

1,041,252.

2 SHEETS—SHEET 1.



WITNESSES  
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 ACTIVITY RECORDER.  
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2 SHEETS—SHEET 2.

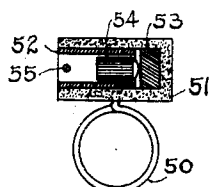


FIG. 8.

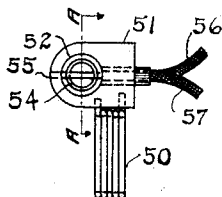


FIG. 9.

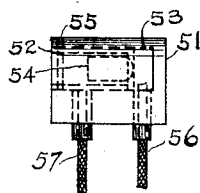


FIG. 10.

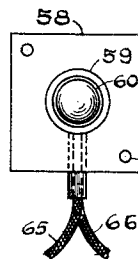


FIG. 11.

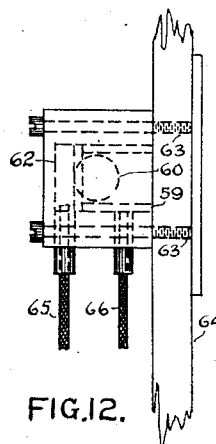


FIG. 12.

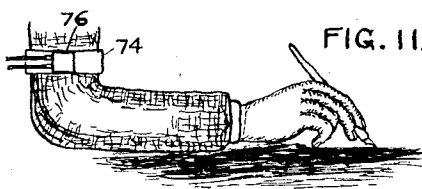


FIG. 18.

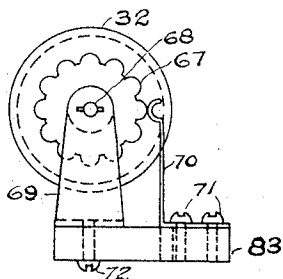


FIG. 13.

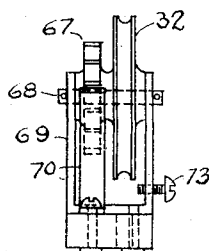


FIG. 14.

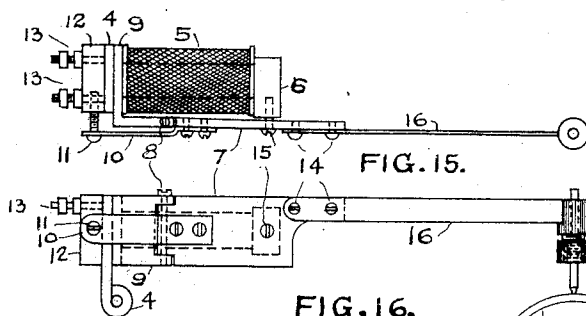


FIG. 15.

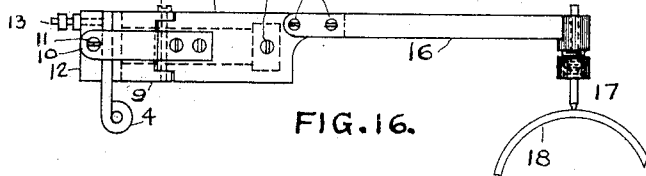


FIG. 16.

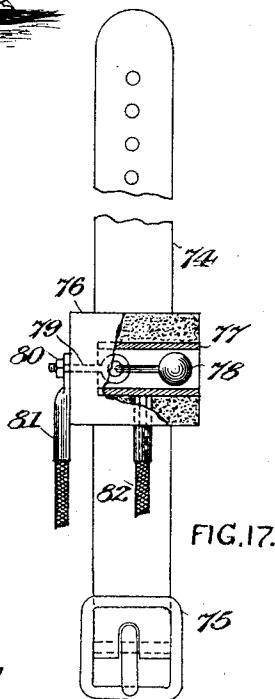


FIG. 17.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## ACTIVITY-RECORDER.

1,041,252.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed November 4, 1911. Serial No. 658,589.

*To all whom it may concern:*

Be it known that I, JAMES WILLIAM DOUGHERTY, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful device, which I have named an "Activity-Recorder," of which the following is a specification.

The object of my invention is to make a record of the time which a workman or operator is active or inactive in their particular employment. I accomplish this object by the use of a recording device and an interrupting switch, the interrupting switch being operated by the movements of the workman for controlling the recording device.

A particular embodiment of my invention and the manner I am applying it is illustrated in the accompanying drawings, in which—

Figure 1 is a top view of my activity recorder. Fig. 2 is a side view of my activity recorder. Fig. 3 is a part view of the recording paper, showing how the activities appear when recorded. Fig. 4 is a human hand and arm, the hand being equipped with the necessary means whereby any movement of the hand shall be recorded in the activity recorder, Fig. 1. Figs. 5, 6, and 7 show drawing boards and T-squares equipped with the necessary means whereby any movement of the T-square shall be recorded in the activity recorder, Fig. 1. Figs. 8, 9, and 10, respectively, show a cross-section on line A—A Fig. 9, an end view and a top view, of an interrupting switch to be used on the finger of a human hand, as is shown in Fig. 4 and marked 31. Figs. 11 and 12 show top and side views of an interrupting switch for use with any moving device, such as a draftsman's T-square, etc. (See Fig. 6, marked 41.) Figs. 13 and 14, show side and end views of an interrupting switch, for use with any moving device, such as a draftsman's T-square, etc. (See Fig. 5, marked 36.) Figs. 15 and 16 are detailed top and side views of the marking mechanism, for the activity recorder, Fig. 1. Fig. 17 is a part sectional side view of an interrupting switch, for use on the human wrist, arm, or other part of the body. Fig. 18 shows an interrupting switch attached to the human arm.

Referring to Fig. 1 and Fig. 2, there is shown a base 1, upon which is mounted the

stand 2, through which passes the rod 3, upon which is revolubly mounted the arm 4, secured to the arm 4 is the electromagnet 5 and its terminating pole piece 6, near the pole piece 6 is the vibrating armature 7 pivotally mounted at 8 on the stationary part 9, which is secured to the arm 4, secured to the vibrating armature 7 is the flat spring 10, having an adjusting screw 11 for changing the rate of vibration of said armature. 12 refers to a fiber block secured to arm 4 and carrying the binding post 13 for the wires to the magnets and operators. 15 refers to an adjusting screw for limiting the range of movement of the armature 7 from the pole piece 6; secured to the vibrating armature 7, by the screws 14 is the recording pencil arm 16, carrying the marking pen or pencil 17, which bears upon the recording drum 18 having a drum shaft 19, mounted in the stand 20, and driven by the clock mechanism in the case 21; 22 and 23 refer to rollers which bear against the recording drum 18 and between which passes the record paper 24, coming from the paper reel 25, mounted in the stand 26. For the purpose of making the drawing clear I have shown the record paper in dot and dash lines, as it passes between the drums 22 and 18, over the drum 18, and down between the drums 18 and 23.

Referring to Fig. 1, there is shown the binding posts 13 in electrical connection with the current carrying wires 27 and 28 and the batteries 29; the wires 27 and 28 going up and through the sleevelet 30, to the interrupting switch 31, on the human hand shown in Fig. 4, the switch 31 being designed to produce an interruption of the electric current in the wires 27 and 28 when the hand is moved in any kind of work; the interrupted current will cause the armature 7 and marking pencil 17 to vibrate and produce a practically solid black line as is shown in Fig. 3. The switch will be referred to again hereinafter.

In Fig. 5 is shown a drawing board 37, to which is secured a toothed interrupting switch 36, having driving pulley 32 over which passes the driving cord 33, forming a closed drive over the pulley 38 and secured to the T-square 34 by screw 35, from the switch 36 leads the current carrying wires 27 and 28 to the marking device in Fig. 1. This switch will be referred to again hereinafter.

In Fig. 6 is shown a drawing board 39 and a T-square 40 to which is secured an interrupting switch 41, from which leads the current carrying wires 27 and 28 to the binding posts 13 on the activity recorder Fig. 1. This switch will be referred to again hereinafter.

In Fig. 7 is shown a drawing board 42, a T-square 43 having a metallic contact piece 44 which bears on the contacts 45 and adapted to open and close the circuit when the T-square is moved up and down the board. 27 and 28 show the current carrying wires leading from same to the binding posts 13 on the activity recorder Fig. 1.

Referring to Figs. 8, 9, and 10 there is shown the detailed construction of an interrupting switch, designed for use on the finger of the human hand. In the figures the numeral 50 designates a finger ring to which is secured the non-conductive case 51, having a circular pocket in which is fitted the metallic tubular contact 52, electrically connected to the wire 57; loosely fitted and adapted to move freely inside the metallic tubular contact 52, is the metallic contact breaker 54, bearing on the contact plate 53 which is electrically connected to the wire 56. 55 is a pin to prevent the contact breaker from falling out. It will be seen that any movement of this switch will cause a displacement of the contact breaker 54 and produce an interruption of the electric current passing through it.

In Figs. 11 and 12 is shown the detailed construction of an interrupting switch for use with any moving object such as a draftsman's T-square, etc., the numeral 58 designating a non-conductive case in which is fitted the metallic tubular contact 59, electrically connected to the wire 66; loosely fitted inside the tubular contact 59 is the metallic ball contact breaker 60, bearing on the contact plate 62 which is electrically connected to the wire 65. 61 refers to holes through which passes the screws 63 for securing the switch to any moving part as the head of a T-square 64.

From the description it will be evident that any movement of the switch will cause a displacement of the ball 60 and interrupt the electric current passing through the switch.

In Figs. 13 and 14 is shown a type of a toothed interrupting switch designed to be used with any moving object such as a draftsman's T-square as is shown in Fig. 5 and marked 36. The numeral 32 designates a grooved driving pulley, which is secured to the shaft 68, turning in the metallic stand 69, having the binding post screw 73 and secured to the base 83 by the screws 72, secured to the shaft 68 is the toothed metallic contact wheel 67, against which bears the metallic contact breaking spring 70,

which is secured to the non-conducting base 83 by the screws 71, which also form the other binding post for the lead wires. From this description it will be seen that when the toothed contact wheel is revolved it will cause an interruption of the electric current passing through it.

Figs. 15 and 16 are larger scale views of the detailed construction of the marking mechanism in Fig. 1, the numerals designating the same parts previously described.

In Fig. 17 is shown a detailed construction of an interrupting switch designed for attaching to a human wrist, arm or other part, as in Fig. 18. The numeral 74 designates a strap having a buckle 75; secured to said strap is the non-conductive case 76 in which is fitted the metallic tubular contact 77 in electrical connection with the wire 82, inside said tubular contact and swingingly secured to the eyebolt 79 is the swinging contact breaker 70. 80 refers to a nut for securing the wire 81 to the eyebolt 79. It will be evident from this description that any movement of the switch will cause the contact breaker 78 to swing about in the tubular contact 77 and interrupt the electric current passing through the switch.

From the foregoing description of the different views of my invention and the manner of applying the same, it will be evident that the novelty and merit lies in having a recording device, with a marking pencil adapted to bear upon and vibrate parallel to a record drum in response to the changes taking place in an electric circuit, in which there is a very sensitive interrupting switch designed to interrupt an electric current passing through it when it is moved.

To a person skilled in the art, it will be evident that there are many ways modifying and changing the arrangement of the present construction, and I propose to cover them in the following claims: in which—

I claim:

1. In an activity recorder, a relatively stationary recording mechanism, electrically operated mechanism therefor, and a contact maker and breaker attached to and movable with the body, whose activity is to be recorded, for making and breaking the circuit of the electrically operated mechanism.

2. In an activity recorder, a relatively stationary recording mechanism, electrically operated mechanism therefor, and a normally closed vibratory contact maker and breaker attached to and movable with the body whose activity is to be recorded, whereby the circuit to the electrically operated mechanism is made and broken when said body becomes active.

3. In an activity recorder, a relatively stationary recording mechanism, a vibrating marker in constant contact with the record sheet, electrically operated mechanism there-

for, a normally closed vibratory contact  
maker and breaker attached to the body  
whose activity is to be recorded for making  
and breaking the circuit to the electrically  
5 operated mechanism when said body be-  
comes active, whereby said marker produces  
a relatively solid record line made up of a

number of vibrations when said body is  
active.

JAMES WILLIAM DOUGHERTY.

Witnesses:

HUGH DOUGHERTY,  
J. L. DOUGHERTY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."