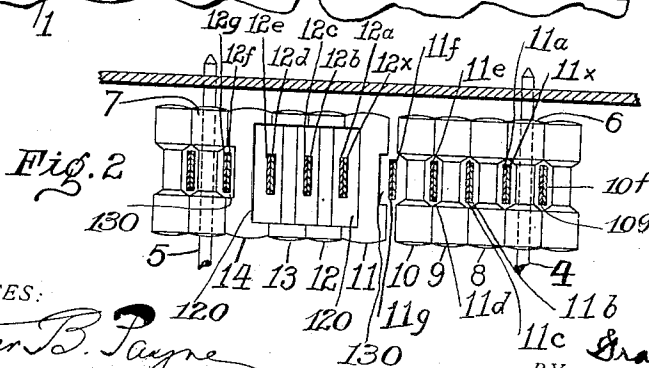
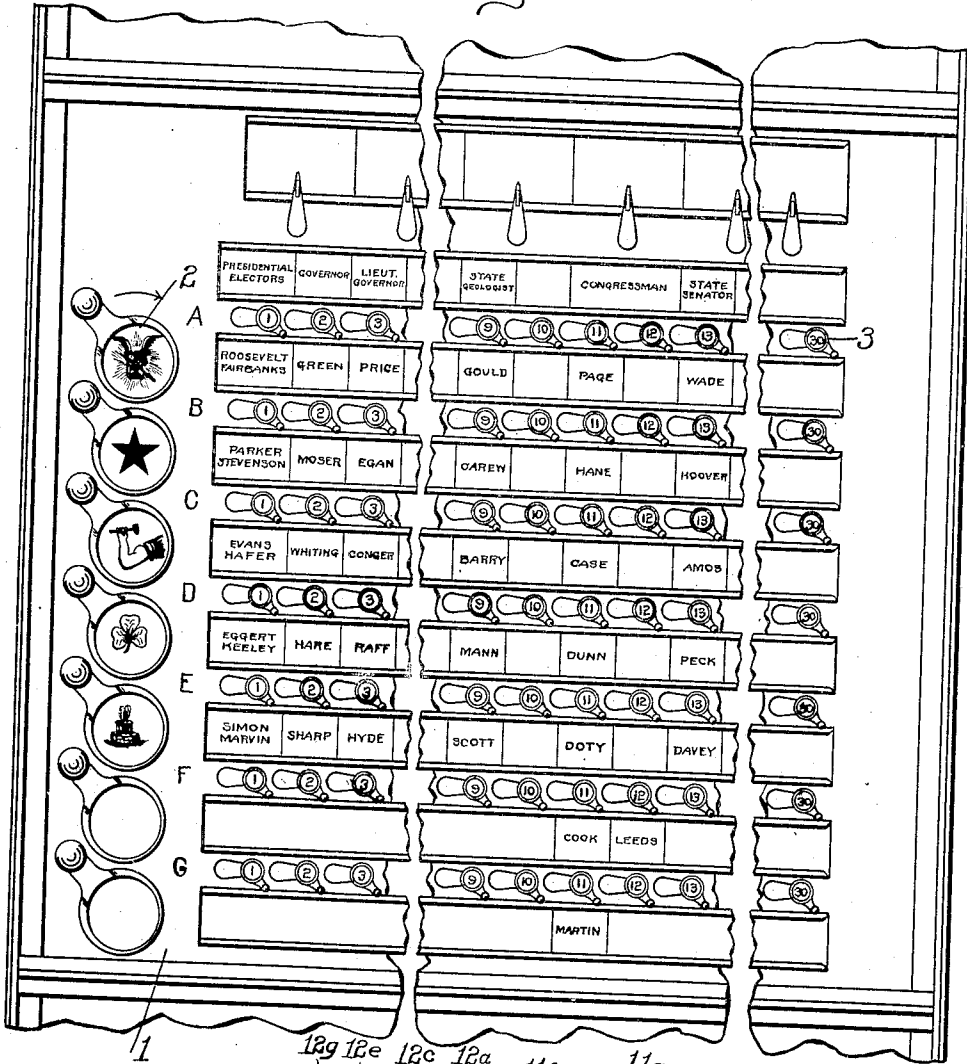


F. KEIPER.  
INTERLOCKING MECHANISM FOR VOTING MACHINES.  
APPLICATION FILED NOV. 20, 1905.

933,372.

Patented Sept. 7, 1909.  
3 SHEETS—SHEET 1.

Fig. 1



WITNESSES:  
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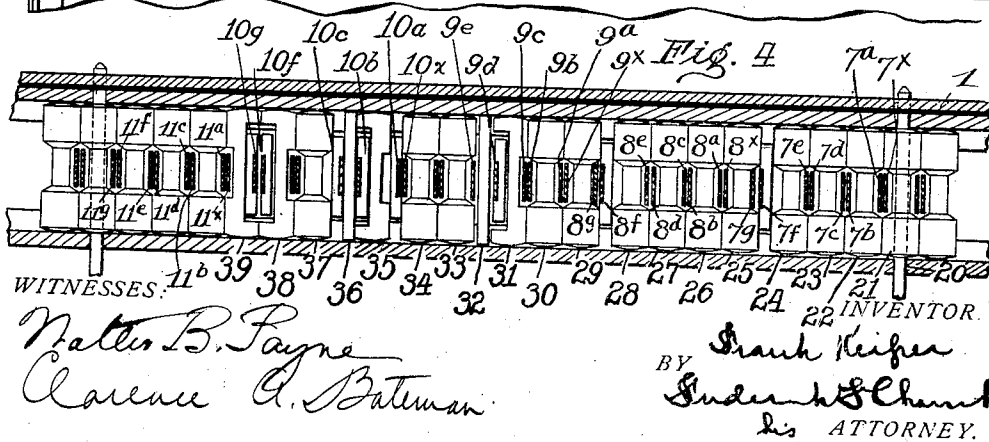
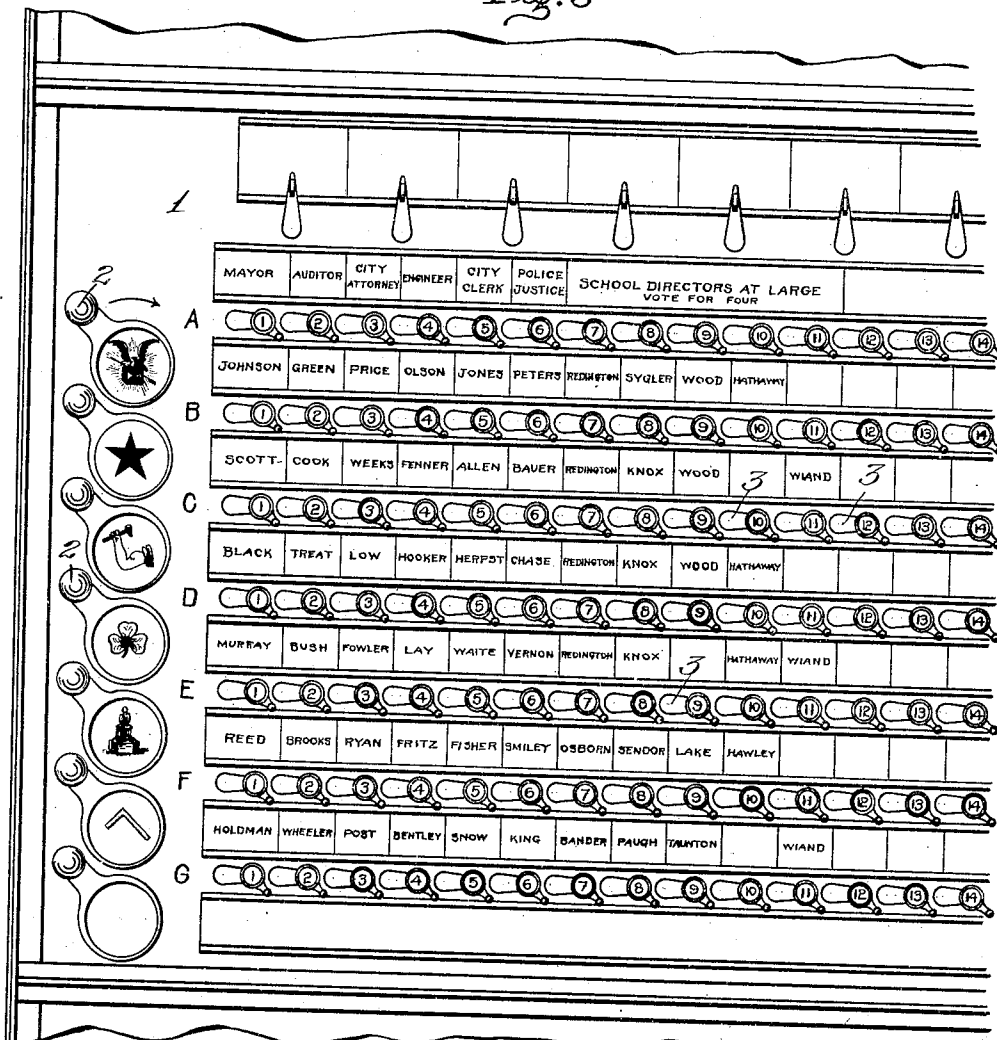
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Fig. 3



WITNESSES:

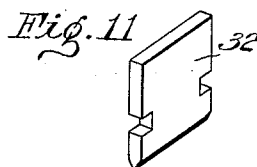
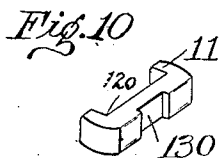
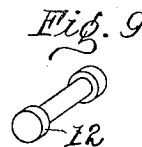
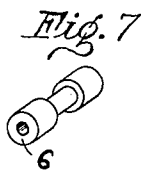
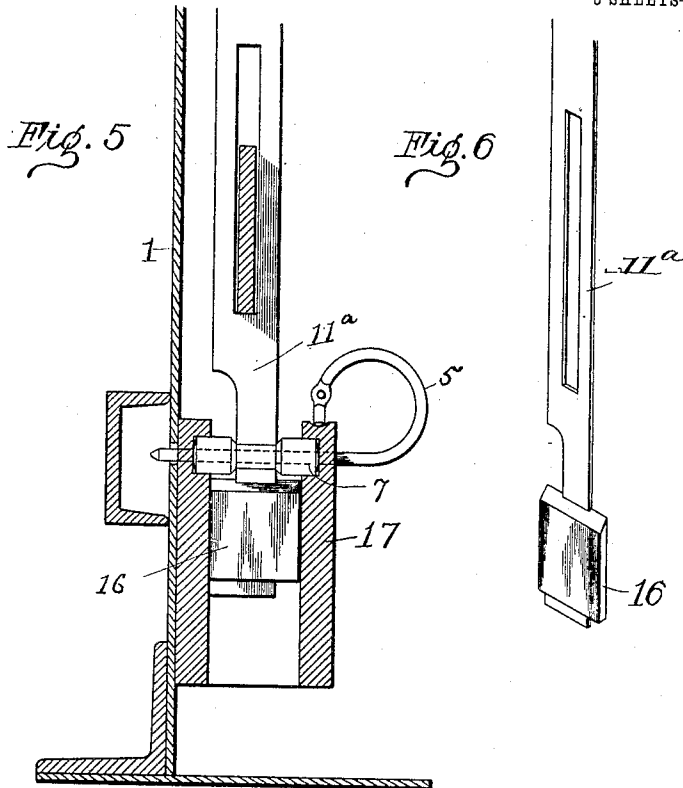
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933,372.

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# UNITED STATES PATENT OFFICE.

FRANK KEIPER, OF ROCHESTER, NEW YORK.

## INTERLOCKING MECHANISM FOR VOTING-MACHINES.

933,372.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed November 20, 1905. Serial No. 286,137.

*To all whom it may concern:*

Be it known that I, FRANK KEIPER, of the city of Rochester, county of Monroe, and State of New York, have invented certain new and useful Improvements in Interlocking Mechanism for Voting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference characters marked thereon.

This invention relates to interlocking mechanism particularly adapted for use in voting machines whereby an excessive number of candidates for one or more offices may be accommodated on the machine, without interfering with straight ticket voting. Thus, for the office of Congressman, I have shown in Figure 1 of the drawings eight candidates in nomination, while the machine on which they are placed has room for but seven candidates in each office line. As shown, I have placed these eight candidates on two office lines. On these two office lines two keys can then be voted, which is not allowable for the office of Congressman. If the interlock is adjusted to permit the voting of but one key in the two office lines, it will ordinarily lock the straight ticket keys against operation.

My invention consists in providing this and other similar conditions whereby an abnormal number of office lines are included in a group, without permitting the voting of a correspondingly abnormal number of keys, and without interfering with the proper operation of straight ticket keys on their respective single candidate keys in the group.

The particular form of the invention described in this application is based on the interlocking mechanism described in my patent 857,469, and in the patent to Lausterer No. 793,666, but it is understood that it may also be applied to the interlocks of such machines as are described in the patent to James H. Dean, No. 636,730, and others.

My invention will be more readily understood by reference to the accompanying drawings which form a part of this specification and in which,

Fig. 1 is a front view of the ballot support of a voting machine containing eight candidates for Congress who have been nominated although but one can be elected to the office, and the machine is built with provision

for seven parties only. Fig. 2 is a horizontal sectional view showing the arrangement of the interlocking mechanism for this special condition. Fig. 3 is a view similar to Fig. 1 in which the ticket contains a combination of indorsed candidates for the office of school directors. The nominations are so arranged as to permit all the indorsements of each of the indorsed candidates to come on one and the same office line. In this group five office lines must be included although but four candidates only can be voted for therein, and only four can be elected therefrom. Fig. 4 is a horizontal sectional view showing the arrangement of the interlocking mechanism for this special condition. Fig. 5 is a vertical sectional view of the interlocking channel of the machine. Fig. 6 is a detail of the interlocking strap and wedge. Figs. 7 and 8 are details of the interlocking abutments or rollers for regular candidates. Figs. 9, 10 and 11 are details of the special interlocking devices employed in either of the two above named special conditions.

Similar reference characters in the several figures indicate similar parts.

The invention is shown applied to the now familiar type of machine in which the ticket from which the voter selects his candidates is arranged upon the front plate of the machine and indicators or keys are provided for each candidate, the operation of the oscillatory ballot key or indicator to a voted position merely indicates the voter's choice of candidates subject to change if desired, and that a subsequently operated means actuates registers or counters corresponding to the indicators which are left in voted position and registers the vote. In these machines the indicators are connected to interlocking straps or rods having wedges or enlargements thereon cooperating with abutments, blocks or rollers arranged in a guide or channel at the lower part of the machine, some of said abutments being rendered stationary and others permitted a movement relative to the channel so that only a predetermined number of indicators may remain in operated or voted position at one time.

As shown in the accompanying drawings, reference numeral 1 indicates the face plate of the machine, which plate has thereon seven party rows of keys, and at the head of each party row is a straight ticket key.

The straight ticket keys are indicated by the numeral 2, the individual candidate keys by the numeral 3, and the party rows of keys are referred to by the letters A, B, C, D, E, F and G. As usual in machines of this type, it is understood that the operation of the straight ticket key will place in voted position all the keys of its party row and that the bars or parts connected to the straight ticket key are capable of division at predetermined points to operate a greater or lesser number of the indicators to voted position, as shown in Patent 849,123, A. J. Gillespie, April 2, 1907.

In Fig. 1 of the drawings I have shown a ballot or ticket in which five parties have nominated a full ticket, each comprising one candidate for Congress and in addition thereto three other candidates for Congress have been nominated and are running independently, thus making eight candidates for this one office. It will be seen that the indicators devoted to these eight candidates are placed on the two office lines numbered 11 and 12, and that these two office lines with their interlocking mechanism must be combined into one group, and when so combined, any two keys in the office lines can be voted. To prevent this voting of two keys, a compensator in the form of a block equivalent to a wedge or enlargement on one of the interlocking rods or straps, may be inserted passing between any pair of interlocking straps and between the rollers or movable abutments with which they interlock, and such a compensator is shown in Fig. 11 in detail, and in position in Fig. 4. But the insertion of such compensator in this case would lock out of operation all of the straight ticket keys on the machine, for obviously each straight ticket key voted must operate the two indicator keys 11 and 12 of its party row, but when the compensator is such as described, only one of these can be placed in voting position, and as both of them cannot be moved, the straight ticket indicator or key is in turn locked by them. To prevent this locking of the straight ticket key, however, I can provide for the isolation of the interlocking wedges of the unused keys of the 12th office line so that while they may be moved to voted position, they have no interlocking effect. To secure this result I arranged the parts as shown in Fig. 2, the indicating numerals 10<sup>i</sup>, 10<sup>s</sup>, etc. indicating the interlocking straps connected to the keys at the intersection of the tenth column, and the A office line, this obtaining throughout the specification. In this figure the grouping pin 4 represents the grouping pin in the interlocking channel between the 10th and 11th office lines, and the grouping pin 5 represents the pin between the 12th and 13th office lines. These pins pass through the pin rollers 6 and 7 respec-

tively and hold them in fixed position. Between the pin roller 6 and the adjacent interlocking block or roller 8 passes the interlocking strap 11<sup>x</sup> and 11<sup>a</sup>. The strap 11<sup>x</sup> is for the independent ballot slide in the independent column. The raising of this slide (not shown) permits voting for unnominated persons. The details are shown for example in Patent 820,802, Lausterer, May 15, 1906. The strap connected to the eleventh key in the first party row, which key belongs to the Republican candidate "Page" is indicated by 11<sup>a</sup>. Between the interlock blocks or rollers 8 and 9 pass the straps for the keys 11<sup>b</sup> and 11<sup>c</sup> devoted to the keys of Hone and Case.

Between the rollers 9 and 10 pass the straps for the keys 11<sup>d</sup> and 11<sup>e</sup> devoted to Dunn and Doty. The pin roller adjacent to the roller 10 has been removed. This pin roller is similar to that shown in Fig. 7, and has been replaced by a square block or compensator similar to that shown in Fig. 10, which is of a height substantially equal to the diameter of the roller. On one side thereof, the right in Fig. 2, is cut a recess 130 which corresponds substantially to the recess in the roller, this recess being intended to contain the interlocking strap 11<sup>f</sup> without interlocking effect if the key 11<sup>f</sup> is voted. On the other side of this block 11 is a deep recess 120 wide enough for the wedge 16 shown in Fig. 6, to lay therein without interlocking effect. The next adjacent roller has been removed and replaced by the roller 12 similar to that shown in Fig. 9, and roller 13 and the block 14 similar to roller 12 and block 11 are inserted in place of corresponding rollers of the regular type that have been removed. The block 14 contacts with the roller 13 in the same way as does the block 11 contact with the roller 12 and with the roller 7 in the same way that block 11 contacts with block 10.

Between the block 11 and 12 a recess of such length and breadth is formed that the voting of both the wedges of 12<sup>x</sup> and 12<sup>a</sup> can be made without interlocking effect. It will be seen by reference to the ballot sheet that key of strap 11<sup>a</sup> is devoted to a candidate "Page," while the key of strap 12<sup>a</sup> has no candidate thereon, and if the party lever in the row indicated by A be voted, it will place in voted position both the keys 11 and 12 in that row. The key 11<sup>a</sup> will interlock properly by reason of the fact that its wedge 16 will be drawn between the interlocking rollers 6 and 8 and will separate them, but the key 12<sup>a</sup> will not interlock at all, because its wedge will be drawn up between the block 11 and the roller 12, between which there is sufficient room for the wedge to enter without separating them, thus it will be seen that the voting of party lever A is not interfered with, because by voting it, the

voter places in voted position one key that is interlocked, and one key that is not interlocked. The same is true in voting straight ticket keys in the lines indicated by B, C, D and E. With reference to the block 11 it will be noticed that by cutting the recess 130 therein, the effective displacement of the wedge 16 is increased over what it would be if the recess 130 were absent. In such case the block or blocks and rollers, if in contact, would be separated by the thickness of the interlocking strap or straps, and when drawn to voted position the wedge would only separate the blocks by the difference between the thickness of the wedge and the thickness of the strap. By cutting this recess 130 still deeper and making it as wide as the wedge 16, the effective displacement of the wedge is diminished instead of increased, and as shown in the drawings, the displacement of the wedge 16 has been completely eliminated.

It may here be remarked that the interlocking rollers as shown in Figs. 2 and 4 are shown in the order as they would be seen from the back of the machine where the adjustment must be made, and the order of them is consequently reversed from what it would be if they were seen from the front of the machine, in which case their sequence would correspond with the sequence of the keys which they interlock.

The party levers F and G do not belong to or represent any regular party, so they may be locked against operation in any desired manner. The straps for the keys 11<sup>a</sup> and 11<sup>b</sup> pass between the roller 10 and the block 11, and the voting of either of these keys will cause their wedges to properly interlock. So too, the straps 12<sup>f</sup> and 12<sup>g</sup> pass between the block 14 and the roller 7. The narrow recess 130 of said block in both cases faces the strap or straps that it is intended to interlock and the broad recess 120 faces the strap or straps and their wedges which are to be released from the interlock. The blocks 11 and 14 are made square or rectangular at the ends as is shown in Fig. 10, so that they will not turn in the interlocking channel 17 that holds them, thus keeping the four blocks always in the proper relation with the parts with which they are intended to cooperate. The intermediate abutments or rollers 12 and 13 can be either cylindrical in shape or can be made rectangular on the end, as may be desired, the object in either case being merely to afford between the rollers or between the roller and the block a sufficient space so that one or both of the wedges may be drawn to voted position without having any interlocking effect. It will be further understood that the dimensions of the blocks 11 and 14 along the channel is enough greater than the rollers which they replace to make the use of a compensator unnecessary. When

the rollers have been removed and the blocks have been inserted in their stead, and the rollers 12 and 13 have been put into their places, and the grouping pins 4 and 5 have been inserted, only one key connected to the following ten straps can be voted, 11<sup>a</sup>, 11<sup>b</sup>, 11<sup>c</sup>, 11<sup>d</sup>, 11<sup>e</sup>, 11<sup>f</sup>, 11<sup>g</sup>, 12<sup>f</sup> and 12<sup>g</sup>, and all of the keys connected to the following straps can be voted, 12<sup>a</sup>, 12<sup>b</sup>, 12<sup>c</sup>, 12<sup>d</sup>, 12<sup>e</sup>, and the voting of any or all of them will not interfere with the voting of the one key that can be voted out of the remaining 10. As the wedges of the keys connected to the straps 12<sup>a</sup>, 12<sup>b</sup>, 12<sup>c</sup>, 12<sup>d</sup>, 12<sup>e</sup>, are isolated, the voting of those keys is without interlocking effect and they can in consequence offer no obstruction to operation of the straight ticket keys of their respective party lines. The party levers F and G, however, are locked against voting, because no parties appear in connection therewith, and the extra independently nominated candidates can be put upon the keys F and G of the office lines 11 and 12, and these keys will remain interlocked against each other and against the keys 11 of the party row A, B, C, D and E, so that only one of the keys so interlocked can be voted. If there are six parties in nomination, and there are three independent candidates, the group can be extended to include three office lines by arranging the blocks and rollers to interlock the keys on the bottom party row with those keys for which there are candidates, leaving free those keys and wedges for which there are no candidates. In that case, however, a compensator and a square block would have to be used to isolate the strap 12<sup>f</sup>, for example in the same way that the strap 9<sup>d</sup> is isolated in Fig. 4.

In Fig. 3 I have shown a different application of this same invention. In this case we have a group of four with five indorsed candidates therein. In such a case as this it is well known that if the counters of an indorsed candidate are coupled for simultaneous action in such manner as is described in Patent 847,146, Lausterer, March 19, 1907, or if the keys of the indorsed candidate are doubly interlocked as they must be, for instance, in the machine described in Patent No. 636,730, and others, it is desirable that each indorsed candidate's name must be concentrated on one office line and cannot be distributed on two or more office lines. This necessitates including five office lines in the group of four, because an inspection of the names of the candidates of said group will show that it is impossible to put the names of any two of these indorsed candidates on one line, and still confine the whole group to four lines. This makes it necessary that the keys 9<sup>a</sup>, 10<sup>b</sup> and 10<sup>c</sup>, and 11<sup>a</sup>, and 11<sup>c</sup> and 11<sup>e</sup> be isolated so that the operation of their respective straight ticket keys will not pro-

duce any interlocking effect therewith. In the case of the keys 11<sup>a</sup>, 11<sup>b</sup> and 11<sup>c</sup> this can be most easily secured by placing this group on office lines 7 to 11 inclusive, so that the blank spaces at the end of the party rows A, C and E will come just after a joint in a divided or divisible straight ticket bar, which joint can be disconnected as is described in Patent 849,123, Gillespie, April 2, 1907, it being understood that the joints in the straight ticket bar occur after every fifth or tenth key. This makes it still necessary, however, to isolate the keys 9<sup>a</sup> and 10<sup>b</sup> and 10<sup>c</sup>, and the manner in which this is accomplished I will now describe. The grouping pin 20 holds the pin roller that separates the sixth and seventh office lines. The rollers 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30 remain normal, it being understood that the roller 25 is between the seventh and eighth office lines, and the roller 29 is between the eighth and ninth office lines, and between the rollers 29 and 30 and the square block 31 are interlocked the straps of 9<sup>a</sup>, 9<sup>b</sup> and 9<sup>c</sup>. For the key 9<sup>a</sup> there is no candidate and the strap for that key is isolated between the square block 31 and the flat compensator 32, such as shown in Fig. 11, so that the wedge for this key and strap cannot have any interlocking effect when drawn to voted position. The strap 9<sup>c</sup>, however, is confined between the compensator 32 and roller 33 and will have an interlocking effect when drawn to its voted position. The strap 10<sup>b</sup> is isolated between the square block 35 and the compensator 36, and the strap 10<sup>c</sup> is interlocked between the compensator 36 and the roller 37. The straps 10<sup>a</sup> and 10<sup>c</sup> are isolated between the square blocks 38 and 39, beyond which the keys of the eleventh office line are interlocked in their normal way so that only one of them can be voted. It will thus be seen that the blocks, rollers and compensators of the design described can be used to accommodate the machine so as to carry tickets thereon and hold elections therewith to which the machine is not originally adapted, and for which it might not otherwise be used.

I claim as my invention:

1. In an interlocking mechanism, the combination with movable indicators and wedges operated thereby, of interlocking blocks with which said wedges cooperate, and bridging members arranged between some of the blocks to cause their movement independently of the adjacent wedges.

2. In an interlocking mechanism, the combination with movable wedges, of a plurality of interlocking blocks some of which are adapted to cooperate with the adjacent wedges and others to bridge the wedges while cooperating with adjacent blocks.

3. In an interlocking mechanism, the combination with movable indicators and

wedges operated thereby, of relatively movable members with which the wedges cooperate and movable bridging members serving to connect adjacent members for movement independently of the intermediate wedges.

4. In an interlocking mechanism, the combination with movable indicators and wedges operated thereby, of limiting abutments and relatively movable members operable between them and with which the wedges are adapted to cooperate and movable bridging members serving to connect adjacent members for movement independently of the intermediate wedges.

5. In an interlocking mechanism, the combination with a series of wedges, of a series of interlocking blocks, some of the blocks cooperating directly with adjacent wedges and others formed to avoid contact with adjacent wedges and engage other blocks only.

6. An interlocking block provided on opposite sides with recesses of different dimensions.

7. The combination with interlocking wedges and straps connected thereto, of a series of interlocking blocks one or more of which are provided on opposite sides with recesses of different dimensions.

8. The combination with the channel, stationary abutments thereon and a series of interlocking blocks between them, some of said blocks having recesses of different dimensions on opposite sides, of the interlocking straps having wedges thereon adapted to cooperate with said blocks, said straps being adapted to fit in the narrower recesses of the blocks.

9. In an interlocking mechanism, the combination with a plurality of series of straps and wedges connected thereto, of a channel or support, a plurality of interlocking blocks therein with which the wedges cooperate to limit the number operable, and means for preventing certain of said wedges from operating upon the interlocking mechanism without interfering with the movement of said wedges.

10. The combination with a plurality of straps and wedges connected thereto, of a plurality of interlocking blocks with which the certain wedges cooperate to limit the number of straps operable and other blocks cooperating with the former to move or be moved by them independently of the adjacent wedges.

11. The combination with a plurality of straps and wedges connected thereto, of a support, interlocking blocks thereon with which the wedges cooperate, and other blocks on said support having the reduced central portions with which the wedges do not cooperate.

12. The combination with a plurality of

straps and wedges connected thereto, of a support, interlocking blocks thereon with which the wedges cooperate, blocks recessed on opposite sides with which the wedges do not directly cooperate and blocks having recesses on one side with which only one wedge cooperates.

13. The combination with a plurality of interlocking blocks and a plurality of movable wedges, of an interlocking block shaped to make interlocking contact with either a block or a wedge on one side and to contact only with a block on the other side.

14. The combination with a plurality of interlocking blocks and a plurality of interlocking wedges of an interlocking block adapted to be arranged between two of said wedges, said block being recessed to make interlocking contact with adjacent blocks and to avoid interlocking contact with adjacent wedges.

15. The combination with an interlocking

system embodying blocks and wedges, of a block having a recess in one side larger than an adjacent wedge.

16. The combination in a voting machine of an interlocking spacing member and one or more interlocking straps and wedges, placed adjacent thereto, said member being recessed opposite said strap to increase the effective displacement of the wedge carried by said strap, and recessed opposite the wedge to diminish the effective displacement of the wedge.

17. The combination in a voting machine of an interlocking spacing member and an interlocking wedge placed adjacent thereto, said member being recessed opposite said wedge to diminish the effective displacement of the wedge.

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