

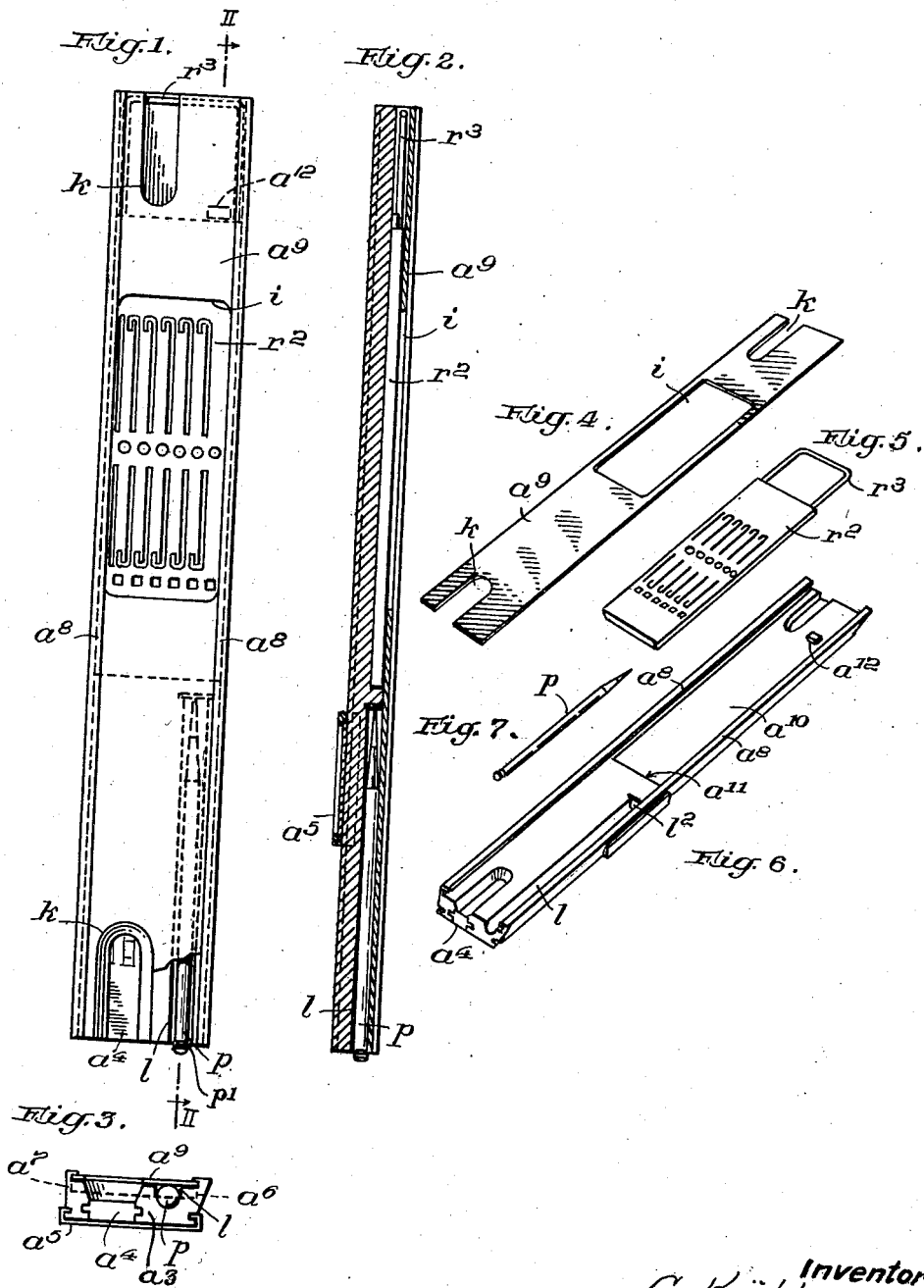
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MEANS FOR MOUNTING AN ADDING AND SUBTRACTING DEVICE ON SLIDE RULES

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## MEANS FOR MOUNTING AN ADDING AND SUBTRACTING DEVICE ON SLIDE RULES

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The present invention relates to a calculating rule with addition and subtraction device.

It is common use, not only at technical calculations, but also when estimations of costs and prices, lists of contract work, performance calculations and the like are made, to perform the multiplications, the divisions and proportion calculations by means of a slide rule. Such calculations do however also involve additions and subtractions.

It is inconvenient, that additions and subtractions cannot be made by means of the slide rule. It has been proposed to perform additions and subtractions by means of a calculating machine, but if such a machine is used the calculator must at each addition and subtraction put aside the rule in order to be able to manipulate the other device.

The chief object of the present invention is to remove this deficiency and to combine a slide rule and a calculating machine in such a manner, that they form an integral body, so that the calculator easily may change over from one species to another. A device of this kind must fulfil the following conditions or requirements:

The machine for performing additions and subtractions must form an element of the calculating rule and must be as flat and narrow as possible. It must not impede the manipulation of the slide rule proper. It must be possible to rapidly remove the addition and subtraction device from and again attach it to the rule when repairs or the like are required. The device by means of which the additions and subtractions are performed must also be so arranged, that it can be manipulated without difficulty, and means must be provided in the rule for receiving the stylus by means of which the addition and subtraction device is operated.

A constructional form of the invention is illustrated by way of example in the accompanying drawing.

Fig. 1 shows an embodiment of the invention in which the adding and subtracting device and the stylus are held on the rear side of the rule by means of a plate of Celluloid. The plate is partially broken away to show the stylus in its seat.

Fig. 2 is a longitudinal sectional view taken on line II-II of Fig. 1.

Fig. 3 is an end view on the calculating rule.

Fig. 4 shows the rear wall or cover.

Fig. 5 is a perspective view of the adding and subtracting device.

Fig. 6 is a perspective view of the calculating rule proper.

Fig. 7 is a perspective view of the stylus.

In the embodiment shown in Figs. 1 to 6 the slide rule consists as usual of a rule body  $a^3$  of wood in which the setting slide  $a^4$  is resiliently arranged. Both sides of the member  $a^4$  are covered with strips of ivory, Celluloid or the like. The upper face of the rule and the vertical and the inclined sides of the rule are covered with strips of the same material carrying scales, legends and the like. The rule has also the usual guides for the setting slide  $a^4$  and the filament slide  $a^5$ .

The lateral walls  $a^6$  and  $a^7$  are at their lower ends bent inward and form flanges  $a^8$ , which serve as guides for the cover  $a^9$ . The back side of the rule body  $a^3$  has intermediate its ends a recessed part  $a^{10}$  adapted to receive the adding and subtracting device  $r^2$ . After the adding and subtracting device has been inserted it is securely held in the proper position between the inner wall  $a^{11}$  of the recess  $a^{10}$  and a stop  $a^{12}$ . The cover  $a^9$  has a window or opening  $i$  of such form and size, that all parts needed for the manipulation of the device and the performing of the calculations are visible and accessible. The edges of the opening  $i$  in a way form a frame for the addition and subtraction device and the calculating legends.

Notches  $k$  at the ends of the cover  $a^9$  facilitate the manipulation of the setting slide  $a^4$  and the setting of the zero slider  $r^3$ . The zero slider can easily be engaged through the notch  $k$  in the cover and be reciprocated.

In one end of the rule body  $a^3$  a groove  $l$  is provided which serves as a seat for the stylus  $p$ . The stylus is resiliently held in its seat by the cover  $a^9$  and if desired also by means of a spring. At the bottom of the groove a small metal plate  $r^4$  may be arranged. At one end of the stylus a circular groove  $p^1$  is formed, so that the stylus without difficulty can be gripped with the fingers and removed from its seat  $l$ .

The cover  $a^9$  is held loosely and with play between the guides  $a^8$ , whereby the resiliency of the bottom of the rule body is maintained. This arrangement also facilitates the removal and re-mounting of the adding and subtracting device.

I claim:

1. Means for mounting an adding and subtracting device comprising, an elongated body member having a recess formed in one face thereof, a relatively flat adding and subtracting device arranged in said recess, a flange extend-

ing along each side of the recess, and a plate-like cover engaging said flanges so as to maintain the adding and subtracting device in the recess, and said plate-like cover having an opening therein exposing a portion of the adding and subtracting device.

2. Means for mounting an adding and subtracting device comprising, an elongated relatively flat body member having a recess formed in one face thereof and extending to one end of the body member, a shoulder at an end of the recess, a relatively flat adding and subtracting device arranged in said recess with one end thereof engaging the shoulder, a projection extending upwardly from the bottom of the recess engaging the other end of the adding and subtracting device, a flange extending along each side of the recess, a plate-like cover engaging said flanges so as to maintain the adding and subtracting device in the recess, and said plate-like cover having an opening therein exposing a portion of the adding and subtracting device.

3. Means for mounting an adding and subtracting device comprising, an elongated relatively flat body member having a rectangular shaped recess formed in one face thereof and extending to one end of the body member, a shoulder at an end of the recess, a relatively flat rectangular shaped adding and subtracting device arranged in said recess with one end thereof engaging the shoulder, an integral projection extending upwardly from the bottom of the recess engaging the other end of the adding and subtracting device, a flange integrally formed from the body member extending along each side of the recess, a plate-like cover engaging said flanges so as to maintain the adding and subtracting device in the recess, and said plate-like cover having an opening therein exposing a portion of the adding and subtracting device.

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