S. LOE.

LOCK MECHANISM FOR VOTING MACHINES.

APPLICATION FILED MAY 24, 1917.

1,280,503.

Patented Oct. 1, 1918.

4 SHEETS—SHEET 1.

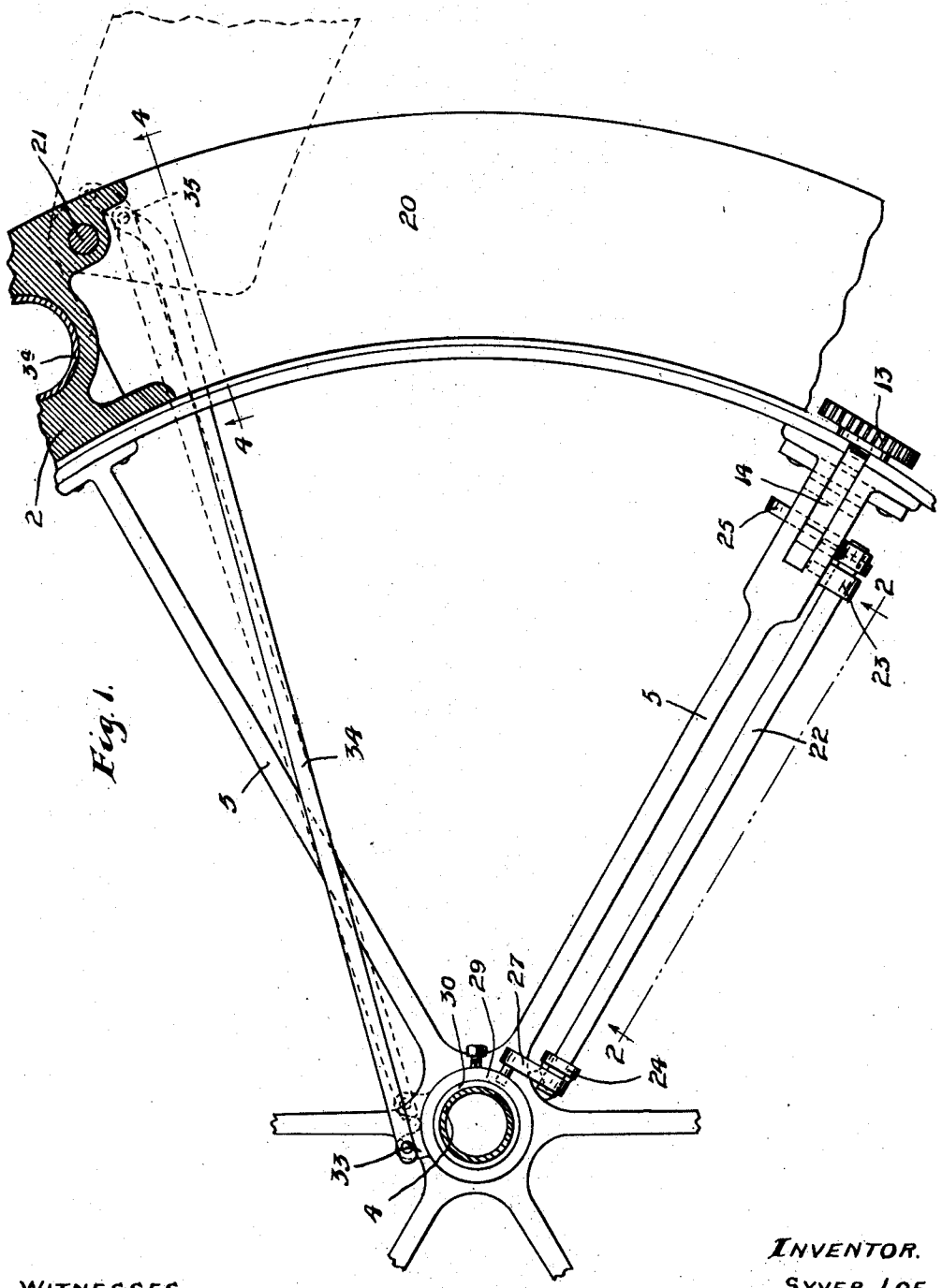


Fig. 1.

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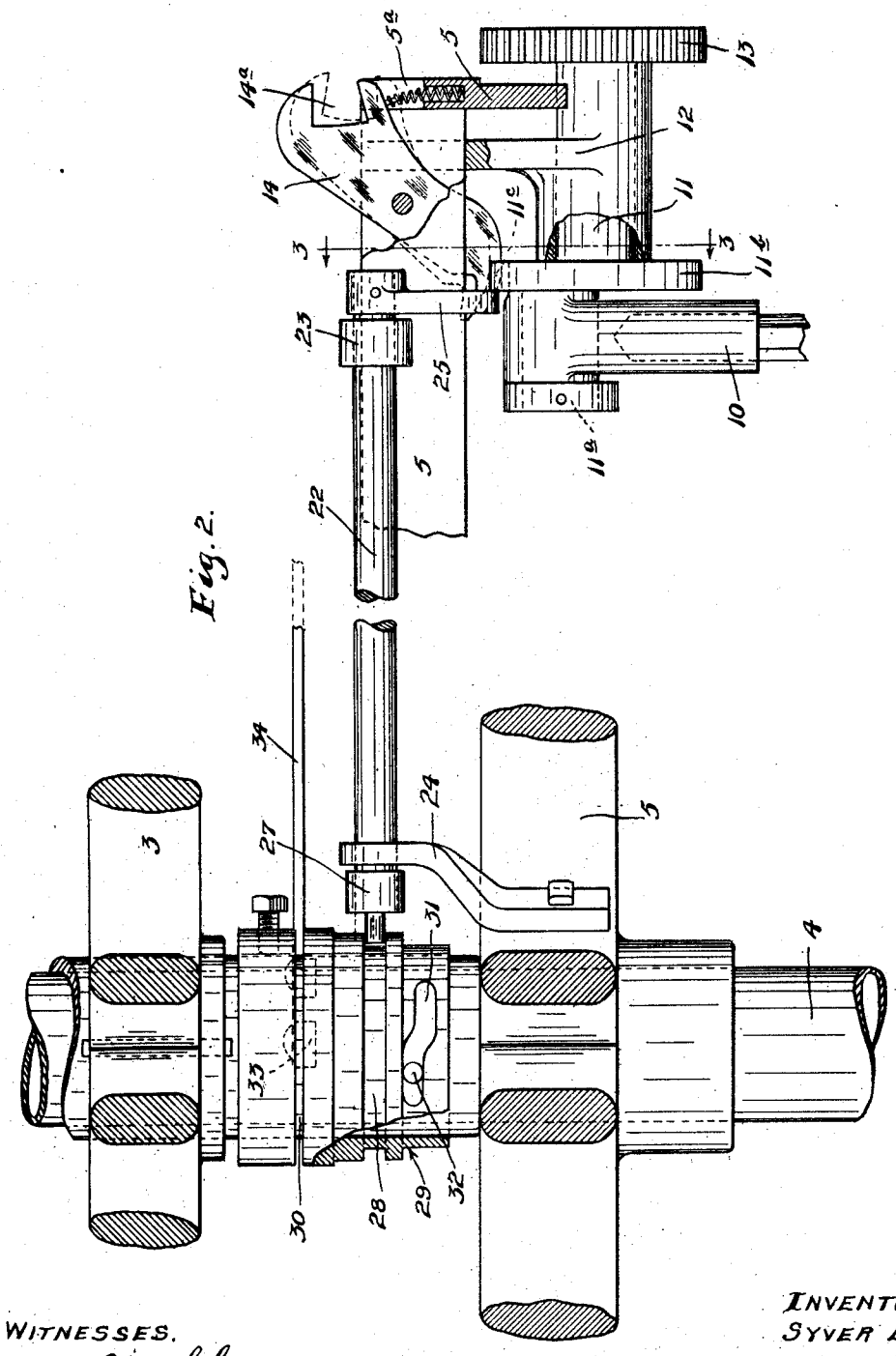


Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 3.

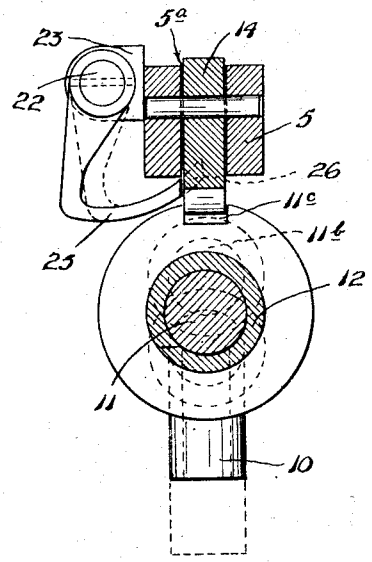
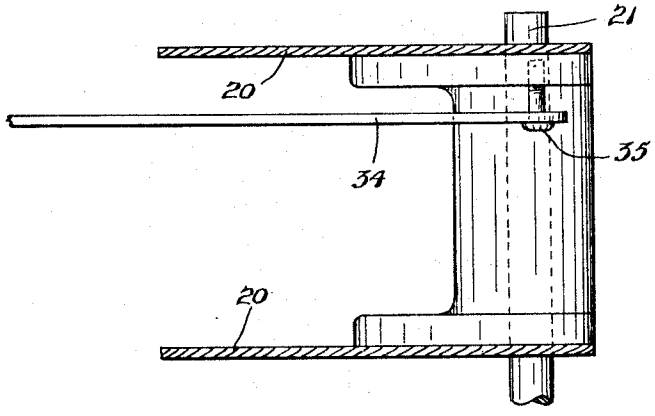


Fig. 4.



WITNESSES.

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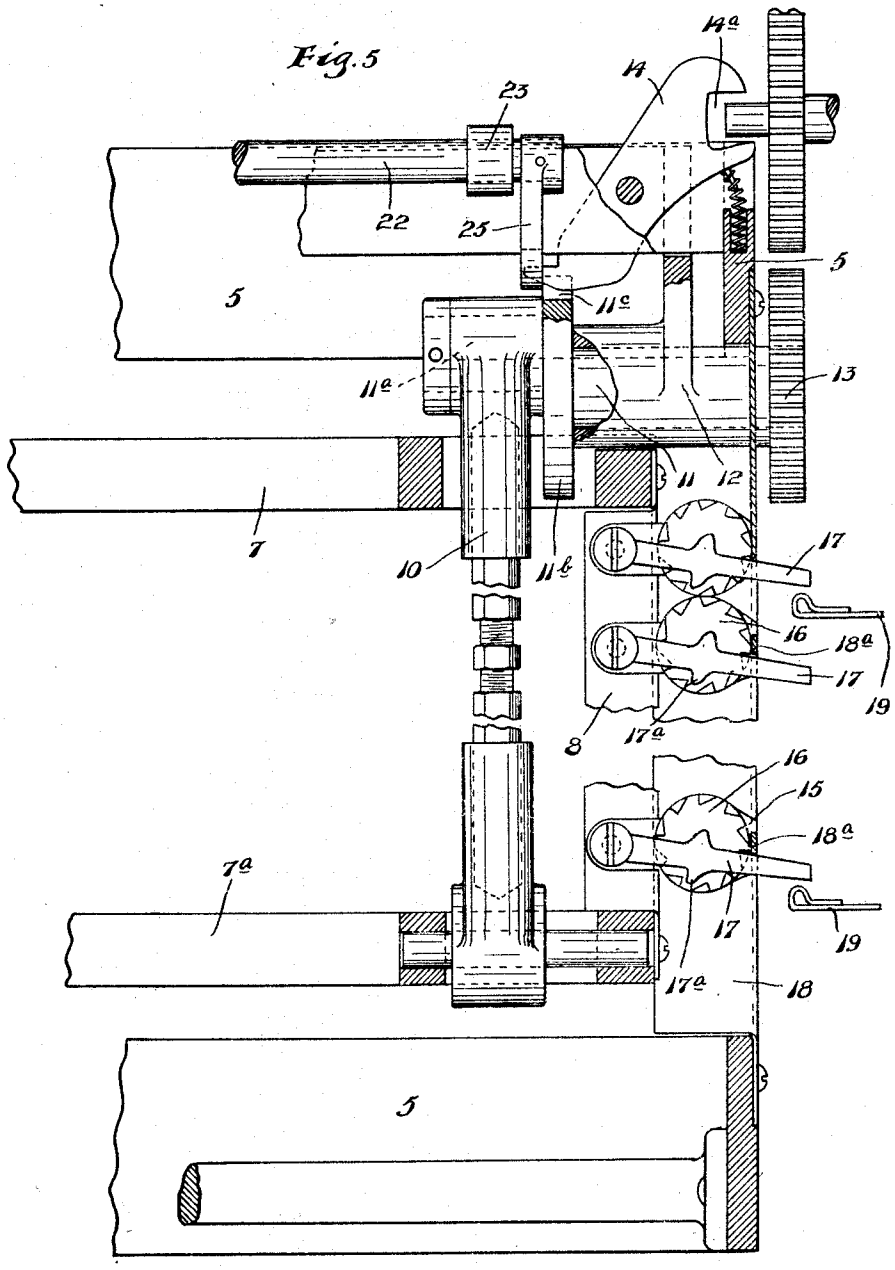
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4 SHEETS—SHEET 4.

Fig. 5



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UNITED STATES PATENT OFFICE.

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LOCK MECHANISM FOR VOTING-MACHINES.

1,280,503. Specification of Letters Patent. Patented Oct. 1, 1918.

Application filed May 24, 1917. Serial No. 170,726.

To all whom it may concern:

Be it known that I, SYVER LOE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Lock Mechanism for Voting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to voting machines and has for its object to provide an improved lock mechanism therefor. Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

Particularly, the invention relates to voting machines of the general character disclosed and claimed in my prior Patent No. 1,158,518, granted to me of date, November 2nd, 1915, and entitled "Voting machine."

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views. Referring to the drawings:

Figure 1 is a fragmentary view partly in plan and partly in horizontal section, showing the improved lock;

Fig. 2 is a section taken approximately on the line 2—2 of Fig. 1;

Fig. 3 is a detail in section on the line 3—3 of Fig. 2;

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

Fig. 5 is a vertical section taken approximately on the same line as Fig. 2, but showing the supplemental register support and registers and certain coöperating parts not shown in Fig. 2.

The relatively fixed framework of the machine is shown only in part, but comprises lower and upper heads 2 connected by circumferentially spaced upright tubular posts 3^a and having inwardly converging spokes 3 that connect the hubs, in which an upright shaft 4 is journaled. The axial shaft 4 carries the so-called register or tally support that comprises upper and lower wheel-like heads 5 secured to shaft 4, and a vertically movable supplemental register support 7, 7^a and 8 (see Fig. 5), which is arranged to be vertically moved upon the main register supporting frame 5, through a suitable crank rod 10, the upper end of which is journaled on a wrist pin 11^a of a short horizontal shaft 11 that is journaled in a bearing 12 rigidly secured on the upper head 5 of the said main register supporting frame. This crank shaft 11, at its outer end, is provided with a spur gear 13 that is acted upon by means fully disclosed in my said companion application. The said crank shaft 11 has a disk-like flange 11^b formed at one point only with a notch 11^c that is normally engaged by a spring-pressed latch 14 intermediately pivoted to the upper head 5 and normally holds the wrist pin 11^a in a raised position. The outer end of latch 14 has a notch 14^a, for a purpose fully disclosed in my said companion application entitled "Voting machine." The notched free end of this latch 14 is adapted to be depressed into a large clearance notch 5^a formed in the upper edge of the annular outer rim of the upper head 5.

The registers or tallies are indicated, as entireties, by the numeral 15, and their cases are rigidly secured to the bars 8, of the vertically movable supplemental register supporting frame. The unit member of each register is connected to move with a so-called escapement wheel 16 that is provided with ten laterally projecting cam lugs. For cooperation with each escapement wheel 16, there is provided an escapement lever 17 that is pivoted at one end to a projection of the coöperating register case, and, at its intermediate portion, is provided with laterally offset double-ended escapement lugs 17^a, the ends of which are reversely beveled, so that the escapement wheel will be given a half step of rotation under upward movement of said lever and a second half step of rotation under downward movement of said lever.

The free ends of the escapement lever 17 project beyond the flanged upright bars 18 that are rigidly secured to the upper and lower heads 5 of the main register supporting frame; and these bars 18 are provided with lugs or lateral projections 18^a (see Fig. 5), with which the levers are engaged and locked against movement, when the supplemental register supporting frame is raised and the crank shaft 11 is locked in its normal position shown in the drawings. Hence, it will be understood that the registers are locked and cannot be operated without first moving the crank shaft 11, and that before the crank shaft 11 can be moved, the latch

14 must be depressed and disengaged from lock flange 11a.

It may be here further stated that the registers are operated by downward movement of the supplemental frame produced by rotation of crank shaft 11, which throws the free ends of escapement lever 17 against actuator levers 19 that have been moved into set positions.

The parts so far described, are identical with corresponding parts, bearing like numerals in the drawings of my companion application entitled "Voting machine" referred to above, and the further functions of said parts may be readily understood by reference to the said application.

In the multiplex voting machine such as that disclosed in my said companion application and in my said prior patent, latch 14 is arranged to be released when properly alined with one or the other of several voters' operating crank shafts. Also, in the said machine, as illustrated in said application and prior patent, there is a plurality of sets of register actuators, each set being mounted on one of several segmental actuator supporting frames herein. In the drawings of the present application, only one of these segmental actuator supporting frames is shown and this is indicated, as an entirety, by the numeral 20, pivoted to an upright post of the fixed frame 2 at 21 and adapted to be swung from a normal position indicated by full lines into an open position indicated by dotted lines in Fig. 1.

It is desirable that when the actuator supporting frame 20 is moved from its normal or closed position into its open position, the latch 14 and, consequently, the register moving crank shaft 11, will be positively locked so that the registers cannot then be moved.

The lock mechanism for accomplishing this is preferably constructed as follows:

The numeral 22 indicates a shaft journaled in suitable bearings 23 and 24 on the upper head 5, and provided at its outer end, with an arm having a segmental lock bolt 25 that is concentric to the axis of the shaft 22 and is engageable with a lock detent or perforation 26 in the lower end of a latch 14, when the latter is in its normal or locking position shown by full lines in Figs. 2 and 3. At its inner end, the rock shaft 22 has a crank arm 27 equipped with a pin that works in an endless channel 28 of a collar 29, which latter is mounted on a non-rotary hub 30, which hub is formed integral with, or otherwise rigidly secured to, and depends from the spokes 3 of the upper fixed frame head 2 (see particularly Fig. 2). This collar 29 has a circumferentially extended cam groove 31 that is engaged by a cam pin 32 of a fixed sleeve or hub 30. Collar 29 has a short radial arm 33 that is connected to the inner end of a rod or link 34, the outer end of which is pivoted to a crank pin 35 carried by the hinged actuator supporting frame 20 and located at a point eccentric to its pivot 21 (see Figs. 1 and 4).

When the actuator supporting frame or segment 20 is in its closed or normal position shown by full lines in Fig. 1, collar 29 will be in its lowermost position and segmental lock bolt 25 will be retracted from seat 26 of latch 14, and hence, latch 14 may then be depressed and caused to release crank shaft 11 by the proper machine action.

When, however, actuator supporting frame or segment 20 is moved into an open position, so as to expose the interior mechanism of the voting machine, collar 29, by link 34, will be rotated and cam groove 31, operating on cam 32 will lower said collar 29. This lowering of collar 29 will rock shaft 22 and cause segmental bolt 25 to enter seat 26 of latch 14, thereby locking said latch in its operative position, and through the connections described, and, as already pointed out, positively locking all of the registers, so that they cannot be tampered with while the machine is open.

What I claim is:

1. In a voting machine, the combination with vote registers and a support therefor, of an actuator supporting frame movable to and from closed operative position, and a lock operated by movement of said actuator support from its normal position, to lock said registers against movement.

2. The combination with a movable register support and vote registers carried thereby, of a hinged actuator supporting frame, locking means normally holding said registers against movement, and a connection between said hinged actuator support and said locking means operative to secure said registers against movement while said actuator support is moved from its normal or closed position.

3. In a voting machine, the combination with a hinged actuator support and an oscillating register support, the latter having a vertically movable supplemental frame directly supporting said registers, and said registers having escapement levers, means for operating said escapement levers by vertical movements of said supplemental frame, a crank for imparting vertical movement to said supplemental frame, a latch normally locking said crank, a lock for said latch, and a connection between said lock and said hinged actuator support operating to release said lock when said actuator support is in a closed or normal position, and to lock said latch when said actuator support is moved from normal position.

4. In a voting machine, the combination with a hinged actuator support and an oscillating register support, the latter having

a vertically movable supplemental frame directly supporting said registers, and said registers having escapement levers, means for operating said escapement levers by vertical movements of said supplemental frame, a crank for imparting vertical movement to said supplemental frame, a latch normally locking said crank, a lock for said latch, and a connection between said lock and said hinged actuator support operating to release said lock when said actuator support is in a closed or normal position, and to lock said latch when said actuator support is moved from normal position, the said connections including a collar mounted at the axis of said register support for both rotary and vertical movements.

In testimony whereof I affix my signature in presence of two witnesses.

SYVER LOE.

Witnesses:
CLARE DEMAREST,
BERNICE G. WHEELER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."