

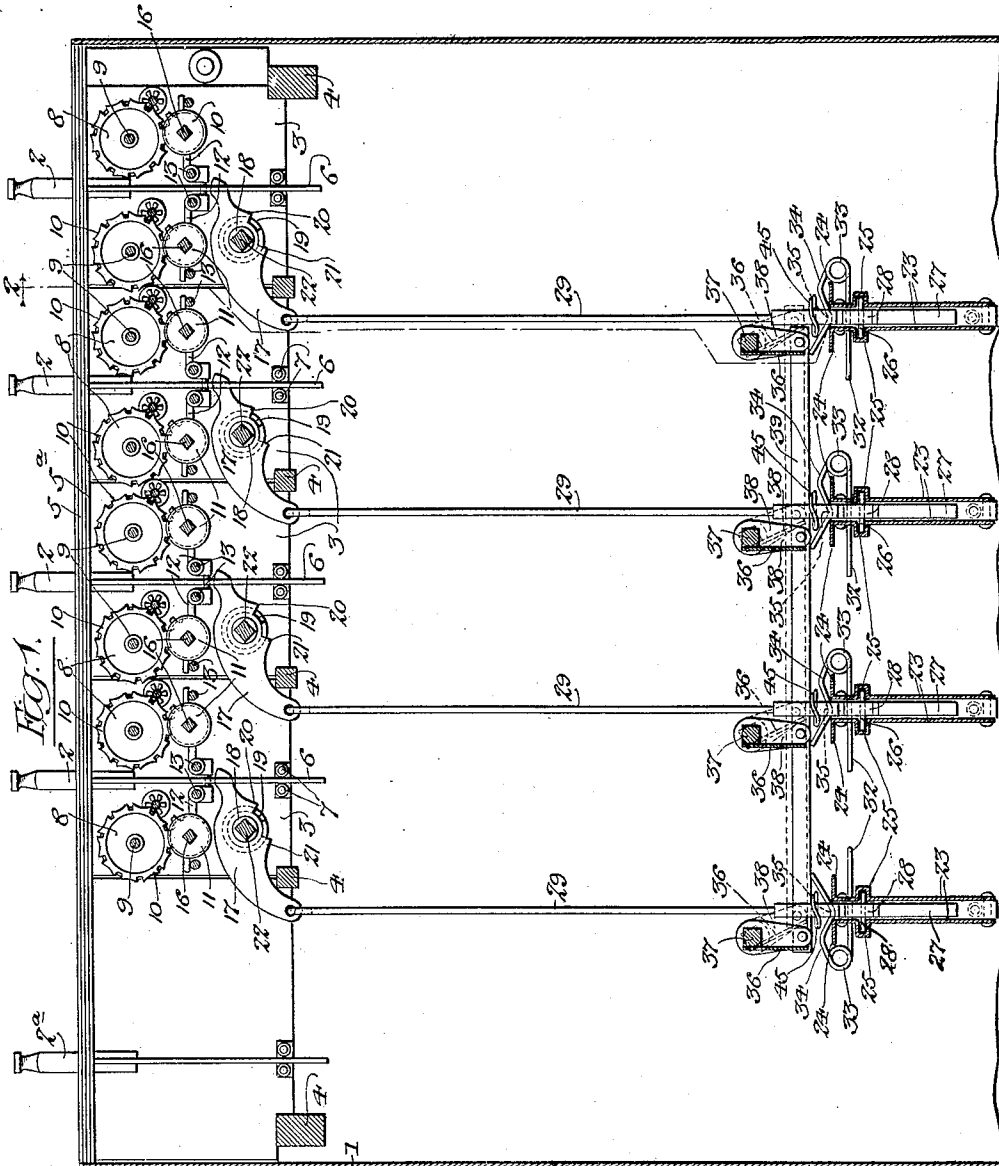
J. H. DEAN.
VOTING MACHINE.

APPLICATION FILED SEPT. 17, 1908.

Patented June 13, 1911.

3 SHEETS—SHEET 1.

995,331.



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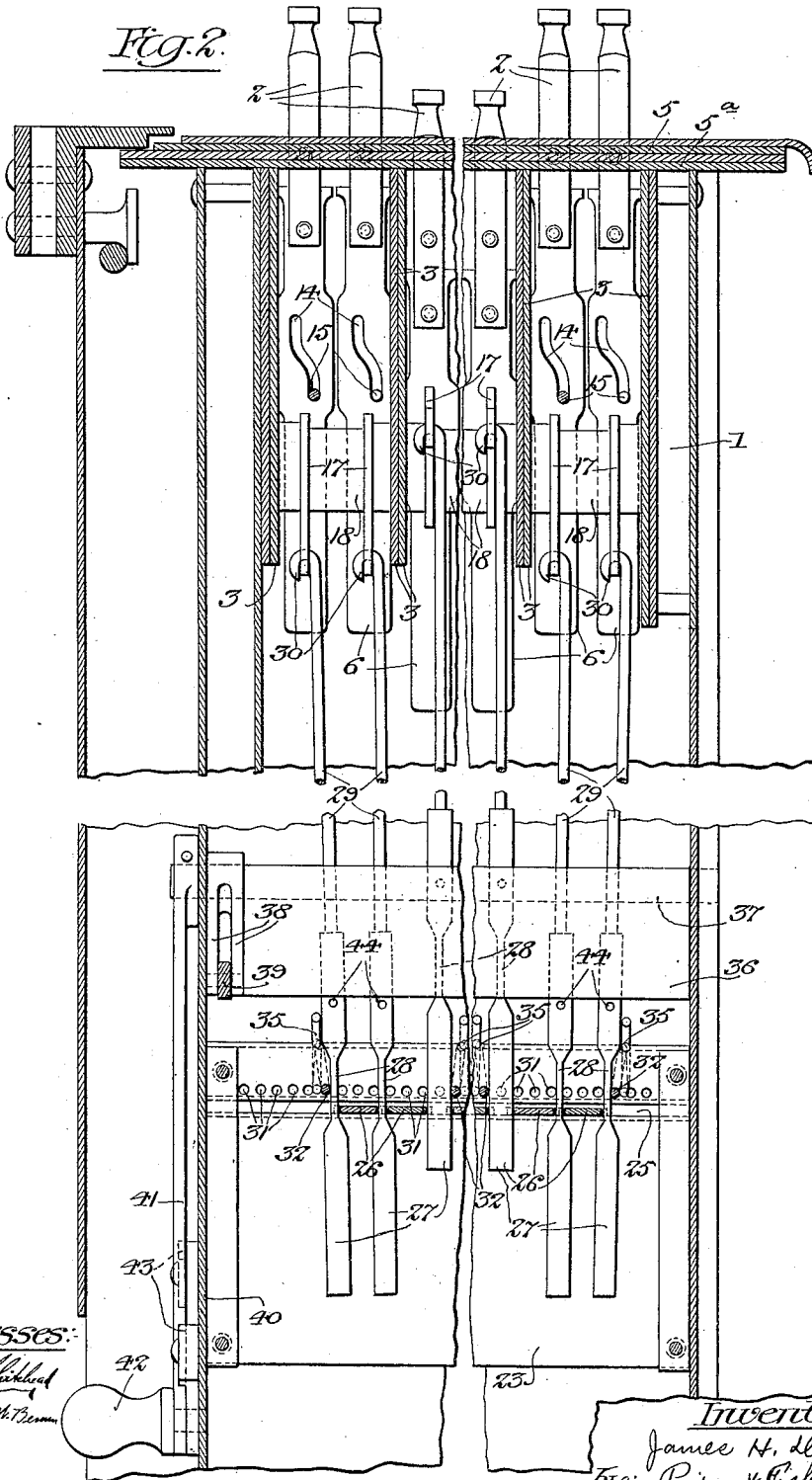
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS-SHEET 3.

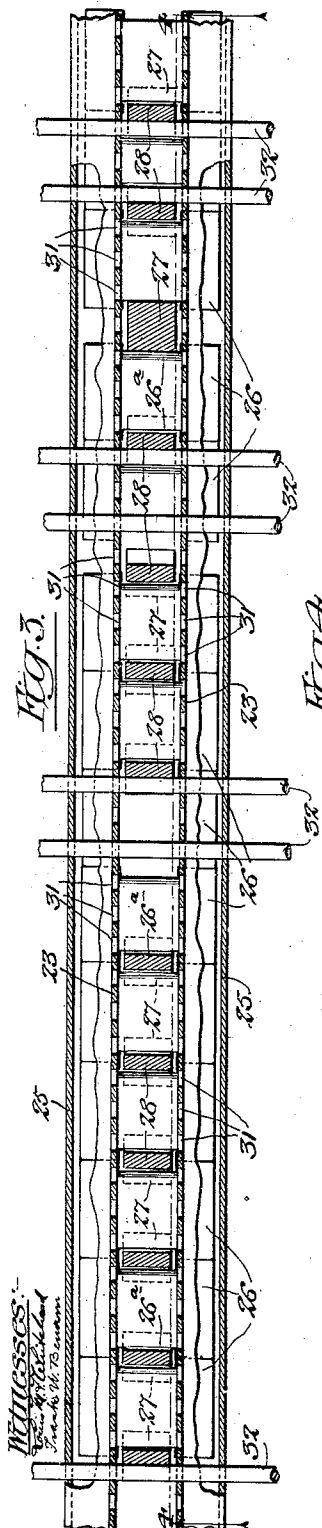
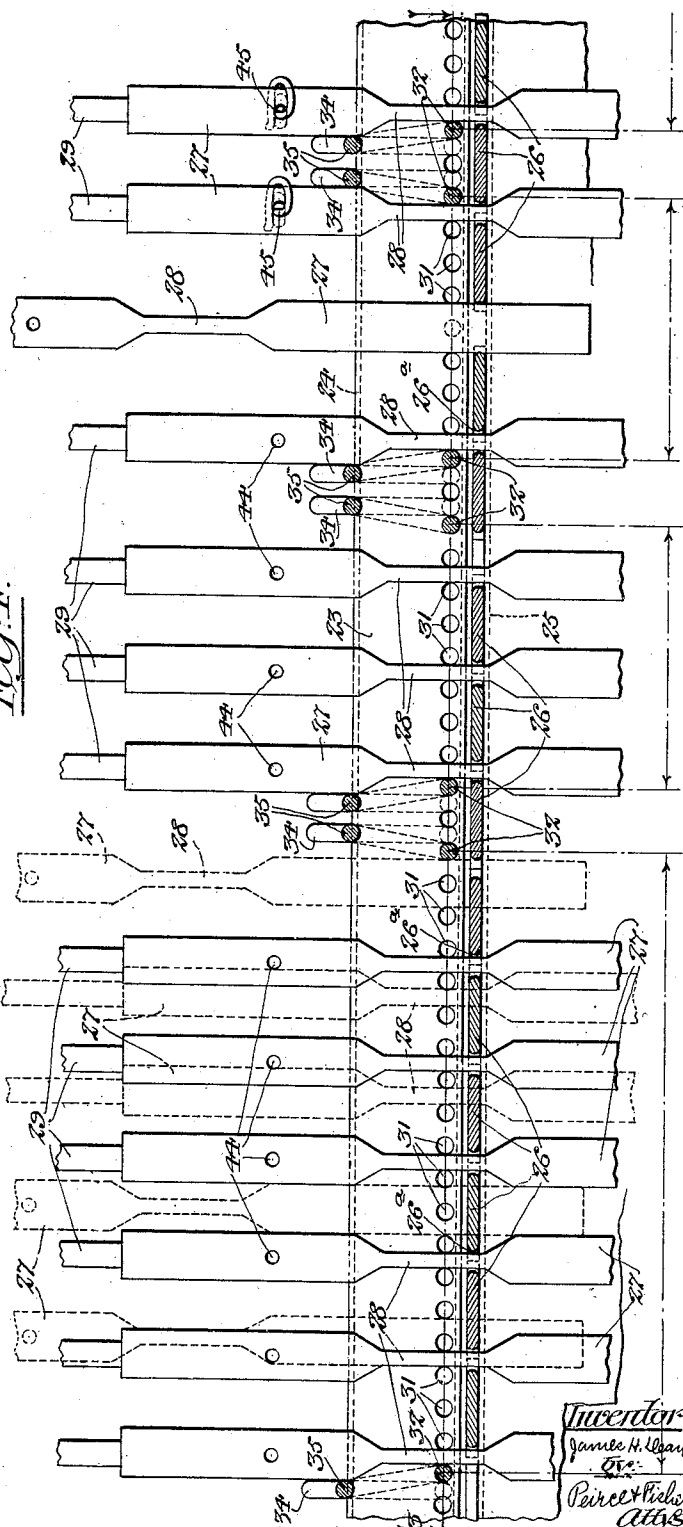


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES H. DEAN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
EMPIRE VOTING MACHINE COMPANY, A CORPORATION OF NEW YORK.

VOTING-MACHINE.

995,331.

Specification of Letters Patent. Patented June 13, 1911.

Application filed September 17, 1908. Serial No. 453,479.

To all whom it may concern:

Be it known that I, JAMES H. DEAN, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Voting-Machines, of which the following is a specification.

The invention relates to voting machines and more particularly to the interlocking mechanism which limits the number of votes which can be cast by a single voter, and also to the class voters' lock-out mechanism whereby parts of the machine are locked against operation when a restricted or class voter is admitted thereto.

In most States the ballot is divided into party columns extending from top to bottom of the sheet and into office rows extending from side to side thereof, and in most voting machines a corresponding arrangement of keys is employed. In some States and particularly Massachusetts and Minnesota, there is no party alinement on the ticket, instead the names of the candidates are arranged in columns with the names of the candidates for several different offices in the same column, the names of the candidates for the same office being arranged together, for example, the names of the candidates for governor will be arranged at the top of the first column one below the other, then will follow the names of the candidates for lieutenant governor in the same column and so on. In the voting machine having the party column and office row arrangement of keys there is a set of interlocking devices for each office row and these may be arranged in a single candidate group or connected with the interlocking devices of adjacent rows to form a multi-candidate group, but the interlocking device cannot be arranged so that a number of sets of candidates for different offices can be arranged in the same column.

The present invention seeks to provide a simple and effective form of interlocking mechanism which is particularly adapted to the Massachusetts or Minnesota form of ballot and a simple and effective class voters' lock-out in connection with a machine having such an interlocking mechanism.

The invention consists in the features of improvement, combinations and arrangements of parts hereinafter set forth, illustrated in the accompanying drawings and

more particularly pointed out in the appended claims.

The invention is illustrated as applied to the form of the machine set forth in prior applications filed by me December 27, 1904, Serial No. 238,388 and April 1st, 1907, Serial No. 365,639, although it could be adapted to other types of voting machines.

In the drawings Figure 1 is a vertical cross-section from side to side of the machine. Fig. 2 is a vertical section on the line 2—2 of Fig. 1 from front to rear of the machine. Fig. 3 is an enlarged detail plan view of a portion of the interlocking mechanism with parts broken away and parts shown in section on the line 3—3 of Fig. 4. Fig. 4 is an enlarged detail section on the line 4—4 of Fig. 3.

As in the prior applications referred to, the machine is provided with a box like frame or casing 1 having vertically movable ballot indicators or keys 2 arranged upon the flat top of the machine frame. These keys are carried in removable units or sections with two keys, counter mechanism controlled thereby and restoring devices for the keys arranged in each section. Each section comprises a pair of connected side plates 3 and is mounted at the upper portion of the machine upon supporting bars 4 that extend from front to rear of the machine frame. The counter sections are arranged below a pair of removable top plates 5 and 5^a. Each key extends through a guide at the upper end of the counter sections, and is provided with a depending tail piece 6 which extends between a pair of guide pins or rollers 7 at the lower portion of the counter section. The two counters for the keys in each section are arranged on opposite sides thereof and comprise a set of counter wheels 8 mounted upon cross pins 9 extending between the side plates 3 of the counter sections, and the units wheel of each counter is provided with a Geneva stop gear 10 which is arranged to be operated by the single toothed Geneva stop actuator 11. Each actuator is rotatably mounted in a support 12 that is axially movable on a pair of cross pins 13 extending between the side plates 3 of the counter sections. The tail portion of each key is provided with a cam slot 14 (see Fig. 2) that engages a pin 15 connected to the carrier or holder 12 of the correspond-

ing counter actuator. By moving the key vertically to and from voted position the part 12 is shifted to move the actuator 11 axially into and out of operative relation with the gear 10 on the units wheel of the corresponding counter. The actuators of the several counter sections are arranged in line and a series of actuator shafts 16 extend therethrough. These actuator shafts are oscillated by the operating mechanism to advance the counters corresponding to the voted keys. This counter mechanism is more fully set forth in the prior applications referred to.

Each key is slotted to engage one end of a rock arm 17 which is loosely mounted upon a hub 18 journaled between the side plates of the counter sections. A laterally projecting lug 19 on the hub 18 extends between a pair of shoulders 20 and 21 on the rock arm 17. The hubs 18 of the several counter sections are arranged in line and are provided with square openings through which a series of square shafts 22 extend. These shafts are controlled by the operating mechanism and are normally held in the position shown in Fig. 1 with the lugs 19 on the sleeves 18 engaging the shoulders 20 of the rock arm 17 and locking the rock arms and keys against movement with the keys in their normal raised positions. When a voter is admitted to the machine the shafts 22 are unlocked so that the voter may indicate his choice by depressing the ballot indicators or keys 2 to shift the actuators 11 relatively to the corresponding counters. At the end of the voting operation the shafts 22 are oscillated back to normal position to restore and rock the keys and counter actuators. The lugs 19 are considerably narrower than the spaces between the shoulders 20 and 21 so that there is a lost motion connection between the restoring shafts 22 and the keys to permit the independent operation of the several keys.

The keys, as in the machines shown in the prior applications referred to, are arranged in columns extending from front to rear of the machine and in rows extending from side to side thereof. In said prior device a set of interlocking devices was provided for each row with means for connecting the interlocking devices of adjacent rows to form groups. In the present construction each column of keys is provided with a set of interlocking devices and means are provided whereby each set of interlocking devices may be arranged in groups in any desired manner, that is to say, any number of adjacent interlocking devices with the keys connected thereto may be arranged in a group and the number of keys and interlocking devices which may be shifted to voted position in any group can be limited to any desired number.

The interlocking mechanism preferably comprises spreaders connected to and longitudinally shifted by the keys with interlocking blocks or spaces between the spreaders. The guide channels for the interlocking blocks extend parallel with the columns of keys from front to rear of the machine. Each of these guides or channels comprises a pair of vertically disposed side plates 23 which are secured together and held apart in proper spaced relation and are secured at their front and rear ends to the machine frame. These plates are provided at their upper edges with laterally projecting strengthening flanges 24, and adjacent their edges they are provided with outwardly bent portions 25 which form the guide channels for a series of flat sliding blocks or spacers 26. The spreaders 27 for the blocks are preferably in the form of short rods that are square in section and provided with reduced portions 28 having inclined faces at the ends of the reduced portions. The spreaders are secured to the lower ends of interlocking rods 29 the hooked upper ends of which engage openings in the tail portions of the several rock arms 17. The spreaders extend downwardly through the side plates 23 of the interlocking channels with the narrow portions 28 thereof normally extending through notches 29 formed in the ends of the blocks 26. The adjacent ends of the blocks 26 on opposite sides of the notches 29 and on opposite sides of the spreaders are arranged to abut, and the recess in two adjacent blocks formed by the notches is wider than the thin portion of the spreader, so that there is no frictional contact between the blocks and spreaders in normal position to resist the sliding shift of the blocks in the guide channel 25 and the sliding shift of the blocks and arrows will not tend to spread the blocks. To further guard against the spread of the blocks by the lateral shift of the blocks and spreaders in the channels the edges of the notches 29 on opposite sides of the thin portions 28 of the spreaders are rounded, as shown.

When any key is moved to voted position the corresponding spreader is lifted vertically or is moved longitudinally and the lower thick end of the spreader is moved into line with the row of blocks to spread the same. It then engages the rounded edges 26^a of the blocks. The extent to which the blocks are spread or a single "step" of the interlocking mechanism is equal to the difference between the distance of the edges of two adjacent blocks when they are moved into engagement and the width of the lower thick portions of the spreaders. To arrange the spreaders and keys into groups and to limit the number of keys and spreaders in any group which may be operated, the side plates 23 of the

guide are provided just above the channel 25 with a series of seats or holes 31 that are adapted to receive grouping pins 32. Each grouping pin is provided at one end with a coiled spring portion 33 having an inwardly projecting finger 34. The finger is provided with a V-shaped portion 35 which is adapted to seat between the upper edges of the side plates 23 and thus lock the grouping pin in position.

The seats or openings 31 are arranged at a distance apart equal to one "step" of the interlocking mechanism, *i. e.*, equal to the extent to which the blocks are spread by the shift of a single spreader to voted position. Where a number of keys and spreaders are to be arranged in a group, grouping pins 32 are arranged in the seats 31 outside of the end spreaders of the group and each single column of keys and spreaders may be divided in this way into any desired number of groups. In grouping the machine, a pin 32 is inserted outside of the end spreader of the group and the entire group of spreaders and blocks or spaces are moved against this pin, as shown at the right in full lines in Fig. 4. If the keys in this group are to be limited to the operation of a single key the other grouping pin will be inserted in the second hole or seat 31 outside the opposite end spreader of the group when the entire set are thus held crowded together. If two keys are to be voted in the group the pin will be inserted in the third hole or seat and if three, in the fourth hole or seat, and so on. In Figs. 3 and 4 a group of six keys and spreaders is shown at the left with three to be voted. The six candidates' names in the group will be arranged adjacent the corresponding keys and the voter will be directed to vote for any three. In the middle of Figs. 3 and 4 a group of three spreaders are shown with one to be voted for. A similar group is shown at the right in Fig. 3 with one of the spreaders in voted position. At the left in Fig. 4 the spreaders are indicated in dotted lines with three voted for. In the voted groups it will be noted that all the space between the pins dividing the group is taken up. It will also be noted that these pins engage the outside spreaders of the group and not the end blocks. In this way all of the columns of keys and interlocking devices in the machine can be arranged in groups with any desired number of keys in each group, and the keys which may be operated in each group can be limited to any desired number. The column of keys 2² are for voting on questions.

The class voters' lock-out comprises a series of flat bars 36 secured at their upper edges to rods 37. These bars and rods extend from front to rear of the machine with one adjacent each set of interlocking spreaders and the rods are rotatably mounted so that the

bars 36 may be shifted from the position shown in full lines in Fig. 1 to the position shown in dotted lines. The rods or shafts 37 are all shifted simultaneously through the medium of a set of crank arms 38 thereon, which are connected by a common link 39. One of the shafts 37 extends through the rear plate 40 of the machine (see Fig. 2), and is provided on its outer end with a crank handle 41 having a finger piece 42 that is shiftable between a pair of stops 43 on the face of the plate 40. By shifting the handle the bars 36 may be moved back and forth between the positions shown in full and dotted lines in Fig. 1.

Each of the interlocking spreaders is provided at its upper portion (see Fig. 4) with an opening or hole 44, which are adapted to receive removable pins or clips 45 (see Fig. 1). These pins are provided with bent spring portions 46 (see Fig. 4), which are adapted to extend around the spreaders and secure the pins against displacement.

To lock out the candidates for whom the restricted or class voter is not entitled to vote, the spreaders connected to the keys of these candidates will be provided each with one of the pins 45. When the restricted or class voter is admitted to the one the crank handle 41 will be shifted to move the bars 36 to the position shown in dotted lines in Fig. 1, over the pins 45 so that the keys connected to the interlocking spreaders provided with pins are locked against movement. When a regular voter is admitted to the machine the locking bars 36 will be in normal position, shown in full lines in Fig. 1, and will not interfere with the operation of any of the keys. In this way any one or more of the keys may be selectively held against operation by the class voters' lock-out.

It is obvious that numerous changes may be made in the details of construction set forth without departure from the essentials of the invention.

I claim as my invention:—

1. Interlocking mechanism for voting machines comprising a series of interlocking spreaders, spacing devices between said spreaders and adjustable stop devices for arranging the spreaders in groups, said stop devices being arranged to engage the end spreaders of each group.

2. Interlocking mechanism for voting machines comprising a row of interlocking blocks, spreaders for said blocks, a set of adjustable stop pins for dividing said spreaders into groups, said stop pins being arranged to engage the end spreaders of each group.

3. In a voting machine, the combination with a number of columns of keys and counters controlled by said keys, of a corresponding number of rows of interlocking

blocks, spreaders for said blocks connected to and longitudinally shifted by said keys, said spreaders and said blocks being laterally movable independently of said keys and means for dividing each row of interlocking spreaders and blocks into groups with any desired number in each group and for limiting the operation of the keys and spreaders in each group to any desired number.

4. In voting machines, the combination with a series of ballot indicators or keys, of a series of interlocking devices connected to and shifted by said keys and class voters' mechanism comprising a shiftable member and a series of adjustable stops removably mounted on said interlocking devices and arranged to be engaged by said shiftable member.

5. In voting machines, the combination with a series of ballot indicators or keys and counters controlled thereby, of a number of parts connected to and shifted by said keys and class voters' mechanism comprising a shiftable member and a series of stops removably mounted on said parts arranged to be engaged by said member to lock said keys against movement.

6. In voting machines, the combination with a column of keys, of a set of interlocking spreaders connected to and shifted by said keys, a shiftable member arranged adjacent said interlocking spreaders, a series of pins removably mounted on said spreaders and arranged to be engaged by said member when in shifted position.

7. In voting machines, the combination with a number of columns of keys, of corresponding rows of interlocking spreaders, a series of swinging bars arranged adjacent said spreaders, means for shifting said bars and a series of pins removably mounted on said spreaders arranged to be engaged by said bars when in shifted position to lock out the corresponding keys.

8. The combination in a voting machine of an interlocking mechanism comprising an interlocking channel, blocks supported therein being free to move along said channel, wedges interlocking with said blocks, flanges extending upwardly from the opposite sides of said channel, perforations

through said flanges, pins extending through said perforations engaging with said wedges to prevent the movement along the channel of the blocks engaged by said wedges.

9. The combination in a voting machine of an interlocking mechanism comprising an interlocking channel, blocks supported therein being free to move along said channel, wedges interlocking with said blocks, flanges extending upwardly from the opposite sides of said channel, perforations through said flanges, pins extending through said perforations engaging with said wedges to prevent the movement along the channel of the blocks engaged by said wedges, said perforations being spaced apart between centers a distance equal to the displacement of the interlocking wedges.

10. The combination in a voting machine of an interlocking mechanism comprising an interlocking channel, blocks supported therein being free to move along said channel, wedges interlocking with said blocks, flanges extending upwardly from the opposite sides of said channel, perforations through said flanges, pins extending through said perforations engaging with said wedges to prevent the movement along the channel of the blocks engaged by said wedges, said perforations being more numerous than the wedges interlocked.

11. The combination in a voting machine of an interlocking mechanism comprising an interlocking channel, blocks supported therein being free to move along said channel, wedges interlocking with said blocks, flanges extending upwardly from the opposite sides of said channel, perforations through said flanges, pins extending through said perforations engaging with said wedges to prevent the movement along the channel of the blocks engaged by said wedges, said perforations being spaced apart between centers a distance less than the distance between centers of consecutive wedges.

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