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APPARATUS FOR PERMANENTLY CHECKING THE WORK OF OPERATORS
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Serial No.
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Fig. 1.

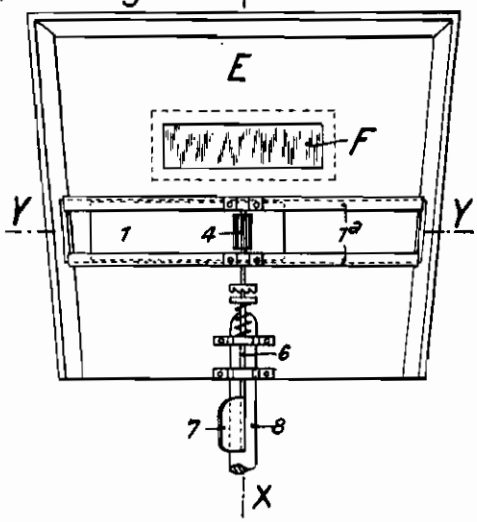


Fig. 2.

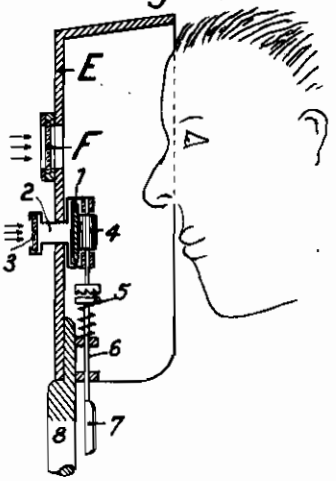


Fig. 3.

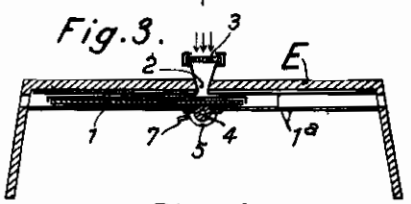


Fig. 4.

Fig. 5.

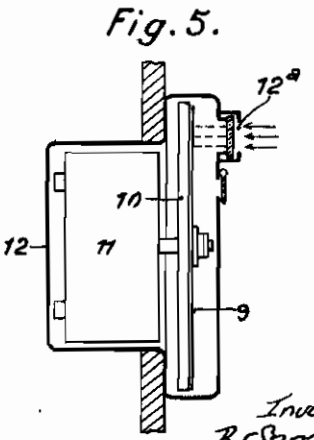
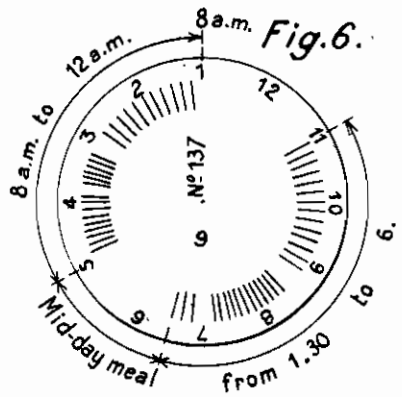


Fig. 6.



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ALIEN PROPERTY CUSTODIAN

APPARATUS FOR PERMANENTLY CHECKING THE WORK OF OPERATORS

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Application filed March 31, 1941

In his French Patent No. 759,150 of 22nd October, 1932, the applicant described a device for checking the activity of operators and in particular of welders, by recording the work effected during the day and counting the electrodes.

Said device thus enables, for a given operation, the various elements to be obtained which constitute the cost price of a weld and also the diligence of the operator to be characterized.

However, the device described in the aforesaid French Patent involves a rather delicate mechanical arrangement, the upkeep of which may not be very well effected by the normal welding shop.

The present invention provides a novel means for permanently checking the work of the operators and consists, in principle, in using for the printing of recording documents which are prepared for this purpose, the luminous or non-luminous rays directly or indirectly emitted by the working tool; this one, in the second case, operates an auxiliary member which emits the necessary rays for operating the apparatus.

In the case of the arc welder, for example, the rays emitted by the source are very actinic and act very intensely on photographic papers or even on sensitized papers such as those which are used for reproducing drawings.

In this practical application of the invention, use may be made of a recording paper which is partly or completely covered with an emulsion which is sensitive to the rays of the arc and a part of the surface of this sensitive zone is exposed to said rays during the entire duration of the fusion of an electrode. A similar arrangement may be adopted during the time of supervision of a furnace, for example, if it is desired to check the operator entrusted therewith.

The advantage can be seen which is offered by the possibility of using slightly sensitive papers which are cheap and easy to develop. They require a fairly long exposure and if the luminous source has to be modified, it is an easy matter to provide a coloured glass screen which will proportion the luminous power required for satisfactory printing.

This recording process therefore leads to ensuring the translation of a sensitized paper in front of an opening which may moreover be provided with a rudimentary lens. By moving the sheet of paper in front of the opening, as a function of the time, it will be possible to represent graphically the work of the operator.

After the day's work has been effected, the operator hands his diagram to the foreman or to the man in charge of production; by simply passing this document in a suitable developer, the various factors showing how the time has been used will become apparent.

A quick count of the lines printed on the paper, representing the fusion of each electrode, will show the number of electrodes actually used; if, on the other hand, the movement of the paper has been effected as a function of the time, the responsible foreman will be able to check the diligence at his work, in one word the efficiency, of each operator.

The printed paper may be filed so as to form a kind of time register which may be referred to, when identical work is being effected.

Various embodiments may be contemplated. However, by way of demonstration, two chief embodiments have been shown which particularly refer to the case of arc welders.

It is known that this welder generally holds in his hand, no the one hand, a protecting screen, on the other hand the holder provided with the electrode which, by melting, will form the supply of metal for the weld.

The two movements are automatically combined at the instant when the welding operation is effected. The operator normally holds his electrode-holder in the right hand, and in the other, he takes the handle of the screen which is to protect him from the rays.

In the most general case, the welder effects these two movements almost simultaneously and, at the instant when he strikes the arc, he brings the screen in front of his eyes. Thus, for each new electrode, the operator will take hold of his screen and this movement may be used to obtain a displacement of the recording paper; the latter may be placed in a rudimentary camera mounted on the face of the screen for example.

In the accompanying drawing, two embodiments have been shown of a device possessing the above features:

Fig. 1 is a back view,

Fig. 2 a view in vertical section along the plane projected on X—X in Fig. 1,

Fig. 3 is a view, in horizontal section along the plane projected on Y—Y in Fig. 1, of a first embodiment of the device;

Fig. 4 is a specimen of recorded diagram obtained with the device;

Fig. 5 is a view in diametral section of another embodiment of the apparatus;

Fig. 6 is a recorded diagram corresponding to said apparatus.

In Fig. 1, the recording paper 1 is formed by a kind of rectangular card covered, on its face

exposed to the arc, with an emulsion of a product which is sensitive to the rays of the arc. The camera is, for example, represented by the simple slideway 1^a which is applied against the inner face of the screen E provided with its usual window F; on the front face of the slideway, which is exposed towards the arc, there is provided a slit 2 which is of the required length and height for obtaining the printing of a line.

In front of the slit 2, the possibility has been provided of placing a coloured screen 3, in such a manner that only a source of light which is as powerful as an electric arc can affect the paper. The coloured screen is so chosen that the darkest shade of the line requires an exposure corresponding to the time of melting of the electrode used; it will therefore be possible to adapt the screen to the intensity of the source of light, that is to say to the diameter of the electrode.

The apparatus is completed by a very simple mechanical system comprising, for example, an actuating drum 4 covered for example with rubber, which moves the card a space longitudinally after each electrode, so that the apparatus is ready for further use.

Each time the operator takes hold of the screen again, he actuates the mechanical system, for example by means of a small ratchet device 5 actuated by the small spindle 6 secured to a blade 7 which forms a lever and is placed against the handle 8 of the screen; by grasping the handle of the screen, the operator cannot fail to press the blade 7 and the latter feeds the recording card a predetermined amount, then returns backwards.

In the case in which the operator uses a helmet covering his head, he is in the necessity of either moving it backwards, or opening it in order to see and pick up a fresh electrode; the corresponding movement will in this case be used for moving the card as has been described.

The system thus obtained is the simplest. After treatment of the sensitized paper, it produces a card according to Fig. 4 bearing a series of lines, the intensity of shade of which measures the time of exposure, that is to say the time of melting, it being observed that with the same screen and for given conditions of operation, the successive lines should be similar. Said card may bear complementary indications concerning the work.

The second device, which is illustrated in Figs. 5 and 6, shows a construction of a different design but having the advantage of recording the elementary times of work as a function of the time of presence in the workshop.

The sheet of paper is shaped like a disc 9 mounted on the plate 10 of a clock motor 11 which rotates it a complete revolution in a period of time chosen as being the most suitable for the checking.

The whole arrangement is enclosed in a casing 12 which carries the slit 12^a; for some sources of light, it may be advantageous to replace the slit by a suitable small lens which receives the rays emitted by the source and directs them in a parallel or convergent beam to produce a line or else to determine a point.

Assuming that the rotation of the disc is effected in twelve hours, which covers a day's work with interruptions, it will be seen that the foreman will be aware of all the incidents of the day with its periods of work and its stoppages. As regards the arc welder, for example, the fusion of the electrodes will be recorded, with the device according to Fig. 5, in successive bars which are directed along elements that may be assimilated to radii.

It is easy to complete the apparatus described above by mechanical auxiliary devices which could direct the record, for example in the shape of an arc of a circle or according to any other outline.

In this case, the use of a luminous point instead of a narrow beam would determine a section of circle of fairly great length, which would give better legibility.

It will be seen from the explanation that the apparatus can be used for checking all kinds of operations. For this purpose, it would be completed by various electrical or mechanical members which exist in the present state of the art and do not themselves fall within the scope of the present invention.

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