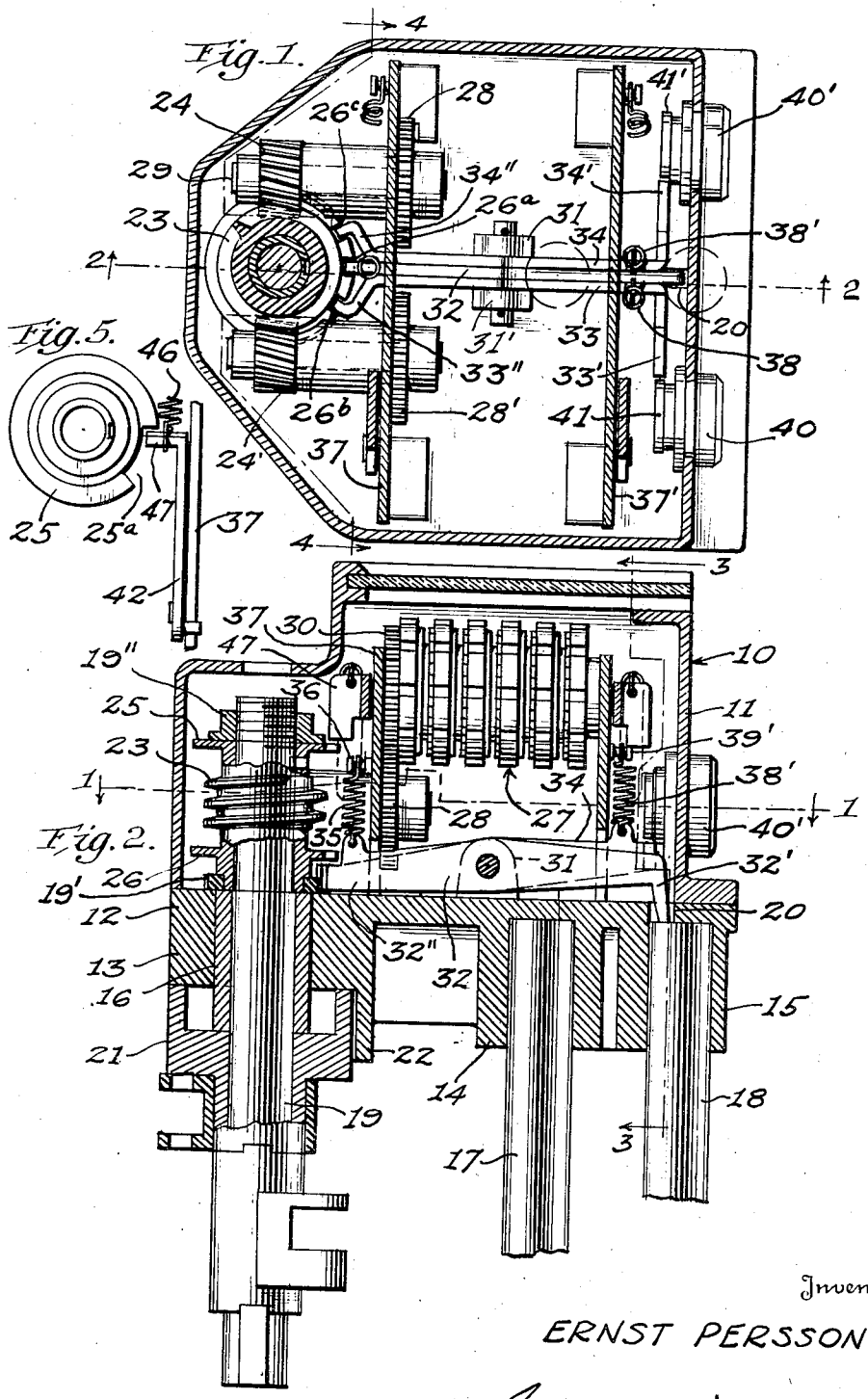
Dec. 19, 1939. E. PERSSON 2,183,919

LOCK FOR SIGNATURE PRINTING MACHINES

Filed April 20, 1937 2 Sheets-Sheet 1



Inventor

ERNST PERSSON

By George A. Degnan

his Attorney

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Filed April 20, 1937 2 Sheets-Sheet 2

Fig. 3.

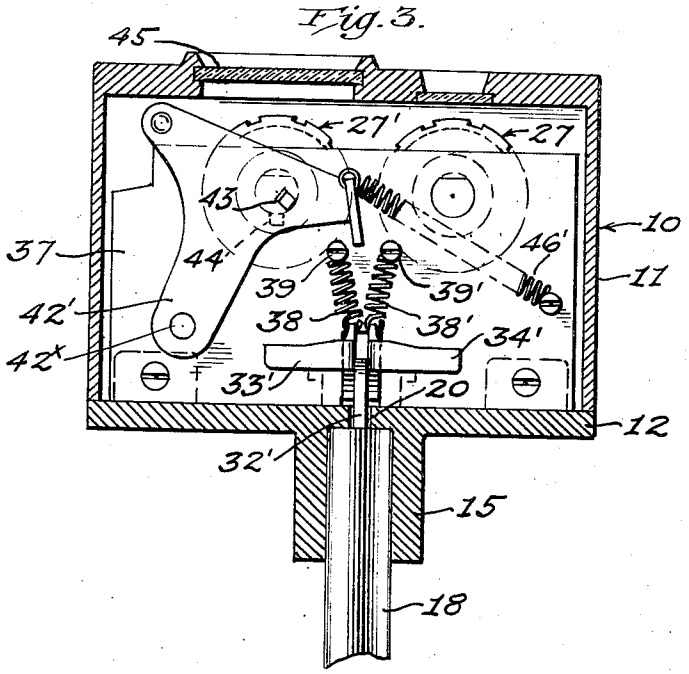
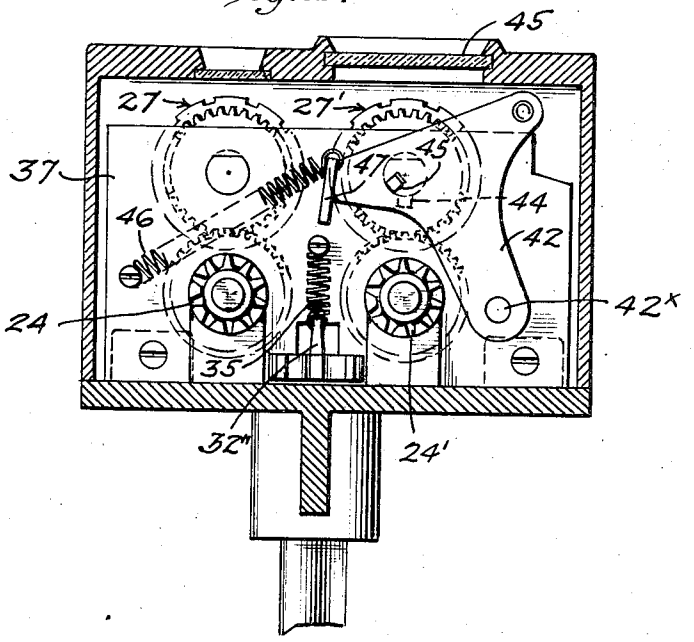


Fig. 4.



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UNITED STATES PATENT OFFICE

2,183,919

LOCK FOR SIGNATURE PRINTING MACHINES

Ernst Persson, Brooklyn, N. Y., assignor to The International Postal Supply Company, Brooklyn, N. Y., a corporation of New York

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3 Claims. (Cl. 101—91)

This invention pertains to a locking mechanism for signature printing machines and the like. More particularly the invention relates to means for locking the die of the machine and the counting wheels or meter associated therewith.

In machines of the type designed to print signatures on checks, drafts and orders involving the exchange of money, it is customary to maintain an accurate check on the number of signatures printed and to prevent tampering with the printing and counting mechanism. Fraudulent use of the signature printer is thus inhibited and a true record of the number of signatures printed obtained.

The present invention includes a plurality of locking devices which normally are inactive when the printer and counter are positioned on the frame of the machine but which, if the combined printer and counter is removed from its supports, lock the movable parts of the mechanism and prevent use thereof until it is again positioned on its supports.

There is also included in the invention a locking device which prevents operation of the printer and counter when a predetermined number of signatures has been printed.

The invention will be more clearly understood from the following description of a preferred embodiment thereof taken in connection with the accompanying drawings, in which:

Fig. 1 is a top sectional view taken on line 1—1 of Fig. 2;

Fig. 2 is a side sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a section taken on line 3—3 of Fig. 2;

Fig. 4 is a section taken on line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary top view showing one means for locking the printer.

In the drawings, there is illustrated a housing 10 comprising a casing 11 and base 12, these members being so secured to each other that they form a completely closed housing for the counter and printer to which access cannot be had without special tools. The base is provided with a plurality of bosses 13, 14, and 15, recessed to accommodate bushing 16 and supporting standards 17 and 18, respectively. The recess for bushing 16 constitutes a bore through the base whereby shaft 19 extends into the casing. The recess for standard 18 communicates with the interior of the casing through opening 20 in the base.

Shaft 19 has attached thereto a cylindrical printing die 21, a substantial portion of the face thereof being covered by an arcuate skirt 22 on boss 13. This skirt is open on the side at which the check or order is presented for signature. Except when shaft 19 is rotated by suitable mechanism to print a signature, the printing surface of the die is normally covered by skirt 22 to prevent the unauthorized taking of impressions.

Pinned or otherwise secured to shaft 19 and within the housing is a worm 23 adapted to mesh with worm wheels 24, 24' forming part of the counting mechanism. Integral with the worm are a pair of flanges 25, 26, one at the upper end of the worm and the other adjacent the lower end thereof. Each of these flanges is recessed for a purpose to be explained hereinafter. The shaft and worm are prevented from rotating in a reverse direction by means of a ratchet 19' and are locked against withdrawal from the housing by means of a nut 19'', shown in Fig. 2.

The counting mechanism comprises two sets of counting wheels 27, 27', one ascending and the other descending, that is, one indicating the number of signatures printed and the other showing the number which may be printed before the machine locks. It is to be understood that in the present printer, the machine is set for a given number of signatures after the printing of which further operation of the machine is inhibited. One set of counting wheels is actuated by worm wheel 24, gear 28, both of which are fast on shaft 29, and gear 30, the latter being secured to one of the counting wheels and meshing with gear 28. The other set of counting wheels is similarly driven by gears 24', 28'.

Pivoted in suitable bearings 31, 31' on base 12 are a plurality of levers, in the present instance three, indicated at 32, 33 and 34. Lever 32 is provided at one end thereof with a depending finger 32', its other end 32'' being straight but somewhat narrow. Normally end 32'' is urged upwardly by spring 35 fastened at one end to lever 32 and at its other end to pin 36 on the side plate 37, the latter forming with plate 37' a supporting frame for the counting mechanism.

Levers 33 and 34 are similar to each other, each having at one end a lateral arm, indicated at 33', 34', and being bent at its other end to form fingers 33'', 34''. Arms 33', 34' are normally urged upwardly by springs 38, 38' connected to the arms and to pins 39, 39' and, when in the position shown in Fig. 2, are out of engaging relation with respect to flange 26. It is to

be noted that flange 26 is recessed to provide three spaced notches 26a, 26b, 26c, corresponding with the relative positions of the ends 32'', 33'', and 34''. Thus, if one or more of these ends of the levers are raised, they cooperate with flange 26 to prevent rotation of the worm and printing die.

A pair of tumbler locks 40, 40', having eccentric flanges 41, 41', are adapted to lower arms 33', 34' to thus elevate fingers 33'', 34'' and lock the die shaft. This may be done either while the housing is mounted on its standards or when removed therefrom, it being customary for the machine operator and a foreman to have keys for locking and unlocking the shaft. As a further means for locking shaft 19, the lever 32 is rocked to locking position when the housing is removed from its supports. It will be seen that, when the housing is lifted, post 18 no longer engages finger 32', whereupon spring 35 elevates end 32'' to engage flange 26.

The printing die shaft is further adapted to be locked by means engaging flange 25 having a notch 25a as shown in Fig. 5. These means comprise a pair of arms 42, 42', pivoted at 42x on the side plates 37, 37' and being connected by a square cross-bar 43.

Each of the counting wheels in the descending counter is provided with a square notch 44 so positioned that, when the notch is opposite bar 43, the zero numeral of the wheel will be directly beneath the window 45 in the top of the housing. Springs 46, 46' normally urge the bar into notches 44, but it is only when all of the notches are aligned, that is when the reading on all the wheels is zero as seen through window 45, that bar 43 is permitted to drop into the notches. Arm 42 is provided with a finger 47 adapted to enter notch 25a and act as a stop piece to prevent rotation of the printing die shaft. Window 45 is removable to permit setting of the counting wheels, but is sealed by suitable means after the wheels have set to prevent unauthorized resetting.

From the foregoing description of the several parts and their relation to each other, it will be apparent that there is provided a rotary printing mechanism having means for locking the shaft thereof under any of the following conditions:

(a) when the housing is removed from its support;

(b) when either or both the operator and an authorized supervisor lock the shaft by suitable keys;

(c) when the descending wheel of the counting mechanism indicates that a predetermined number of impressions has been made.

While a preferred embodiment of the invention has been illustrated and described, changes not affecting the principle of operation are contemplated. The invention is not to be limited, therefore, to the exact details shown, but is to be broadly interpreted in the terms of the claims defining the invention.

What I claim is:

1. In a machine of the class described, a rotary printing member, counting mechanism associated therewith, a housing for said counting mechanism, a plurality of recessed projections on the underside of said housing, a support for said housing including a plurality of vertical posts adapted to cooperate with said recessed projections to position the housing on said support, and means for locking said mechanism including a member extending into one of said recessed projections when the housing is removed from said support and engageable with one of the posts of the support when said housing is disposed thereon for moving said locking means to unlocking position, said member being moved to unlocking position by the weight of the housing and counting mechanism.

2. In a machine of the class described, a rotary printing member, counting mechanism associated therewith, a housing for said counting mechanism, a plurality of recessed projections on the underside of said housing, a support for said housing including a plurality of vertical posts adapted to cooperate with said recessed projections to position the housing on said support, and means for locking said mechanism when the housing is removed from the support including a member having a portion thereof extending into one of said recessed projections when the housing is removed from said support, said portion being engageable with one of said posts and thereby moved to unlocking position when said housing is disposed on said support by the weight of the housing and counting mechanism.

3. In a machine of the class described, a rotary printing member, counting mechanism associated therewith, a housing for said counting mechanism, a plurality of recessed projections on the underside of said housing, a support for said housing including a plurality of vertical posts adapted to cooperate with said recessed projections to position the housing on said support, a lever engageable with said mechanism for preventing actuation thereof, means normally urging said lever into engagement with said mechanism, and means on said lever extending into one of said recessed projections when the housing is removed from the support and engageable with one of the posts of said support to move said lever out of engagement with said mechanism when said housing is disposed on said support, said member being moved to unlocking position by the weight of the housing and counting mechanism.

ERNST PERSSON.