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C. D. LAKE

2,401,430

PLUGBOARD CONTACTORS

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FIG. 1.

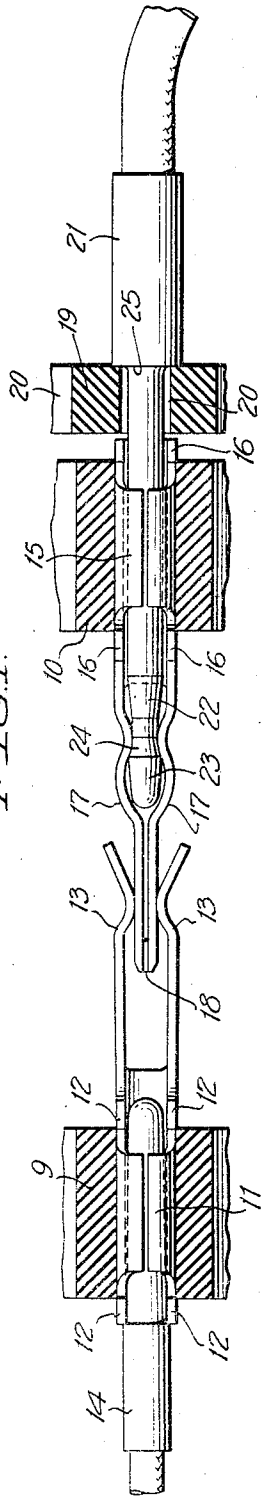


FIG. 2.

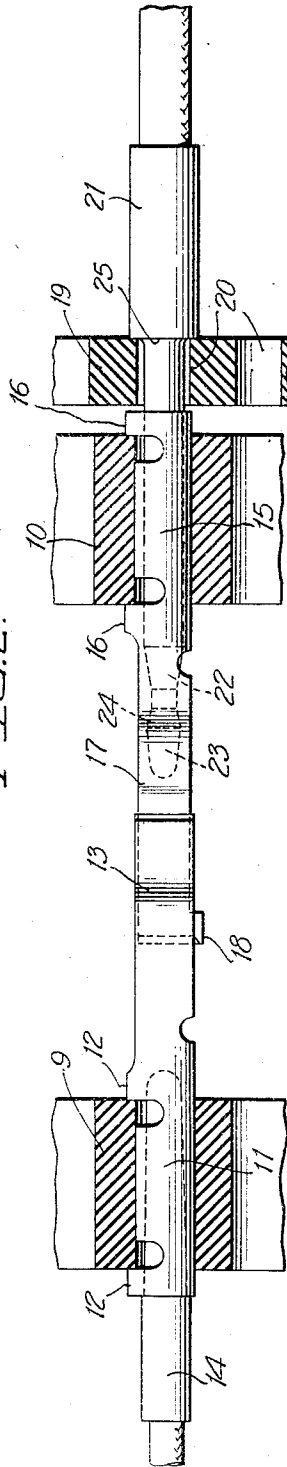


FIG. 3.



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PLUGBOARD CONTACTORS

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Application December 15, 1944, Serial No. 568,264

3 Claims. (Cl. 173-328)

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This invention relates to contactors for use in the plugboard or circuit connecting panels of electric accounting machines.

The principal object of the invention is to provide an improved and simplified contactor arrangement to the end that better electrical contact will be obtained between the contacting elements.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawing, which discloses, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawing:

Fig. 1 is an enlarged view of the several separable parts of the contactor assembly in operating relationship with one another.

Fig. 2 is an elevation of the parts in Fig. 1.

Fig. 3 is a perspective of the tip of the central element of the contactor assembly.

The particular type of plugboard for electric accounting machines to which the present invention applies is that shown in the patent to C. D. Lake No. 2,111,118 granted March 15, 1938, in which there is provided a fixed plugboard containing rows and columns of spring contactors and an insertible plugboard in which there are corresponding rows and columns of comparison contactors fixedly secured to this board. This latter board is arranged to be swung into engagement with the first board so that electric contact is effected between oppositely located contactors on the two boards.

Referring to Figs. 1 and 2, 9 represents the fixed plugboard panel similarly identified in the patent and 10 represents the removable plugboard panel also so identified in the patent.

In each opening through the fixed panel 9 there is inserted a contactor 11 secured in position by shoulders 12 against longitudinal movement. The contactor 11 has a pair of oppositely facing spring blades 13 integral therewith and configured as shown. A wired plug 14 is insertible in contactor 11 as indicated to electrically connect the same in any suitable circuit.

In the movable panel 10 there is inserted a contactor generally designated 15 also held in position against longitudinal movement by shoulders 16. Integral with this contactor is a pair of flat oppositely facing spring blades 17 whose extremities are joined at one side by a bridge 18. When the plugboard panels are moved into operative relationship as in Figs. 1 and 2, the ends of blades 17 slide between the ends of blades 13 to effect

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electrical connection between the two, and the tension in blades 13 is such as to urge the blades 18 together.

The usual terminal plate 19 covers the ends of contactors 15 to guard against inadvertent short circuiting, and this plate is provided with holes 20 through which plugging jacks 21 may be inserted into the contactor 15.

In accordance with the present invention, the plugging jack 21 comprises a circular stem 22 with a conical tip 23 and a conical shoulder 24. With the panel 10 moved away from fixed panel 9, jack 21 may be inserted into contactor 15 and, as it is inserted, the tip 23 will engage and part blades 17 as the tip moves past the narrow section of the curved blades. Thereafter, the blades spring back behind the tip 23 and by bearing against sloped shoulder 24 urge the jack inwardly and hold it in position.

When jacks 21 have been inserted in the several positions on board 10, the entire board is brought into engagement with the fixed board as explained in the patent referred to, and the free ends of each pair of blades 17 will slide between the companion blades 13, which latter will then exert additional pressure to squeeze blades 17 more firmly against jack stem 22 to in effect lock the stem in position.

There is thus provided a jack and plug arrangement whereby a plug jack is initially inserted against the relatively light spring tension of blades 17 and detented in position through the configuration of the plug and blades. When the plugboard panels are brought into cooperative relationship, the additional tension of spring blades 13 is added to that of blades 17 to more securely grip and hold the jack against removal while the panels are in the relative positions of Figs. 1 and 2.

The bridge 18 serves to maintain the extremities of blades 17 at a predetermined spacing and prevent their inadvertent spreading. The parts are so proportioned that in operative position as shown in Fig. 1 blades 17 acting against shoulder 24 constantly urge the stem 22 toward the left and press shoulder 25 of the jack firmly against panel 19, so that good electrical contact is made between blades 17 and shoulder 24.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without

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departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In a machine having a fixed plugboard panel 5 and a removable panel, the combination of a spring contactor secured in the fixed panel, a second spring contactor secured in the removable panel, and a plug jack insertible in the second spring contactor, said second contactor being configured 10 to resiliently grip and hold the inserted jack and said first named contactor being configured to engage the second contactor to increase the tension thereof, whereby to grip the jack more securely.

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2. The invention set forth in claim 1 in which the second contactor is bifurcated to form a pair of spring blades between which the jack is inserted and the first contactor is also bifurcated to form a pair of spring blades between which the blades of the second contactor enter.

3. The invention set forth in claim 1, in which the second contactor is bifurcated to form a pair of oppositely curved spring blades between which the jack is inserted and the jack is provided with a shoulder for engagement with the curved blades.

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