

Dec. 28, 1965

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3,226,019

VOTING MECHANISM

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2 Sheets-Sheet 1

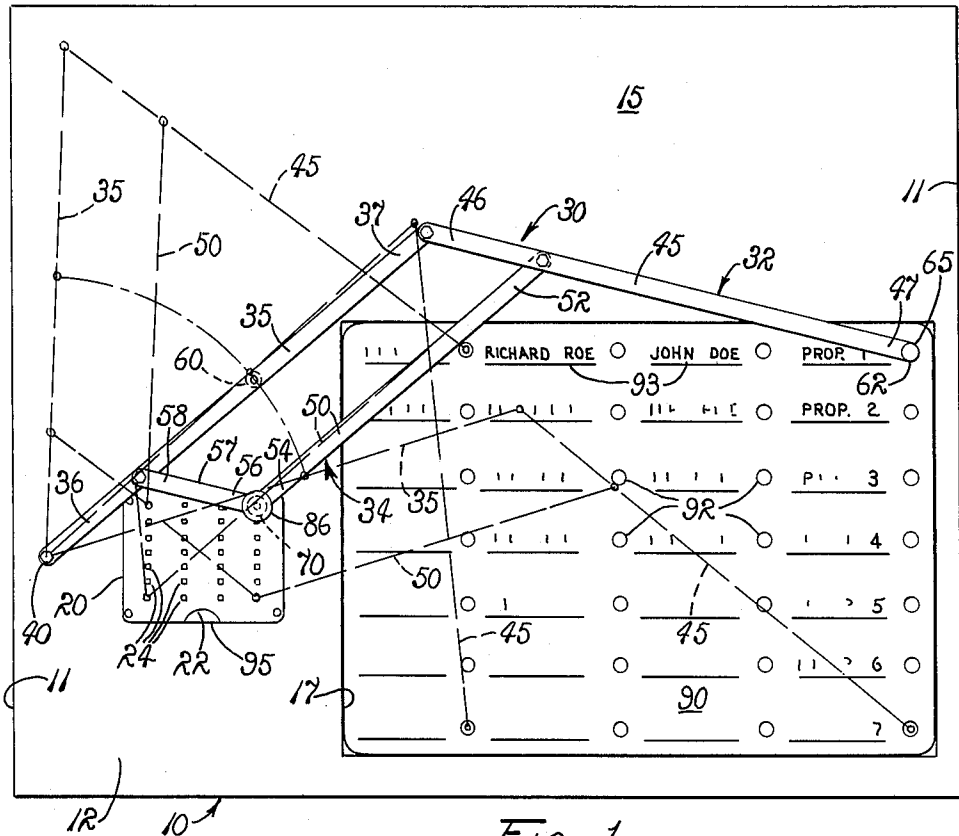


FIG. 1

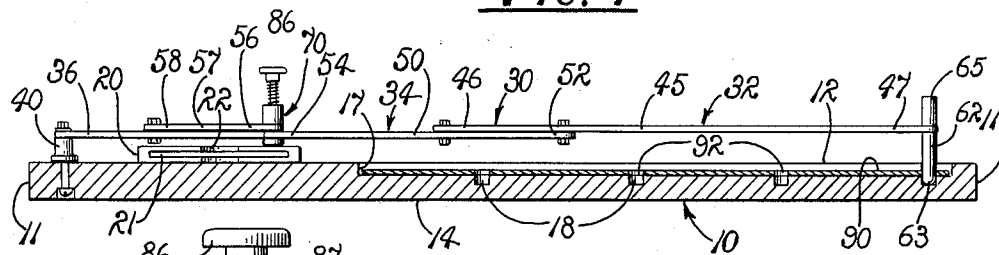


FIG. 2.

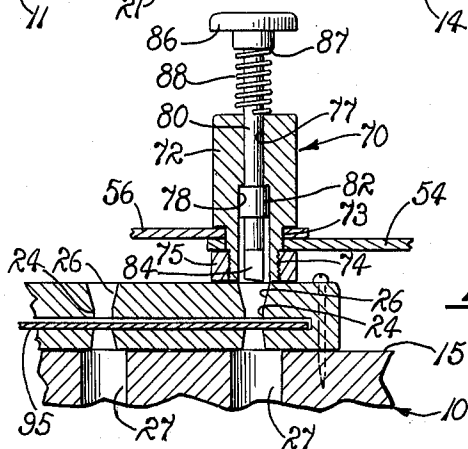


FIG. 3.

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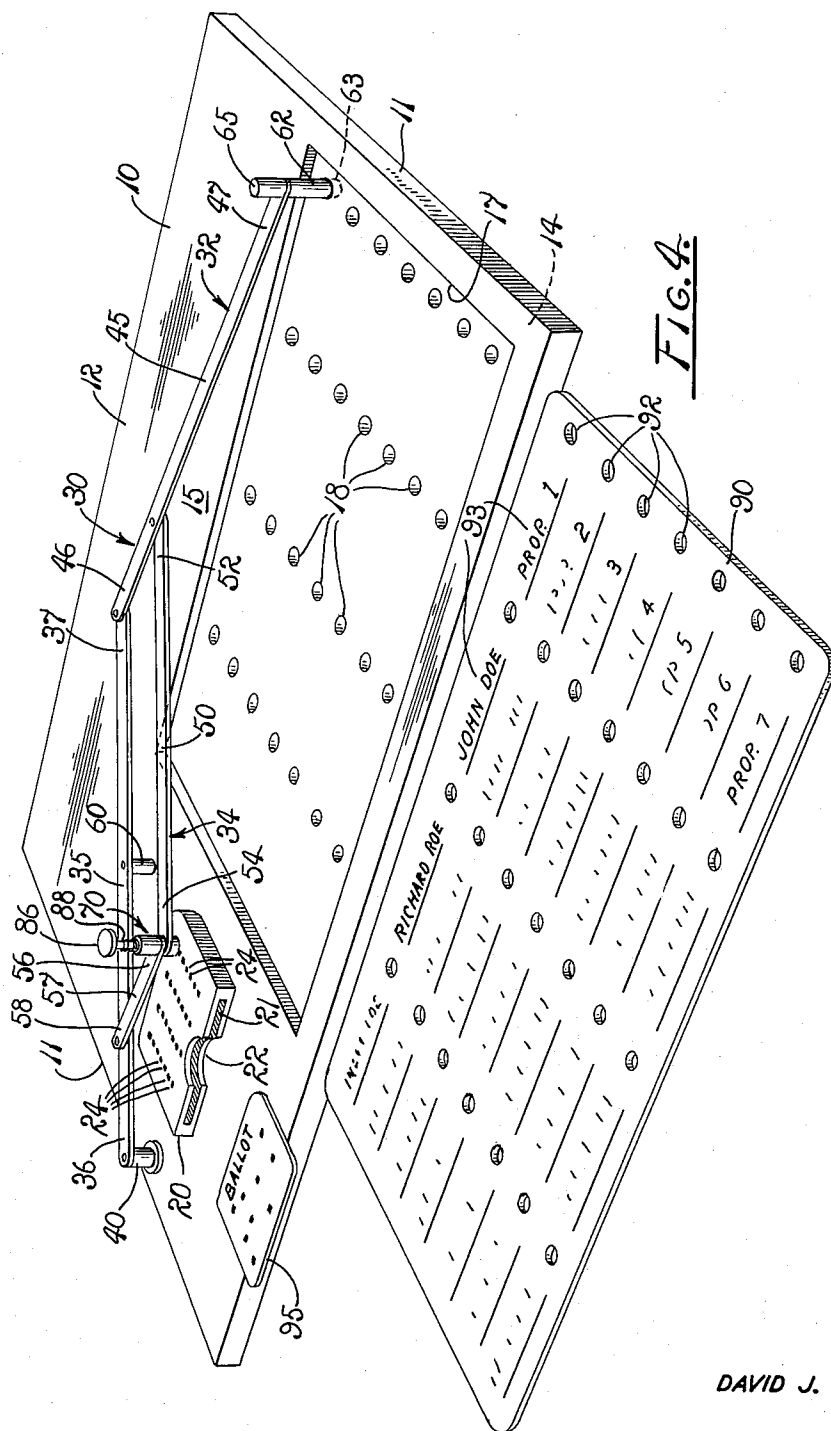
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2 Sheets-Sheet 2



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VOTING MECHANISM

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The present invention relates to a voting mechanism of simple, mechanical construction which utilizes voter ballots of the data processing punch card type and is thus able to attain the counting advantages of mechanical or electronic data processing equipment.

At the present time, printed sheet type ballots are customarily used in elections. Such ballots require manual marking by the voter through the use of a rubber stamp and ink pad. This procedure is slow, untidy and frequently results in an objectionable number of voided ballots by the voter's inadvertent duplicate or other improper marking. Furthermore, the ballot sheets must be folded upon completion by the voter in order to be received through the slot in conventional ballot boxes. Such voting procedures necessitate a large labor force physically to handle, unfold and tediously count the ballots. Such counting is a protracted task which, in many precincts, takes several days to complete and delays the results correspondingly. Such ballots also create a storage problem by their voluminous bulk and present an aggravated handling problem when voting recounts are necessary. Furthermore, the list of candidates, referendum measures, propositions and the like is frequently of such length that it cannot be included on a single ballot sheet, thereby requiring several sheets to constitute a single ballot. The multiplicity of sheets is confusing and inconvenient for the voters to handle and compounds the problem of manual marking, folding and subsequent counting.

Many of the problems of the above described voting procedures have been solved by the use of electrically operated voting mechanisms. However, such mechanisms have not met with widespread acceptance even though providing generally successful operation inasmuch as their initial cost is high and they are expensive and troublesome to maintain.

Therefore, it is an object of the present invention to provide an improved voting mechanism which is capable of greatly accelerated voting procedures with a minimum of expense.

Another object is to provide a voting mechanism which substantially eliminates mismarking and miscounting of election ballots.

Another object is to provide a voting mechanism which insures against ballot alterations after completion by the voter.

Another object is to provide a voting mechanism which is adapted to fit easily into existing voting booths.

Another object is to provide a voting mechanism of simple mechanical construction requiring a minimum of attention and maintenance.

Another object is to provide a voting mechanism which is adapted to utilize election ballots which can be automatically counted.

Another object is to provide a voting mechanism utilizing ballots which may be stored easily within a minimum of space and be quickly retrieved for fast recounts.

Another object is to provide a voting mechanism which is capable of accommodating ballots of the data processing punch card type.

Another object is to provide a voting mechanism, the operation of which is easily understood with a minimum of instruction to the voter.

Other objects and advantages of the present invention will become more fully apparent upon reference to the following description in the specification.

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In the drawings:

FIG. 1 is a top plan view of the voting mechanism of the present invention having a vote selecting device shown in one position of selection with other alternate positions shown in dashed lines.

FIG. 2 is a transverse horizontal section through the voting mechanism taken on line 2—2 of FIG. 1.

FIG. 3 is an enlarged fragmentary section through the ballot card punching mechanism of the present invention.

FIG. 4 is an enlarged perspective of the voting mechanism of the present invention showing master and voter punch card ballots removed from their operative positions on the voting mechanism.

Referring more particularly to the drawings, a voting mechanism embodying the principles of the present invention provides a substantially flat rectangular backboard or table 10 of lightweight substantially rigid material such as aluminum, plywood, fiberboard or the like. The table has a pair of opposite marginal sides 11 and predetermined upper and lower marginal sides 12 and 14, respectively. The table further includes an upper substantially flat surface 15 which has a substantially rectangular recess 17 formed therein adjacent to the lower right corner of the table, as viewed in FIG. 1. A plurality of rows of bores or depressions 18 are formed in the table within the recessed portion 17 thereof in a generally rectangular pattern of reference locations.

A substantially rectangular matrix 20 is rigidly mounted on the upper surface 15 of the table adjacent to the lower left hand corner of the table, as viewed in FIG. 1. An intermediate slot 21 is formed in the matrix in spaced substantially parallel relation to the upper surface 15 of the table. The slot is arranged so that the matrix opens toward the lower side 14 of the table and includes a thumb notch 22 therein. The matrix further provides a plurality of rows of substantially rectangular registration or apertures 24 which extend through the upper surface thereof in communication with the slot 21. The apertures are arranged in a substantially rectangular pattern in corresponding relation to the rows of depressions 18 in the recessed portion of the table at a predetermined reduced ratio. As best shown in FIG. 3, the apertures provide an upper tapered portion 26 and extend through the lower portion of the matrix for communication with enlarged collecting holes 27 through the table 10.

A pantographic device, generally indicated by the reference numeral 30, is manipulatable for relative sliding movement upon the upper surface 15 of the table. The pantographic device provides a selection portion 32 and an opposite registering portion 34. The pantographic device also includes an elongated support link 35 which has a lower end 36 and an opposite upper end 37. The lower end of the support link is pivotally mounted on the elevated end of a pedestal 40 rigidly secured to the upper surface of the table between the matrix and the adjacent side 11 of the table. An elongated selector link 45 has an inner end 46 pivotally connected to the upper end 36 of the support link and an extended end 47. An intermediate control link 50 is extended in spaced substantially parallel relation to the support link 35 and has an upper end 52 pivotally connected in spaced adjacent relation to the inner end 46 which is pivotally connected to an end 56 of a tie link 57. The tie link includes an opposite end 58 which is pivotally connected to the support link 35 in spaced adjacent relation to its lower end 36. The links 35, 45, 50 and 57 thereby provide a parallelogram lever system so that planar movement in any direction of the selecting portion 32 is precisely transmitted to the registering portion 34 at a predetermined reduced ratio.

A glide leg 60 is rigidly mounted on the support link 35 intermediate its ends in depending relation for slidable

engagement with the upper surface 15 of the table 10. A selector finger 62 is mounted on the extended end 47 of the selector link 45 in depending relation therefrom and provides a spherical end 63 readily receivable within the circular depressions 18 in the recessed portion 17 of the table 10. A handle portion 65 is upwardly extended from the selector finger 62 for convenient manipulation of the selector finger about the recessed portion 17 of the table. Further, the selector finger 62 and the glide leg 60 maintain the links of the pantographic device in elevated substantially parallel relation to the upper surface 15 of the table.

A punch mechanism 70 is disposed at the pivotal connection between the control link 50 and the tie link 57. As best shown in FIG. 3, the punch provides a body member 72 having a lower reduced diameter bearing portion 73 extended through the ends of the control link and the tie link. An extended screw threaded end 74 receives a lock nut 75 to maintain such connection. The body 72 also has an elongated concentric bore 77 therethrough which includes a lower counterbored portion 78 communicated with the apertures 24 and the matrix. A plunger 80 is slidably mounted within the bore and has a lower end 82 which mounts a card perforating blade 84. A circular dome-shaped press pad 86 is mounted on the upper end of the punch and provides a shoulder 87 to constrain a compression spring 88 about the plunger and between the press pad and the top of the body 72.

As best shown in FIG. 4, a master ballot 90 is adapted to be positioned and confined within the recessed portion 17 of the table 10. The master ballot includes a plurality of rows of aligned apertures 92 which are disposed in precise registry with the circular depressions 18 in said recessed portion 17 of the table. Between each row of apertures and adjacent the individual apertures is provided a name space 93 within which is printed the particular candidate, proposition or the like for selection by the voter. A ballot card 95 of the data processing punch-card type is adapted to be received within the slot 21 of the matrix. The ballot card is a duplicate of the master ballot in miniature. It is readily apparent that from the above description the selector finger 62 can be positioned throughout the recessed portion 17 of the table for disposal in any of the circular depressions thereof. Also, with such movement, the punch 70 is automatically similarly disposed in corresponding positions on the matrix 20.

Operation

The operation of the described embodiment of the subject invention is believed to be clearly apparent and is briefly summarized at this point. Prior to an election, precincts are furnished with several master ballots 90 and a supply of blank voter ballot cards 95. If additional master ballots are required, they can be fastened together in book form so that when one ballot is complete the master ballot can be flipped out of the recess 17 in the table 10 before continuing the voting. Such master ballots can be of various colors and be provided with correspondingly colored voter ballot cards.

Upon entering a voting booth, the voter places a ballot card 95 into the slot 21 of the matrix 20. After studying the master ballot, the voter can move the selector finger 62 to the desired aperture 92 in the master ballot adjacent to the candidate or issue for which the voter wishes to vote. Upon such selection, the spherical end 63 of the selector finger extends through the aperture 92 in the master ballot and into the circular depression 18 in the recess 17 of the table 10. Such manipulation causes the links 34, 45, 50 and 57 of the pantographic device 30 to swing the punch 70 over an aperture 24 in the matrix corresponding precisely to the position of the selector finger 62 on the master ballot. The voter then exerts a downward pressure on the press pad 86 of the punch against the spring 88 to cause the punching blade 84 to penetrate the ballot card 95. The punched portion

of the card gravitates downwardly through and is received in the collecting hole 27 in the table. The remaining candidates or issues are selected in an identical manner.

For "write-in" candidates, the voter registers the selector finger 62 with a specifically indicated aperture provided for such purpose on the master ballot and actuates the punch 70 to indicate such selection on the ballot card 95. Upon completing the ballot, the voter removes the punched card, records any "write-in" votes on the back thereof, and inserts it into the ballot box. After the precinct is closed, all the ballot cards are usually taken to a central counting hall where the ballot cards are quickly tabulated by an electronic punch card processing machine which automatically sorts the "write-in" ballot cards for manual counting.

In view of the foregoing, it is readily apparent that the structure of the present invention provides an improved voting machine capable of greatly accelerating election procedures. By utilizing punch cards as ballots, a larger number of candidates and issues can be included on a single ballot card than is conveniently possible on conventional sheet-type ballots. The possibility of error is virtually eliminated by the pantograph and matrix mechanism which precisely registers the voter's selection from the master ballot on the punch card ballot. After completion by the voter, the ballot card is inalterable. The ballot cards can be stored in a minimum of space and be easily retrieved for recounting and the like.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A voting mechanism comprising a support member having a master ballot constraining portion providing a plurality of reference locations thereon, a pantographic device having a register end connected in spaced relation to said master ballot constraining portion for relative planar movement and an extended selector end disposed above said master ballot constraining portion of the support member for selective alignment with said reference locations thereon, ballot card holding means having a plurality of registrations corresponding to said reference locations on the master ballot constraining portion of the support member and being rigidly mounted on the support member beneath said register end of the pantographic device in predetermined spaced relation to said master ballot constraining portion of the support member, and vote registering means mounted on the pantographic device above said ballot card holding means for alignment with the registration therein corresponding to the reference location on the master ballot constraining portion of the support member which is aligned with said selector end of the pantographic device.

2. A voting mechanism comprising a support member having a master ballot constraining portion providing a plurality of reference locations thereon, a pantographic device having a register end and an extended selector end, means pivotally connected to said pantographic device adjacent to said register end mounting the pantographic device in spaced elevated position on said support member for relative planar movement with said selector end thereof disposed above said master ballot constraining portion of the support member for alignment with a selected one of said reference locations thereon, ballot card holding means having a plurality of registrations corresponding to said reference locations on the master ballot constraining portion of the support member and being rigidly mounted on the support member beneath said register end portion of the pantographic device in predetermined spaced relation to said master

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ballot constraining portion of the support member, and selected vote indicating means mounted on the register end of the pantographic device above said ballot card holding means for alignment with the registration on the ballot card holding means corresponding to said selected one of said reference locations on the master ballot constraining portion of the support member which is aligned with said selector end of the pantographic device.

3. A voting mechanism comprising a table having a master ballot constraining portion providing a plurality of equally spaced reference locations thereon, a pantographic device having a register end and an extended selector end, means pivotally connected to said pantographic device adjacent to said register end portion mounting the pantographic device in spaced elevated position on said table for relative planar movement with said selector end thereof disposed above said master ballot constraining portion of the table for selective alignment with said reference locations thereon, ballot card holding means having a plurality of equally spaced registrations corresponding to said reference locations on the master ballot constraining portion of the table and being rigidly mounted on the table beneath said register end of the pantographic device in predetermined spaced relation to said master ballot constraining portion of the table, and punch means mounted on the pantographic device above said ballot card holding means for alignment with the registration therein corresponding to the reference location on said master ballot constraining portion of the table which is aligned with said selector end of the pantographic device.

4. A voting mechanism comprising a table having a recessed master ballot constraining portion providing a plurality of circular depressions therein; a pantographic device having a register end and an extended selector end; means pivotally connected to said register end mounting the pantographic device in spaced elevated position on the table with said extended selector end thereof being disposed above said recessed master ballot constraining portion of the table; selection means on the selector end of the pantographic device releasably receivable in the depressions of the master ballot constraining portion of the table; a ballot card holding member mounted on the table beneath said register end of said pantographic device in predetermined spaced relation to said recessed master ballot constraining portion of the table, said ballot card holding member having a plurality of apertures therein corresponding relation to the circular depressions of the recessed master ballot constraining portion of the table; and punch means mounted on the pantographic device adjacent to said register end thereof and above said ballot card holding member with said punch being registrable with said apertures in the ballot card holding member in corresponding relation to the positioning of

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the selector means in said depressions in the recessed master ballot constraining portion of the table.

5. A voting mechanism comprising a table having a substantially flat upper surface providing a substantially rectangular recessed portion therein including a plurality of rows of circular bores arranged in a substantially rectangular pattern in the recessed portion; a master ballot providing rows of apertures therethrough adapted to be received within said recessed portion of the table with its apertures in register with said bores in the table; a pedestal rigidly mounted on and extended from the upper surface of the table in spaced relation to said recessed portion thereof; a pantographic device having a plurality of links pivotally interconnected in parallelogram arrangement providing a register end pivotally connected to the pedestal in spaced substantially parallel relation to the upper surface of the table and an extended selector end; a selector finger mounted on said selector end of the pantographic device in depending relation therefrom and having a spherical end receivable within said bores in the table and an opposite handle end for manual planar movement of the links universally to position the selector finger throughout said recessed portion of the table; a substantially rectangular matrix mounted on said upper surface of the table in predetermined spaced relation to said recessed portion of the table and beneath said register end of the pantographic device, said matrix having an intermediate slot disposed in spaced substantially parallel relation to the upper surface of the table, said matrix including a plurality of rows of rectangular apertures in communication with said slot and arranged in a substantially rectangular pattern in corresponding relation to the arrangement of said circular bores in the recessed portion of the table at a predetermined reduced ratio; a ballot card adapted to be received within said intermediate slot of the matrix; and a punch mounted on the pantographic device at its register end in overlying relation to said matrix having an extensible substantially rectangular punching blade receivable through said apertures of the matrix and being manually manipulatable to punch said ballot card within the slot of the matrix corresponding to the placement of said selector of the pantographic device on the master ballot within the recessed portion of the table.

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