C. D. PRUITT.

SIGN FLASHER.

APPLICATION FILED OCT. 6, 1914.

1,242,861.

Patented Oct. 9, 1917.

3 SHEETS—SHEET 1.

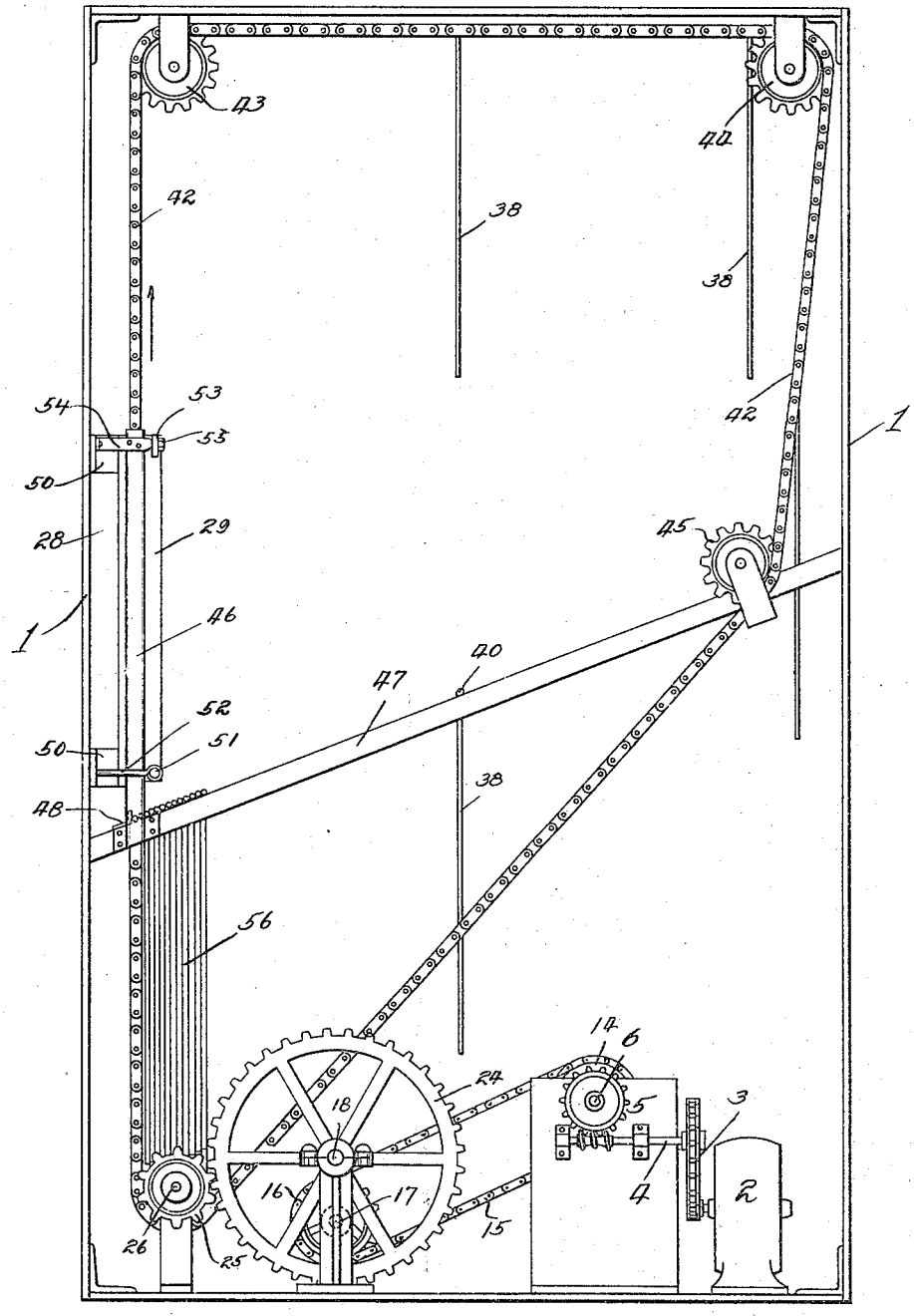


Fig. 1.

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3 SHEETS—SHEET 2.

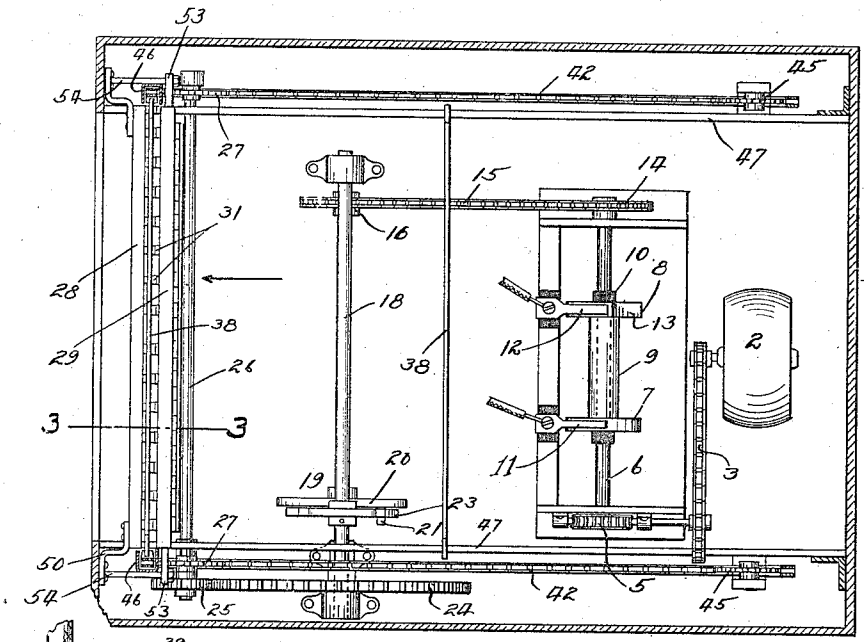


Fig. 2.

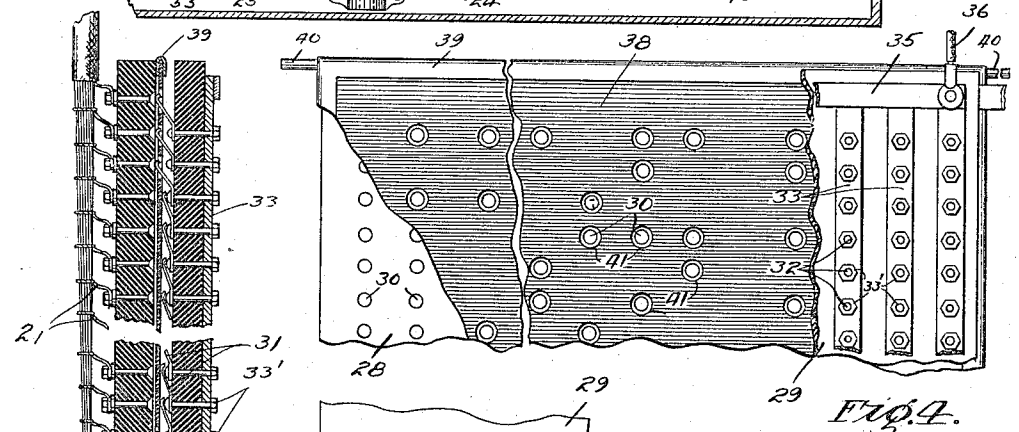


Fig. 4.

Fig. 3.

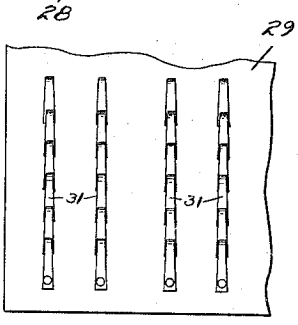


Fig. 5.

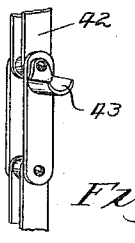


Fig. 6.

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3 SHEETS—SHEET 3.

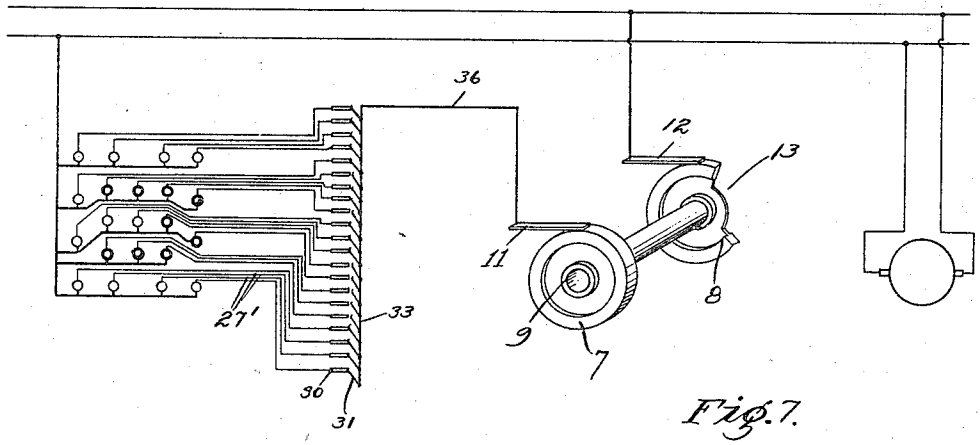
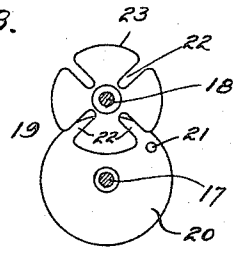


Fig. 7.

Fig. 8.



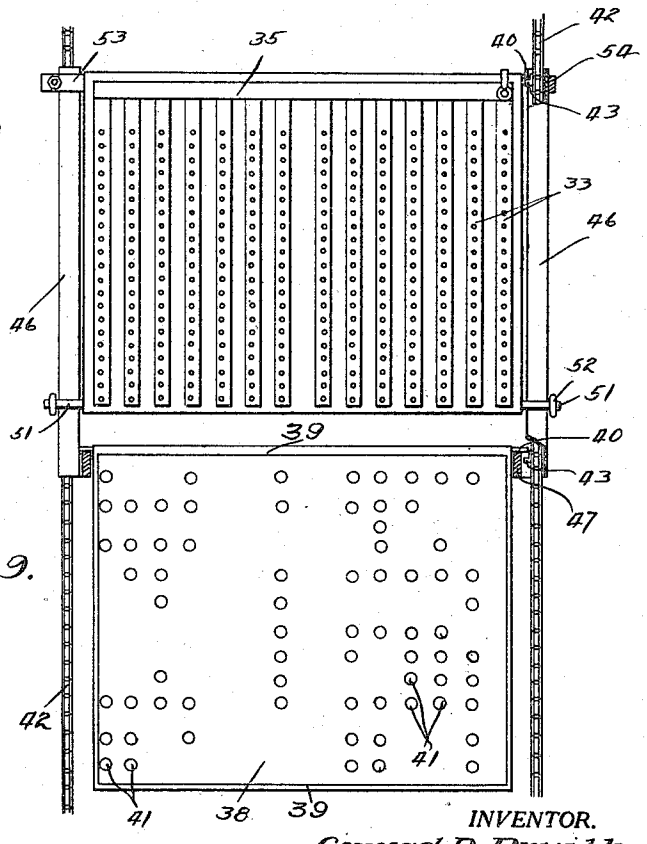


Fig. 9.

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UNITED STATES PATENT OFFICE.

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SIGN-FLASHER.

1,242,861. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed October 6, 1914. Serial No. 865,276.

To all whom it may concern:

Be it known that I, CONRAD D. PRUITT, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Sign-Flashers, of which the following is a specification.

This invention relates to improvements in sign flashers and more particularly to means for operating the so-called talking signs. The principal object of my invention is to improve and simplify the means for completing the various combinations of circuits which go to form the letters in the sign and especially to provide means for simply and easily effecting changes in the combination of these circuits whereby the message flashed by the sign is readily changed.

In the present type of flashers for signs of this character, it requires a skilled mechanic several hours to change the contacts on the circuit closing device, where the message flashed by the sign is of approximately twenty words in length. With my improved device the means governing the closing of the various circuits may be changed while the flasher is running by a person who is not a mechanic or electrician.

Another object of my invention is to provide a machine in which the number of changes is unlimited and not fixed as in the present type of machines, using a cylindrical flasher wherein if the machine is built for twenty changes this number must always be used.

Still another object of my invention is to provide a machine which is small and compact in size and is much less expensive to manufacture than the flashers now on the market.

Another object of my invention is to so arrange the circuit that there is but one contact at which the circuit is opened and having but a single contact this may be made in the best possible manner and provided without undue expense with means to prevent arcing.

With these and other objects in view my invention consists in the novel construction and arrangement of parts as herein described and more specifically pointed out in the appended claims.

Reference should be had to the accompanying drawings forming a part of this specification wherein,

Figure 1 is a view in side elevation of my improved flasher with the side of the case removed.

Fig. 2 is a horizontal sectional view through the upper part of the device.

Fig. 3 is an enlarged sectional view on 3—3, Fig. 2.

Fig. 4 is a broken view in front elevation looking in the direction of the arrow in Fig. 2, of the contact device used to complete the circuit to the individual lamps of the letters of the sign.

Fig. 5 is a fragmentary view in rear elevation of one of the members of this device.

Fig. 6 is a view in perspective of a portion of the carrying chain used with this device.

Fig. 7 is a view of the circuit employed with the device.

Fig. 8 is a view of an intermittent motion used in the device.

Fig. 9 is a view in rear elevation of the contact mechanism for completing the circuits to the individual lights, which go to form letters in the lamp bank.

Referring to corresponding parts by the same numerals of reference, 1 denotes the case wherein is mounted the mechanism of the flasher consisting of a motor 2, which through the sprocket chain 3, drives a shaft 4. This shaft through a suitable reduction gearing 5 such as a worm and wheel drives a second shaft 6 whereon is mounted the rotating contacts 7 and 8. These contacts are conductively connected through the sleeve 9 and insulated from shaft 6 as by means of the fiber tube 10. The two sides of the electrical circuit are connected to brushes 11 and 12, which bear respectively on the contact wheels 7 and 8. The wheel 7 is continuously conductive around its periphery whereas the wheel 8 is provided with a recessed portion 13 so that when this portion passes under brush 12 the circuit is broken.

Mounted on shaft 6 is a sprocket 14 which through the chain 15 drives a similar sprocket 16 keyed to shaft 17 and this shaft drives shaft 18 through an intermittent movement 19, consisting of a disk 20 mounted on shaft 17 having on the face thereof a pin 21, which engages the slots 22 of disk 23 mounted on shaft 18. By this means each revolution of shaft 17, say, about one-fourth

of a revolution of shaft 18, is transmitted through gears 24 and 25 to a shaft 26 mounted in suitable bearings having keyed to its ends sprockets 27.

Each letter of my sign consists of at least 21 lamps arranged as shown in Fig. 7 and from each lamp a conducting wire 27′ is led to the contact means located within the flasher. This contact device consists of the insulating panels 28 and 29, the former of which carries rows of contact studs 30, the number of studs in a row corresponding to the number of lamps in the letter and the number of rows being equal to the number of letters in the sign. These studs have attached on the rear of the board conducting wires 27′ leading to the lamps of the sign. The panel 29 is provided with contact springs 31, the free ends of which are adapted to rest on the head of stud 30, the other end being held under the head of bolts 32. These bolts pass through the panel 29 and bus bars 33, and are provided with nuts 33′, the bolts thus holding the springs and bus bar in position. The bus bars are all connected in multiple by means of a strip 35, which is in turn connected by conductor 36 to one brush of the circuit breaker.

It will be evident that with all the contact springs 31 resting on their respective contact pins 30 that all the lamps of a given bank will be illuminated and in order to select proper lamps to form a given letter I provide the perforated sheet 38 of some insulating material such as fiber. This sheet is held in a suitable metallic reinforcing form 39 on the upper corners of which project pins 40. Sheet 38 is perforated at suitable intervals as shown at 41, such perforation being placed opposite the contact pins 30, which are connected to the lamps necessary to form a given letter. Thus when one of these sheets is properly positioned between the panels 28 and 29 the contact springs adjacent the perforations may rest upon their respective contact pins while those which are not opposite a perforation are insulated therefrom. Thus when the circuit is established by means of the flasher, only those lights will be illuminated which go to form the desired letter.

To automatically shift these sheets I provide the sprocket chain 42 having a swiveled attachment 43 on the inside thereof in which the pins 40 are adapted to seat. This sprocket chain passes around and is driven by sprockets 26 and then passes in a vertical direction adjacent the sides of panels 28 and 29 over sprockets 43 and 44 in the upper part of the case 1, thence around the sprocket 45 to the driving sprocket. Denoted by 46 is a U-shaped guide adjacent the panels 28 and 29 whereby the chain is accurately guided in this portion of its travel. 47 denotes two inclined runways located inside of the plane in which the sprocket chain 43 travels, which are adapted to lift the sheet forms from attachments 43 as the chain passes around the sprocket 45. From this point the perforated plates travel down the incline runways by gravity being suspended by pin 40 and at the lower end are held by a stop 48. The panel 28 is rigidly held in position by means of suitable brackets 50 whereas the panel 29 is pivotally connected at its lower end by means of lateral pins 51 mounted in eyes 52 extending from the lower bracket 50. The upper end of this panel is positioned by means of the lateral ears 53 resting against the shoulder of an extension 54 from the upper bracket 50 and held thereon by means of nut 55. With this method of mounting panel 29, the upper part may be freed, and the panel lowered about the point 50 to allow the inspection and examination of contact springs 31.

Assuming that one of the perforated sheets is positioned as shown in Fig. 3, the operation is as follows:—

As the shaft 6 is rotated by motor 2, the circuit is completed between the brushes 11 and 12, over conductor 36 to the bus bars 33 through those contact springs 31 which extend through perforations 41 to the screws 30 thence over conductors 27′ to the lamps which go to form the given letter. These lamps remain lighted throughout about two-thirds of a revolution of shaft 6 at the end of which time the circuit is broken by the portion 13 coming under the brush 12. The lamps are thus extinguished and at this time the pin 21 enters one of the slots 22 of disk 23 and moves the shaft 18 a fixed portion of a revolution. This rotation is through the gears 24 and 25 transmitted to shaft 26, the sprockets 27 thereon moving the chain 42 in the direction of the arrow, Fig. 1. The attachments 43 are so positioned that one of these on each chain engages the pin 40 on each side of the lowermost plate of the pack 56 on the incline ways 47, the plate 38 between the panels 28 and 29 is carried upwardly and the new plate takes its position. The intermittent movement imparted to the chain in this manner is just sufficient to carry a new plate into position. During this movement of the chain the circuit is open so that no flashing occurs between the contacts 30 and 31. When the new plate 38 is in position the circuit is completed by the disks 7 and 8 and a new series of words are shown on the sign.

What I claim as new and wish to cover by Letters Patent is:

1. A sign flasher comprising terminal boards, a plurality of coacting contact members mounted in each of said boards, an operating mechanism, and means normally disengaged from said operating mechanism but engaged and positioned thereby between

said terminal boards for selectively permitting certain of said contacting members to enter into engagement.

2. A sign flasher comprising terminal boards, a plurality of coacting contact members mounted in said boards, insulating sheets adapted to be positioned between said terminal boards, and having openings to selectively permit said contact members to enter into engagement, and an operating mechanism normally disengaged from said sheets for moving said sheets between said terminal boards.

3. A sign flasher comprising terminal boards, a plurality of coacting contact members mounted in said boards, insulating sheets adapted to be positioned between said terminal boards, and having openings to selectively permit said contact members to enter into engagement, an operating mechanism adapted to move said sheets between said terminal boards, said sheets being disengaged from said operating mechanism prior to being moved thereby.

4. A sign flasher comprising insulating terminal boards held in spaced relation, conducting contact studs carried by one of said boards, each of said studs being conductively connected to an element of the sign, conducting spring members carried by the other of said terminal boards and adapted to coact with said studs to complete an electrical circuit therebetween, perforated sheets adapted to be interposed between said terminal boards to selectively permit certain of the spring members to engage their respective contact studs, mechanisms for intermittently moving said sheets into position, said sheets being normally disengaged from said mechanisms, and means for interrupting the current during such movement.

5. A sign flasher comprising terminal boards held in spaced relation, contact studs carried by one of said boards, springs carried by the other of said boards adapted to contact with said studs, a plurality of perforated sheets adapted to selectively permit certain of said springs to contact with their respective coacting studs, and operating mechanism for successively engaging said sheets, and moving the same between said terminal boards.

6. A sign flasher comprising terminal boards held in spaced relation, a plurality of coacting contact members mounted in said boards adapted to complete an electrical circuit to the elements of the sign, an operating mechanism, interchangeable members adapted to be moved between said terminal boards, means carried by said operating mechanism for engaging said members to move them between said terminal boards, and means for opening the electrical circuit while said interchangeable members are being moved into position.

7. A sign flasher comprising terminal boards, a plurality of coacting contact members mounted in said boards, interchangeable insulating sheets adapted to be positioned between said boards, said sheets having perforations adapted to permit predetermined ones of said coacting members to enter into contact, an operating mechanism for moving said sheets between said terminal boards, an inclined trackway adapted to hold said sheets, means carried by said operating mechanism for lifting said sheets between said boards and depositing them in the upper end of said inclined track, means for closing and opening electrical circuit while said sheets are in position and for holding the circuit open while the same are being changed.

8. A sign flasher comprising insulating terminal boards held in spaced relation, conducting contact studs carried by one of said boards, springs carried by the other of said boards adapted to contact with said studs, a plurality of perforated sheets, an inclined supporting track carrying said sheets, and an operating mechanism adapted to move said sheets between said terminal boards.

9. A sign flasher comprising insulating terminal boards held in spaced relation, conducting contact studs carried by one of said boards, each of said studs being conductively connected to an element of the sign, conducting spring members carried by the other of said terminal boards and adapted to coact with said studs to complete an electrical circuit therebetween, perforated sheets adapted to be positioned between said terminal boards to selectively permit certain of the spring members to engage their respective contact studs, laterally projecting pins carried by the upper edge of said sheets, endless flexible chains having a portion adjacent and parallel the ends of said boards, swiveled attachments carried by said chains adapted to engage the said projecting pins, means for intermittently moving said chains an amount sufficient to remove the said sheet positioned between said boards and place in position the next succeeding sheet, and means for interrupting the electrical current while said changes are being effected.

10. A sign flasher comprising terminal boards, a plurality of coacting contact members mounted in said boards, insulating sheets adapted to be moved between said boards, means carried by said sheets for selectively permitting certain of said contact members to complete an electrical circuit to the corresponding elements of the sign, endless flexible chains having a portion parallel to the ends of the said boards, pivotally mounted depending attachments secured to the sides of said chain, rods extending laterally from said sheets adapted to be engaged by said attachments, inclined guide

bars positioned between the ends of said boards and said chains, said bars being adapted to lift the rods of said sheets from said attachments at one point of the chain travel and deliver said rods thereto at another point, and means for imparting an intermittent movement simultaneously to said chains.

11. A sign flasher comprising insulating terminal boards held in spaced relation, a plurality of coacting contact members mounted in said boards, insulating sheets adapted to be moved between said sheets, inclined tracks holding a plurality of said sheets, operating mechanism adapted to raise the lowermost of said sheets between said boards and deposit the same on the upper end of said trackways.

In testimony whereof I affix my signature in presence of two witnesses.

CONRAD D. PRUITT.

Witnesses:
W. A. STOCK,
R. M. OYARZO.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."