J. I. JOHNSTON.

ELECTRIC TIME SIGNAL.

APPLICATION FILED MAY 10, 1910.

978,593.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

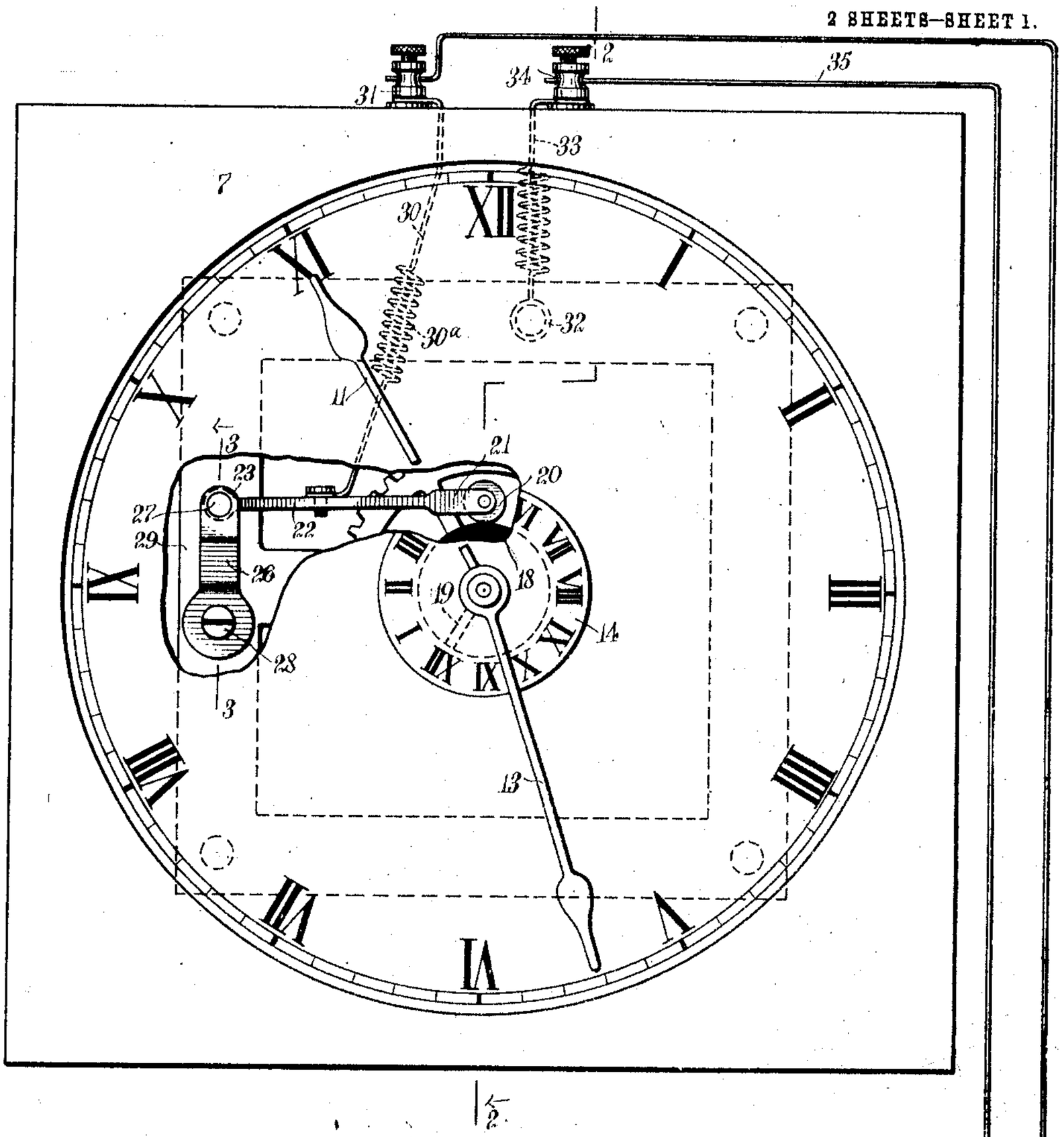

Fig. 1

WITNESSES:

J. A. Brophy

Walton Harrison.

INVENTOR

John I. Johnston

BY Munn & Co

ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 4

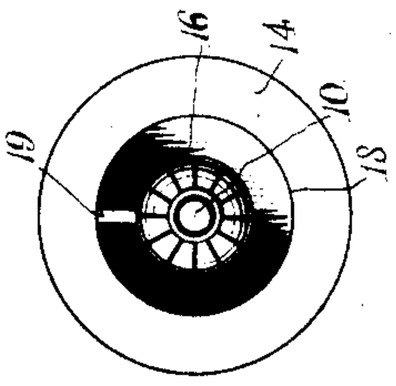


Fig. 5

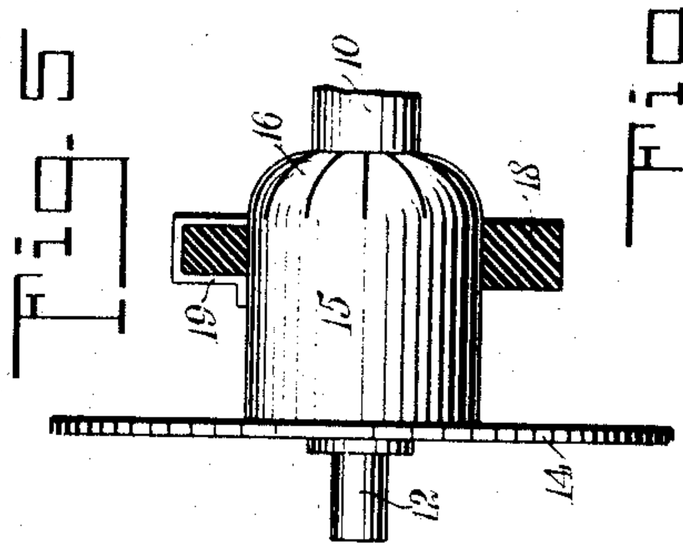


Fig. 6

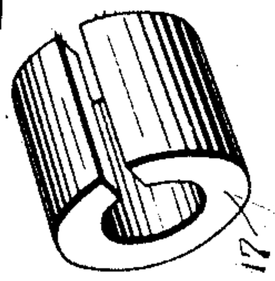
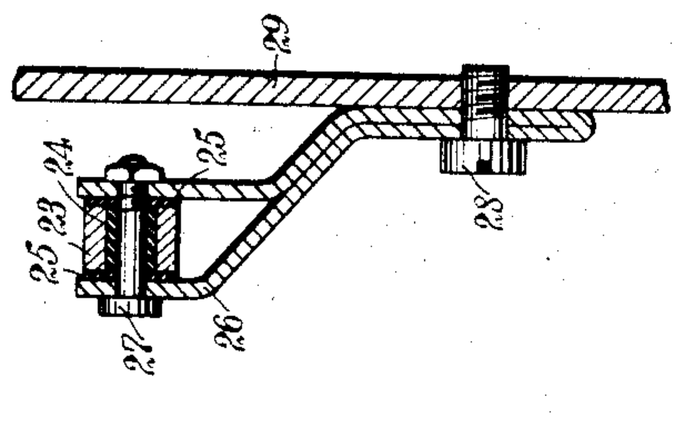
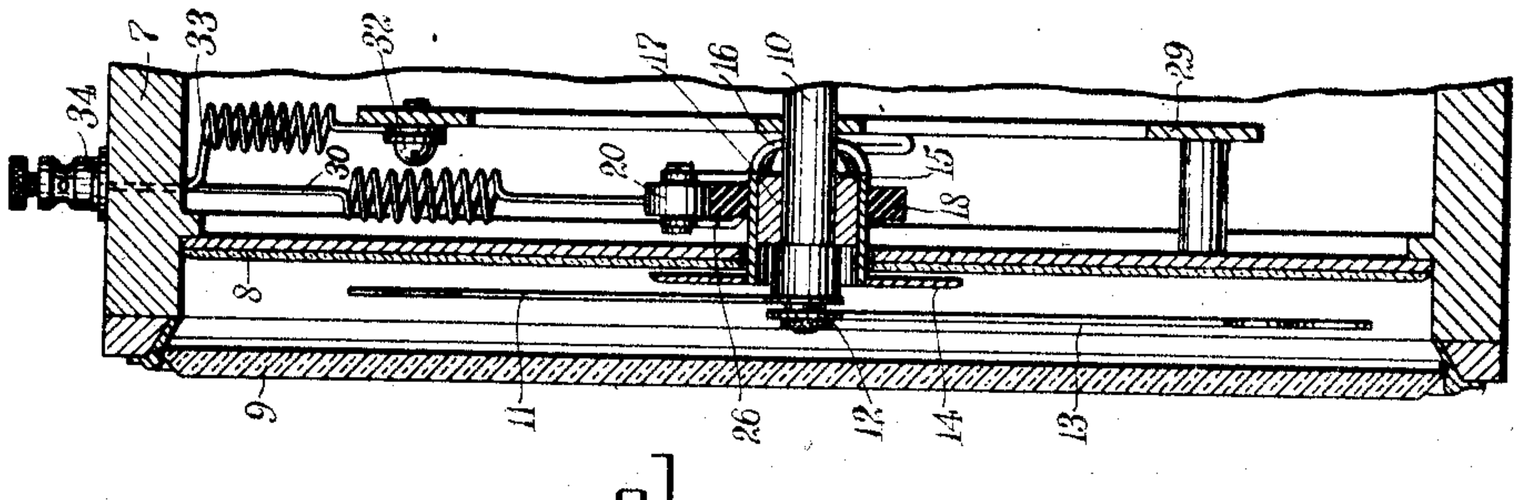


Fig. 3





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UNITED STATES PATENT OFFICE.

JOHN ISAAC JOHNSTON, OF GRAHAM, MISSOURI.

ELECTRIC TIME-SIGNAL.

978,593. Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed May 10, 1910. Serial No. 560,487.

To all whom it may concern:

Be it known that I, JOHN I. JOHNSTON, a citizen of the United States, and a resident of Graham, in the county of Nodaway and State of Missouri, have invented a new and Improved Electric Time-Signal, of which the following is a full, clear, and exact description.

My invention relates to electric time signals, my more particular purpose being to provide a signal of this kind comprising an attachment which may, if desired, be mounted upon a clock already in use or may be built into a clock as originally constructed.

My invention comprehends various improvements in the construction of the several parts used in the electric alarm mechanism.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a view partly in elevation, partly broken away and partly diagrammatic, showing my invention as applied to a clock already in use; Fig. 2 is a section on the line 2—2 of Fig. 1, looking in the direction of the arrow; Fig. 3 is an enlarged section upon the line 3—3 of Fig. 1, looking in the direction of the arrow, and showing how the contact lever is mounted; Fig. 4 is a detail showing in elevation the sleeve used for carrying the small dial, which I designate as the "alarm dial"; Fig. 5 is a side elevation of the sleeve and alarm dial just mentioned; and Fig. 6 is a perspective showing a split collar which is used in connection with the sleeve shown in Fig. 5 for fitting the same upon the cannon.

A clock frame 7 supports a dial 8 and a crystal 9, these being fragmentary portions of a clock which may be of the usual or any desired construction. The cannon of the clock is shown at 10 and supports the hour hand 11. At 12 is the minute arbor which extends through the cannon and carries the minute hand 13. At 14 is a small dial which, because of its office, I designate as an "alarm dial." It is supported upon a sleeve 15, the end of the sleeve opposite the alarm dial being split so as to form tongues 16, and these being sprung inwardly fit upon the cannon 10. The sleeve 15 may be fitted upon cannons of different sizes owing to the fact that the tongues 16 may be bent inwardly to any desired extent. A split collar 17 is fitted upon the cannon 10 and turns therewith. This collar may be of any desired thickness, depending upon the diameter of the cannon 10, and of course may vary in a number of different clocks, any one of which may be used in connection with the same size sleeve 15.

Mounted rigidly upon the sleeve 15 is a ring 18 of insulating material and carried by this ring is a sector 19 of metal which engages directly the sleeve 15, as indicated in Fig. 5. The sector 19 is sunken into the ring 18 so as to be flush with its outer surface, and also with its two faces. For this purpose the sector has substantially a U-shape, as indicated in Fig. 5. A contact brush 20 made of metal and having the form of a wheel is journaled in a fork 21 forming part of a rod 22. This rod is provided with an eye 23 which encircles a bearing sleeve 24 of insulating material. Engaging the ends of this bearing sleeve are washers 25, also of insulating material, the bearing sleeve and the two washers together constituting a spool-like member of insulating material, as will be noted in Fig. 3.

A fork 26 (see Fig. 3) supports a pivot pin 27 which extends through the sleeve 24 and washers 25, the pin 27 thus supporting the eye 23 and serving as a pivot upon which the rod 22 and brush 20 can rock as a center. A bolt 28 extends through the fork 26 and supports the same upon a metallic subframe 29, this frame also supporting many parts of the clock. A wire 30 having a spiral portion 30^a is connected with the rod 22 and is also connected with a binding post 31 supported by the frame 7. By virtue of the spiral portion 30^a of the wire 30, the wire does not interfere with movements of the rod 22 and brush 20. A screw 32, serving the purpose of a binding post, is mounted upon the frame 29 and connected with this screw is a wire 33 which leads to a binding post 34 mounted upon the frame 7. A wire 35 is connected with the binding post 34 and leads to a battery 36. From the latter a wire 37 leads to a bell 38, and connected with this bell and with a hand switch 40 is a wire 39, the hand switch 40 being connected by a wire 41 with the binding post 31.

While for the sake of simplicity and clearness I show and describe merely the simple apparatus illustrated in the drawings, I do not limit myself to this precise construction,

as alterations may be made therein without departing from the spirit of my invention.

The operation of my device is as follows: Assume that the clock is running and that the operator wishes the alarm to sound at a predetermined hour, say eleven o'clock. He grasps the alarm dial 14, and by turning it he turns the sleeve 15 upon the cannon 10 into such position that when the hour hand 11 reaches the numeral 11 of the clock dial proper, the sector 19 will extend directly upward from its center of rotation and will engage the brush 20. The following circuit is thereby completed: Battery 36, wire 35, binding post 34, wire 33, screw 32, subframe 29, cannon 10, sleeve 15, sector 19, brush 20, rod 21, wire 30, binding post 31, wire 41, switch 40, wire 39, bell 38 and wire 37, back to battery 36. This causes the bell 38 (which is of the continuous ring type) to sound so long as the sector 19 engages the brush 20. In order to prevent the alarm from sounding—that is, to render the alarm inactive—the switch 40 is employed to open the circuit.

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

1. In an electric time signal, the combination of a time-controlled revoluble member, a sleeve carried thereby and provided with tongues bent to fit said revoluble member, an alarm dial mounted upon said sleeve and revoluble therewith, a commutator mounted upon said sleeve and provided with a sector, a brush engaging said commutator and adapted to periodically engage and disengage said sector as said commutator turns, and electric alarm mechanism connected with said brush and with said revoluble member and controllable by the contact of said sector relatively to said brush.

2. The combination of a cannon, a sleeve carried thereby and provided with tongues adapted to bend in order to facilitate the fitting of said sleeve upon said cannon, an alarm dial carried by said sleeve and movable by hand for the purpose of turning said sleeve relatively to said cannon, a commutator carried by said sleeve, a brush to be engaged by said commutator, and electric alarm mechanism connected with said brush and with said cannon.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ISAAC JOHNSTON.

Witnesses:
CLYDE C. TRAPP,
J. ARTHUR DOUGHERTY.