

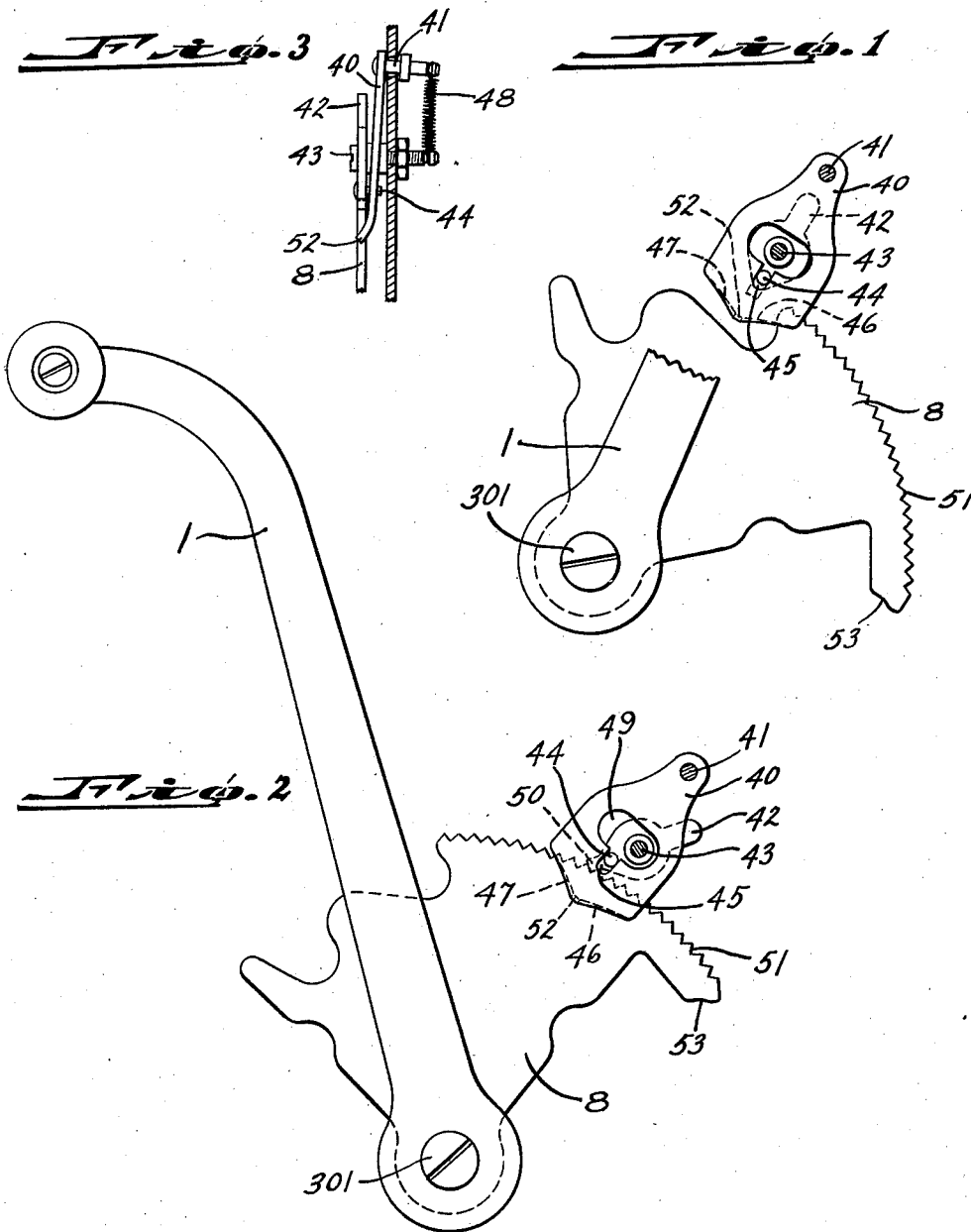
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CALCULATING MACHINE

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2,088,054

CALCULATING MACHINE

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3 Claims. (Cl. 235—129)

The invention relates to calculating machines and more particularly to improvements in full stroke devices therefor, the present application being a division of application Serial No. 43,145, filed October second, 1935 now matured into Patent No. 2,055,623.

The invention consists in the novel construction and combination of parts, as set forth in the appended claims.

In the accompanying drawing, illustrating the invention:

Fig. 1 is a right side elevation of the full stroke devices as applied to the hand crank of an adding machine, the parts being shown in normal position of rest.

Fig. 2 is a similar view, with the parts in mid-stroke position.

Fig. 3 is a detail front view of the full stroke mechanism.

The novel full stroke mechanism, whereby incomplete operation of the reciprocatory hand crank of an adding machine is prevented, comprises a plate 40, pivotally secured at 41 to the side frame, and a rocking pawl 42 pivotally secured at 43 to the frame and having a pin 44 extending through slot 45 of plate 40.

Plate 40 is provided with a projection 52 having opposed cam surfaces 46 and 47, said projection being urged laterally into the path of movement of full stroke arm 8 by spring 48, as shown in Fig. 3. During the forward or counter clockwise movement of full stroke arm 8 with hand crank 7, to which it is attached, said arm will contact surface 46 and rock plate 40 clockwise (Fig. 2) about point 41 until stopped by the wall of slot 49 engaging stud 43, whereupon continued forward movement of lever 8 cams plate 40 laterally out of the path of movement thereof. During the first described movement of plate 40, pawl 42, through pin and slot engagement 44—45, will be rocked about point 43 to bring the tooth 50 of said pawl free of the serrations 51 of the full stroke arm 8, allowing said arm to move quietly without the noise incident to the usual spring pressed ratchet means. If, however, it is attempted to return the hand crank before completion of its forward movement, full stroke arm 8, due to friction maintained by spring 48, would rock plate 40 and, through pin and slot engagement 45 and 44, pawl 42 counter clockwise (Fig. 2) to bring the tooth 50 of said pawl into engagement with one of the notches 51 of arm 8.

At the completion of a forward stroke, full stroke arm 8 is carried beyond the point 52 of plate 40 and, owing to the pressure of spring 48 the cam surface 47, acting against the rearward edge 53 of plate 8, will cam said plate to its normal central position shown in Fig. 1. Upon return

stroke of arm 8, the surface 53 engaging surface 47 of plate 40 rocks said plate in the opposite direction, to insure full movement of the handle 1, as in forward operation.

I claim:

1. In a calculating machine having register actuators and a manipulable operating lever therefor; full stroke mechanism comprising a rack fast with said operating lever, a pawl mounted on the frame of the machine and adapted to engage said rack after the operating lever moves out of full-stroke position in either direction, and a spring controlled member independently pivoted on the frame of the machine, having a pin and slot connection with said pawl adapted to impart thereto a multiplied angular movement and having frictional engagement with the rack to hold the pawl out of contact with the rack teeth during movement of said lever in a given direction, to engage the pawl with the rack upon mid-stroke reversal of the lever, and to centralize the pawl relatively to the fulcrum of the lever and rack when said lever moves to full-stroke position.

2. In a calculating machine having register actuators and a manipulable operating lever therefor; full-stroke mechanism comprising a rack fast with said operating lever, a pawl mounted on the frame of the machine and adapted to engage said rack after the operating lever moves out of full stroke position in either direction, and a spring controlled member pivotally mounted upon the frame of the machine, having pin and slot connection with said pawl, frictional engagement with said rack to hold the pawl out of contact with the rack teeth, and a laterally disposed cam portion adapted to contact with said rack to centralize the pawl relatively to the fulcrum of the lever and rack.

3. In a calculating machine having register actuators and a manipulable operating lever therefor; full-stroke mechanism comprising a rack fast with said operating lever, a pawl mounted on the frame of the machine and adapted to engage said rack after the operating lever moves out of full-stroke position in either direction, a plate pivotally mounted upon the frame of the machine, adapted for lateral movement and having a pin and slot connection with said pawl, frictional engagement with said rack, and a laterally disposed cam edge adapted to contact with said rack, and a spring acting upon said plate in cooperation with the rack to hold the pawl out of contact with the rack teeth in mid-stroke position of the operating lever and in cooperation with the cam edge to centralize the pawl relatively to the fulcrum of the lever and rack in full-stroke position.

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