Jan. 14, 1930. M. J. TRACY ET AL 1,743,294

INDICATING DEVICE

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Fig. 2.

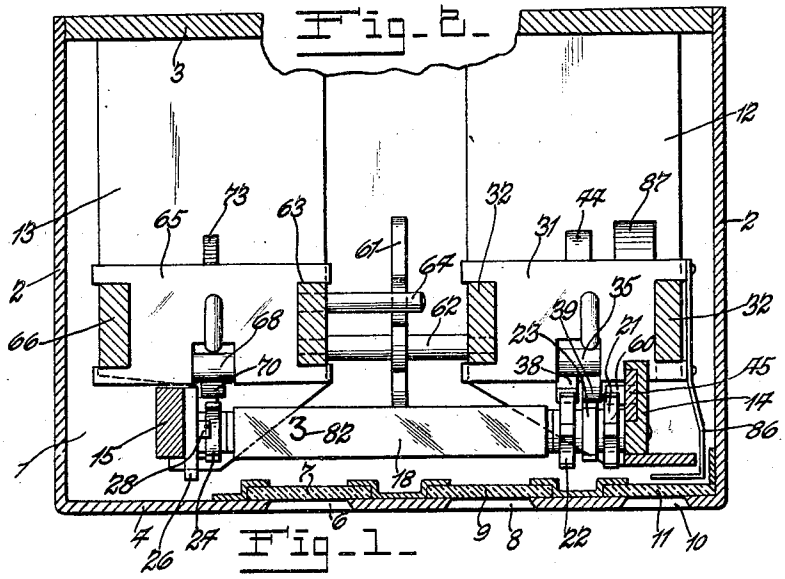
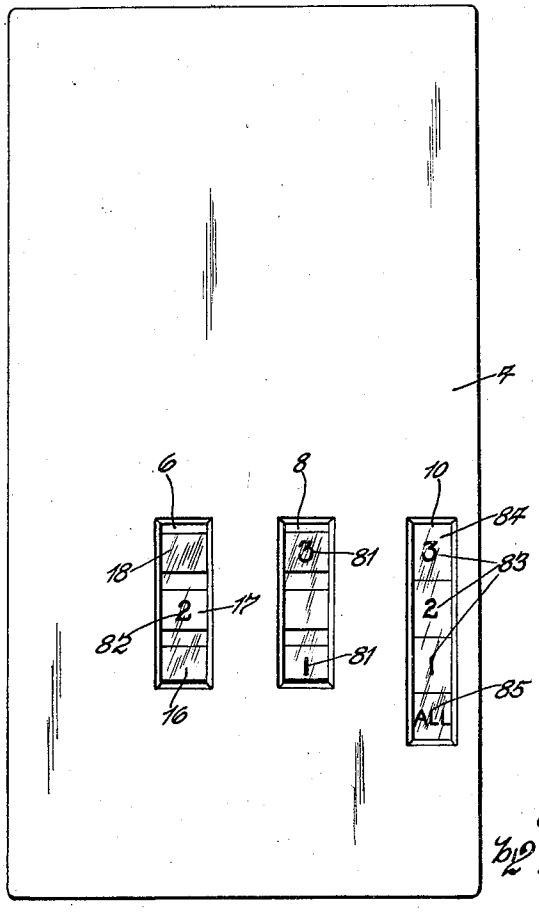


Fig. 1.



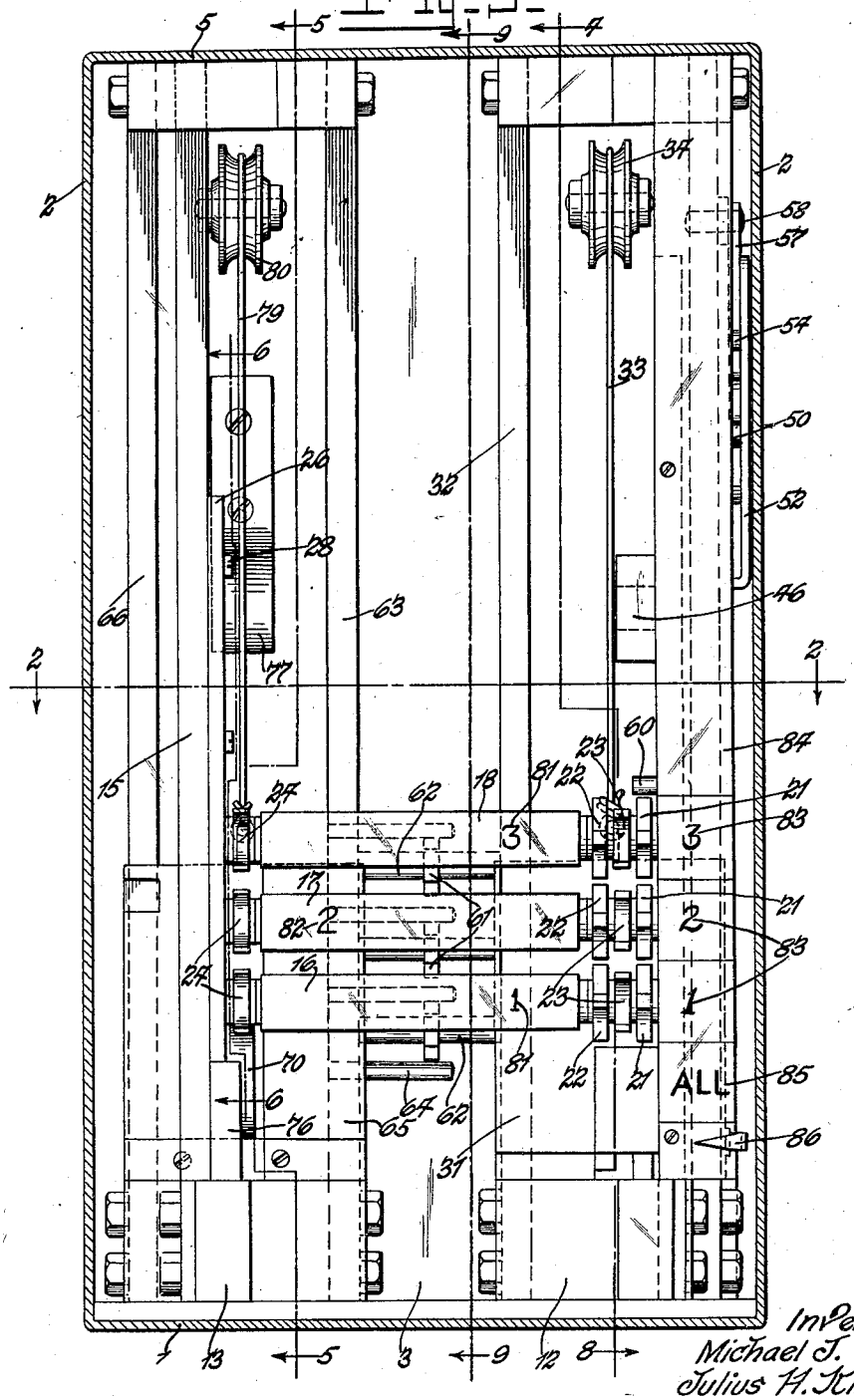
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INDICATING DEVICE

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Fig. 3.



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INDICATING DEVICE

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Fig. 4.

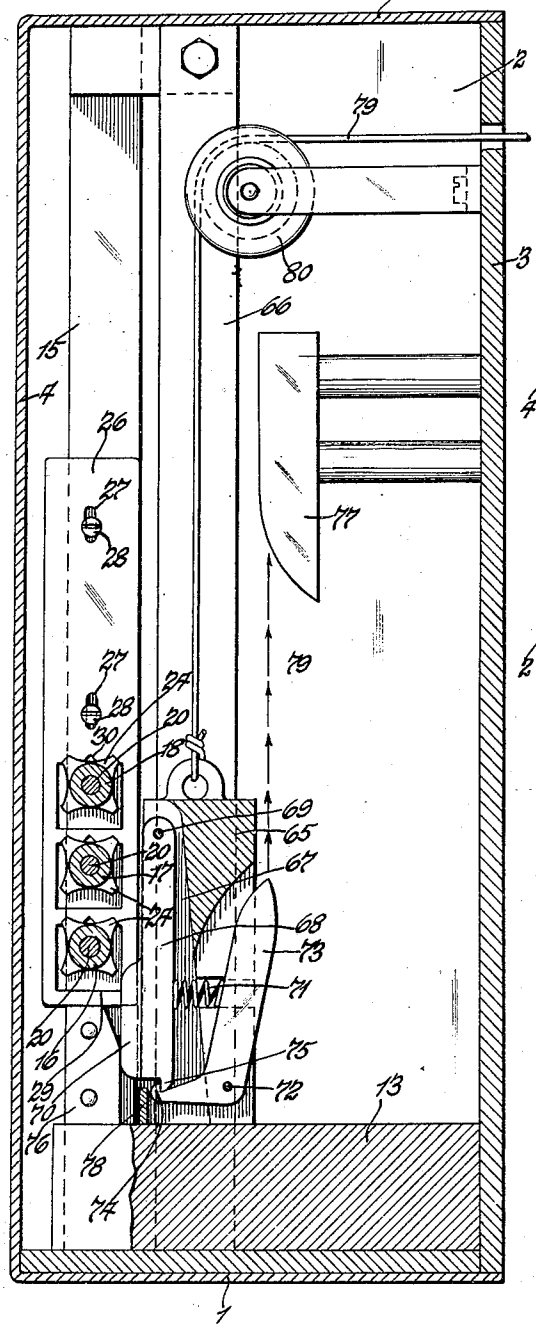


Fig. 5.

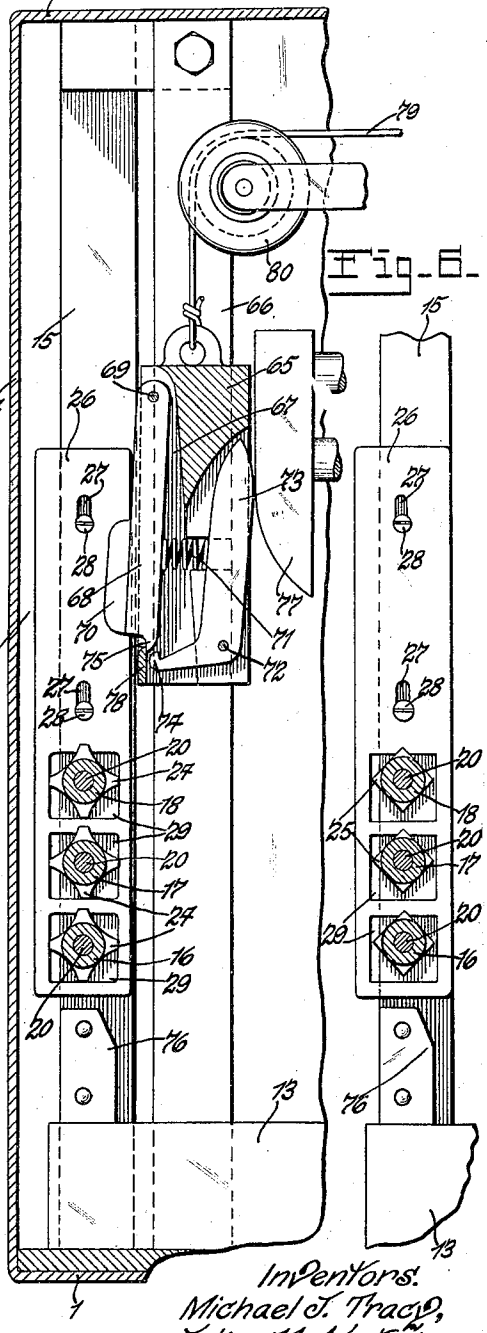


Fig. 6.

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INDICATING DEVICE

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Fig. 7.

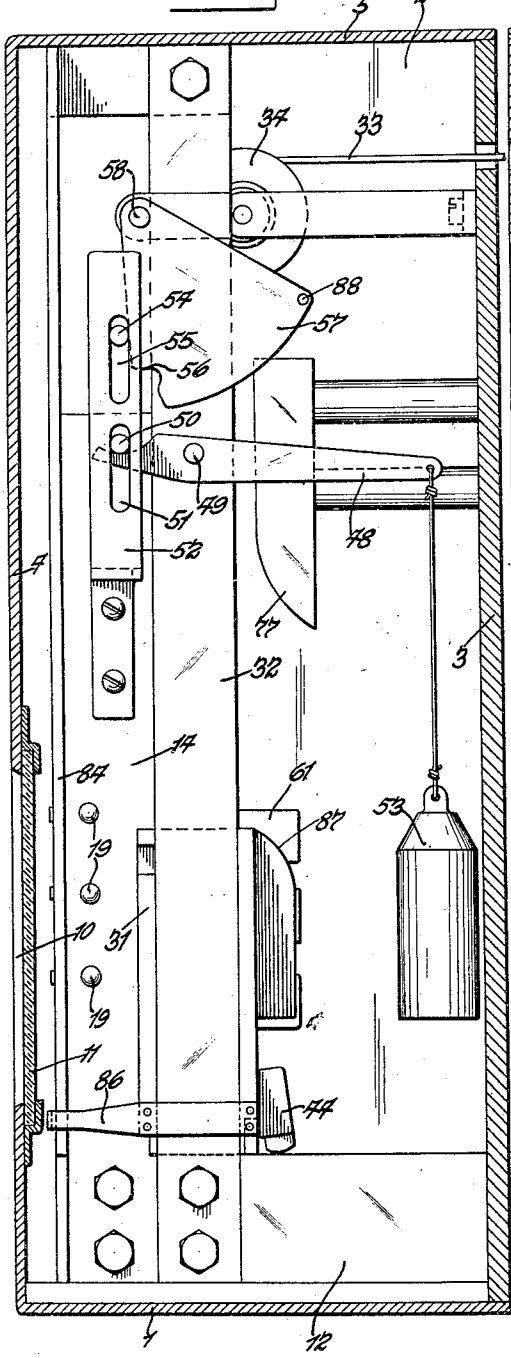
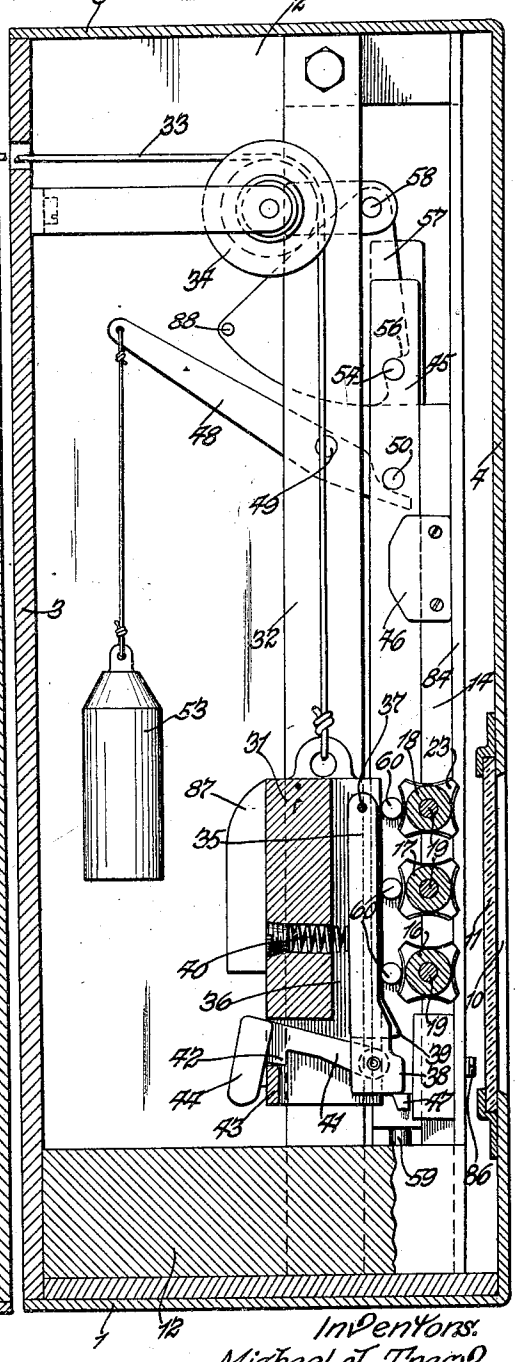


Fig. 8.



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INDICATING DEVICE

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Fig. 9.

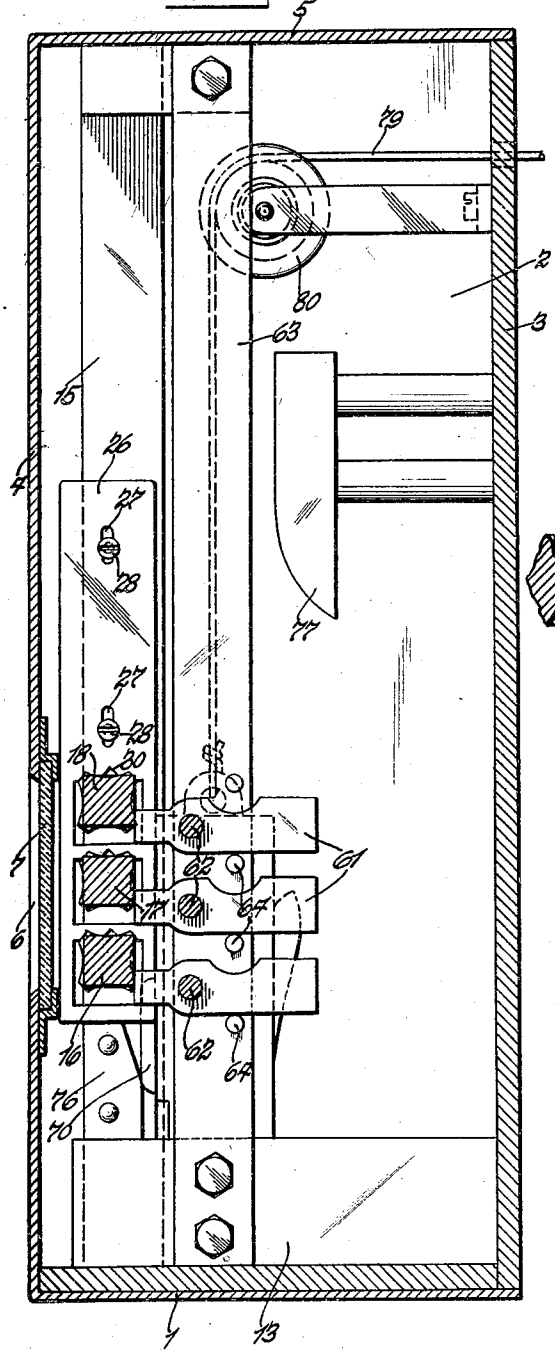


Fig. 10.

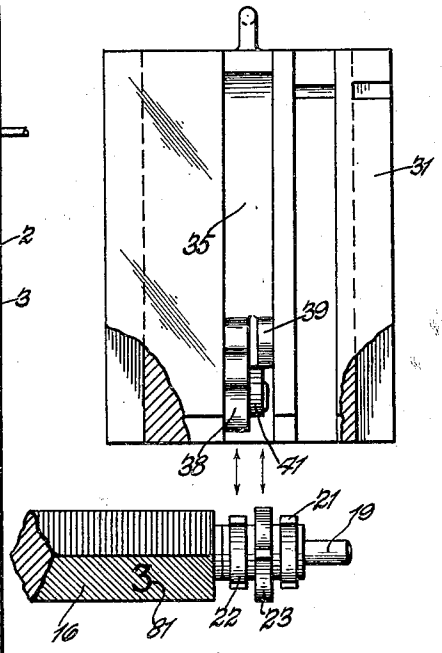
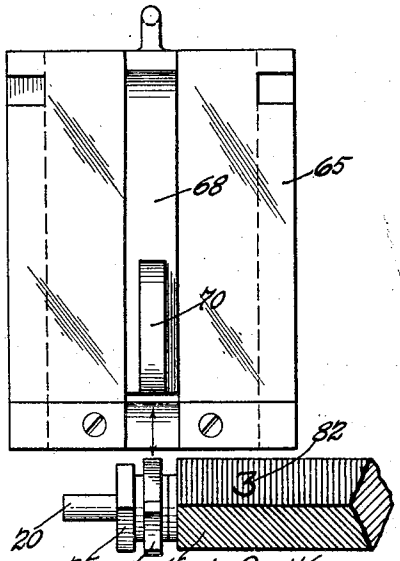


Fig. 11.



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Patented Jan. 14, 1930 1,743,294

UNITED STATES PATENT OFFICE

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INDICATING DEVICE

Application filed July 1, 1929. Serial No. 374,998.

This invention relates to indicating devices, and a general object is to provide a series of devices movable to and from set positions to indicate which of a series of parts are in adjusted positions. Thus, the present invention is designed and adapted for use to indicate which doors or slides or other parts of any equipment have been opened.

Another object of the invention is to provide connections for setting and operating the indicating devices automatically and as an incident to the selection and operation of the doors or drawers or other parts of equipment so that the operator by observing the indicating devices of the present invention is kept constantly informed which of the doors, drawers or other equipment parts are out of their closed or normal positions.

Other objects will appear from the following description, taken in connection with the accompanying drawings in which

Fig. 1 is a front elevation of one embodiment of the present invention.

Fig. 2 is a cross sectional view approximately on the line 2—2 of Fig. 3.

Fig. 3 is a front elevation of the mechanism of the present invention, the walls of the base being shown in section.

Fig. 4 is a vertical sectional view approximately on the line 4—8 of Fig. 3 looking in the direction of the arrow at 4.

Fig. 5 is a vertical sectional view approximately on the line 5—5 of Fig. 3.

Fig. 6 is a vertical sectional view approximately on the line 6—6 of Fig. 3.

Fig. 7 is a right hand side elevation of the mechanism, the case being shown in section.

Fig. 8 is a vertical sectional view approximately on the line 4—8 of Fig. 3 looking in the direction of the arrow at 8.

Fig. 9 is a vertical sectional view approximately on the line 9—9 of Fig. 3.

Fig. 10 is a front elevation of one of the selecting devices or carriages for selecting and setting the indicating devices.

Fig. 11 is a front elevation of the restoring carriage that restores or resets in their starting positions the selecting devices.

The mechanism constituting the present invention is mounted within a cabinet or case comprising a bottom wall 1, two upright side walls 2, a rear wall 3, a front wall 4, and a top wall 5. The front wall 4 has a sight opening 6 provided with a transparent window 7 and also has a sight opening 8 provided with a transparent window 9 and a sight opening 10 provided with a transparent window 11. Through the sight opening 6 designations of the doors or drawers or other equipment that have been operated are displayed. Through the sight opening 8 designations of the indicating devices that are in their starting or initial positions are displayed so that it may readily be observed which of the indicating devices have or have not been operated. Through the sight opening 10 designations of the indicating devices are displayed as a guide for the operator in opening any designated door or drawer or moving any other corresponding part.

Upon the bottom wall 1 two blocks 12 and 13 are rigidly secured. The lower end of a vertical bar 14 is attached to the block 12 and the lower end of a vertical bar 15 is attached to the bar 13. A number of rotary indicating devices are supported by the bars 14 and 15. In the embodiment shown there are three such indicating devices 16, 17 and 18, though it is apparent that the number of these indicating devices may be varied as desired and without departure from the principle of the invention. Each of these indicating devices is approximately square or rectangular in cross section and said indicating devices have on their opposite ends cylindrical axial extensions 19 and 20 journaled for rotation in appropriate bearing holes in the bars 14 and 15, respectively. The axial extension 19 of each indicating device has attached thereto three gears or ratchet devices of which the gear or ratchet device 21 is adjacent to the standard 14, the gear or ratchet device 22 is adjacent to the end of the indicating device, and the gear or ratchet device 23 is between the parts 21 and 22. Each of these gears or ratchet devices has four teeth, the teeth of the gears or ratchet devices 21 and 22 being in the same plane and parallel with each other and projecting beyond the planes of the flat sides of the

respective indicating devices 16, 17 and 18; while the four teeth of the gear or ratchet device 23 project in the planes of the corners of the indicating devices 16, 17 and 18.

The axial trunnions 20 of each of the indicating devices has attached thereto a gear or ratchet device 24 having four teeth projecting across the planes of the corners of the indicating devices the same as do the teeth of the gear or ratchet device 23. On each axial trunnion 20 between the toothed member 24 and the standard 15 an equilateral four-sided element 25 is secured (Figs. 6 and 11). The corners of the member 25 are in the same planes as the corners of the respective indicating devices 16, 17 and 18. A latch plate 26 has therein vertical slots 27 through which pass screws 28 into the standard 15. In this way the latch plate 26 is supported for vertical sliding movements. Said latch plate has therein holes 29 in which the respective members 25 are located. The upper wall of each of the holes 29 has therein a notch 30 designed and adapted to receive and engage with the corners of the members 25 when any of the corners of said members 25 are extended vertically. Obviously when any of the corners of the members 25 are extended vertically one of the corners of the corresponding indicating devices 16, 17 and 18 is extended forwardly. This gravity actuated latch plate 26 is arranged thus to engage with the members 25 so as to prevent the indicating devices from being thrown or turned beyond their intended positions and to hold the indicating devices in their intended positions intermediate of the starting positions of said indicating devices and the indicating positions thereof.

A carriage 31 is mounted for vertical sliding movements between two upright guide bars or rails 32 and has attached thereto a cord or cable 33 extending over a sheave 34 in the top of the case or cabinet and constituting means for raising and lowering the carriage 31.

An arm 35 is mounted in a vertical slot 36 in the front of the carriage 31. The upper end of this arm 35 is supported by a pivot 37. At its lower end the arm 35 has a forwardly extended shoulder 38 which is in the plane of the toothed ratchet members 22. Laterally from and above the shoulder 38 the arm 35 has a shoulder 39 which is in the plane of the toothed ratchet elements 23 (Fig. 2). A spring 40 mounted in the carriage 31 actuates the lower end of the arm 35 toward the front. A latch arm 41 has its front end pivoted to the arm 35 and its rear portion formed with a shoulder 42 arranged to engage behind a bar 43 in the carriage 31 so as to hold the lower end of the arm 35 retracted in opposition to the bore of the spring 40. In Fig. 8 the shoulder 42 is shown disengaged from the bar 43 so that the arm 35 is held in its forward position by the spring 40. An arm 44 depending from the rear end of the latch 41 engages against the bar 43 and limits extent of movement of the arm 35 by the spring 40.

A slide 45 is supported in a groove in the bar 14 (Fig. 2), being held in said groove by a cam block 46 (Fig. 8). This slide 45 is capable of vertical movement and has on its lower end a projection 47 extending inwardly so as to be engaged by the shoulder 38 in certain operations of the device. The slide 45 is held in its raised position by a lever 48 mounted on a pivot 49 in connection with the outer bar or rail 32. A pin 50 projects from the slide 45 through a slot in the upper end of the standard 14 corresponding to a slot 51 in a bracket 52 which is attached to said standard 14. The bracket 52 is attached to the standard 14 and the pin 50 projects also into the slot 51. An actuator for the lever 48 is provided, that shown comprising a weight 53 suspended from the rear end of the arm 48. The slide 45 has another pin 54 projecting therefrom into a slot 55 in the upper end of the bracket 52 which is above the upper end of the standard 14. When the slide 45 is moved to its lowest position the pin 54 is engaged by a shoulder 56 formed on a latch member 57 supported on a pivot 58. In Fig. 7 the parts are in the position they occupy while the slide 45 is in its raised position and in Fig. 8 said slide 45 is in its depressed position. An abutment 59 (Fig. 8) limits extent of downward movement of the slide 45. By reference to Fig. 2 it will be noted that the shoulders 38 and 39 will not engage the toothed ratchet member 21 when the carriage 31 is moved vertically but that the shoulders 38 and 39 engage the toothed ratchet members 22 and 23, respectively. This is because the toothed ratchet members 21 are beyond the arm 35 so that said ratchet members 21 cannot be engaged by said shoulder 38 or 39. The ratchet members 21 are locking ratchets and in a depressed position of the slide 45 are engaged by pins 60 projecting inwardly from said slide 45. But when the slide 45 is in its raised position the pins 60 are above the ratchet members 21 leaving said members free to turn.

When this indicating device is in its normal or clear position, as when all of the indicating devices 16, 17, 18, etc., are in their starting positions, the slide 45 is held in its uppermost position by the lever 48 and the actuator 53, as in Fig. 7. When the slide 45 is in its uppermost position the projection 47 is above the shoulder 39, the carriage 31 is seated on the block 12, the lower end of the arm 44 contacts with the block 12 and supports the shoulder 42 above the part 43, and the spring 40 holds the arm 35 in its forward position. When the carriage 31 is raised the

shoulders 39 and 38 rub against the projection 47 and push the lower end of the arm 35 inwardly in opposition to the spring 40 but do not push said arm inwardly to an extent to engage the shoulder 42 behind the part 43. During this upward movement of the carriage 31 the shoulder 39 will only lightly contact with the ratchet members 23 because none of the teeth of said ratchet members 23 projects toward the rear. This is because the teeth of the ratchet members 23 are in longitudinal alinement with the corners of the respective indicating devices 16, 17, 18, etc. However, the teeth of the ratchet devices 22 are in alinement with the plane sides of the respective indicating devices 16, 17, 18, etc., so that the shoulder 38 which is opposite the ratchet devices 22 contacts with the rearwardly projecting teeth of said ratchet devices 22 and is thereby caused to escape by pressing the lower end of the arm 35 toward the rear but not to a sufficient extent to engage the shoulder 42 with the part 43. At about the limit of the upward extent of movement of the carriage 31 the shoulder 39 is engaged by the cam 46. The arm 35 is thereby pressed inwardly to a sufficient extent to engage the shoulder 42 behind the part 43 so as to permit the carriage 31 to move downwardly without engaging the shoulders 39 with the ratchet members 23 and also without engaging the shoulder 38 with the ratchet members 22 or with the projection 47. During the upward movement of the carriage 31 the indicating devices 16, 17, 18, etc., are held from being turned by the shoulder 38 operating against the teeth of the ratchet devices 22 as described by pivoted abutments 61 mounted on pivots 62 supported by the standard 32 and a corresponding standard 63 (Fig. 2). For, during upward movement of the carriage 31, the tendency of the tooth 38 is to turn the indicating devices 16, 17, 18, etc., in a counterclockwise direction as said indicating devices are shown in Fig. 9. And the ends of the abutments 61 are in close contact with the lower portions of the rear surfaces of said indicating devices and thereby prevent said indicating devices from being turned. But it is possible to turn these indicating devices 16, 17, 18, etc., in the opposite direction, that is, in a clockwise direction as said indicating devices are shown in Fig. 9. The rear ends of the abutments 61 are weighted and are supported by pins 64 projecting from the standard 63.

A carriage 65 is supported for vertical sliding movements between the standard 63 and a similar standard 66 (Fig. 2). The carriage 65 has a slot 67 in its front side in which an arm 68 is mounted on a pivot 69 and has on the front portion of its lower end a projecting part 70 which is opposite the ratchet devices 34. The lower end of the arm 68 is actuated toward the indicating devices 16, 17, 18, etc., by a spring 71. A bell crank latch device is mounted on a pivot 72 in the carriage 65 and has its rear upwardly extended arm 73 engaged and actuated rearwardly by the spring 71. A hook 74 is on the forward end of the other arm of the bell crank latch device and it is designed and adapted to engage with a projection 75 on the lower end of the arm 68. In the lower position of the carriage 65 the projection 70 engages a cam 76 which presses the arm 68 rearwardly sufficiently to engage the projection 75 with the hook 74. This will permit the carriage 65 to be raised without engaging the projection 70 with the ratchet devices 24 when the indicating devices 16, 17, 18, etc., are in their starting positions in which the plane surfaces of said indicating devices are in vertical and horizontal planes. This is because the four teeth of the ratchet devices 24 extend toward the planes of the corners of the indicating devices and are therefore out of position to be engaged by the projection 70 so long as the arm 68 is held in its retracted position by the latch. When the carriage 65 is raised to its uppermost position the upper end of the arm 73 contacts with and is operated by a cam 77 so as to disengage the hook 74 from the projection 75. This permits the spring 71 to push the lower end of the arm 68 forwardly until the projection 75 engages with a part 78 in the carriage 65. A flexible connection 79 operating over a pulley 80 is provided for raising and lowering the carriage 65.

On each of two opposite sides each of the indicating devices 16, 17, 18, etc., has a designating character 81 which are opposite the sight opening 8; and on each of its two alternate sides each of said indicating devices has a designating character 82 which are opposite the sight opening 6. However, it is not essential that the designating characters 81 be on two sides of the indicating devices nor that the designating characters 82 be on two sides. In the present embodiment of the invention it is important only that the designating characters 82 be arranged at about 90° around the indicating devices from the designating characters 81.

The designating characters 83 are formed on a support 84 that is opposite from the sight opening 10. There is one of the designating characters 83 for each indicating device 16, 17, 18, etc., and there is an additional designation 85 which has reference to all of the indicating devices. The carriage 31 has a pointer 86 projecting to the front of the support 84 for guiding the operator in manipulating the carriage 31. Preferably, the surfaces of the indicating devices 16, 17, 18, etc., on which are displayed the designating characters 81 are colored distinctively from the surfaces on which the designating characters 82 are displayed so as to obtain the benefit of contrasting colors.

In the normal, clear or idle position of the device the carriage 31 rests upon the block 12 and the carriage 65 rests upon the block 13. The indicating devices 16, 17, 18, etc., occupy a position in which all of the designating characters 81 are visually displayed through the sight opening 8 and in which none of the designating characters 82 is visible. The slide 45 is held in its raised position by the lever 48 and the actuator 53, as in Fig. 7. The pointer 86 is below the lower end of the sight opening 10 and is not visible.

In order to set all of the indicating devices in a single cycle of operations the connection 33 is operated to raise the carriage 31 only to the height sufficient to engage the shoulder 38 upon the projection 47. In this position the pointer 86 is across the designation 85. The carriage 31 is then lowered and said carriage moves downwardly the slide 45 in opposition to the lever 48 and actuator 53 until such downward movement is stopped by contact of the slide 45 with the abutment 59 (Fig. 8). This downward movement of the slide 45 causes all of the pins 60 to engage all of the ratchet devices 21 and thereby turn all the indicating devices 16, 17, 18, etc., about 45°. The slide 45 is latched and retained in its lowered position by engagement of the shoulder 56 of the latch member 57 over the pin 54. Next, the carriage 31 is raised to the extent of its upward movement, causing the shoulder 39 to rub against the cam 46 and thereby push the arm 35 inwardly in opposition to the spring 40 to an extent to engage the shoulder 42 behind the part 43. Thus, the arm 35 is latched in its inward position. Next, the carriage 31 is lowered, the shoulders 38 and 39 passing without engaging the ratchet devices 22 and 23 and without engaging the projection 47. The carriage 31 becomes seated upon the block 12 and the latch 41—42 is tripped and released from the part 43 and thrown forwardly by the spring 40, the shoulder 38 extending under the pin 47. The operator has now turned all of the indicating devices so that the designating characters 81 are not clearly visible through the sight opening 8, nor in this position are the designating characters 82 clearly visible through the sight opening 6.

Next, the carriage 65 is raised, the arm 68 being latched in its inward position by the hook 74 (Fig. 4). The carriage 65 is raised until the arm 73 contacts with the cam 77 and releases the hook 74 from the arm 68. The spring 71 then pushes the arm 68 forwardly. The carriage 65 is then lowered and the projection 70 engages a tooth on each of the ratchet devices 24, thereby turning each of the indicating devices 16, 17, 18, etc., about 45° beyond the position to which said indicating devices had been turned by operation of the carriage 31, as previously described. This brings the designating characters 82 opposite the sight opening 6 and displays sides of the indicating devices that are distinctively colored from the sides on which the designating characters 81 are displayed.

To reset the indicating devices in a starting position the carriages 31 and 65 are operated as before. The indicating devices are held in each position to which they are turned by operation of the carriage 31 by engagement of the corners of the squared members 25 in the notches 30. And the indicating devices are held in the adjusted positions to which they are turned by the carriage 65 by engagement of flat sides of the members 25 with the upper walls of the holes 29.

In order to set the indicating device 16, for instance, the carriage 31 is raised to a position in which the shoulder 38 is above the inwardly extending tooth of the ratchet device 22 that is on the indicating device 16 but below the ratchet device 22 that is on the indicating device 17. In this position of the carriage 31 the pointer 86 is across the designation 83 for the device 16. Then, the carriage 31 is lowered a short distance, causing the shoulder 38 to engage the inwardly extended tooth of the ratchet device 22 and thereby turn the indicating device 16 about 45° to a position in which the shoulder of the latch member 25 is engaged in the notch 30. Then, the carriage 31 is raised to the full extent of its upward movement, causing the shoulder 39 to operate against the cam 46 and latch the arm 35 in its retracted position. Then, the carriage 31 is lowered to and seated upon the block 12. Next, the carriage 65 is operated as before, thereby turning the indicating device 16 about 45° to display the designating character 82 thereon through the sight opening 6. The indicating device 16 is restored to a starting or initial or clear position by raising and lowering each of the carriages 31 and 65, as previously explained in the description of the operation of restoring all of the indicating devices to their starting or initial or clear positions.

To operate the two indicating devices 16 and 17, for instance, the carriage 31 is raised to a position in which the shoulder 38 is above the inwardly extended tooth of the ratchet device 22 that is on the indicating device 17 but below the ratchet device 22 that is on the next above indicating device. In this position of the carriage 31 the pointer 86 is across the designation 83 for the device 17. Then, the carriage 31 is lowered a sufficient distance to cause the shoulder 38 to engage the inwardly extended teeth on the ratchet device 22 that are on the indicating devices 16 and 17 and thereby turn said indicating devices about 45°, in which position they become latched by engagement of the square shoulders of the latch members 25 in the notches 30. Then, the carriage 31 is raised to cause the cam 46 to relatch the arm 35 in

its retracted position, after which the carriage 31 is lowered onto the block 12. The carriage 65 is then raised and lowered as previously described to turn the two indicating devices 16 and 17 about 45°, in which positions they become latched by engagement of the flat sides of the latch devices 25 with the upper walls of the holes 29. The indicating devices 16 and 17 may then be restored to their initial or starting or clear positions by raising and lowering the carriages 31 and 65 as previously described.

In order to operate the indicating devices 16 and 18, for instance, the carriage 31 is first raised and slightly lowered to cause the shoulder 38 to engage the ratchet device 22 that is on the indicating device 16 and turn said indicating device about 45°. In this raised position of the carriage 31 the pointer 86 is across the designation 83 for the device 16. The carriage is not permitted to move all the way down but is stopped and reversed and moved upwardly again as soon as the indicating device 16 has been turned thereby. The carriage is reversed when the pointer 86 is about midway between the designation 85 and the designation 83 for the device 16. The carriage 31 is moved upwardly until the shoulder 38 is above the the tooth of the ratchet device 22 that is on the indicating device 18. In this position of the carriage 31 the pointer 86 is across the designation 83 for the device 18. The carriage 31 is then lowered a sufficient distance to cause the shoulder 38 to turn and set the indicating device 18. This lowering movement of the carriage 31 is stopped when the pointer 86 is about midway between the designation 83 for the devices 17 and 18. Then, the carriage 31 is moved upwardly to its full extent, causing the cam 46 to latch the arm 35 in its retracted position, after which the carriage 31 is lowered to the block 12. Then the carriage 65 is raised and lowered and, because teeth of the ratchet devices 24 that are on the indicating devices 16 and 18 have been turned to extend inwardly, the projection 70 will, on downward movement of the carriage 65, engage said inwardly extended teeth 24 and thereby turn the indicating devices 16 and 18 about 45° to display through the sight opening 6 the designating characters 82 that are on said indicating devices 16 and 18. These indicating devices 16 and 18 may be restored to their initial or starting or clear positions by raising or lowering the carriage 31 or 66 as previously described.

If the operator has made a mistake in setting any one of the indicating devices 16, 17, 18, etc., the carriage 31 may be operated to reset the indicating device or devices in starting or clear positions without operating the carriage 65. This correction of the mistake and resetting of the indicating device or devices may be made before or after the carriage 31 has been lowered onto the block 12 or at any time before the carriage 65 is operated. If the operator notices the mistake as soon as it has been made; that is, while the carriage 31 is in the position it occupies immediately following the turning of any one of the ratchet devices 22 by the shoulder 38 and before the carriage 31 has been raised, the indicating device that had been erroneously set can be restored to a clear position as follows: by moving the carriage 31 downwardly additionally a slight distance sufficient to cause the shoulder 39 to engage a tooth of the ratchet device 23 on the indicating device that had been operated, and thereby turn said indicating device about 45° further in the same direction in which it had been turned by the shoulder 38. Then, raise the carriage 31 until both shoulders 38 and 39 are above the ratchet device 23 that is on the erroneously operated indicating device. Then, lower the carriage 31 a sufficient distance to cause the shoulder 38 to turn the indicating device an additional 45° and further lower the carriage 31 far enough to cause the shoulder 39 to rotate the indicating device an additional 45°. This resets the erroneously operated indicating device in a clear or starting position since said indicating device has now been turned 180°. Then, the carriage 31 is raised to its uppermost position, causing the cam 46 to latch the arm 35 in its retracted position. Then, the carriage 31 is lowered to its starting point on the block 12 and the device is clear.

If the operator does not notice the error immediately upon its commission but does notice the error before the carriage 65 has been operated the error may be corrected and the erroneously operated indicating device may be reset as follows: The carriage 31 is raised and lowered in a manner that is now clearly understood first to cause the shoulder 39 to turn the erroneously set indicating device about 45° and then the carriage 31 is raised and lowered to cause the shoulders 38 and 39 to turn the erroneously set indicating device about 90°. The erroneously set indicating device is now in a clear position since it has been turned 180° from its starting position and now has one of the designating characters 81 opposite the window or sight opening 8. The carriage 31 is then raised to cause the cam 46 to press the arm 35 to its latched position and then the carriage 31 is lowered to the block 12. In this way any indicating device that has been set or operated by mistake can be restored to a clear or starting position at any time before operation of the carriage 65.

In describing the operation of the slide 45 to set all of the indicating devices 16, 17, 18,

etc., it was shown that said slide 45 is latched in its down position by the device 57 which moves to the position shown in Fig. 8 in which the shoulder 56 on said device 57 engages the pin 54 on said slide 45. When the carriage 31 is moved to the limit of its upward movement a cam 87 on said carriage 31 engages a pin 88 on the device 57 and thereby moves said device 57 to an extent to disengage the shoulder 56 from the pin 54. When the shoulder 56 releases the pin 54 the lever 48 is operated by the actuator 53 to raise the slide 45 to its initial or starting position.

The operating connections 33 and 79 for the carriages 31 and 65 may be connected up with the selecting and operating mechanism (not shown) for the doors or drawers or other elements to which the indicating devices correspond. Thus, these indicating devices may be set to indicate which of the doors or drawers or other elements are out of their normal or closed or starting positions.

The device is capable of application to a number of uses and may be varied widely within the range of equivalent limits without departure from the nature and principle of the invention.

We do not restrict ourselves in unessential respects, and what we claim and desire to secure by Letters Patent is:—

1. A device of the character described comprising a casing having windows in one wall thereof, a rotary indicating device supported in the casing and having on one side a designating character for display through one of said windows and having on another side a designating character for display through another window, a ratchet pinion in connection with said indicating device, a movable carriage, and means mounted in said carriage for engaging said ratchet pinion to rotate said indicating device during movement of said carriage in one direction.

2. A device of the character described comprising a casing having windows in one wall thereof, a rotary indicating device supported in the casing and having on one side a designating character for display through one of said windows and having on another side a designating character for display through another window, a ratchet pinion in connection with said indicating device, a movable carriage, means mounted in said carriage for engaging said ratchet pinion to rotate said indicating device during movement of said carriage in one direction, and means for preventing rotation of said indicating device during movement of said carriage in the opposite direction.

3. A device of the character described comprising a series of indicating devices, means for supporting said indicating devices for adjustment in different positions, a reciprocating carriage, means for moving said carriage transversely of the axes of said indicating devices, and means in said carriage for selectively turning said indicating devices from one position to another.

4. A device of the character described comprising a series of indicating devices, means for supporting said indicating devices for rotation, a reciprocating carriage, and means for operating said carriage to rotate said indicating devices selectively.

5. A device of the character described comprising a series of indicating devices, means for supporting said indicating devices for rotation, a reciprocating carriage, means for operating said carriage to rotate said indicating devices selectively, and means for holding said indicating devices in the positions to which they are rotated.

6. A device of the character described comprising a series of indicating devices, a reciprocating carriage, means mounted in said carriage for turning said indicating devices from one position to another, a second reciprocating carriage, and means in said second indicating carriage for imparting an additional turning movement to said indicating devices.

7. A device of the character described comprising a series of indicating devices, means for supporting said indicating devices for turning movements, a reciprocating carriage, and mechanism operable by said carriage for operating all of said indicating devices simultaneously.

8. A device of the character described comprising a series of indicating devices, means for supporting said indicating devices for turning movements, a reciprocating carriage, and mechanism operable by said carriage for operating all of said indicating devices simultaneously or for operating any selected one or more of said indicating devices.

9. A device of the character described comprising a series of indicating devices, means supporting said indicating devices for turning movements, a reciprocating carriage, means controlling movement of said carriage from and to a starting position, means preventing turning of said indicating devices during movement of said carriage from said starting position, and means for turning said indicating devices selectively during movement of said carriage toward starting position.

10. A device of the character described comprising a series of indicating devices, a reciprocating carriage having a starting position, means controlling movement of said carriage from and toward said starting position, and means for moving all of said indicating devices automatically and as an incident to movement of said carriage toward

starting position after said carriage has been moved from said starting position.

11. A device of the character described comprising a series of indicating devices, a reciprocating carriage having a starting position, means controlling movement of said carriage from and toward said starting position, means for moving all of said indicating devices automatically and as an incident to movement of said carriage toward starting position after said carriage has been moved from said starting position, and a device for holding said means in position to prevent further turning movements of said indicating devices until said carriage has again been moved in a direction away from its starting position.

12. A device of the character described comprising a series of indicating devices, means supporting said indicating devices for turning movements in one direction, elements preventing said indicating devices from turning in the opposite direction, a reciprocating carriage, and means mounted in said carriage for turning said indicating devices selectively.

13. A device of the character described comprising a series of indicating devices, means supporting said indicating devices for turning movements in one direction, elements preventing said indicating devices from turning in the opposite direction, a reciprocating carriage, means mounted in said carriage for turning said indicating devices selectively, and a device controlled by said means for turning all of said indicating devices simultaneously.

14. A device of the character described comprising a series of indicating devices having designating characters on different sides thereof for indicating respectively the starting and the set positions of said indicating devices, a reciprocating carriage for turning said indicating devices a part of the way from their starting to their set positions, and an additional reciprocating carriage for turning said indicating devices the remainder of the way to their set positions.

15. A device of the character described comprising a series of indicating devices having designating characters on different sides thereof for indicating respectively the starting and the set positions of said indicating devices, a reciprocating carriage for turning said indicating devices a part of the way from their starting to their set positions, an additional reciprocating carriage for turning said indicating devices the remainder of the way to their set positions, and means for selectively operating said indicating devices by said carriages.

16. A device of the character described comprising an indicating device having a starting and a set position, a reciprocating carriage, means for operating said indicating device a part of the way from its starting position to its set position, and an additional reciprocating carriage for operating said indicating device the remainder of the distance to its set position.

17. A device of the character described comprising an indicating device having a starting position and a set position, a reciprocating carriage for imparting initial movement to said indicating device from starting position to set position, an additional reciprocating carriage for imparting final movement to said indicating device to its set position, and means for controlling said first carriage to impart both initial and final movements to said indicating device independently of said additional carriage.

18. A device of the character described comprising a series of indicating devices mounted for turning movements in one direction, elements preventing turning movements of said indicating devices in the opposite direction, and a reciprocating carriage for imparting turning movements to said indicating devices selectively.

19. A device of the character described comprising a series of indicating devices mounted for turning movements in one direction, elements preventing turning movements of said indicating devices in the opposite direction, and a reciprocating carriage for imparting turning movements to said indicating devices selectively or simultaneously as desired.

20. A device of the character described comprising a series of indicating devices mounted for turning movements in one direction, elements preventing turning movements of said indicating devices in the opposite direction, a reciprocating carriage for imparting turning movements to said indicating devices selectively or simultaneously as desired, and means indicating which of said indicating devices have been turned.

21. A device of the character described comprising a series of indicating devices mounted for turning movements, means indicating the starting positions of said indicating devices, means indicating other positions of said indicating devices than the starting positions thereof, a reciprocating carriage, and means in said carriage for turning said indicating devices selectively.

22. A device of the character described comprising a series of indicating devices mounted for turning movements, means indicating the starting positions of said indicating devices, means indicating other positions of said indicating devces than the starting positions thereof, a reciprocating carriage, and means in said carriage for turning said indicating devices selectively or simultaneously as desired.

23. A device of the character described

comprising a series of indicating devices mounted for turning movements and having starting positions and set positions, means indicating the starting positions of said indicating devices, means indicating the set positions of said indicating devices, and a reciprocating carriage for operating said indicating devices from their starting positions.

24. A device of the character described comprising a series of indicating devices mounted for turning movements and having starting positions and set positions, means indicating the starting positions of said indicating devices, means indicating the set positions of said indicating devices, a reciprocating carriage for operating said indicating devices from their starting positions, and means for latching said indicating devices in their starting and in their set positions.

25. A device of the character described comprising a series of rotary indicating devices, mechanism for rotating said indicating devices from starting positions to set positions, and a device for holding all of said indicating devices in their starting positions and also in their set positions.

26. A device of the character described comprising a series of indicating devices supported for turning movements, and reciprocating carriages for turning said indicating devices successively and intermittently in a direction from their starting positions.

27. A device of the character described comprising a rotative indicating device, a reciprocating carriage, and means whereby said carirage will impart successive turning movements to said indicating device when said carriage is successively moved in the same direction opposite said indicating devices.

28. A device of the character described comprising a series of indicating devices supported for turning movements, a longitudinally movable member, mechanism for actuating said longitudinally movable member in one direction from a starting position, and means whereby said member will turn said indicating devices from their starting position.

29. A device of the character described comprising a series of indicating devices supported for turning movements, a longitudinally movable member, mechanism for actuating said longitudinally movable member in one direction from a starting position, means whereby said member will turn said indicating devices from their starting position, and means for holding said member in the position to which it is moved to prevent further turning movements of said indicating devices.

30. A device of the character described comprising a series of indicating devices supported for turning movements, a longitudinally moveable member, mechanism for actuating said longitudinally movable member in one direction from a starting position, means whereby said member will turn said indicating devices from their starting position, means for holding said member in the position to which it is moved to prevent further turning movements of said indicating devices, and means for returning said movable member to its starting position to permit further turning movements of said indicating devices.

31. A device of the character described comprising a series of indicating devices supported for turning movements, a longitudinally movable member, mechanism for actuating said longitudinally movable member in one direction from a starting position, means whereby said member will turn said indicating devices from their starting position, means for holding said member in the position to which it is moved to prevent further turning movements of said indicating devices, means for returning said movable member to its starting position to permit further turning movements of said indicating devices, and means for imparting further turning movements to said indicating devices after said member has been returned to its starting position.

32. A device of the character described comprising a series of indicating devices supported for turning movements, a reciprocating carriage, and means for imparting turning movements in one direction to selected ones of said indicating devices by said carriage.

33. A device of the character described comprising a series of indicating devices supported for turning movements, a reciprocating carriage, means for imparting turning movements in one direction to selected ones of said indicating devices by said carriage, and means for preventing reverse turning movements of said indicating devices.

34. A device of the character described comprising a series of indicating devices supported for turning movements, a reciprocating carriage, means for imparting turning movements in one direction to selected ones of said indicating devices by said carriage, and means for imparting additional turning movements to said indicating devices after said indicating devices have been turned by said carriage.

35. A device of the character described comprising a series of indicating devices having a starting position, means designating when said indicating devices are in their starting position, mechanism for selectively turning said indicating devices in one direction from said starting position, and means indicating which of said indicating devices have been turned from their starting position.

36. A device of the character described comprising a series of indicating devices hav-

ing a starting position, means designating when said indicating devices are in their starting position, mechanism for selectively turning said indicating devices in one direction from said starting position, means indicating which of said indicating devices have been turned from their starting position, and a carriage operative to impart additional turning movements to said indicating devices.

37. A device of the character described comprising a series of indicating devices having a starting position, means designating when said indicating devices are in their starting position, mechanism for selectively turning said indicating devices in one direction from said starting position, means indicating which of said indicating devices have been turned from their starting position, a carriage operative to impart additional turning movements to said indicating devices, and means for indicating when said additional turning movements have been imparted to said indicating devices by said carriage.

38. A device of the character described comprising a series of indicating devices mounted for turning movements, ratchet members attached to said indicating devices, a reciprocating carriage, and means in said carriage for engaging said ratchet members and thereby imparting turning movements in one direction to said indicating devices selectively.

39. A device of the character described comprising a series of indicating devices mounted for turning movements, ratchet members attached to said indicating devices, a reciprocating carriage, means in said carriage for engaging said ratchet members and thereby imparting turning movements in one direction to said indicating devices selectively, and means controlled by said carriage for imparting turning movements to all of said indicating devices.

40. A device of the character described comprising a series of indicating devices mounted for turning movements, ratchet members attached to said indicating devices, a reciprocating carriage, means in said carriage for engaging said ratchet members and thereby imparting turning movements in one direction to said indicating devices selectively, and means for indicating proper extents of movement of said carriage when said carriage is operated to turn said indicating devices selectively.

41. A device of the character described comprising a series of indicating devices, a longitudinally movable member, means operative by said member for turning all of said indicating devices in one direction from a starting position, a longitudinally movable carriage, devices operative by said carriage for imparting turning movements in one direction from a starting position to said indicating devices selectively and for operating said member to turn all of said indicating devices as aforesaid, and means for indicating to the operator proper extents of movement of said carriage for operating said member or said indicating devices as aforesaid.

42. A device of the character described comprising a series of indicating devices, a longitudinally movable member, means operative by said member for turning all of said indicating devices in one directon from a starting position, a longitudinally movable carriage, devices operative by said carriage for imparting turning movements in one direction from a starting position to said indicating devices selectively and for operating said members to turn all of said indicating devices as aforesaid, means for indicating to the operator proper extents of movement of said carriage for operating said member or said indicating devices as aforesaid, and means indicating which of said indicating devices have been moved from their starting position.

43. A device of the character described comprising a series of indicating devices, a longitudinally movable member, means operative by said member for turning all of said indicating devices in one direction from a starting position, a longitudinally movable carriage, devices operative by said carriage for imparting turning movements in one direction from a starting position to said indicating devices selectively and for operating said members to turn all of said indicating devices as aforesaid, means for indicating to the operator proper extents of movement of said carriage for operating said member or said indicating devices as aforesaid, means indicating which of said indicating devices have been moved from their starting positions, and a carriage for imparting additional turning movements to any of said indicating devices that have been turned from their starting positions as aforesaid.

44. A device of the character described comprising a series of indicating devices, a longitudinally movable member, means operative by said member for turning all of said indicating devices in one direction from a starting position, a longitudinally movable carriage, devices operative by said carriage for imparting turning movements in one direction from a starting position to said indicating devices selectively and for operating said members to turn all of said indicating devices as aforesaid, means for indicating to the operator proper extents of movement of said carriage for operating said member or said indicating devices as aforesaid, means indicating which of said indicating devices have been moved from their starting position, a carriage for imparting additional turning

movements to any of said indicating devices that have been turned from their starting positions as aforesaid, and means for preventing accidental turning movements of said indicating devices.

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