March 3, 1936. J. M. M. TROUP 2,032,515

ROTARY BULB CONTAINER

Filed May 18, 1934 4 Sheets-Sheet 1

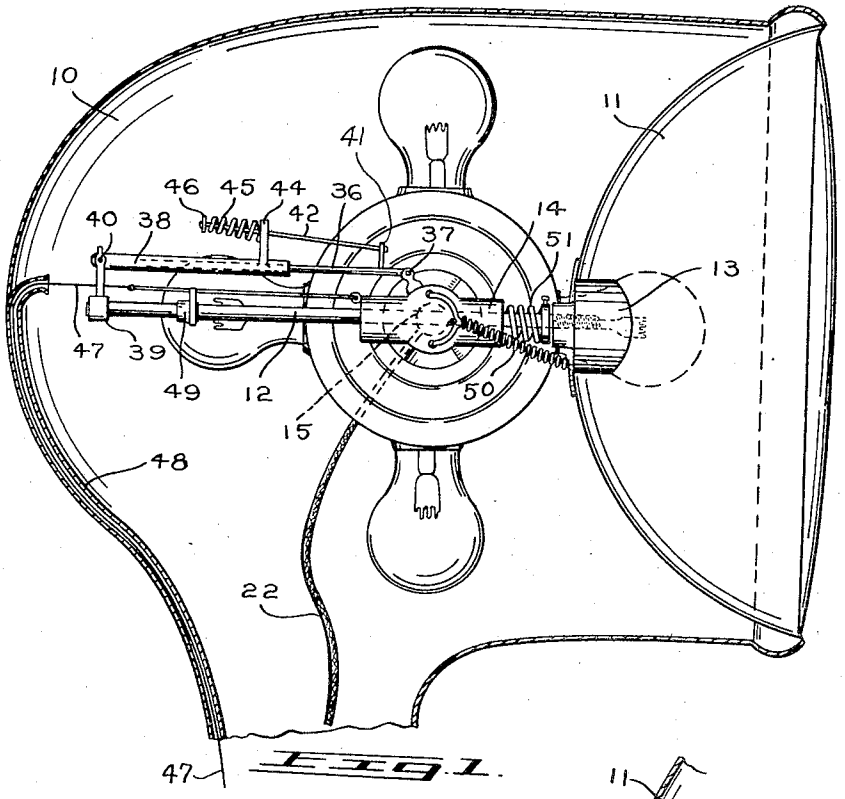


Fig. 1.

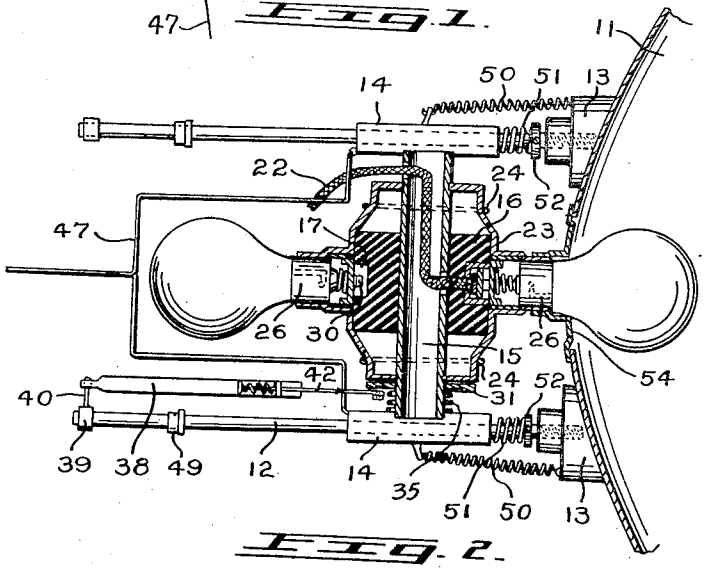


Fig. 2.

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ROTARY BULB CONTAINER

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Fig. 3.

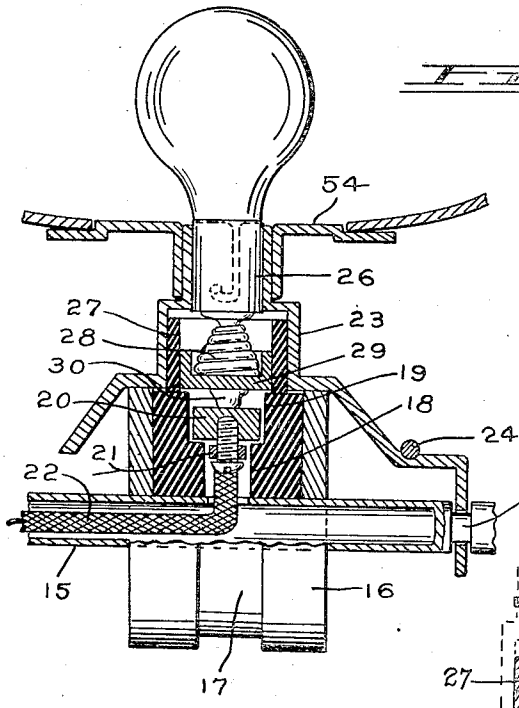
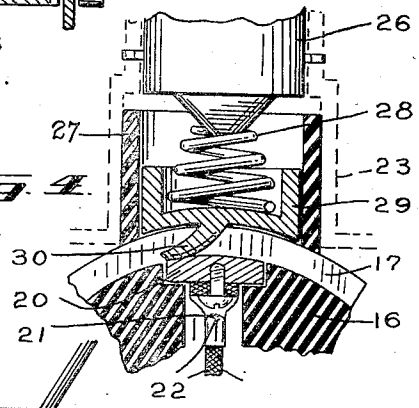


Fig. 4.



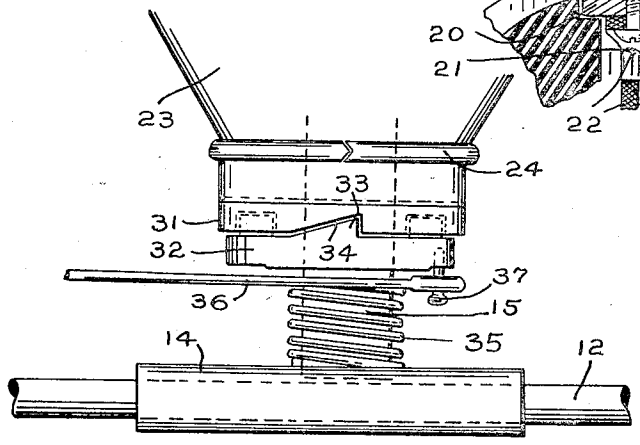


Fig. 5.

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ROTARY BULB CONTAINER

Filed May 18, 1934 4 Sheets-Sheet 3

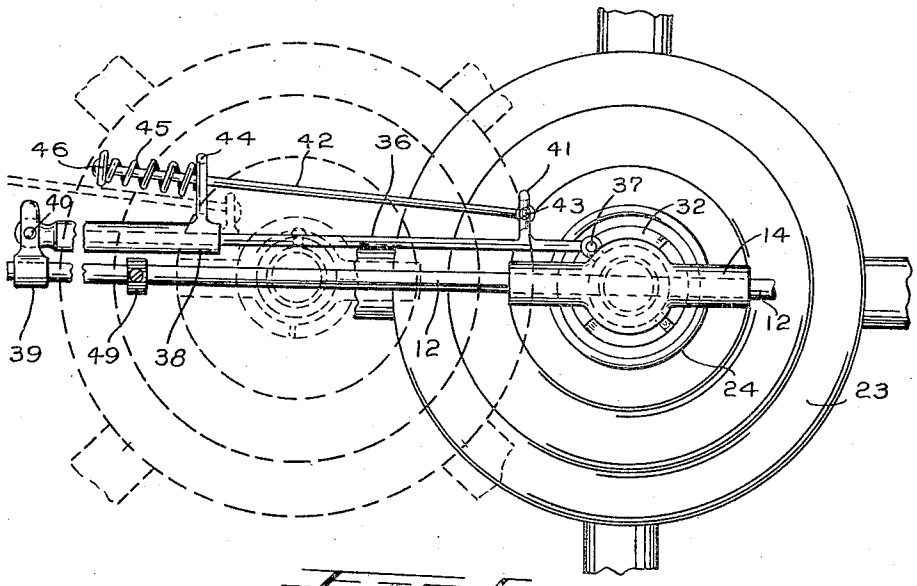


Fig. 6.

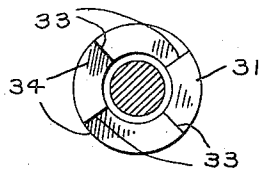


Fig. 7.

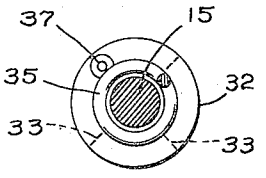


Fig. 8.

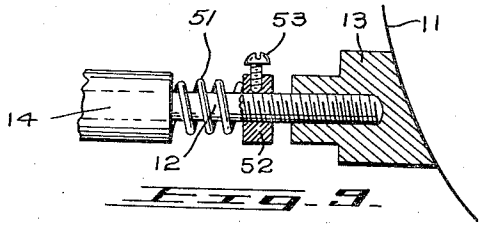


Fig. 9.

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ROTARY BULB CONTAINER

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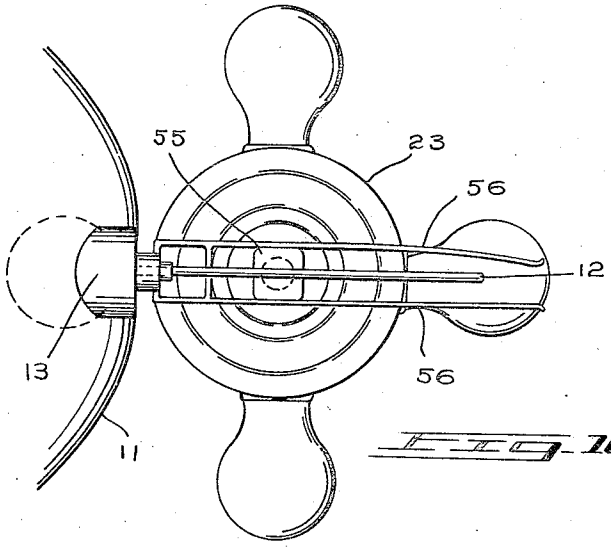


Fig. 10.

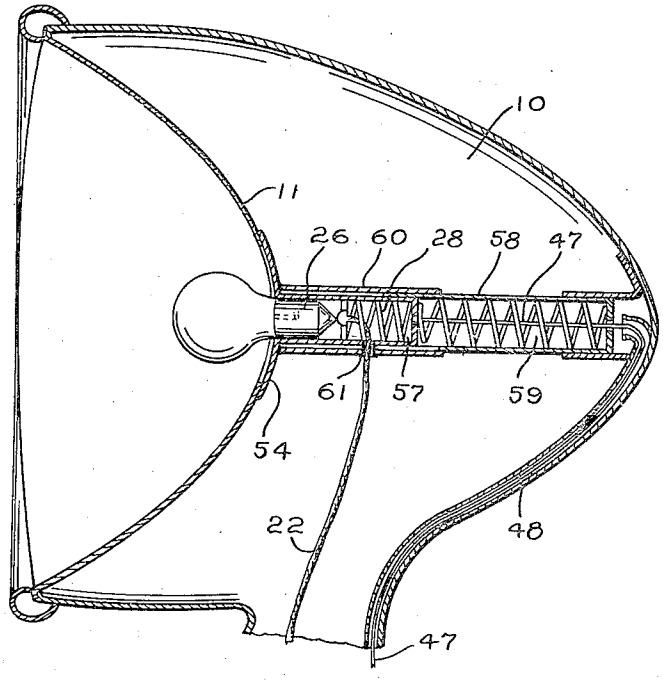


Fig. 11.

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Patented Mar. 3, 1936 2,032,515

UNITED STATES PATENT OFFICE

2,032,515

ROTARY BULB CONTAINER

John Murray Marr Troup, Walkerville, Ontario, Canada

Application May 18, 1934, Serial No. 726,365

9 Claims. (Cl. 240—37.1)

This invention relates to improvements in a rotary bulb container, its primary object being to provide means whereby a burned out globe may be replaced immediately.

A further object of the invention is to provide a bulb container wherein a number of bulbs may be inserted and brought into operation as the necessity arises.

A still further object is to provide a bulb container particularly adaptable for automobile head lamps having means rotating the said container to bring the globes therein into operation, said means being operable from the dash of the auto.

Another object of the invention is to devise focusing means for the said globes so that they may be adjusted to the correct position in the lamp reflector.

Another object is to devise such a rotary globe container having the electrical circuit arranged in such a manner that the globe is in operation when in position to be inserted into the reflector.

A still further object of this invention is to devise means whereby the bulb socket containing the lighted bulb, may be drawn back into the lamp casing by a connecting element from the dash board thus throwing the bulb out of focus with the reflector thereby dimming the light.

With these and other objects in view that may appear while the description proceeds, the invention consists in the novel construction and arrangement of parts as hereinafter more specifically set forth, claimed and shown in the accompanying drawings forming part of this specification, and in which:—

Figure 1 is an elevation of my invention showing the casing in cross-section to expose the device.

Figure 2 is a plan of the same showing the rotary container in section.

Figure 3 is an enlarged detail sectional view of the globe socket and electrical contact therefor.

Figure 4 is an enlarged cross-sectional view of the same at right angles to Figure 3.

Figure 5 is a plan view of the ratchet wheel and side mounting of the rotating element.

Figure 6 is a side elevation of my invention showing the travel of the rotary element.

Figure 7 is a detail view of the ratchet wheel.

Figure 8 is a similar view showing the movable ratchet wheel and pin.

Figure 9 is a detail view of the adjustable, focusing device.

Figure 10 is a detail view of a spring device which insures the correct orientation of the revolving mechanism.

Figure 11 is a view showing the alternate construction wherein the globe socket is singular and is reciprocally mounted within the lamp casing.

Referring more in detail to the drawings in which similar reference characters designate corresponding parts throughout the several views, it will be seen the invention consists of a lamp casing **10** having a concave-convex reflector **11** secured therein. Mounted on the convex surface thereof and within the said casing **10** are a pair of parallel stationary pins **12**, said pins being threaded to engage threaded supporting sockets **13** which are securely fastened to the said reflector **11**. Slidably mounted on the said pins **12** are sleeves **14** between which a hollow shaft **15** is supported, said shaft is stationary with respect to the said sleeves. On the said shaft is a stationary disc **16** of insulating material having a circular groove **17** therein. At a predetermined point on the periphery of the said groove is an orifice **18** leading through to the center of the hollow shaft **15**. At the outer end of the said orifice is a counterbore **19** in which a metal contact member **20** is positioned. A terminal **21** is secured thereto on the inside and an electric wire **22** leads therefrom through the said hollow shaft and out to the electric circuit.

The revolving disc **23** is positioned on the outside of the disc **16** and is constructed of metal in two halves for assembling purposes, the two halves being held together on the disc **16** and shaft **15** by two circular springs **24** mounted in grooves in the periphery of the said disc. Grooves **25** are provided in the shaft **15** and are engaged by the said disc to keep the same from moving laterally thereon. Equally spaced on the four quadrants of the disc are bulb sockets **26** which are of the bayonet type to fit standard made bulbs. Within the metal enclosure of the socket is an insulating ferrule **27** and a metal contact spring **28** and a spring seat **29**. On the lower side of the spring seat **29** is a contact tongue **30** which depends into the groove **17** to engage the metal contact **20**. It will be seen from the foregoing that as there is only one such metal contact member only one bulb will be lit at one time, and that the others may be brought into consecutive operation by revolving the outer disc.

The revolving mechanism comprises a ratchet wheel **31** secured to the end of the revolving disc **23** in fixed relation thereto. A corresponding ratchet wheel **32** is rotatably mounted on the shaft **15**. The serrated faces of the two ratchet members are arranged to face and engage each

other. There are four teeth **33** provided thereon at 90° to each other and corresponding grooves **34** to receive the same. The rotatably mounted wheel **32** is held normally in engagement with the wheel **31** by a spring **35** of the shaft **15** and which bears against the sleeve **14** and the said ratchet wheel **32** in a manner to permit slight lateral movement thereto on the reverse turn. The movement of the said ratchet wheel **32** is controlled by a ratchet arm **36** and a pivot pin **37** secured thereto and on which the said ratchet arm is pivotally mounted. A ratchet arm sleeve **38** is mounted on the rear end of the stationary pin **12** by means of a small bracket **39** and a pin **40**. The end of the ratchet arm **36** is slidably mounted in the said sleeve which constitutes a guide therefor. A lug **41** is formed on the said ratchet arm **36** and a pull rod **42** engaged thereto by a swivel pin **43**. Said rod extends toward the rear through a guide member **44** formed on the sleeve **38** and a spring **45** is mounted on the rear end thereof by means of a spring retainer **46**. A pull wire **47** is secured to the two sleeves **14** and extends toward the rear of the lamp casing to a conduit **48** or other suitable guide means for the same. From thence the said wire **47** goes to the dash or other convenient place to be reached by the operator.

When the said wire **47** is pulled the sleeves **14** and all the mechanism carried thereby travel toward the rear of the lamp, until the lug **41** on the ratchet arm engages the sleeve **38** where it is stopped from travelling further. However, the sleeves **14** travel until an adjustable stop **49** which is positioned on the stationary pin **12** is encountered. This latter part of the motion causes a partial revolution of the ratchet wheels due to the arrangement of the ratchet arm and pin. The operator then releases the tension on the pull wire and the sleeves **14** are brought into their normal position by means of springs **50** secured thereto and to a stationary part of the lamp such as the reflector. During the latter part of this form and motion the spring **45** engages the guide member **44** and after compression is applied thereto the rod **42** pulls the movable ratchet wheel back into its normal position.

On the forward end of the pins **12** are cushion springs **51** to protect the device from shock on the return motion. Nuts **52** threadedly mounted on the said pins **12** having a set screw **53** therein provide means whereby the position of the movable elements may be adjusted. This constitutes focusing means for the bulb as the device is adjusted with respect to the focusing of the bulb within the reflector.

A central orifice is provided in the reflector through which the bulb passes in and when being changed. A reflector collar **54** is fitted on the outside of the bulb sockets to close the said orifice when the bulb is in place.

The disc **23** may be provided with a squared sectional portion **55** as shown in Fig. 10 on the opposite end to the ratchet mechanism, the flat sides thereof corresponding to the positions of the globe sockets. Secured to the rear of the reflector or other convenient place is a U-shaped spring **56** of flat or rectangular cross section spring steel. The sides thereof are arranged to engage the flat sides of squared shaft portion **55** in a manner to permit the same to slide reciprocally therebetween. The tension between the two side members of the spring being toward each other and sufficiently strong to hold the revolving mechanism on the square without impeding the lateral movement thereof. It will be seen that as the disc is revolved the spring will be opened by the diagonal corners of the square after which the tension of the spring will cause the disc to quickly assume its correct position.

In Fig. 11 is shown an alternate construction embodying part of the principles of this invention. The bulb socket **26**, of which only one is used, is reciprocally mounted on a cylindrical member **57** and the contact spring **28** is likewise positioned therein. The said member is reciprocally mounted within a sleeve **58** supported centrally in the lamp casing **10** and a coil spring **59** is mounted within the said sleeve to impel the cylindrical member forward. The pull wire **47** is positioned centrally through the sleeve and spring and secured to the member **57**. Said wire passes through the guide a conduit **48** to the dash. The reflector collar **54** is secured to the said cylindrical member **57** and to an outer sleeve **60** which slides on the outside of the sleeve **58** and acts as an additional guide means. The electric wire **22** is carried through the lamp casing and through suitable insulations **61** into the socket and secured thereto.

From the foregoing description it will be seen that this device is particularly adapted to automobiles, airplanes, railway engines and the like, where it is vitally necessary to install a new bulb when the one in use becomes defective. This may be accomplished with the invention disclosed without stopping or without the operator leaving his seat or controls.

It is obvious that in the case of an automobile when the wire is pulled slightly the bulb is thrown out of focus. Advantage may be taken of this arrangement and used in place of dimming the lights. One light may be thrown out of focus and will appear dimmed for the benefit of a passing driver and the other light kept in full power on the edge of the road or ditch. The alternate and more simplified form of the invention being particularly adaptable for this purpose.

It is believed that the construction and advantage of the structure shown may be apparent from the foregoing paragraphs taken in conjunction with the accompanying drawings without further detailed description.

While the preferred embodiment of the invention has been disclosed, it is understood that minor changes in the details of construction, combination and arrangement of co-operating elements may be resorted to within the scope of which is claimed without departing from the spirit of the invention.

I claim:

1. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc having electrical contact means therefor, said disc being rotatably and reciprocally mounted within a lamp casing behind the reflector, the axis thereof being at right angles to the light rays of the lamp, said reflector having a centrally disposed orifice therein and means for reciprocally moving the said disc to project or withdraw a bulb mounted in one of the sockets through the said reflector orifice.

2. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc, said disc being rotatably mounted on a non-rotary hollow shaft, said shaft being reciprocally mounted in a lamp structure, an inner stationary disc positioned on said hollow shaft, an electrical terminal

element on said stationary disc with conductable means for electric current thereto, contact means below each of said sockets arranged to engage said terminal element when said rotatable disc is rotated to bring same into alignment therewith, and means for rotating the said rotatable disc.

3. In a rotary bulb changing device of the character described, comprising a plurality of bulb sockets arranged on the periphery of a hollow disc, said disc being rotatably mounted on a non-rotary hollow shaft, said shaft being reciprocally mounted in the lamp structure, an inner stationary disc positioned on said hollow shaft within said rotary disc, a circumferential groove in the said stationary disc, an electrical terminal element positioned in the said groove, conductable means for electric current carried through said hollow shaft thereto, spring contact means in each of said bulb sockets, spring seats therefor, contact tongues depending from the said spring seats into the said groove to engage the said terminal element when said rotatable disc is rotated to bring same into alignment therewith and means for rotating the said rotatable disc.

4. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc having electrical contact means therefor, said disc being rotatably mounted on a shaft, said shaft supported between two sleeves, said sleeves being slidably mounted on stationary pins supported in parallel relation to each other on the lamp structure, ratchet means mounted on said shaft and engaging the said rotary disc, a ratchet spring holding said ratchet means normally in engagement, a ratchet arm secured to said ratchet means, a ratchet arm sleeve in which said ratchet arm is slidably mounted, said sleeve supported by one of said stationary pins, a pull rod pivotally connected to said ratchet arm and slidable through a guide lug on said sleeve, a stop adjustably mounted on one of said stationary pins, a wire connected to said sleeves extending out through the lamp casing, and guide means therefor to convenient position for manipulation.

5. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc having electric contact means therefor, said disc being rotatably mounted on a shaft, said shaft supported between two sleeves, said sleeves being slidably mounted on stationary pins supported in parallel relation to each other on the lamp structure, ratchet means mounted on said shaft and engaging the said rotary disc, a ratchet spring holding said ratchet means normally in engagement, a ratchet arm secured to said ratchet means, a ratchet arm sleeve in which said ratchet arm is slidably mounted, said sleeve supported by one of said stationary pins, a pull rod pivotally connected to said ratchet arm and slidable through a guide lug on said sleeve, a stop adjustably mounted on one of said stationary pins, a wire connected to said sleeves extending out through the lamp casing, and guide means therefor to a convenient position for manipulation, spring means normally holding the slidably mounted mechanism in a forward position.

6. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc having electrical contact means therefor, said disc being rotatably mounted on a shaft, said shaft supported between two sleeves, said sleeves being slidably mounted on stationary pins supported in parallel relation to each other on the lamp structure, ratchet means mounted on said shaft and engaging the said rotary disc, a ratchet spring holding said ratchet means normally in engagement, a ratchet arm secured to said ratchet means, a ratchet arm sleeve in which said ratchet arm is slidably mounted, said sleeve supported by one of said stationary pins, a pull rod pivotally connected to said ratchet arm and slidable through a guide lug on said sleeve, a stop adjustably mounted on one of said stationary pins, a wire connected to said sleeves extending out through the lamp casing, and guide means therefor to a convenient position for manipulation, spring means normally holding the slidably mounted mechanism in forward position, springs mounted on said stationary pins to provide cushioning means for same at end of forward movement.

7. In a rotary bulb changing device of the character described comprising a plurality of bulb sockets arranged on the periphery of a disc having electrical contact means therefor, said disc being rotatably mounted on a shaft, said shaft supported between two sleeves, said sleeves being slidably mounted on stationary pins supported in parallel relation to each other on the lamp structure, ratchet means mounted on said shaft and engaging the said rotary disc, a ratchet spring holding said ratchet means normally in engagement, a ratchet arm secured to said ratchet means, a ratchet arm sleeve in which said ratchet arm is slidably mounted, said sleeve supported by one of said stationary pins, a pull rod pivotally connected to said ratchet arm and slidable through a guide lug on said sleeve, a stop adjustably mounted on one of said stationary pins, a wire connected to said sleeves extending out through the lamp casing, and guide means therefor to a convenient position for manipulation, spring means normally holding the slidably mounted mechanism in forward position, springs mounted on said stationary pins to provide cushioning means for same at end of forward movement, and means for adjusting said springs on said pins, said means constituting focusing means for the lamp within the reflector, substantially as set forth.

8. In a headlight of the type described, a lamp casing, a reflector mounted in said casing having a centrally disposed orifice, a rotary bulb holding member rotatably and slidably mounted in said casing behind said reflector having lamp sockets in its periphery, means for reciprocating said bulb holding member to project or retract a lamp mounted in one of the sockets through the orifice in said reflector and mechanism for rotating said bulb holding member to successively bring said lamps into alinement with the reflector orifice upon retraction of the bulb holding member.

9. In a headlight of the type described, a lamp casing, a reflector mounted in said casing having a centrally disposed orifice, a rotary bulb holding member rotatably and slidably mounted in said casing behind said reflector having lamp sockets in its periphery, means for reciprocating said bulb holding member to project or retract a lamp mounted in one of the sockets through the orifice in said reflector and ratchet mechanism for rotating said bulb holding member to successively bring said lamps into alinement with the reflector orifice upon retraction of the bulb holding member.

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