

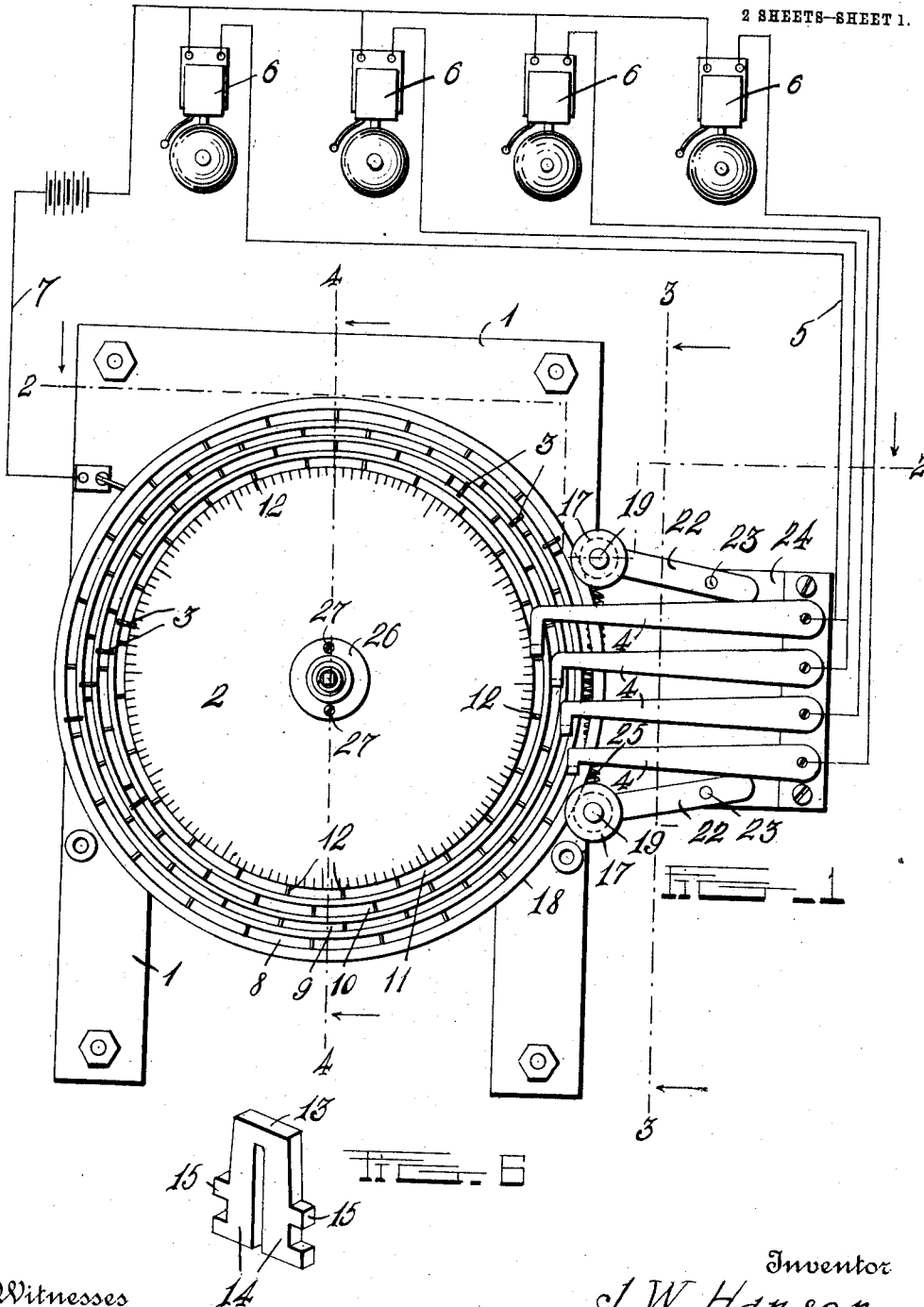
J. W. HANSEN.
PROGRAM CLOCK.

APPLICATION FILED NOV. 22, 1909. RENEWED DEC. 12, 1910.

983,705.

Patented Feb. 7, 1911.

2 SHEETS-SHEET 1.



Witnesses
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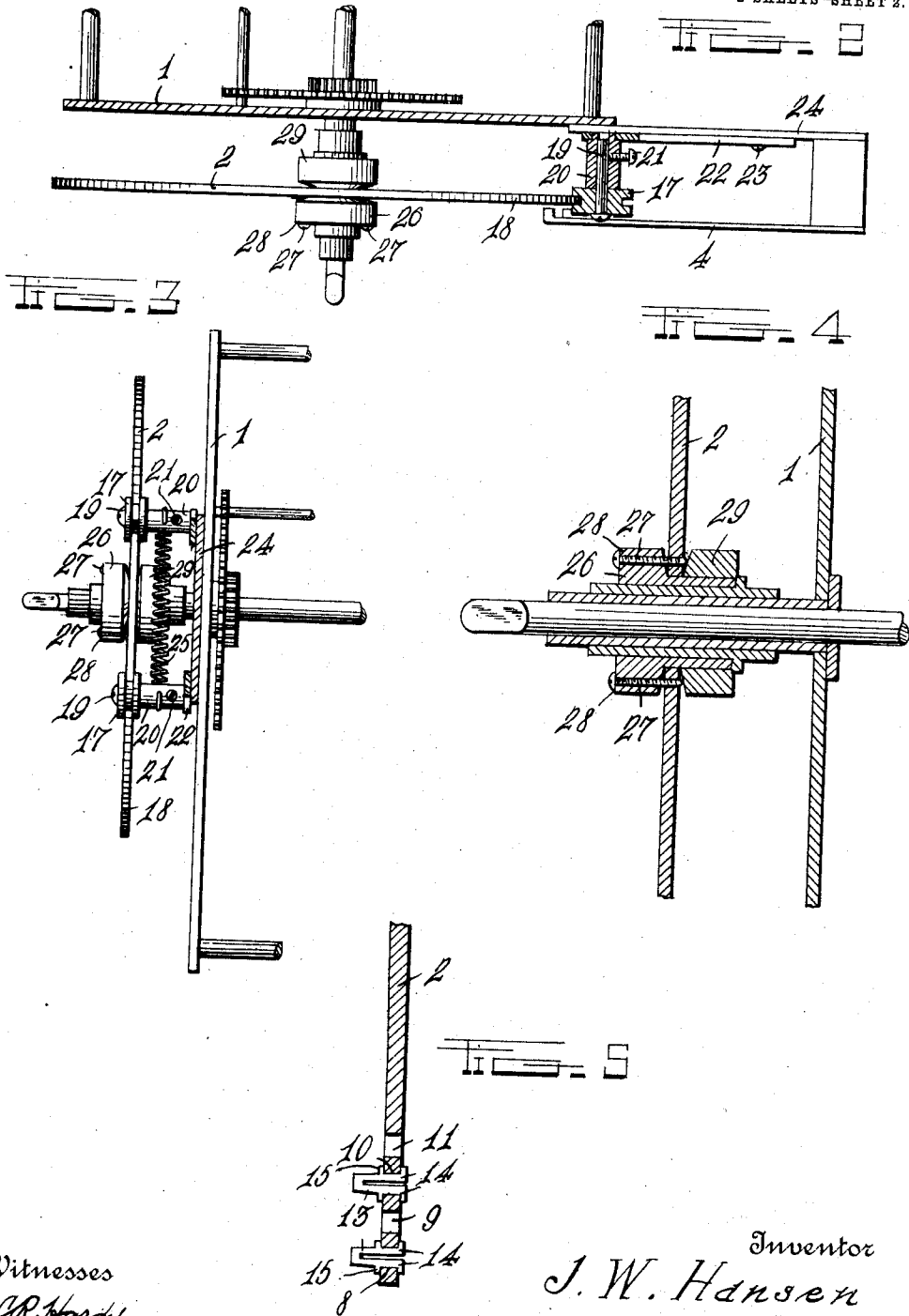
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UNITED STATES PATENT OFFICE.

JULIUS W. HANSEN, OF PRINCETON, INDIANA.

PROGRAM-CLOCK.

983,705.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed November 22, 1909, Serial No. 529,316. Renewed December 12, 1910. Serial No. 596,967.

To all whom it may concern:

Be it known that I, JULIUS W. HANSEN, a citizen of the United States, residing at Princeton, in the county of Gibson and State of Indiana, have invented certain new and useful Improvements in Program-Clocks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a program attachment for clocks and is designed as an improvement on the construction shown in my Patent Number 900,529, granted to me October 6, 1908.

The principal objects of the present invention are first, to improve upon the hour dial, or perfect the same, second to provide an improved form of contact pins and third to provide means for guiding the dial in order that the contact between the contact pins and brushes will always be the same.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of a program clock equipped with my improvements. Fig. 2 is a vertical transverse section taken on the line 2-2 of Fig. 1. Fig. 3 is a similar view taken through one of the guiding rollers, the parts being represented on an enlarged scale. Fig. 4 is a vertical transverse section taken through the hub of the dial. Fig. 5 is a similar view taken through one of the contact pins and the dial. Fig. 6 is a detail perspective view on an enlarged scale of one of the contact pins.

In the embodiment illustrated, 1 indicates the frame of the clock, 2 the hour dial, 3 the contact pins, 4 the brushes, 5 the wiring connections, 6 the alarm bells and 7 the return wire for completing the circuit through the clock. Aside from these features, the mechanism of the clock may be similar to that shown in my Patent Number 900,529, or of any other desired construction and therefore unnecessary time or space will not be devoted to a description of such mechanism.

In carrying out the present invention, the dial is provided with a plurality of concentric slots 8, 9, 10 and 11, respectively, each

of which is divided into a suitable number of divisions by the connecting webs 12. Each of these slots constitutes one program and arranged at suitable points in said slots is a plurality of contact pins 3. By referring to the drawings and more particularly to Figs. 5 and 6, it will be seen that each of the contact pins is formed from a single piece of metal of approximately rectangular form which is slit longitudinally from one end to a point near the opposite end thereof to provide a pair of resilient clamping legs 14, the outer edges of which are provided with longitudinally spaced offset portions 15. The contact pins are inserted in position by passing them partially through the slots of the dial and then turning them by means of a pair of pincers or other tool to cause the offset portions 15 to engage opposite faces of the concentric ribs 16 disposed between the slots of the dial. It will be understood that the clamping legs of the contact pins being resilient are held in firm engagement with the edges of the ribs 16 by self-expansion, thus insuring the retention of said pins in position. The dial 2 carrying the contact pins is guided by means of a pair of vertically-spaced grooved guide rollers 17 which receive the peripheral edge 18 of the dial. The rollers 17 are mounted upon the outer ends of bearing pins 19 which are received by the hubs 20 and held in removable position by retention screws 21. The hubs 20 are carried by the outer or free ends of the bearing arms 22, pivoted as at 23 to a bearing bracket 24 projecting laterally from one side of the clock frame. A resilient element, preferably in the form of a coil spring 25 has its opposite ends connected with the hubs 20 to hold the guide rollers in firm engagement with the peripheral edge of the dial. The dial is connected with the bearing hub 26 by means of the pins 27 which are inserted through the annular shoulder 28 at the front end of the hub and through the dial. As the pins 27 merely hold the dial against relative rotary movement with relation to the hub, a ring 29 is soldered on the inner end of the hub to hold the dial against bodily displacement.

By providing the guide rollers as shown, it will be evident that the dial may be guided to the brushes so that the contact between the contact pins of the dial and the brushes is always the same.

From the foregoing description taken in

connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

5 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

10 What is claimed as new is:—

1. In a program clock, a dial having a slot therein and a contact pin in the slot and having resilient clamping portions to engage the edges thereof and offset portions to engage the opposite faces of the portions of the dial adjacent said slot.

15 2. In a program clock, a dial and a pair of guide rollers to receive the edge of the dial.

20 3. In a program clock, a dial a pair of guide rollers to receive the edge of the dial, and a spring for holding said rollers in yielding engagement with the dial.

25 4. In a program clock, a dial provided

with a plurality of concentric slots, contact pins arranged in said slots and grooved guide rollers to receive the edge of the dial to insure the proper contact at all times between the contact pins and the brushes. 30

5. A program clock, comprising a dial provided with a plurality of contact pins, a pair of pivoted roller-carrying arms arranged at one side of the dial, hubs carried by the free ends of said arms, bearing axles 35 extending into said hubs, retention screws to hold said axles in removable position, grooved guide rollers mounted at the outer ends of said axles to receive and guide the edge of the dial and a resilient element interposed between the hubs to hold the guide rollers in firm engagement with the edge of the dial. 40

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 45

JULIUS W. HANSEN.

Witnesses:

JOHN M. PARRETT,
LUTHER BENSON.