring.

I claim as my improvement—

1. In combination in clockwork mechanism the hand-shaft and the time-train connected therewith; a subsidiary spring connected at one end with said hand-shaft; a mainspring; gearing from said mainspring to the free end of said subsidiary spring; a ratchet-and-pawl mechanism making up a part of said gearing and holding the parts normally at rest; and a trip mechanism operated by the hand-shaft and controlling the motion of said mainspring; substantially as described.

2. In combination in clockwork mechanism a hand-shaft and the time-train connected therewith; a subsidiary spring attached at one end to said hand-shaft and at its outer end to a drum; a mainspring; gearing from said mainspring to the drum of said subsid-

iary spring; a ratch-wheel fixedly appurtenant to said gearing; a dog coöperating with said ratch-wheel and normally maintaining said gearing at rest; a cam on said hand-
5 shaft, a detent bearing a pawl coöperating with said cam controlling the movement of said gearing; substantially as described.

3. In combination in clockwork mechanism a hand-shaft; a time-train; a subsidiary
10 spring connected at its inner end with said hand-shaft and at its outer end to a drum; the mainspring; gearing connecting said mainspring with said subsidiary-spring drum; a ratch-wheel fixedly appurtenant to said
15 gearing; a dog coöperating with said ratch-wheel normally maintaining said gearing at rest; a cam on said hand-shaft; a detent bear-

ing a pawl connected with said dog and operated by said cam to release said gearing at predetermined periods; substantially as described and for the purposes set forth. 20

4. In combination in clockwork mechanism the mainspring; the hand-shaft, a subsidiary spring connected at one end with said hand-shaft; geared connections between the main- 25 spring and the other end of said subsidiary spring, a stop-motion located in operative relation to said geared connection; and mechanism operated by the hand-shaft to control said stop-motion, substantially as described. 30

CHARLES M. CROOK.

Witnesses:

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