

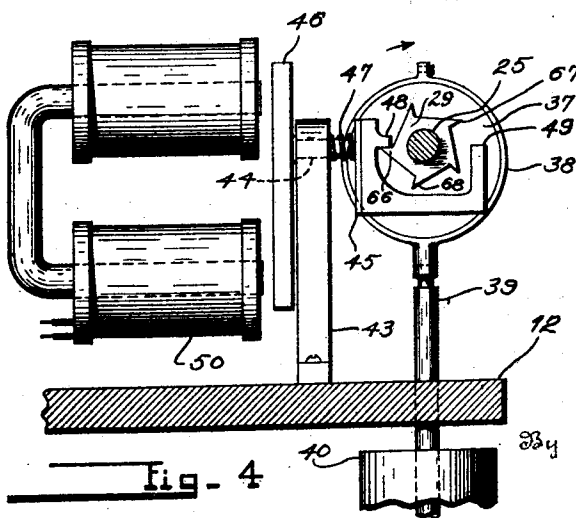
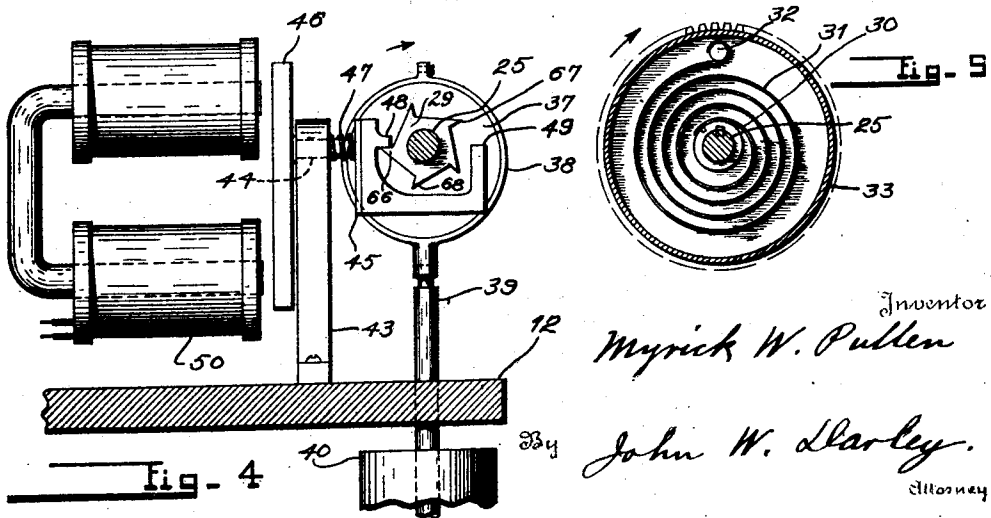
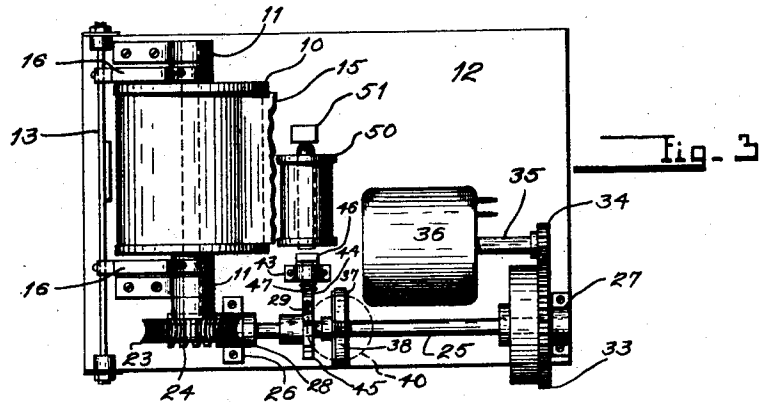
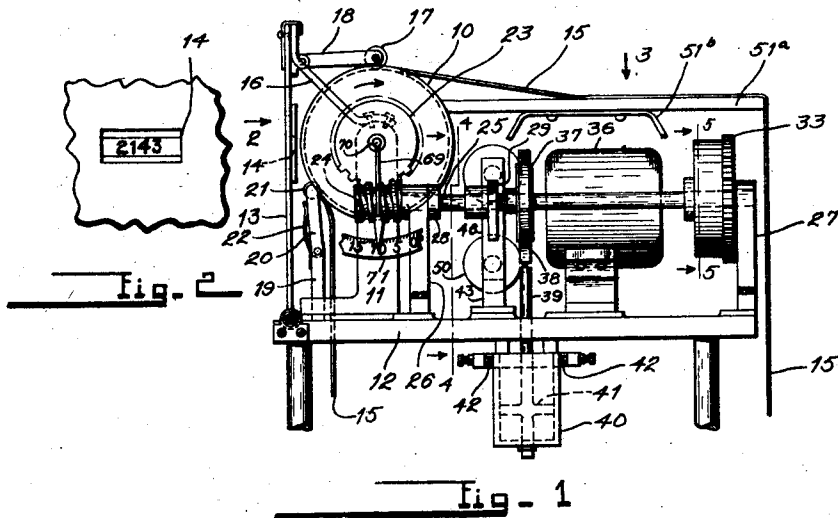
Oct. 13, 1925.

1,556,713

M. W. PULLEN
CHANGEABLE EXHIBITOR

Filed May 12, 1922

2 Sheets-Sheet 1



Inventor
Myrick W. Pullen
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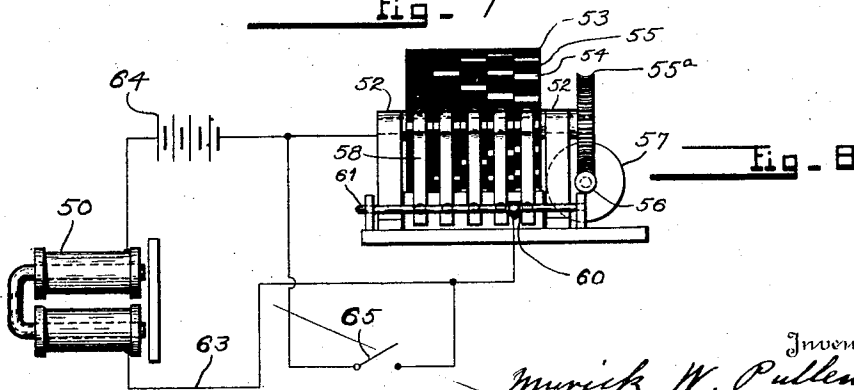
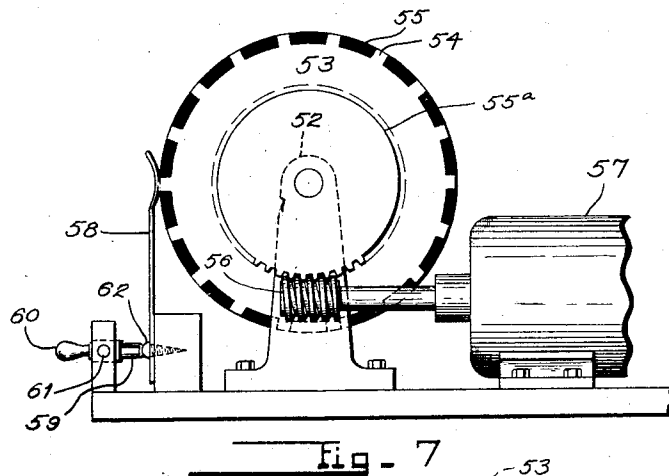
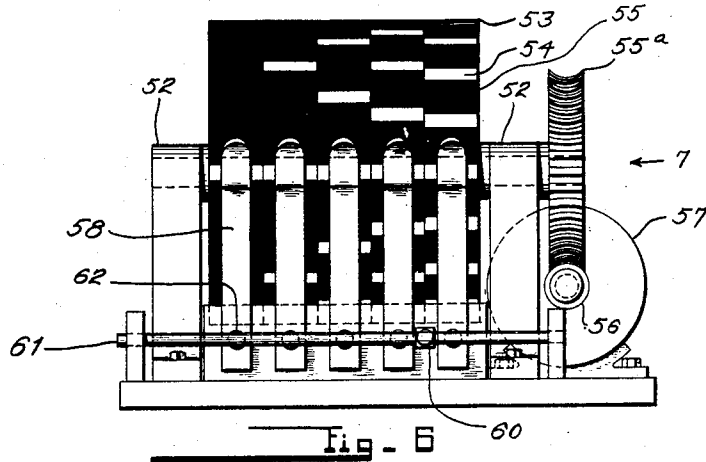
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M. W. PULLEN
CHANGEABLE EXHIBITOR

Filed May 12, 1922

2 Sheets-Sheet 2



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Patented Oct. 13, 1925.

1,556,713

UNITED STATES PATENT OFFICE.

MYRICK W. PULLEN, OF BALTIMORE, MARYLAND.

CHANGEABLE EXHIBITOR.

Application filed May 12, 1922. Serial No. 560,341.

To all whom it may concern:

Be it known that I, MYRICK W. PULLEN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Changeable Exhibitors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the
10 same.

My invention relates to changeable exhibitors.

Among the objects of my invention are:—

15 To provide an exhibitor capable of exhibiting predetermined numbers, combinations of numbers, or legends for a predetermined period of time.

20 To provide an exhibitor capable of extremely rapid changes of the subject matter exhibited combined with means for varying at will or in a predetermined manner the period of time during which the subject matter is exhibited.

25 These and further objects of my invention will be set forth in the following specification, reference being had to the accompanying drawings and the means by which said objects are effectuated will be definitely set forth in the claims.

In the drawings:—

Figure 1 is a side view of my improved exhibitor.

35 Fig. 2 is a partial view of the front of my improved exhibitor viewed in the direction of the arrow 2 in Fig. 1.

40 Fig. 3 is a view of the parts shown in Fig. 1 when viewed in the direction of the arrow 3 in said figure, the parts 51^a and 51^b being omitted.

Fig. 4 is a section along the line 4—4 in Fig. 1, enlarged, looking in the direction of the arrows.

45 Fig. 5 is an enlarged section along the line 5—5 in Fig. 1 looking in the direction of the arrows.

Fig. 6 is a front view of the circuit closer for controlling my improved exhibitor.

50 Fig. 7 is a view of the parts shown in Fig. 6 looking in the direction of the arrow 7 in said figure.

Fig. 8 is a diagram of connections.

In the drawings:—

55 10 represents a drum provided with pin-tles revolubly mounted in the bearings 11—11 and the latter are supported upon

the base 12. At the front of the machine the face 13 is mounted upon the base 12 and the former is provided with an aperture 14 through which numbers or legends
60 written or printed upon the paper ribbon 15 are visible. The face 13 is braced to the bearings 11 by braces such as 16 and the roller 17 revolubly mounted in the link 18 which is hinged to said face presses the ribbon 15 upon the drum 10. The weight of
65 the roller 17 and link 18 may be sufficient to press the ribbon 15 upon the drum 10 or a suitable spring may be employed to increase the pressure, if desired.

70 A post 19 is mounted in the base 12 and a link 20 is pivoted to said post. A roller 21 is revolubly mounted in the end of the link 20 and the spring 22 presses said roller against the ribbon 15.

75 A worm wheel 23 is secured to the drum 10 and meshes with the worm 24. The worm 24 is secured upon one end of the shaft 25 and the latter is revolubly mounted in the bearings 26 and 27 which are secured to the base 12. The worm 24 presses against one face of the bearing 26 and the collar 28 bearing against the other faces prevents end motion of the worm 24.

80 An escapement wheel 29 and a collar 30 are secured to the shaft 25. The spring 31 is secured at one end to the collar 30 and has its other end secured to the pin 32 mounted in the gear 33. The gear 33 meshes with the pinion 34 and the latter is fixed upon the armature shaft 35 of the motor 36. The motor 36 is connected in series with a rheostat to any approved source of electricity and the motor is preferably series wound and of comparatively high resistance.

85 An eccentric 37 is secured upon the shaft 25 and the eccentric strap 38 is mounted upon said eccentric and secured to the piston rod 39 which slides in bearings provided in the ends of the air cylinder 40. The piston 41 is mounted upon the piston rod 39 and the cylinder 40 has an oscillatory motion about the pivot screws 42—42 which are secured to the underside of the
90 base 12. A post 43 is mounted upon the base 12 and has near its top a square hole in which is slidably mounted the push rod 44 which has on one end the pawl 45 and on the other the armature 46. A spring 47
95 serves normally to keep the pawl 45 in the position shown in Fig. 4. The pawl 45 has

a tooth 48 and an anvil 49. The magnet 50 is secured to the post 51 and the latter is supported by the base 12.

A guard 51^a for supporting the ribbon 15 is held in place by the bracket 51^b and the latter may be secured to the base 12 or to the bearings 26 and 27.

The circuit closer for use with my improved exhibitor comprises a base, supporting bearings 52—52 in which are revolubly mounted the pintles of any plurality of contact wheels such as 53, each of which comprises a metallic wheel having any desired plurality of teeth such as 54 between which are secured insulating strips such as 55. The wheels 53 are all mounted upon one shaft and are all revolved at the same angular speed by the worm wheel 55^a, the latter being driven by the worm 56 on the shaft of the armature of the motor 57.

A contact spring 58 is secured in position to make contact with each of the wheels 53 and the spring 59 is mounted upon the slide 60 which slides along the bar 61. The spring 59 makes contact with the head of the screw 62 that secures the spring 58 in position.

The motor 57 is preferably series wound and is connected in series with a rheostat to a source of electricity so that the speed of the worm 56 may be varied.

The slide 60 is connected by the wire 63 to one terminal of the magnet 50 and the other terminal of said magnet is connected to one pole of the battery 64, the other pole of which is connected to one of the bearings 52 and through the latter and the pintle to the wheels 53. A normally open key 65 is connected to the wire 63 and to one of the bearings 52.

The operation of my improved changeable exhibitor and circuit closer is as follows:—

The motors 36 and 57 are to be started and their speed adjusted to the desired number of revolutions per minute.

When the shaft 35 is revolved the spring 31 is wound up until its resistance prevents further movement of the armature of the motor 36.

The slide 60 is to be moved until the spring 59 contacts with the desired screw 62, the corresponding wheel 53 then revolving. When one of the teeth 54 makes contact with the spring 58 the magnet 50 will be energized and the armature 46 will be attracted toward the left, (see Fig. 4). When the armature 46 is drawn towards the left the tooth 48 is removed from the path of the tooth 66 of the escapement wheel 29 and the spring 31 revolves the wheel 29 in the direction of the arrow until the tooth 67 strikes the anvil 49.

The armature 46 is held adjacent the magnet 50 as long as the tooth 54 makes contact with the spring 58, but when said tooth

passes from contact with said spring then the armature 46 is released and the spring 47 moves the pawl 45 towards the right, thus removing the anvil 49 from the path of the tooth 67 and the escapement wheel 29 is then revolved in the direction of the arrow by the spring 31 until the tooth 68 strikes the tooth 48.

This series of operations is carried on continuously by the revolution of the wheel 53.

Numbers or combinations of numbers are placed upon the ribbon 15 and are so located that when each tooth is in contact with the anvil 49, they will be exhibited through the aperture 14; consequently, by varying the relative peripheral lengths of the teeth 54 and the insulating strips 55, the numbers, combinations of numbers or legends may be caused to appear through the aperture 14 for definite periods of time and when it is desired to change this period, this may be done by either varying the potential at the terminals of the motor 57 or by sliding the spring 59 into contact with one of the screws 62.

For special purposes the contact spring 59 may be placed where it may make contact with none of the screws 62 and then the operation of the magnet 50 may be controlled by the key 65. When the key is pressed down, the armature 46 will be drawn toward the left by the magnet 50 and when the key 65 is released the spring 47 will move the armature 46 towards the right bringing about the same cycle of operations as hereinbefore described.

As the shaft 25 revolves the spring 31 unwinds and resistance to the movement of the armature of the motor 36 will diminish until it reaches a point where the armature again revolves and winds up the spring 31.

It is to be noted that the shaft 25, pawl 67 and worm wheel 24 are to be made comparatively light and mounted so that they will revolve very freely. As a consequence of this construction, inertia of these parts is reduced to a minimum and the spring 31 may revolve the shaft 25 without appreciable time lag.

I find, however, that for the cushioning of the blows when the teeth of the wheel 29 strike either the tooth 48 or anvil 49, it is desirable to use the eccentric 37, piston 41 and cylinder 40 because the resistance of the air on either side of said piston affords but slight resistance to the beginning of the movement of the shaft 25, but the compression of the air relieves the force of said blows.

While I have shown one embodiment of my invention for purposes of illustration, it is to be understood that many changes may be made therein, such, for instance, as the placing of a pointer 69 upon the pintle 70 and the placing of a dial such as 71 ad-

jacent said pointer, without departing from the spirit of my invention.

Furthermore, the worm wheel 55^a, worm 56 and motor 57 may be omitted and the pintle of the wheels 53 may be a prolongation of the shaft of the drum 10 without departing from the spirit of my invention.

I claim:—

1. In a changeable exhibitor, the combination with means for exhibiting signals and mechanism for operating said means, of a spring secured at one end to said mechanism for moving said mechanism, a source of power for moving the other end of said spring and a magnet for controlling the movements of said mechanism, said source of power continuously applying a force to said last named end greater than the force of said spring.

2. In a changeable exhibitor, the combination with means for exhibiting signals and mechanism for operating said means, of a spring secured at one end to said mechanism for moving said mechanism, a source of power for moving the other end of said spring, a magnet for controlling the movements of said mechanism, a plurality of contact wheels having contact teeth differing in number, springs bearing on said wheels, a source of electricity and an electric circuit including said magnet and wheels and a slide for connecting any one of said springs in said circuit.

3. In a changeable exhibitor, the combination with means for exhibiting signals and mechanism for operating said means, of a spring secured at one end to said mechanism

for moving said mechanism, a source of power for moving the other end of said spring, a magnet for controlling the movements of said mechanism, a plurality of contact wheels having contact teeth differing in angular width, springs bearing on said wheels, a source of electricity and an electric circuit including said magnet and wheels and a slide for connecting any one of said springs in said circuit.

4. In a changeable exhibitor, the combination with means for exhibiting signals and mechanism for operating said means, of a spring secured at one end to said mechanism for moving said mechanism, a continuously acting source of power for moving the other end of said spring, a magnet for controlling the movements of said mechanism, a contact wheel moved by said source of power, a spring bearing upon said wheel, a source of electricity and an electric circuit including said magnet, wheel, spring and source.

5. In a changeable exhibitor, the combination with a shaft, a spring having one end secured to said shaft and a continuously acting source of power for moving the other end of said spring, of an escapement wheel mounted on said shaft, a pawl for controlling the movement of said wheel, means for exhibiting signals moved by said shaft, a magnet for moving said pawl, a source of electricity, an electric circuit including said magnet and source and means for opening and closing said circuit.

In testimony whereof I affix my signature.

MYRICK W. PULLEN.