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RESETTING MECHANISM FOR CALCULATING MACHINES

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Fig.1

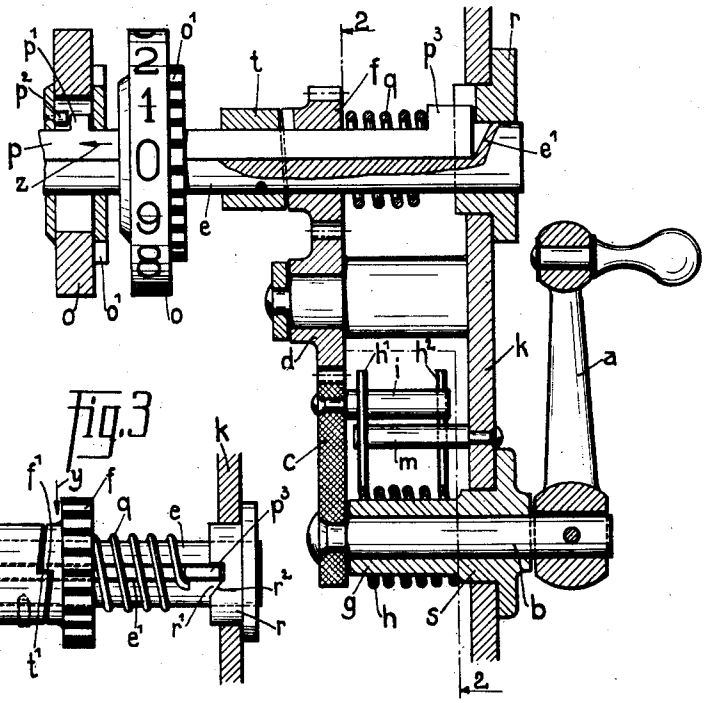
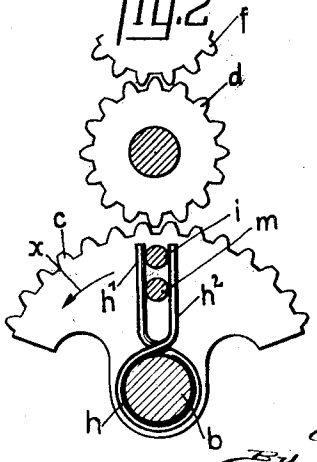


Fig.3

Fig.2



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RESETTING MECHANISM FOR CALCULATING MACHINES.

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My invention relates to improvements in resetting mechanisms for calculating machines, and more particularly in resetting mechanisms in which the resetting shaft is adapted to be operated by means of a toothed sector meshing with a gear wheel keyed to the resetting shaft. In machines of this type the sector or the operating lever connected therewith is provided with a spring tending to retract the same after operation into initial position and into contact with a fixed lug. In machines now in use an objectionable noise is caused by the striking of said lever or sector on its lug. The object of the present invention is to so construct the retracting means that the heavy blow of the sector on the lug is avoided, and with this object in view I provide a spring actuated stop member for the said sector, which stop member is held by spring action in initial position insuring the correct position of the sector and the resetting mechanism.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawing, in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawing,

Fig. 1, is a sectional view of a part of the registering mechanism of a calculating machine, and the resetting mechanism thereof embodying my improvements,

Fig. 2, is a sectional view taken on the line 2—2 of Fig. 1, and looking in the direction of the arrows, and

Fig. 3, is a detail view showing a part of the resetting mechanism.

In the example shown in the drawing the registering mechanism comprises numeral wheels o loosely supported on a shaft e rotatably mounted in suitable bearings of the side walls k of the carriage of a calculating machine, one of the said bearings being shown at r. Each of the numeral wheels o is fastened to a gear wheel o^1, and the said gear wheels are adapted to be rotated by the setting mechanism in a manner known in the art. In a longitudinal groove e^1 of the shaft e a rail p is axially slidable. Said rail p is provided with a plurality of lugs or noses p^1, one for each of the numeral wheels. The lugs or noses p^1 are adapted for cooperation with pins p^2 secured to the numeral wheels o. Normally the noses p^1 are out of position for engagement with the pins p^2, but they are adapted to be shifted into engagement therewith by axially shifting the rail p towards the numeral wheels o, that is to say, towards the left in Fig. 1. On the shaft e a gear wheel f is loosely mounted which is formed on its inner end with a clutch tooth f^1 (Figure 3) cooperating with a tooth t^1 of a clutch member t fixed to the shaft e. The right hand end face of the gear wheel f is engaged by a coiled spring q bearing on a nose p^3 formed on the right hand end of the rail p. Thus the spring q tends to shift the rail p to the right and to normally maintain the noses p^1 out of engagement with the pins p^2 of the numeral wheels o, and to hold the coupling teeth f^1 and t^1 in coupling engagement. The bearing sleeve r of the shaft e is provided on its inner face with a notch r^1 having a beveled face r^2 and located in position to form an abutment for the nose p^3. For resetting the registering mechanism the shaft e is turned by means of mechanism engaging the gear wheel f, as will be described hereinafter. By the said mechanism the gear wheel f is turned in the direction of the arrow y shown in Fig. 3, and, by reason of the engagement of the tooth f^1 with the tooth t^1 of the clutch member t the shaft e is turned in the same direction. This will cause the nose p^3 of the rail p to ride up the beveled face r^2 of the notch r^1 onto the inner face of the bearing sleeve r so that the teeth f^1 and t^1 and the rail p are shifted to the left and in the direction of the arrow z (Figure 1) and against the action of the spring q. Thus the noses p^1 are shifted into positions for engagement with the pins p^2 of the numeral wheels o. When the shaft e is turned further the noses p^1 engage the pins p^2 so as to return the numeral wheels o to zero positions. After the shaft e is turned through an angle of 360° the nose p^3 is caused by the spring q to re-enter the notch r^1. The operating mechanism of the gear wheel f is then released and automatically returned into initial position. Therefore the gear wheel f is turned in a direction opposite to the arrow y, and its tooth f^1 rests on the end face of the sleeve t, the spring q permitting the same to yield to the right. In the meantime the movement of shaft e is arrested by the nose p^3 engaging in the notch r^1. At the end of the said return

movement the tooth f^1 engages at the rear of the tooth t^1.

For imparting resetting movement to the shaft e a sector c is provided which is operatively connected with the gear wheel f through an intermediate gear wheel d, and which is secured to a shaft b carrying a crank a. Thus when the crank a is turned through a certain angle the shaft e is turned by the sector c and the gear wheels d and f through an angle of 360°. The shaft b is journaled in a sleeve s, and on and surrounding the said sleeve is a coiled spring h having elongated tines or ends h^1 and h^2 (Figure 2) in engagement with pins i and m secured, respectively, to the sector c and the wall k. Thus when the crank a is turned in the direction of the arrow x shown in Fig. 2 the end h^2 of the spring is arrested by the pin m fixed to the wall k, and the pin i fixed to the sector c displaces the end h^1. When the crank a is released the end h^1 of the spring returns the sector c and the parts connected therewith into initial positions, and at the end of such return movement of the sector c the pin i strikes the arm or tine h^2 so that the impact is absorbed by the said arm or tine h^2, the gear wheel f being slightly turned relatively to the clutch member t. Finally the pin i and the gear wheel f which are thrown by impact beyond the normal position are returned to normal position by the arm or tine h^2 of the spring h.

While in describing the invention reference has been made to a particular example embodying the same, I wish it to be understood that my invention is not limited to the construction shown in the drawing, and that various changes may be made in the general arrangement of the apparatus and the construction of its parts without departing from the invention.

I claim:

1. In a resetting mechanism for a calculating machine or the like embodying a rotatable operating part and a part with respect to which said operating part rotates, a member carried by the first-named part and extending toward the second-named part, a member carried by the second-named part and extending toward the first-named part, and a spring carried by one of said parts having a pair of substantially parallel arms straddling said members.

2. In a resetting mechanism for calculating machines embodying a rotatable operating part and a part with respect to which said operating part is rotatable, each of said parts having a member secured thereto eccentric to the axis of rotation of the first-named part, said members extending toward one another and, when said parts are in normal position, lying in radial alinement with the axis of rotation of said operating part, and a spring carried by one of said parts and having a pair of arms straddling said members.

3. In a resetting mechanism for a calculating machine or the like, an operating means, a part with respect to which said operating means moves, a pin carried by said operating means, a pin carried by said part, and a resilient means having oppositely movable arms between which said pins are disposed for coaction with said arms.

4. In a resetting mechanism for a calculating machine or the like, an operating means, a drive member associated therewith, a support in which said means is mounted for rotation, a coil spring surrounding said operating means between said drive member and support, a pin carried by said drive member, and a pin carried by said support, said spring having arms between which said pins are disposed.

In testimony whereof I have hereunto set my hand.

OTTO WERNECKE.