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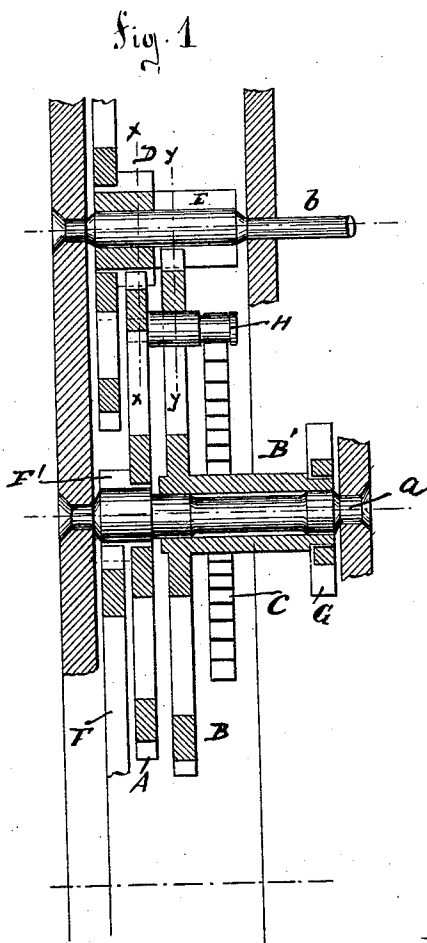
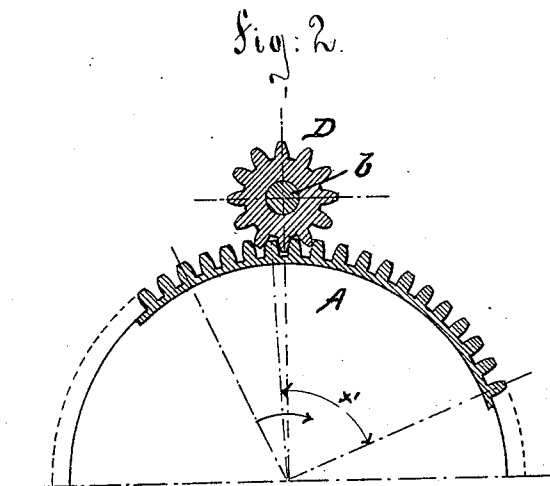
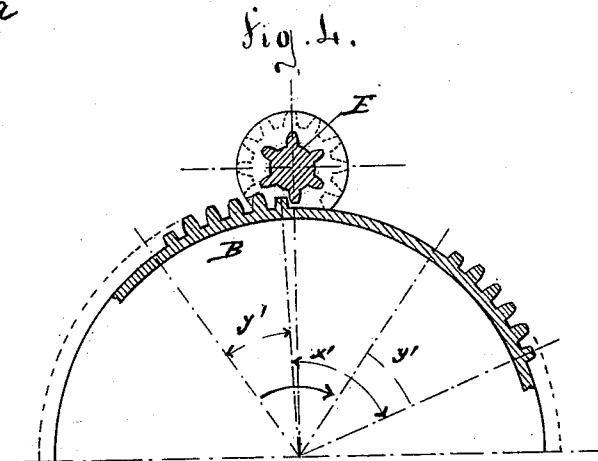
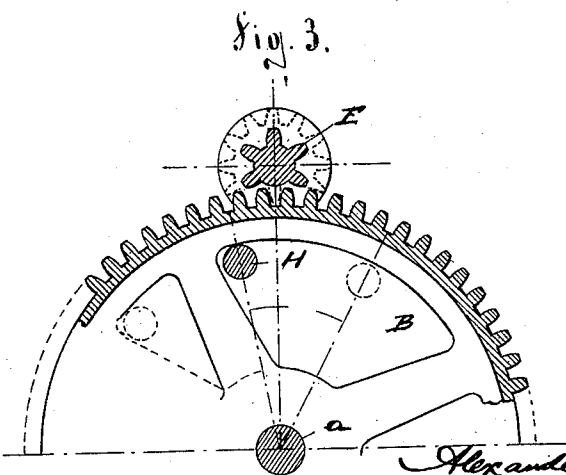
3 Sheets—Sheet 1.

A. KAISER.

MECHANISM FOR CONVERTING MOTION.

No. 409,149.

Patented Aug. 13, 1889.



WITNESSES:

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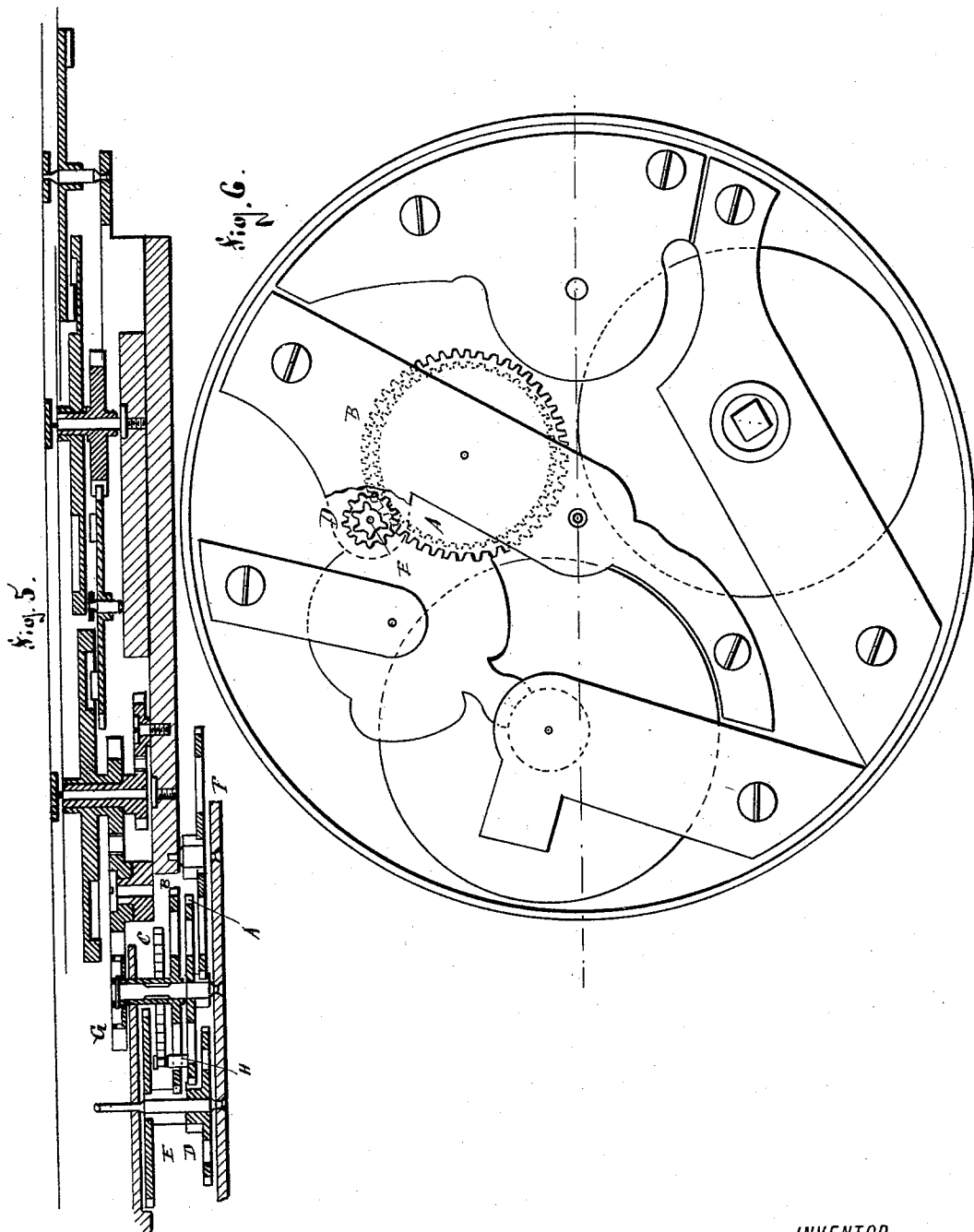
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MECHANISM FOR CONVERTING MOTION.

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Patented Aug. 13, 1889.



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Fig. 7.

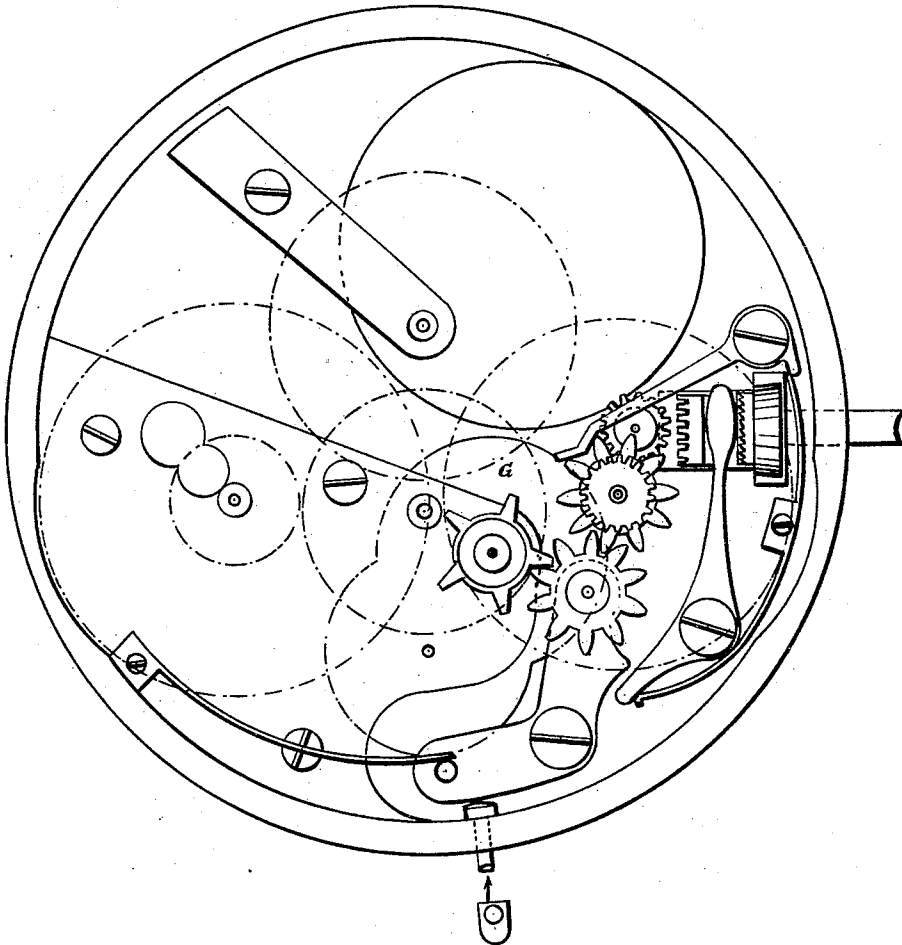
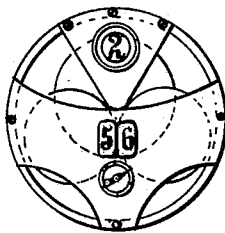


Fig. 8.



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UNITED STATES PATENT OFFICE.

ALEXANDER KAISER, OF BERLIN, GERMANY, ASSIGNOR TO LUDWIG MARCK-
WALD, OF SAME PLACE.

MECHANISM FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 409,149, dated August 13, 1889.

Application filed March 7, 1888. Serial No. 266,423. (No model.) Patented in Germany July 5, 1887, No. 42,372, and in France July 30, 1887, No. 185,089.

To all whom it may concern:

Be it known that I, ALEXANDER KAISER, a citizen of Switzerland, and a resident of the city of Berlin, German Empire, have invented certain new and useful Improvements in Mechanisms for Converting Motion, (for which Letters Patent have heretofore been granted to me in Germany, No. 42,372, dated July 5, 1887, and in France, No. 185,089, dated July 30, 1887,) of which the following is a specification.

The object of this invention is to provide new and improved mechanism for converting continuous rotary motion into intermittent rotary motion, and this mechanism is specially adapted for registering, advertising, or like devices.

The invention consists in the combination, with the arbor, of a fixed and a loose wheel on the same, a spring connecting the fixed and loose wheel, an additional arbor having two pinions, with one of which the fixed wheel engages, the loose wheel engaging with the other, part of the teeth of the loose wheel or its pinion being broken out, and the proportion of speed of the fixed wheel to its pinion and the loose wheel to its pinion being such that the speed of rotation of the loose wheel during the time of its rotation is less than that of the fixed wheel.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

35 In the accompanying drawings, Figure 1 is a vertical transverse sectional view of my improved mechanism for converting motion. Fig. 2 is a cross-sectional view on the line x , Fig. 1. Fig. 3 is a cross-sectional view on the line y , Fig. 1. Fig. 4 is a cross-sectional view on the same plane, showing a modified construction. Fig. 5 is a vertical transverse sectional view of a watch provided with my improved mechanism for converting motion.

45 Fig. 6 is a rear view of the movement. Fig. 7 is a view of the face of the movement behind the dial. Fig. 8 is a face view of the dial on a smaller scale.

Similar letters of reference indicate corresponding parts.

The cog-wheel A is rigidly mounted on the arbor a and engages a pinion D on the second-hand arbor b of a watch or clock. The cog-wheel B, provided with an extended hub B', is mounted loosely on the arbor a and engages a pinion E, rigidly mounted on the arbor b . The coiled spring C is secured on the hub B' of the wheel B and to a pin H of the wheel A, said pin projecting between the spokes of the wheel B; but, if desired, said spring can be secured in any other suitable manner to the wheel A. The wheels are turned in the direction of the arrows shown in Figs. 2 and 4 by a wheel F, part of which is shown in Fig. 1, and which engages a pinion F', fixed on the arbor a .

If, for example, the number of teeth in the wheel A is sixty, and in the wheel B sixty-five, and in the pinion D twelve, and in the pinion E six, the wheel A will have moved or rotated the distance x' , Fig. 2, for one rotation of the arbor b , whereas the wheel B has only rotated the distance y' , Fig. 4, in the same time, so that the wheel A will be in advance of the wheel B the difference between the distances x' and y' . As the wheel A, with which one end of the spring C is connected, travels faster than the wheel B, with the hub of which the other end of the spring is connected, it follows that the said spring is brought in tension. If a number of successive teeth have been cut out of the rim of the wheel B, as shown in Fig. 4, the length of said blank part of the rim of the wheel corresponding to the difference between the distances x' and y' , it follows that when the teeth of the pinion E arrive at said blank space the spring C, which has been brought in tension, as stated, throws the wheel B forward suddenly a distance equal to the difference between the distances x' and y' —that is, the wheel B catches up to the wheel A. The motion of the wheel B and its hub B' will be an intermittent one, and the said intermittent motion from the hub B' can be transmitted to other parts by means of the cog-

wheel G. The wheel B is arrested after it has made this sudden movement by the teeth of the wheel B striking against the teeth of the pinion E, as shown in Fig. 4. If desired, one tooth may be omitted from the pinion E, as shown in Fig. 3, and in that case there is no need of cutting out any of the teeth of the wheel B. The wheel B is then thrown forward by the spring when the blank part of the pinion passes the teeth of the wheel. The wheel B is checked by the pin H, as shown in Fig. 3.

This device has the advantage that no pawls have to be disengaged and the regular movement of the clock-work is not interfered with.

Figs. 5, 6, 7, and 8 show my improved device for converting motion applied to a watch provided with numbers indicating hours and minutes, which numbers are shifted every hour and minute, respectively.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The mechanical movement for converting rotary motion into intermittent rotary motion, consisting of an arbor, two cog-wheels mounted on the same, one fixed and the other loose, a spring connecting the two cog-

wheels, and two pinions fixed on an arbor and engaging, respectively, with the fixed and loose cog-wheel, the proportion of the teeth of the fixed wheel to its pinion and the relation of the teeth of the loose wheel to its pinion being such that the speed of rotation of the loose cog-wheel during the time the same is engaged with its pinion is different from the speed of the fixed cog-wheel, substantially as shown and described.

2. The combination, with an arbor *a*, of the cog-wheel A, mounted rigidly on the same, the cog-wheel B, mounted loosely on the arbor and having the hub B', the spring C, connected with the hub B' and with the wheel A, the cog-wheel G on the hub B', the pinion F' on the arbor *a*, the pinion E, engaging with the cog-wheel B, and the pinion D, engaging with the cog-wheel A, some of the teeth of the cog-wheel B being broken out, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALEXANDER KAISER.

Witnesses:

B. ROI,

L. MARCKWALD.