

123,241

PATENT



SPECIFICATION

Application Date, May 6, 1918. No. 7569/18.

Complete Left, Nov. 6, 1918.

Complete Accepted, Feb. 20, 1919.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Calculating Machines.

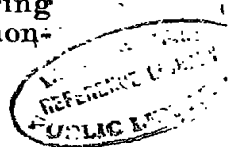
I, FRANK EDWARD GUY, of 35, Queen Victoria Street, London, E.C. 4, Calculating Machine Specialist, do hereby declare the nature of this invention to be as follows:—

This invention relates to calculating machines of the Ohdner or upright and crank-handle type. According to the present invention, the setting levers are automatically locked when the crank-handle is moved from its neutral position or position in which the handle engages and registers with the bracket. This automatic locking is effected by the action of a spring-impelled rod which is pressed in when the crank-handle is engaged with and held by its bracket, but which, when the crank-handle is moved from its engaging position with the bracket, is pushed out by its spring and by such movement draws out a slidable shaft, having transverse cuts therein, to a position in which the solid portions of said shaft between the cross cuts are placed in the path of the spring-pressed plungers which normally would enter the registering holes in the inner shaft and its outer sleeve of existing constructions, and so the aforesaid solid portions of the slidable shaft by preventing the entrance of these plungers, lock the setting levers.

Hitherto for this purpose, holes have been partly drilled through the non-rotatable shaft to coincide with holes on an outer revolving sleeve or shaft on which the segments of the barrel are mounted and the setting levers have in some cases been locked but in that event by a separate hand-operated movement. In my construction the non-revolving shaft is made slidable longitudinally and is cross-cut at intervals, this non-revolving shaft being arranged axially of the barrel segments and being automatically displaced longitudinally.

The following construction will embody the present invention. The crank-handle is provided with the usual locking spring which is, however, stronger than the spring mounted on a push-rod, which latter is slidable in the bracket for the crank handle and aligned with said handle. When in the neutral or bracket-engaging position the handle presses in this push-rod thereby compressing the spring of the rod. The push-rod is connected, for example, by a link or arm, with the cross-cut and fixed but slidable shaft which projects laterally from the machine. When the handle of the crank is removed from the position in which it registers with and engages the bracket, the push-rod is forced outwardly by its spring and by means of the connecting link or arm the cross-cut is also drawn out. This movement of the non-revolving cross-cut shaft takes place immediately the crank-handle is moved from its registering or engaging position with the bracket and places the solid or complete portions of the non-

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revolving shaft (*i.e.* those intermediate portions which have not been cut away) in the path of the spring-pressed plungers, and accordingly locks the setting levers in the positions to which they have previously been adjusted.

The push-rod coincides axially with the handle of the crank and is slidably mounted in any suitable way in the bracket of the crank-handle to make contact with and be pressed in by the handle when the latter is in the neutral or bracket-engaging position. It will be noted that the setting levers are automatically locked simply by the removal of the crank-handle from the position in which it registers with and engages the bracket.

Dated this 6th day of May, 1918.

For the Applicant;

FEENY & FEENY,
Chartered Patent Agents,
60, Queen Victoria Street, London, E.C. 4.

COMPLETE SPECIFICATION.

Improvements in and relating to Calculating Machines.

I, FRANK EDWARD GUY, of 35, Queen Victoria Street, London, E.C. 4, Calculating Machine Specialist, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to calculating machines of the pin-wheel and cam disc type, generally known as Odhner machines (see British Patent Specification 13,700/1890).

In these machines it is known to lock the relative positions of the setting levers automatically, when the crank handle is moved from its neutral position. In one prior arrangement this was effected by means of a sliding bolt or shaft having raised parts which entered the usual notches in the inner periphery of the adjusting rings or cam discs, said sliding bolt thus locking all the adjusting rings simultaneously as soon as the crank handle was moved from its neutral position and through the operation of a spring-pressed rod which had previously been pressed in by the crank handle.

According to the present invention, the sliding bolt or shaft is arranged axially of the adjusting rings or cam discs and fits inside the driven sleeve on which the pin wheels carrying the spring-pressed plungers, detents or pins, are rigidly mounted. This slidable and non-rotating bolt or shaft is recessed with transverse cuts at intervals so that the tails of the spring-pressed plungers which are seated in perforations in the sleeve can either be forced into the recesses in the inner central shaft (when the setting levers are being adjusted) or are prevented from entering into the slidable shaft when the latter has been moved to bring the solid portions of said shaft behind the perforations in the sleeve.

Formerly, holes have been partly drilled through a fixed and non-rotatable shaft to coincide with holes in an outer revoluble sleeve on which the pin wheels (or segments of the barrel) were rigidly mounted, but in my construction the central shaft is cross cut at intervals and is also slidable longitudinally.

Upon the accompanying sheet of drawings, I have shown in side elevation three forms of carrying out the present invention. Figure 1 shows a construction applicable to existing machines. Figures 2 and 3 show forms suitable for incorporation in new machines. Figure 4 is a view showing one of the adjusting rings upon the outer sleeve. Figure 5 is a front view of one of the adjusting

rings or cam discs at right angles to Figure 4. Figure 6 is a detail showing the plunger when it has entered into a recess in the central shaft.

The crank-handle *a* is shown provided with the usual locking pin *b* outpressed by spring *b*¹ which is, however, stronger than the coiled spring *c* mounted on a push-rod *d*; this push-rod *d* is slidable in the bracket *e* for the crank-handle *a* and is aligned with the inoperative position of said handle. When in the neutral or bracket-engaging position the handle *a* by means of its pin *b* presses in the push-rod *d* thereby compressing the spring *c*. The push-rod *d* is connected, in Figure 1, by a link or arm *f* with the cross-cut and non-rotatable but slidable shaft *g* which projects laterally from the machine. The cross-cuts in this non-rotatable shaft *g* are shown at *g*¹. This shaft *g* fits inside and is slidable in a sleeve *k* having perforations *l* of the known kind for the tails of the pins or spring-pressed plungers *m*, which at their outer ends are adapted to enter the usual recesses in the cam discs *j*.

When the handle of the crank is removed from the position in which it registers with and engages the bracket, the push-rod *d* is forced outwardly by its spring *c* and by means of the connecting link or arm *f* the cross-cut shaft *g* is also drawn out. This movement of the non-revolving cross-cut shaft *g* takes place immediately the crank-handle *a* is moved from its registering or engaging position with the bracket in which position the spring *b*¹ by means of its pin *b* had pressed the rod *d* inwards against the action of spring *c*. This outward movement of rod *g* places the solid or complete portions of the non-revolving shaft *g* (i.e. those intermediate portions which have not been cut away) in the path of the spring-pressed plungers (see Figure 5), and accordingly locks the setting levers in the relative positions to which they have previously been adjusted.

The push-rod *d* coincides axially with the handle *a* of the crank when in its inoperative position and is slidably mounted in any suitable way in the bracket *e* of the crank-handle to make contact with, and be pressed in by, the handle when the latter is in the neutral or bracket-engaging position. It will be noted that the setting levers are automatically locked simply by the removal of the crank-handle from the position in which it registers with and engages the bracket, and that the locking device is arranged axially of the cam discs *j*.

In the arrangement shown in Figure 2, the arm *f* is removed from the exterior of the casing and the rod *d* is continued through a false wall *h* inside the machine. The arm *f* is now shown upon the opposite end of rod *d* and engages the inner end of the slidable cross-cut shaft *g*. The coiled spring *c* is here shown on the inner end of shaft *g*.

In Figure 3, which is similar to that of Figure 2, I have shown a lever *i* pivoted at *i*¹ on the false wall *h*. This lever *i* at one end is pivotally connected to the rod *d* and at the other end is pivotally connected to the rod *g*. A tension spring *c*¹ is connected with the lever *i*. In this arrangement the outwards movement of push-rod *d* results in the slidable shaft *g* being drawn inwards so that the solid portions of the shaft between the cross-cuts *g*¹ are placed in the path of the spring-pressed plungers. The shaft *g* in this arrangement thus slides in the opposite direction to that of the rod *g* in Figure 1 or 2.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In calculating machines of the pin-wheel and cam-disc type, the arrangement of a slidable bolt or shaft axially of the adjusting rings or cam discs and inside a sleeve with perforations in which the tails of the spring-pressed plungers or pins are seated, this sleeve having the pin-wheels rigidly secured thereto for rotation, said slidable shaft having cross cuts so provided that when the recesses formed by the said cuts are behind the perforations in the sleeve, the tails of the spring-pressed plungers can enter said recesses and allow the setting levers to be

moved relatively to the pin-wheels, but when the solid portions of the slidable shaft are behind said perforations, the setting levers cannot be so moved relatively.

2. The improved automatic devices for locking the setting levers of calculating machines of the type referred to, as above described and shown on the accompanying drawings. 5

Dated this 6th day of November, 1918.

For the Applicant,

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[This Drawing is a reproduction of the Original on a reduced scale.]

