PATENTED MAR. 10, 1908.

D. L. NEWCOMB.

MECHANICAL BALLOT.

APPLICATION FILED MAY 23, 1904.

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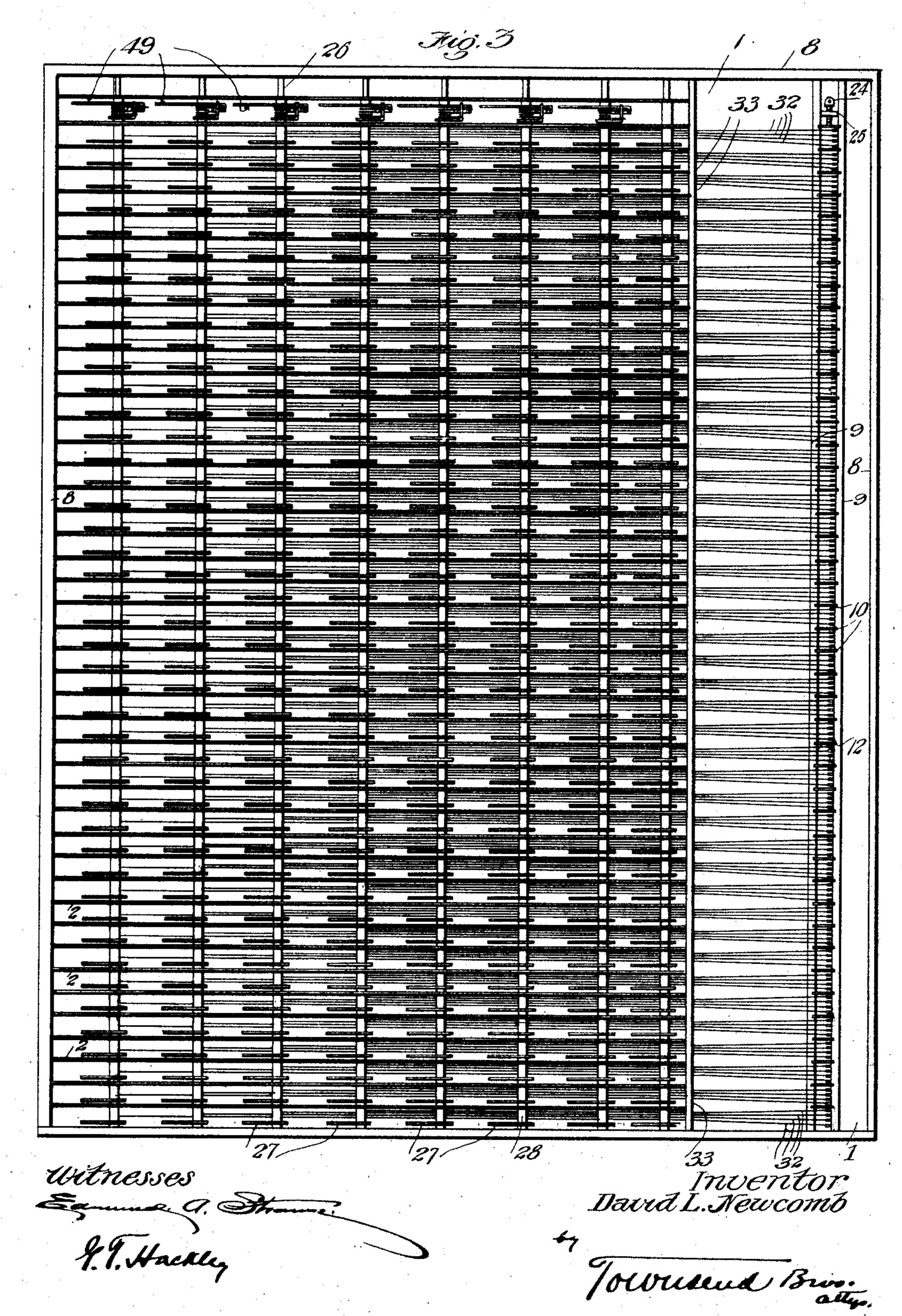
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D. L. NEWCOMB. MECHANICAL BALLOT. APPLICATION FILED MAY 23, 1904.

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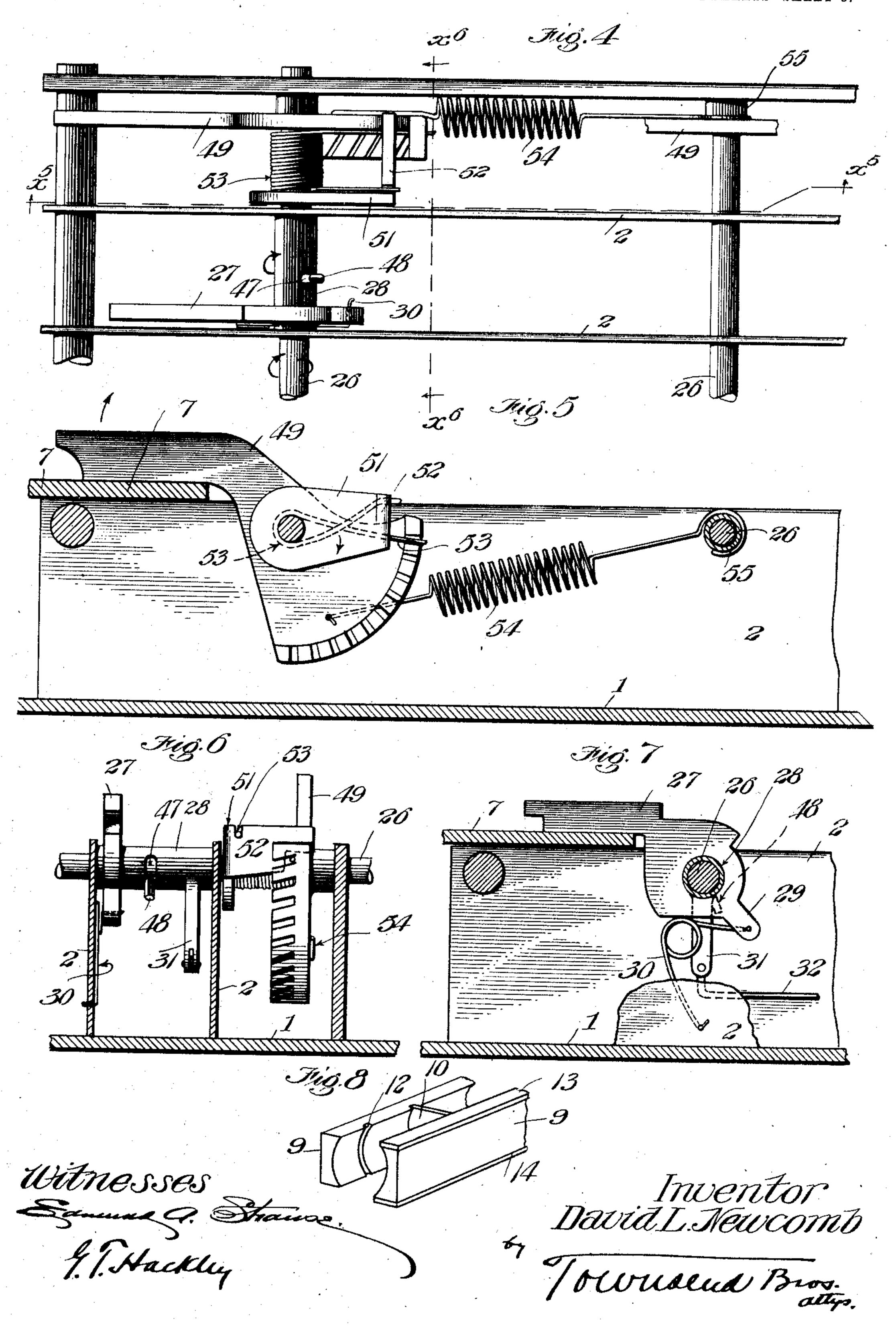


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4 SHEETS-SHEET 3.



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ECHANICAL BALLOT.

MECHANICAL BALLOT.

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4 SHEETS-SHEET 4. David L. Newcomb

UNITED STATES PATENT OFFICE.

DAVID L. NEWCOMB, OF SAN DIEGO, CALIFORNIA.

MECHANICAL BALLOT.

No. 881,821.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed May 23, 1904. Serial No. 209,231.

To all whom it may concern:

Be it known that I, DAVID L. NEWCOMB, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented a new and useful Mechanical Ballot, of which the following is a specification.

This in mantion.

This invention relates to a ballot which is portable and which is provided with movable members operated by the voter for indicating the choice of candidates, and which after being prepared by the voter is adapted to be placed in a suitable machine which registers the vote according as the ballot is prepared.

This ballot is similar in many respects to, and is designed to be an improvement on the ballot shown in my applications for patent Serial Number 111,561, filed June 13, 1902, and Serial Number 167,921, August 1, 1903, of which applications this is a continuation as to such features thereof as are shown herein.

One form of machine which is adapted to work with this ballot is shown in a former application of mine, filed June 17, 1903,

25 Serial Number 161,773.

One object of the invention is to provide a ballot of the character described with which it is possible to conform to the many requirements at present in vogue; which is light in weight, compact, strong, accurate, easily manipulated, and proof against fraudulent operation.

Another object of the invention is to provide a novel, convenient and efficient device by which a straight ticket for either of the political parties may be voted by the manipulation of a single movable member.

Another object is to provide a novel, simple and efficient means for voting "Yes" or 40 "No", as on constitutional amendments.

Another object is to provide a novel and efficient device for permitting the operation of either one of two movable members and preventing the simultaneous operation of both, whereby if one of the two movable members is shifted and the other movable member then shifted, the first will be automatically restored.

Another object is o provide simple and effective means (which may readily be set at the limit desired, previous to the voter's manipulation of the ballot) whereby a certain number of tappets in a definite block on the ballot may be freely erected, irrespective of sequence or position, for cumulative voting,

provision being made for segregating one or more sections of the ballot which it may be desired to vote cumulatively. When one or more sections of the ballot have been so set aside for cumulative voting, the remainder 60 of the ballot is still adapted for the regular segregative voting.

It may happen that two parties, or even more, will have the same candidate for a certain office, and another object is to provide 65 means whereby it is impossible for the voter to vote for the same candidate more than one

time.

The invention comprises a detached, portable, mechanical ballot having a plurality of 70 permanently attached tappets, the same being movable members in the form of pivoted levers movable into a position substantially at right angles to the ballot to indicate a choice of candidates, and extensible means 75 arranged in series for limiting the number of selections so made.

The accompanying drawings illustrate the invention and referring thereto:-Figure 1 is a plan view of the ballot with the tap- 80 pets depressed in the position they have before being raised by the voter; in the "Independent" column, one tappet has been shown raised and an "Independent ballot" is shown in position, being sustained by the 85 erected tappet, and in the "Constitutional amendments" column, two tappets have been shown as moved by the voter, one voting "Yes" and the other "No". Fig. 2 is a perspective of a raised tappet and a portion 90 of the top plate and illustrates the manner in which an "Independent ballot" is supported by the lower edge of a tappet when the tappet is erect. Fig. 3 is a plan view of the ballot with the top plate removed, and 95 gives a comprehensive view of the general arrangement and connections of the trackers which connect the tappets with the cams. Owing to the size of the view and smallness of the detail features of the cams and tap- 100 pets, these details have been omitted to prevent blurring of the lines. Fig. 4 is a detail plan view, enlarged, of the erector tappet and adjacent mechanism which is used in voting a straight ticket. Fig. 5 is a view, partly in 105 section, taken on line x5—x5, Fig. 4. Fig. 6 is a view, partly in section taken on line x⁶-x⁶, Fig. 4. Fig. 7 is a side elevation of an ordinary tappet and adjacent parts of a ballot. Fig. 8 is a perspective view, 110

on a somewhat smaller scale, of a portion of the divider supports. Fig. 9 is a plan view, enlarged, of eight cams and the adjacent dividers, divider supports, and cam 5 shaft. Fig. 10 is a view, partly in section, taken on line x10-x10, Fig. 9. Fig. 11 is a detail view, on a somewhat reduced scale, taken on line x11-x11, Fig. 9, and illustrates a divider turned into its grooves in the di-10 vider supports. Fig. 12 is a view similar to Fig. 11 showing the divider turned out of the grooves. Fig. 13 is a detail view in perspective of a cam. Fig. 14 is a perspective view of a modified form of tappet showing how the 15 same may be constructed of one piece of sheet metal. The tappet is shown in place on a shaft. Fig. 15 is a sectional view taken on line x¹⁵—x¹⁵ of Fig. 19, and illustrates the manner of attaching the top and bottom 20 plates of the ballot to the ribs. Fig. 16 is a perspective view in detail showing a part of one of the ribs. Fig. 17 is a perspective view in detail showing the form of tappet used in voting for constitutional amendments. Fig. 25 18 is a sectional view taken on line x18-x18, Fig. 17. Fig. 19 is a transverse, vertical, sectional view taken through the ballot showing only the right hand part of a ballot thus embracing but two tappets, both of which 30 are depressed, and illustrates in detail the connection between the tappets and their cams, and also the auxiliary device for alternative voting between two tappets. Fig. 20 is a view similar to Fig. 19, illustrating both 35 tappets raised and having turned their cams. Fig. 21 is a perspective of the form of tablet used for independent cumulative voting. The casing of the ballot comprises a bot-

tom plate 1; ribs 2 have notches 3 which re-40 ceive slotted posts 4 and the bottom 1 is detachably fastened to the posts 4 by screws 5. The upper edges of the ribs are flanged and provided with perforations 6, and a top plate 7 for the ballot may be permanently fas-45 tened to the ribs 2 by dropping solder through the perforations 6 in the ribs on to the top plate. The bottom plate, top plate and ribs are preferably formed of a thin, light and strong material, and by soldering the top 50 plate to the ribs in the manner mentioned, buckling and warping of the top plate is avoided. The edges of the ballot are closed by suitable side walls 8.

Extending along the right hand side of the 55 ballot a pair of walls 9 are provided which form supports for revoluble plates or dividers 10. In the present embodiment, 44 apart and pivotally mounted on a cam shaft 60 11. The inner faces of the divider supports 9 are concave and have grooves 12 which are adapted to receive the convex ends of the dividers 10, the ends of the dividers being curved concentrically with the cam shaft.

than the distance between the nearest edges of the divider walls, and the dividers 10 being revoluble on the cam shaft 11 are free to be moved longitudinally of the divider walls when they are turned into the position shown 70 in Fig. 12, while when a divider is turned on the cam shaft 11 so that its convex edges engage in the grooves in the divider walls, it is loc! ed against shifting along the cam shaft between the divider walls.

The dividers 11 are not turned by the voter, but are to be properly set for a given election by the proper official before the ballot is put in use, and as the dividers are housed within the casing of the ballot, they 80 cannot be altered by the voter. In order to hold the dividers from turning a pair of loc!-ing bars 13 and 14 are provided which lie respectively on the upper and lower edges of the outer divider wall 9, and the lower lock- 85 ing bar 14 may be fastened to the divider wall at suitable intervals by screws 15 which pass through slots 16 in the locking bar 14. The loc ing bars project slightly over the corners of the dividers and prevent the di- 90 viders from turning out of the grooves accidentally. By first removing the bottom 1 of the ballot from the ribs 4 and loosening the screws 15; the locking bar 14 may be shifted sidewise so as to disengage the lower corners 95 of the dividers so that as many of the dividers as desired may then be turned into the position shown in Fig. 12, after which the loching bar 14 is moved bach into its original position and the screws 15 tightened. When 100 this has been done the dividers which have been turned out of the grooves are free to move along the cam shaft, while those dividers which have not been turned out of the grooves are maintained in position by the 105 locking bars. This device is employed for cumulative and segregative voting, the former being arranged for by turning the dividers vertically so as to be slidable along the cam shaft, and the latter being provided for 110 by locking the dividers in the grooves. Thus the dividers may be so arranged that cumulative voting is possible on part of the ballot, while segregative voting may be done on the other part; or, by turning all of the dividers 115 into the grooves, segregative voting is alone possible over the entire ballot.

The cam shaft 11 extends from end to end of the ballot, and arranged in each space between the dividers are four pair of cams, each 120 pair comprising right and left cams 17 and 18, respectively. The opposing faces of the dividers are provided spaced equidistantly members of a pair of cams are provided with a pair of diametrically opposite, peripheral, segmental lugs 19 having tapered ends or 125 shoulders 20. The faces of the lugs 19 are parallel with the face of the cam, while the tapered shoulders 20 are rather abrupt, being preferably formed at an angle of thirty The width of the dividers 10 is slightly less | degrees from a perpendicular to the face of 130

the cam. Each cam is also provided with a peripheral, segmental notch or recess (see Fig. 13), one wall of which forms an abrupt inclined shoulder 22 similar to the shoulders 20 of the lugs 19. The cams 17 have upwardly projecting ears 22, while the cams 18 have downwardly projecting ears 23.

The construction of the two members forming a pair of cams is such that when the 10 two members lie closely together so that their broad flat faces are in contact, the lugs 19 of each cam lie in the recesses 21 of its mate. By turning either of the cams relative to its mate, the abrupt shoulders 20 and 15 22 make contact, and as the inclined shoulders rub over each other the cams are spread until the edges of the lugs 19 ride upon the flat faces of the opposite cam. By referring to Figs. 10, 13, 19 and 20, it will be observed that the length of the arc of the lugs 19 is less than the length of the arc of the notches 21, so that there is a certain amount of free motion between the two members before the spreading action takes place.

After one cam of a pair has been turned so that the lugs 19 rest upon the flat face of the other cam, by turning the other cam the abrupt shoulders 20 of both cams are brought into contact and continued further move-30 ment spreads the cams until the edges of the lugs 19 of each cam rest against each other. It will be observed that the movement of one cam which spreads the cams the first step, is performed between the shoul-35 ders 20 and 22, while the movement of the other cam which performs the next spreading step is effected by the contact between all of the shoulders 20, the shoulders 22 being effective only in the first step. It 40 should here be stated that this second step, i. e., contact between the shoulders 20 of both cams forming a pair, only takes place

when the ballot is arranged for cumulative

voting, and then only when both cams of a

45 pair are turned. In the ordinary segrega-

tive voting, the ballot is so set that only one cam of a group of eight cams can be turned. In the present embodiment I have arranged the distance between two dividers so 50 that when all of the cams are in normal, loose position, so that if they were squeezed together their flat faces would make contact. sufficient room is allowed for a spreading movement of the cams on the cam shaft 55 caused by the turning of one cam only. Thus, looking at Fig. 9, for example, if the uppermost cam is turned, the seven cams underneath it will be shifted sidewise along the cam shaft 11, and when the upper cam 30 has been turned completely into position so that its lugs 19 rest flatly against the flat faces of the cam 18, the lower cam of the group will rest tightly against the lower divider 10. It is then impossible to turn up 65 another cam of the group inasmuch as the

dividers prevent any further lateral shifting of the cams, the eight cams of the group completely filling the space between the two dividers. If, instead of turning the uppermost cam in Fig. 9, an intermediate cam had 70 been turned, then the cams on either side of this intermediate cam would have been shifted until the extreme outside cams rested against the confining dividers. When any cam of a group is turned to give the spread-75 ing effect, all the cams of the group will be displaced and will adjust themselves sidewise so that the space between the dividers is filled.

For cumulative voting, one or more of the dividers is turned so as to throw two or more groups of cams into series; it is preferred to utilize the upper portion of the ballot for cumulative voting, and in order to provide for any slight lost motion which might possibly so result from inaccurate construction or assembling of the ballot, a screw 24 having a capstan head and mounted in a standard 25, is provided at the upper end of the ballot between the divider walls. By adjusting this screw, the space in which the cams are free to spread may be contracted or expanded accordingly.

A series of tappet shafts 26 extend longitudinally of the ballot and pass through the 95 ribs 2, being supported thereby, and pivotally mounted on the tappet shafts 26 are tappets 27. Referring to Figs. 6, 7, and 14, each tappet has a sleeve or hub 28 which is mounted on the tappet shaft 26 and is held 100 from longitudinal movement by the ribs 2 against which the ends of the hub bear. Projecting from below the hub 28 is an ear 29 to which is attached one end of a spring 30, the other end of the spring 30 being inserted 105 in a hole in the rib 2.

In moving a tappet from its depressed position into its erect position it is moved through an angle of forty-five degrees, and the ear 29 is obviously rocked through the 110 same arc. Thus, when the tappet is depressed, as shown in Fig. 7, the tendency of the spring 30 is to press the ear 29 upward, which yieldingly maintains the tappet 27 in close contact with the top plate of the ballot 115 so that it will not be accidentally raised, while when the tappet is raised into its erect position, the ear 29 will stand an equal distance on the other side of a perpendicular line drawn through the tappet shaft 26, and the 120 upward pressure of the spring 30 acting against the ear 29 will serve to yieldingly hold the tappet in its erect position and prevent it from being accidentally depressed.

Obviously, in moving the tappet either 125 from its depressed position into its erect position, or in moving it from its erect into its depressed position, as soon as the ear 29 has been moved slightly to either side of this perpendicular line, the spring 30 will act to compendicular line, the spring 30 will act to com-

plete the movement of the tappet to either of the positions into which it has been started. Thus, if a voter is careless in raising his tappets and only moves a tappet part way 5 up, in all likelihood he will at least move it far enough so that the spring 30 will complete the movement. This insures that a tappet will either stand perfectly erect or perfectly depressed, as there is only one 10 point in its movement where the spring would not act upon it, which point is when the ear 29 is on a dead center.

Extending from the hub at substantially right angles to the line of the tappet is a tap-15 pet arm 31 to the end of which is pivotally attached one end of a tracker 32. The tracker 32 extends along between the ribs 2 and its other end is attached to an ear of its respective cam (see Figs. 19 and 20. also

20 Fig. 3)

There are in the present embodiment eight tappets in each horizontal row and each tappet in a row is connected to its respective cam in the alined space between the 25 dividers, as shown in Fig. 3. The tappet which lies nearest the cam shaft obviously will have the shortest tracker, while the tappet at the extreme left of the row will have the longest tracker, intermediate tappets 30 having trackers of a length corresponding to

their positions in the series. In order to concentrate the greatest number of cams in the smallest possible space, the cams are made in rights and lefts as ex-35 plained, and alternate tappets in a horizontal series connect with the top ears 22, while the other tappets in the series connect with the bottom ears 23 of the cams. Thus, the two trackers which are connected to the 40 two mates of a pair of cams, lie substantially in the same vertical plane when looked at from the top, as shown in Fig. 3, although, of course, there is some divergence in the trackers, but in Fig. 3 the lines have been 45 drawn to show only the top trackers, and it may be assumed that those trackers which are connected to the lower ears 23 lie directly under the trackers shown in Fig. 3. Thus, a tappet at the extreme left of the se-50 ries may be connected with its tracker to the upper ear 22 of the bottom cam in the series, as shown in Fig. 3; the tappet next to the right of this tappet may be connected by its tracker (which is concealed by the first-55 mentioned tracker) to the lower ear 23 of the mate of the first cam mentioned; the next tappet is connected by its tracker to the top

cam, and so on. In order to guide the trackers and prevent them from lateral displacement, a comb 33 is provided between the teeth of which the 65 trackers pass. The end of the tracker which

60 the next tappet to the top ear of the next

tappet to the bottom ear of the next cam;

connects with the tappet arm is slightly upturned, as shown in Figs. 19 and 20, so that when a tappet is erected, as shown in Fig. 20, the pivotal point of connection between the tracker and the tappet arm will lie some- 70 what above a horizontal line drawn through the pivotal axis of the tappet, so that a slight reaction is allowed for the tracker which will lock the tappet erect, and which will insure that any tensile strain on the 75 tracker which might occur through contact between the cams, will hold the tappet erect and not depress it, as might be the case if the pivotal point of connection lay directly in line with the pivotal point of the tappet, or 80 slightly below. When a tappet is raised by the voter, its tracker turns its connected cam and causes the cams in the associated series to spread and fill the space between the dividers. When the tappet is depressed, the 85 tracker 32 pushes the cam into its normal position and the associated cams in the series are relaxed. As the turning of one cam of a group spreads all the cams of that group so that they fill their space between 90 two dividers, it is obvious that only one tappet of the eight forming a horizontal row may be raised. Thus, the voter may erect only one tappet for a given office which lies under one of the seven political parties or 95 under the "Independent." He may raise the tappets for the different offices in any sequence and may depress all, or part only, of those raised, if he changes his mind, and may erect others in place of those he de- 100 pressed.

It sometimes happens that two or more parties will have the same candidate to be elected, and provision has to be made for preventing the voter from voting for the 105 same candidate twice. To this end I have provided a flexible connection 34 (see Figs. 19 and 20), which is at one end connected to the tappet plate, as shown, and which runs under a small sheave 35 and thence over a 110 rounded abutment or sheave 36 on the other tappet, the connection at its other end being attached to the bottom of the ballot. Sufficient slack is provided in the cable 34 so that only one of the two tappets may be erected, 115 and when one of the two tappets is erected the cable 34 will be taut, and it will be impossible to raise the other tappet; while if one of the two tappets has already been raised and the voter afterward raises the 129 other tappet (which may stand for the same man under another political party), the first ear of the third cam in the series; the next | tappet he may have erected will be restored to its depressed position through the tightening of the cable as the second tappet raises. 125 This device may only be applied to the ballot when necessary to provide for the contingency in which two parties nominate the same candidate.

Fig. 1 shows the appearance of the face 130

of the ballot. The names of the political parties are printed at the top, the ballot being divided into vertical columns, one column for each party, and a column each for 5 the "Independent" and "Constitutional amendment" votes. In each party column, a tappet is provided for each candidate of the party, and directly over the tappet may be printed the title of the office; for instance, 10 "For governor," and under the tappet may be printed the name of the candidate for that office.

In casting a vote for an independent candidate, the voter will write the name of the can-15 didate upon a slip of paper which he will preferably fold to conceal the name and then insert in a tablet 37, and he will place the tablet upon the face of the ballot in the "Independent" column upon the square which 20 contains the title of the desired office, and will erect the tappet in that square so that the heel of the tappet stands over the tablet and holds the tablet in place. In order to further hold the tablet in place, a series of 25 shallow grooves 38 are provided which receive slight ribs on the tablet 37, but which alone will not sustain the tablet in position, but will allow the tablet to fall when the tappet is depressed.

In the "Constitutional amendments" column is provided a simple device for voting "Yes" or "No" (see Figs. 17 and 18), which comprises a cap 39 which is fastened to the top plate 7 by a screw 40 and which 35 has a segmental opening 41. Pivoted to the screw 40 and resting flat upon the top plate 7 and projecting through the slot 41, is a special tappet 42 having a vertical finger 43. This special tappet may be formed of a single 40 piece of sheet metal, the finger 43 being struck up from the bottom plate of the tappet 42. A coil spring 44 is provided within the cap 39 and presses upon the top of the tappet plate 42 so that the tappet plate is 45 held frictionally in position against the top plate 7, and three depressions 45 are formed in the top plate 7 which are adapted to engage with a small knob 46 formed on the under side of the tappet plate 42 so that when 50 the tappet is turned toward the word "Yes," the knob 46 will engage in one of the depressions 45, and when the tappet is turned toward the word "No," the knob will engage in the extreme opposite depression 45; while 55 when the tappet stands midway between the two words "Yes" and "No," the knob will engage the intermediate depression 45; the thee depressions, together with the spring 44, serving to yieldingly hold the tappet in tappets, an erector tappet or straight ticket either of the three positions. In order to set tappet 49 is employed which is loosely mount- 125 the vote will be registered, it is necessary that the tappet be turned until the knob 46

sions 45. Thus, to vote "Yes", the voter turns the tappet toward the word "Yes". and for "No" toward the word "No". If he leaves it at the center no vote is made.

In voting a straight ticket means are pro- 70 vided whereby by erecting a single special tappet at the top of the desired party column all of the tappets in that column are simultaneously erected. If the voter desires to split his ticket after he has voted the party column 75 straight, he may depress such individual tappets as he desires which stand for candidates he does not wish to elect, and he may erect other tappets under other parties in horizontal rows which respectively correspond or so aline with the respective tappets which he has depressed from the straight ticket; he may erect only as many tappets outside the straight party column as he has depressed in the straight party column, and he can raise 85 only one tappet in each horizontal row.

If the voter has voted a straight ticket and has afterward depressed one or more tappets in that vertical column, and has raised certain tappets outside the column; and, if he 90 has afterward changed his mind and again wishes to erect those particular tappets which he has depressed, he may do so by first turning down the latest raised tappets.

Inasmuch as all of the tappets for a given 95 party are mounted on the same tappet shaft, it is obvious that with suitable means, by rocking this shaft all of the tappets on the shaft may be erected. This is accomplished by providing the hub 28 of each tappet with 100 a segmental slot 47 through which a pin 48, which is fixedly attached to the tappet shaft, projects.

The slot 47 permits of a movement of 45° of the tappet with respect to a given position 105 of the pin 48, and when the tappets are depressed the pin lies against the upper shoulder formed by the slot 47 so that if the shaft 26 be turned in the direction of the arrow (see Figs. 4 to 6), the pins 48 bearing against 110 the walls of the slots will rotate the hubs of all the tappets in the same direction and thereby erect all of the tappets. If, now, a single tappet be pushed back or depressed, the shoulder of the slot in the hub of the 115 tappet will bear against the respective pin and will turn the shaft 26 back as the tappet descends, but the other tappets on the shaft will stand erect as all of the pins on the shaft 26 sweep through the slots in the hubs of the 120 erect tappets, the individual springs 30 maintaining those tappets erect.

To rotate the shaft 26 to erect all of the the tappet finger 43 in the proper position so ed in the shaft 26, and which has a segmenthat when the ballot is placed in the machine tal notched plate 50. An operating arm 51 is rigidly attached to the shaft 26 and has a toe 52 which rests against the side of the cicks into either one of the outside depres-, segmental plate 50. A spring 53 is coiled 130

around the shaft 26, and one end rests against the toe 52 while its other end is engaged by one of the notches in the segmental plate 50, and the spring 53 tends to yieldingly hold 5 the toe 52 against the plate 50. By adjusting the end of the spring 53 in the notches,

its tension may be regulated.

One end of an extension spring 54 is connected to the plate 50 and the other end may 10 be connected to any stationary point such as a sleeve 55 loosely mounted on the next nearest shaft 26. Referring to Figs. 4, 5, and 6, when the erector tappet 49 is moved up in the direction of the arrow, through the me-15 dium of the spring 53 it causes the operating arm 51 to turn in the direction of the arrow, and as the operating arm 51 turns, the shaft

26 is turned with it, thereby raising all the tappets on that tappet shaft. The tension of the spring 54 is such that as soon as the voter lets go of the erector tappet 49 it immediately resumes its depressed position, being pulled back by the spring 54. and as it turns back it carries with it the arm 25 51 and the tappet shaft is thus also automatically turned back to normal position. Hence, the raising movement of the erector tappet causes the tappet shaft to be turned clock-wise by a resilient strain, while the 30 lowering movement of the erector tappet causes the tappet shaft to be turned counter-clock-wise positively. Thus, when either of the erector tappets is raised, its respective tappet shaft is turned, and the regular tap-35 pets on that particular tappet shaft are erected and held erect by their individual springs, while the erector tappet and tappet shaft turn back to original position. It is then impossible to raise any more tappets on 40 the ballot as the cams have been spread so that each group fills the allotted space between the dividers. If the ticket is then split, it is obvious that none of the depressed tappets in the straight ticket column can be

45 raised, either by the voter trying to raise them individually with his fingers, or by means of the erector tappet, for while he may readily raise the erector tappet, the only effect will be to stretch the spring 53, as the 50 tappet shaft is locked from turning by the depressed tappets in the straight ticket column, certain of the pins 48 on the tappet shaft being positively opposed by the end walls of the slots 47 in the depressed tappets.

55 This free action of the erector tappet thus foils the attempt to raise the depressed tappets and is a great check against tampering and obviates any unnatural strains and possible breakage from either ignorant or in-

60 tended misuse of the ballot.

In cumulative voting, as in voting for presidential electors, judges, supervisors, schoolboards or trustees, and the like, the ballot is set before being put in use, by turning

more groups of cams into one large group in which the cams are all associated in a single series, as many dividers, less one, being turned free as there are to be elected candidates. This will form a block of tappets op- 70 posite the series of associated cams in which tappets may be raised to the number limited by the allowed spreading space confining the associated cams. The names of the electors or other candidates are placed on the face of 75 the ballet next to the tappets as in segregative voting, but obviously, there may be more tappets in the block thus set aside than there are electors to receive the vote; in such event, only certain of the tappets will have so names of electors, while the rest will be left blank. In the block of tappets thus formed for cumulative voting, tappets may be raised promiscuously until the limit has been reached, at which time the cams in the series 85 have been spread so that they completely fill the allotted space between the two confining

dividers.

If there are some blank tappets on the block and a voter raises some of them, they 90 will not count, except in a negative way by reducing by just that many votes for electors which can only be secured by raising tappets which are named. For example, if there are thirty-six presidential electors to be elected, 95 thirty-five dividers are turned free, which in the ballot shown will place two hundred eighty-eight cams into series. As for each original group of eight cams sufficient space was allowed for the turning of one cam, so 100 now there is sufficient space to allow of turning thirty-six cams; therefore, thirty-six tappets may be raised. The tappets raised may be in a bunch or they may be scattered. If in the present case the first four horizontal 105 rows of tappets and four adjacent tappets in the next row below to complete the thirtysix, are raised, the first thirty-six cams at the top of the ballot will be turned, and as the tappets are raised one after another by the 110 voter, the spreading action is gradually transferred down through the entire two hundred eighty-eight cams, so that the raising of the last tappet will just fill the bottom gap in the series of cams. When a cam is turned its re- 115 sulting sidewise movement carries the end of its tracker slightly out of direct alinement with its other end, which obviously lengthens the tracker distance between the cam and tappet. While in segregative voting this 120 lateral movement of a tracker end is practically negligible, it has to be provided for in cumulative voting, especially in the case just mentioned in which the thirty-six cams at the end are turned, as the lateral movements 125 of the trackers gradually increase toward the lower cam, the resulting shortened tracker distance of the last lower tracker being appreciable. The free motion allowed between two 65 some of the dividers free to throw two or | mates of a pair of cams before their inclined 130 881,821

shoulders meet provide for this, so that as the tracker distance shortens the cams gradually turn their shoulders toward each other and sufficient free motion is allowed so that in the 5 case referred to the lower cam will sustain its necessary lateral movement and be allowed to turn the resulting requisite distance before its inclined shoulder makes contact with its. mate. This free motion also allows the cam 10 to accommodate the reactive movement of the tracker as its tappet end moves above the dead center as before described.

When in cumulative voting the voter desires to cast an independent vote for one or 15 more different persons whose names are not on the regular ballot, he writes the name or names on a slip of paper which he then inserts in a tablet 50, and he places the tablet 50 on the face of the ballot so that its ribs 20 engage in the grooves 38 in the top plate. He then erects as many tappets in the independent column as he has written names on the paper, raising one tappet opposite each name, and the heels of these tappets stand 25 over the edge of the tablet and sustain it in position, the grooves 38 alone being insufficient. Thus, for example, if there are eight trustees to be elected, eight horizontal rows of tappets on the ballot will be set aside 30 and the tablet 50 will be long enough to extend over the eight spaces or blocks in the independent column. It may be assumed that four of the trustees whose names are duly printed in the allotted spaces over the 35 tappets meet with the approval of the voter and he therefore raises their respective tappets; while the remaining four votes which he is permitted to make he desires to cast for other persons. He therefore writes these 40 four different names on a slip of paper which he folds and inserts in the tablet; he then places the tablet in position and raises four tappets in the independent row, irrespective of position in the row. He now has raised 45 the limit of eight tappets and can raise no

It is manifest that in constructing the ballot, as many party columns may be provided as desired, and the number of cams in a 50 group should be provided to correspond. Thus, for six party columns (in this sense used "party column" includes the "Independent" column), six cams may be employed; for ten party columns, ten cams, and 55 so on. As many tappets in a party column may be employed as there are offices to be

filled.

more.

After the tappets have been set by the voter, which is preferably done in secrecy, 60 the voter places a suitable cover over the ballot which hides the face and he hands it to the proper official who places the ballot in a suitable machine which registers the vote according to the setting of the tappets and in-65 cidentally, automatically restores the tap-

pets so that when the ballot is taken from the machine its appearance is normal, giving no clue, even to the official, of the vote.

The machine is constructed to stamp, print or mark the slips of paper on the tab- 70 lets in the "independent" column. In segregative voting, each slip of paper will have only one mark as the marking device in the machine is operated through the agency of the tappet which is raised over the tablet. 75 The mark applied to the paper authenticates the paper and should be of a character not easily counterfeited. In the cumulative independent voting there will be as many marks on the paper as there are tappets 80 erected in the independent column of the cumulative section. Thus, if the voter writes his four names and only pulls up three tappets, only three marks will be made and when the paper is examined in the count, 85 this will be noticed and the paper may be thrown out. If the voter writes his four names and pulls up five tappets over the tablet, five marks will appear, and while the election officials may count that vote, the 90 voter will have limited his ticket for the regular candidates by the superfluous tappet on the tablet.

The great advantage of the large tablet for independent cumulative voting over the use 95 of the smaller ones for individual tappets such as are used in segregative voting, is in the absolute check it affords against a voter's attempt to vote for the same person several. times on one ballot. Thus, if the small indi- 100 vidual tablets were used the voter could write the same name on each one, and in the count this duplication might not be observed even though the marking character was produced by a consecutive numbering device 105 which produced a different numeral for each ballot; while though numerals could be used and detection would thereby be possible by comparing the papers having the same numeral and noting the duplicated name on the 110 papers of that numeral, such comparison would consume too much time; as to be of value, the comparison must be accurate and every paper cast in the independent vote must be compared. But with the large tab- 115 let, all of the names which the voter can write for his independent choice, appear on one paper and in compact order, so that if he has duplicated a name, detection is positive in the count. The ballot is then ready 120 for another voter. As the preparation of a ballot by a voter, on the average, takes several times longer the time consumed when the ballot is in the machine, by supplying several voters each with a ballot, voting is 125 greatly facilitated and is carried on with apparatus costing very much less than in that style of machine using no ballot, in which only one voter can vote at a time.

What I claim is:—

1. A top plate, a plurality of tappets adapted to be raised perpendicular thereto; an erector tappet, and means operated by the erector tappet for raising the tappets.

5 2. A top plate, a plurality of tappets adapted to be raised perpendicular thereto, an erector tappet, and means operated by the erector tappet for raising several tappets si-

multaneously.

3. A top plate, a plurality of movable members adapted to be raised perpendicular thereto, a special movable member, and means operated by the special member for changing the relative positions of several of 15 the movable members.

4. A top plate, a plurality of tappets adapted to be raised perpendicular thereto arranged in party columns, erector tappets for the columns and means operated by an 20 erector tappet for raising the tappets in its

respective column.

5. A top plate, a plurality of tappets adapted to be raised perpendicular thereto arranged in columns, erector tappets for the 25 columns, means operated by an erector tappet for raising the tappets in its respective column and locking tappets outside that column.

6. A top plate, a plurality of tappets adapted to be raised perpendicular thereto, 30 an erector tappet, means operated by the erector tappet for raising the tappets, and means for lowering the erector tappet.

7. A top plate, a plurality of tappets adapted to be raised perpendicular thereto, 35 an erector tappet, means operated by the erector tappet for raising the tappets, means for yieldingly holding the tappets erect when so placed, and means for restoring the erector tappet.

8. A shaft, a plurality of tappets pivoted thereon, means for limiting the turning of the tappets respectively to the shaft, and an erector tappet for turning the shaft and raising the tappets, the limited movement of the 45 tappets enabling one or more tappets to be individually depressed when the others are raised, or to be individually raised when the

others are depressed; if desired.

9. A shaft, a plurality of tappets pivoted 50 thereon, means for limiting the turning of the tappets on the shaft, and an erector tappet resiliently connected with the shaft for turning the shaft and raising the tappets.

10. A shaft, a plurality of tappets pivoted 55 thereon, means for limiting the turning of the tappets on the shaft, an erector tappet pivoted on the shaft, an arm on the shaft, and a spring between the arm and the erector tappet.

60 11. A shaft, a plurality of tappets pivoted thereon, pins on the shaft for the respective tappets and adapted to bear against shoulders on the hubs of the tappets, an erector tappet pivoted to the shaft, an arm on the

65 shaft engaging the erector tappet, means for

resiliently holding the erector tappet against the arm, and a spring for depressing the

erector tappet.

12. A plurality of pivoted tappets, supporting means, individual springs connected 70 to the tappets and to the supporting means, one end of a spring being attached to the supporting means on a median line with the axis of a tappet, the other end of the spring being attached to the tappet at a point which 75 is on the median line when the tappet is in an intermediate position.

13. A shaft, a plurality of tappets pivoted thereon, means for limiting the turning of the tappets on the shaft, a pivoted erector 80 tappet, an arm on the shaft, the erector tappet having a series of notches, and a spring connected to the arm and engaging

in one of the notches.

14. A plurality of tappets arranged in 35 rows, means for locking a definite number of promiscuous tappets in a row, erector tappets, and means operated by an erector tappet for raising a definite tappet in each row.

15. A top plate, a plurality of tappets ar- 90 ranged in a column on the top plate, an erector tappet, means operated by the erector tappet for raising the tappets in the column, in combination with a tablet adapted to stand under the heel of the tappet.

16. A top plate, a plurality of tappets arranged in a column on the top plate, an erector tappet, means operated by the erector tappet for raising the tappets in the column, in combination with a tablet adapted to stand 100 under the heel of the tappet, a rib on the tablet, the top plate having grooves adapted to receive the rib.

17. A top plate, a plurality of tappets arranged in a column on the top plate, the top 105 plate having grooves adjacent the tappets, in combination with a separate tablet adapted to stand under the heel of a tappet, and ribs on the tablet for engaging in the grooves.

18. A detached mechanical ballot com- 110 prising a top plate, a special tappet pivoted: to swing in the plane of the top plate, a symbol on the top plate at one side of a median line through the axis of the tappet, and another symbol on the other side of the me- 115 dian line, other tappets of the character set forth, and interlocking mechanism for said tappets.

19. A top plate, a cap thereon, a special tappet projecting from under the cap, a 120 screw passing through the cap and tappet into the top plate, and a spring between the

cap and tappet.

20. A top plate, a cap thereon, a special tappet projecting from under the cap, a 125 screw passing through the cap and tappet into the top plate, a spring between the cap and tappet, the top plate having a plurality of depressions, and a projection on the tappet adapted to engage in the depressions.

21. A plurality of tappets, an erector tap- | plates and suitable side walls, tappet shafts pet, and a shaft rotated by the erector tap-

pet for raising the other tappets.

22. A plurality of tappets mounted on a 5 shaft and adapted to be moved by rotation of said shaft, an erector tappet mounted loosely on said shaft, and a yielding connection between said erector tappet and said shaft.

10 23. A shaft provided with an arm fixed thereto, a plurality of tappets mounted on said shaft to be moved thereby, an erector tappet loosely mounted on said shaft, and a spring connecting said erector tappet with 15 said arm.

24. A plurality of tappet shafts, tappets pivoted to the shafts, a cam shaft, cams on the shaft, trackers connecting the tappets and cams, and means for segregating the 20 cams into groups and for limiting the spreading of the cams into groups for turning the

groups.

25. A plurality of tappet shafts, tappets pivoted to the shafts, a cam shaft, cams on 25 the shaft, trackers connecting the tappets and cams, means for limiting the spreading of the cams, and a comb for guiding the trackers.

26. A plurality of tappet shafts, tappets 30 pivoted to the shafts, means for raising the tappets through the medium of the tappet shafts, erector tappets for the respective tappet shafts, means connecting the erector tappets with their respective shafts for turning a 35 shaft when its erector is actuated, a cam shaft, cams on the shaft, trackers connecting the tappets and cams, and means for limiting the spreading of the cams.

27. A plurality of tappet shafts, tappets 40 on the shafts, the respective tappets on one shaft alining with the respective tappets on the other shafts thus forming cross rows of tappets, revoluble cams, means for segregating groups of the cams and limiting the

45 spreading of the cams in a group, and trackers connecting the respective tappets in a

cross row with the cams in a group.

28. A plurality of tappet shafts, tappets on the shafts, the respective tappets on one 50 shaft alining with the respective tappets on the other shafts thus forming cross rows of tappets, revoluble cams, means for segregating groups of the cams and limiting the spreading of the cams in a group or for merg-55 ing groups into a related series, and trackers connecting the respective tappets in a cross

row with the cams in a group.

29. A ballot comprising top and bottom plates and suitable side walls, tappet shafts for limiting the spreading of the devices in 60 between the plates, tappets on the shafts projecting through the top plate, ribs permanently attached to the top plate, and means for detachably attaching the bottom plate to the ribs.

65 30. A ballot comprising top and bottom

between the plates, tappets on the shafts projecting through the top plate, the ribs comprising notched strips, posts fastened to the strips in the notches, and screws passing 70 through the bottom plate into the posts.

31. A detached, portable ballot comprising a plurality of tappets, an erector tappet, and means operated by the erector tappet for raising the tappets.

32. A detached, portable ballot comprising a plurality of tappets, an erector tappet, and means operated by the erector tappet

for raising several tappets simultaneously. 33. A detached, portable ballot compris- 80 ing a plurality of movable members, a special movable member, and means operated by the special member for changing the relative positions of several of the movable members.

34. A detached, portable ballot compris- 25 ing a plurality of tappets arranged in party columns, erector tappets for the columns, and means operated by an erector tappet for raising the tappets in its respective column.

35. A detached, portable ballot comprising a plurality of tappets arranged in columns, erector tappets for the columns, means operated by an erector tappet for raising the tappets in its respective column and locking tap- 95 pets outside that column.

36. A detached, portable ballot comprising a plurality of tappets, an erector tappet, means operated by the erector tappet for raising the tappets, and means for lowering the 100

erector tappet.

37. A detached, portable ballot comprising a plurality of tappets, an erector tappet, means operated by the erector tappet for raising the tappets, means for yieldingly holding 105 the tappets erect when so placed, and means for restoring the erector tappet.

38. A detached, portable ballot comprising a top plate, a special tappet pivoted to swing in the plane of the top plate, a symbol 110 on the top plate at one side of a median line through the axis of the tappet, and another symbol on the other side of the median line.

39. A detached, portable ballot comprising a plurality of tappets, a plurality of cams, 115 connections from the tappets to the cams, and adjustable means for limiting the spreading of the cams.

40. A detached, portable ballot comprising a plurality of tappets, a plurality of 120 spreading devices, connections from the tappets to the spreading devices, means for segregating groups of spreading devices and the groups.

41. A mechanical ballot provided with pivoted levers, said levers being movable into a position substantially at right angles to the ballot to indicate a choice of candidates.

42. A mechanical ballot provided with 130

spring-pressed movable members for indi-

cating a choice of candidates.

43. A mechanical ballot provided with permanently-attached movable members for indicating a choice of candidates, and means for limiting the number of selections so made.

44. A mechanical ballot provided with permanently-attached movable members for indicating a choice of candidates, and extensible means for limiting the number of selections so made.

45. A mechanical ballot provided with permanently-attached movable members for indicating a choice of candidates, and extensible means arranged in series for limiting the

selections so made.

46. A mechanical ballot provided with movable members for indicating a choice of candidates, and means for operating a plurality of said movable members simultaneously.

47. A mechanical ballot comprising a casing, tappets pivoted thereto, and means for operating a plurality of said tappets simul-

taneously.

48. A mechanical ballot comprising a cas-

ing, tappets pivoted thereto, and a tappet erector pivoted to the casing for actuating a plurality of said tappets.

49. A mechanical ballot comprising a casing, tappets pivoted thereto, and a tappet erector comprising a plate hinged to the

casing.

50. A mechanical ballot comprising a cas- 35 ing, tappets pivoted thereto, a series of cams, means connecting said cams with said tappets, and means for limiting the aggregate spreading apart of said cams.

51. A mechanical ballot comprising a cas- 40 ing, tappets pivoted thereto, a series of cams connected to said tappets, slidable cams intermediate the first-named cams, and means for limiting the over all spread of said cams.

In testimony whereof I have hereunto 45 signed my name in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles, and State of California, this 14th day of May, 1904.

DAVID L. NEWCOMB.

Witnesses:

GEORGE T. HACKLEY, JULIA TOWNSEND.