July 5, 1938. J. L. WILDENTHALER 2,122,829

CARBON HOLDER

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Fig. 1.

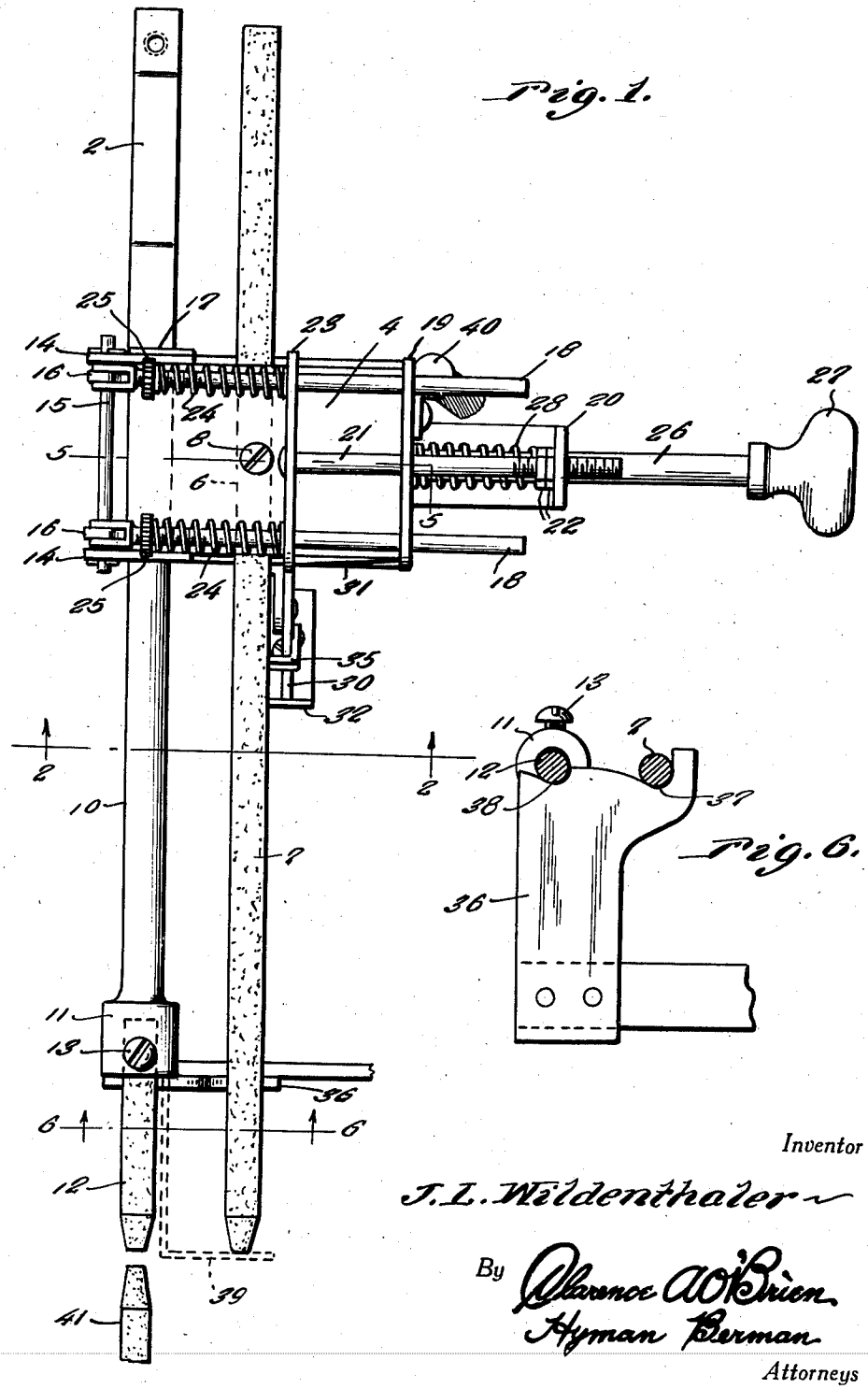


Fig. 6.

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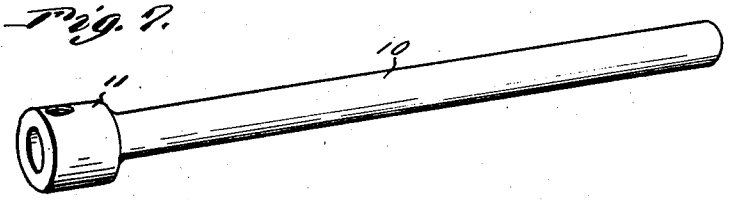
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CARBON HOLDER

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Fig. 1.



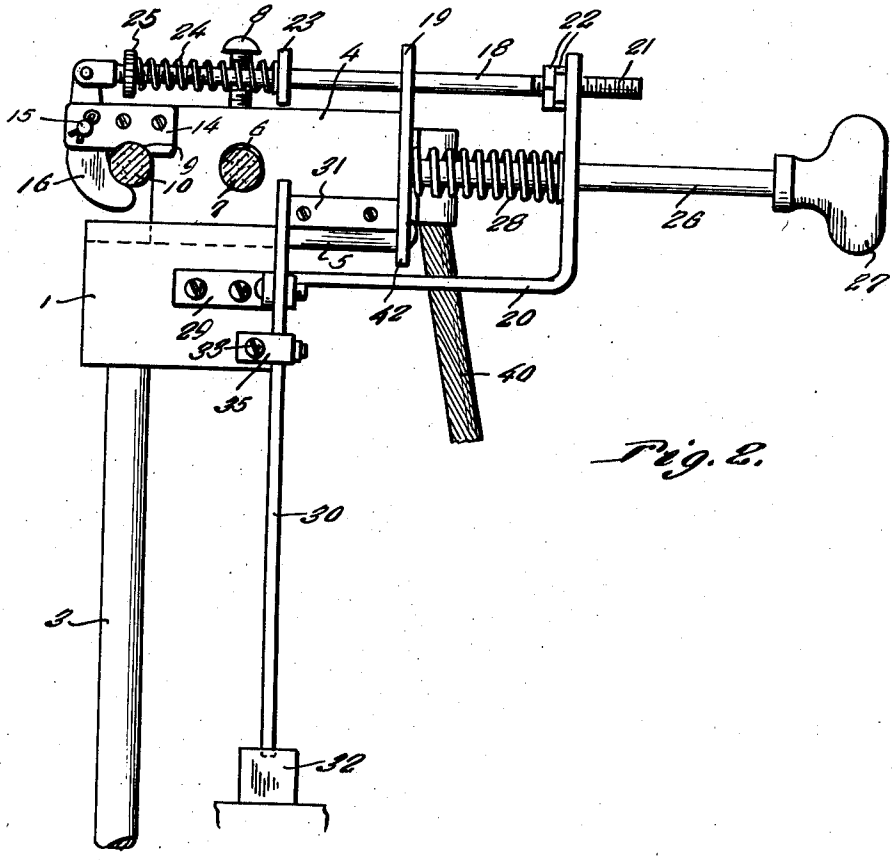
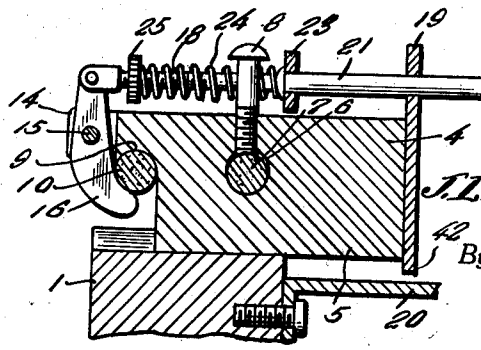


Fig. 2.

Fig. 5.



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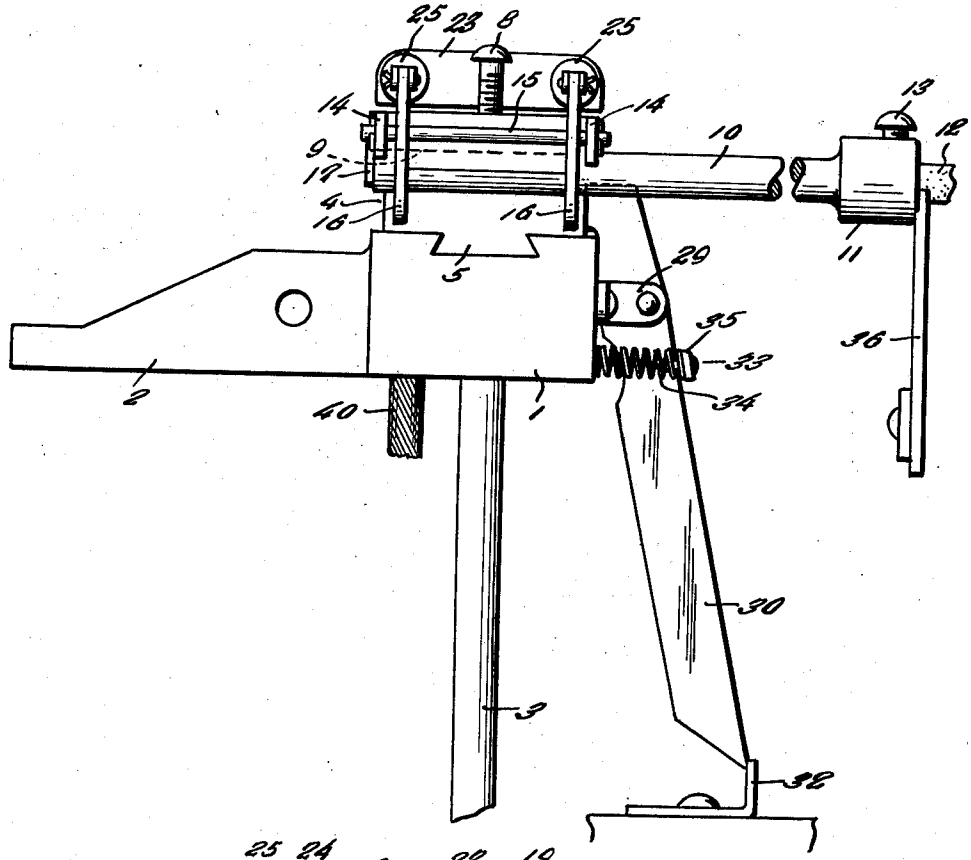
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CARBON HOLDER

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Fig. 3.



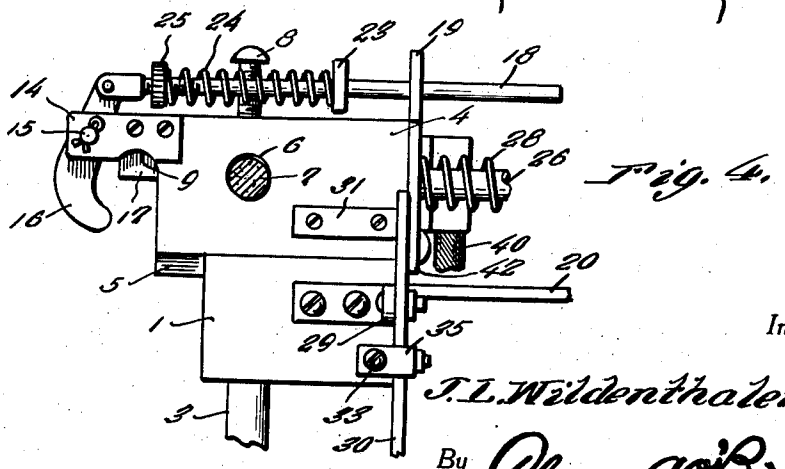


Fig. 4.

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CARBON HOLDER

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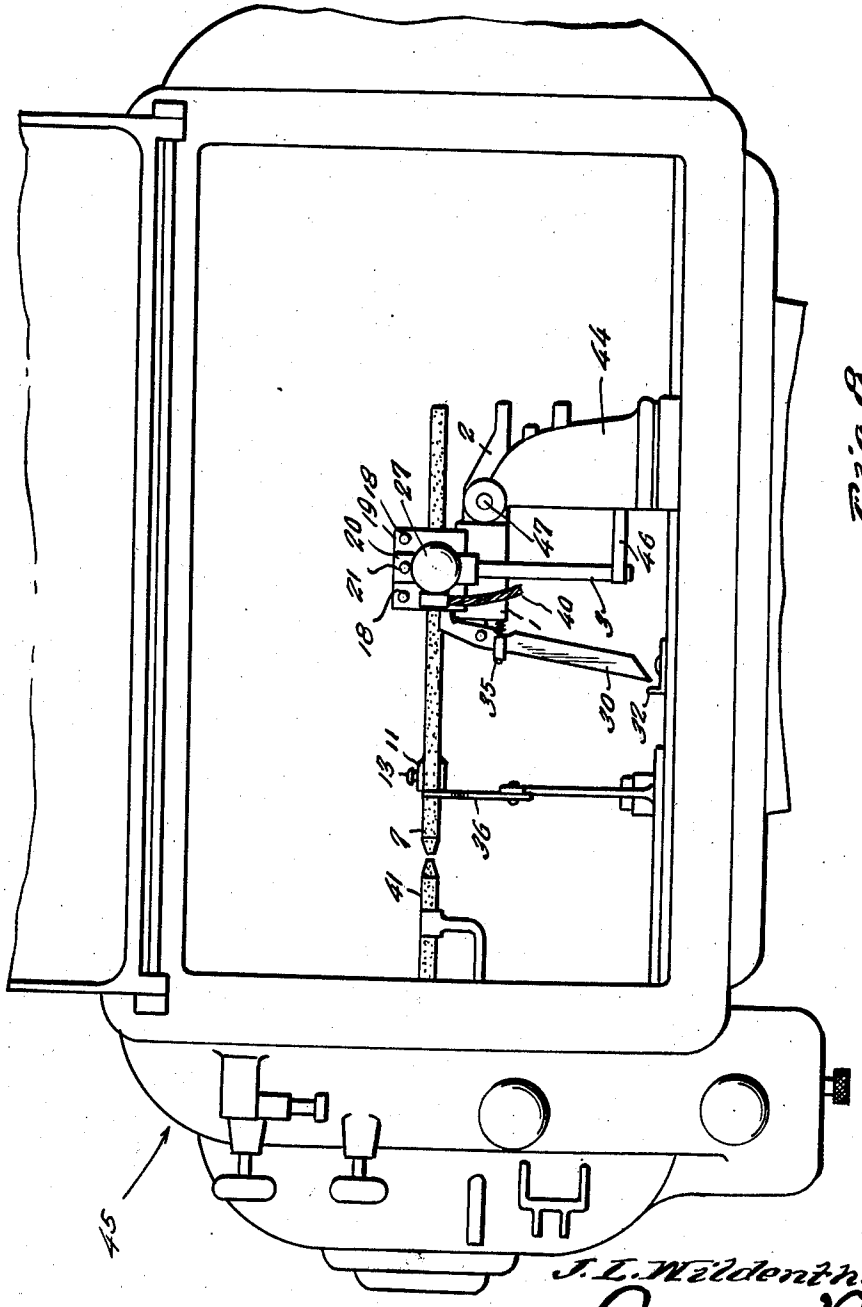


Fig. 8.

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Patented July 5, 1938 2,122,829

UNITED STATES PATENT OFFICE

2,122,829

CARBON HOLDER

James L. Wildenthaler, Sandusky, Ohio

Application February 1, 1937, Serial No. 123,532

7 Claims. (Cl. 176—119)

The present invention relates to new and useful improvements in carbon holders for various types of arc lamps such, for example, as the "Ashcraft", for motion picture machines and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of parts through the medium of which the positive carbon may be substantially consumed, thereby eliminating considerable waste and materially promoting economy.

Another very important object of the invention is to provide a holder of the aforementioned character embodying novel means for automatically discharging the old or substantially consumed carbon and sliding a new one into position for use without the change being noticeable and, for all practical purposes, without losing the arc.

Other objects of the invention are to provide a carbon holder of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views and wherein:

Figure 1 is a top plan view of an embodiment of the invention.

Figure 2 is a front elevational view, the adapter and the new carbon being shown in cross section.

Figure 3 is a side elevational view.

Figure 4 is a view substantially similar to Fig. 2 but showing the carriage after it has been shifted.

Figure 5 is a vertical sectional view, taken substantially on the line 5—5 of Fig. 1.

Figure 6 is a cross sectional view through the carbons, taken substantially on the line 6—6 of Fig. 1.

Figure 7 is a detail view in perspective of the adapter.

Figure 8 is a side elevational view, showing the invention installed in a lamp.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a base 1 in the form of a block of suitable metal. Projecting from the base 1 is an arm 2 for mounting the assembly on the usual slidable saddle 44 of the lamp 45 through the medium of a pin 47. The reference numeral 3 designates a post which depends from the base 1 and which is adapted to engage in the usual bracket 46 which projects from the saddle 44.

Slidably mounted on the base 1 is a carriage 4 which is also in the form of a block of suitable metal. The carriage 4 is slidably connected to the base 1 by a dovetail tongue and groove connection 5. Extending through the carriage 4 is a bore 6 for the reception of a reserve or unused carbon 7 which is secured by a set screw 8. One end of the carriage 4 is recessed, as at 9, in a manner to provide a seat for the reception of an adapter 10. The adapter 10 includes a socket 11 on one end in which the old or used carbon 12 is secured by a set screw 13.

Projecting from this end of the carriage 4 is a pair of brackets 14 in which a shaft 15 is mounted. Mounted at an intermediate point for swinging movement on the shaft 15 is a pair of jaws 16 which are adapted to clamp the adapter 10 in the recess 9. A stop 17 at one end of the recess 9 facilitates the proper positioning of the adapter 10 in said recess. Pivotally connected, at one end, to the upper end portions of the jaws 16 is a pair of rods 18. The rods 18 extend slidably through an upstanding plate 19 which is fixed on the other end of the carriage 4.

Mounted on the base 1 is an angular bracket 20 which includes an upstanding portion extending in spaced, opposed relation to the plate 19. Extending through the plate 19 and the upper portion of the bracket 20 is a rod 21 having threaded on one end portion stop nuts 22 for engagement with said bracket 20. Fixed on the other end of the rod 21 is an abutment 23 through which the rods 18 slidably extend. Coil springs 24 encircle the rods 18 and are engageable at one end with the abutment 23. The other ends of the coil springs 24 are engaged with nuts 25 which are threaded for adjustment on the rods 18 and through the medium of which the tension of said coil springs may be regulated. It will be noted that the nuts 25 are mounted on the pivoted end portions of the rods 18. An operating rod 26 is anchored in the end of the carriage 4 which carries the plate 19, said operating rod extending slidably through the bracket 20 and having mounted on its free end a knob or handle 27. A coil spring 28 is mounted on the rod 26 and has one end engaged with the bracket 20 and its other end engaged with the plate 19 for yieldingly urging the carriage 4 from the position shown in Fig. 2 of the drawings to that illustrated in Fig. 4.

Also mounted on the base 1 is a forwardly pro-

jecting bracket 29 on which a trigger 30 is pivotally mounted at an intermediate point. The upper end portion of the trigger 30 is engageable behind a shoulder which is provided by an element 31 on the carriage 4 for releasably securing said carriage in set or retracted position against the tension of the spring 28. Adjustably mounted in the bottom of the lamp 45 in the path of the lower end portion of the trigger 30 is an abutment or trip 32 which disengages said trigger from the element 31 for releasing the carriage 4. A screw 33 projects forwardly from the base 1 and mounted thereon is a coil spring 34. The reference numeral 35 designates an arm which is mounted on the trigger 30 adjacent its pivot and which is slidable on the screw 33. The coil spring 34 is engaged with the arm 35 for yieldingly urging the trigger 30 toward locking or operative position.

Mounted in the lamp 45 in forwardly spaced relation to the base 1 is a stationary duel guide 36 having notches or recesses 37 and 38 in its upper end for the reception of the carbons 7 and 12, respectively. As illustrated to advantage in Fig. 6 of the drawings, the notches or recesses 37 and 38 are formed to facilitate lateral movement of the carbons 7 and 12 in one direction as the carriage 4 shifts under the influence of the spring 28. The reference numeral 39 (see Fig. 1) designates a gauge which may be used to facilitate the proper setting of the new carbon 7 relative to the old or used carbon 12. A conductor cable 40 from a source of electric current, is connected to the carriage 4.

Briefly, the operation of the invention is substantially as follows:

When the carbon in the bore 6 has been consumed to the point where it is ordinarily thrown away, it is removed and mounted in the adapter 10, thereby becoming what has hereinbefore been referred to as the old or used carbon. The adapter 10 is then engaged in the recess 9 in one end of the carriage 4, after which said carriage, through the medium of the knob 27 on the rod 26, is retracted against the tension of the spring 28 or, in other words, moved from the position shown in Fig. 4 of the drawings to that shown in Figs. 2 and 5. When this occurs the coil springs 24 are compressed between the abutment 23 and the nuts 25 and said coil springs, through the medium of the slidable rods 18, actuate the jaws 16 for securely clamping the adapter 10 in position. As hereinbefore stated, the tension of the coil springs 24 may be regulated by the nuts 25. This may also be accomplished by adjusting the nuts 22 on the rod 21, thereby changing the position of the abutment 23 against which the coil springs 24 bear. The carriage 4 is secured in retracted position by the trigger 30 which drops behind the shoulder provided by the element 31, said trigger being actuated by the coil spring 34.

A new carbon 7 is then inserted in the bore 6 and secured by the set screw 8 with its discharge end flush with the corresponding end of the old carbon 12, as seen in Fig. 1 of the drawings. It is at this point that the gauge 29 is used, said gauge being engaged with the end of the socket 11 on the adapter 10. When thus mounted the carbons 7 and 12 rest in the notches 37 and 38 of the guide 36 with said carbon 12 properly aligned with the negative carbon 41. Now, with the lamp 45 in operation the positive and negative carbons 12 and 41, respectively, are fed toward each other in the usual manner as they are consumed until the adapter 10 engages or is about to engage the guide 36, as seen in Fig. 1 of the drawings. At this point the abutment or trip 32 causes the trigger 30 to release the carriage 4 which instantly shifts from the position shown in Figs. 2 and 5 of the drawings to that illustrated in Fig. 4 of said drawings, thus bringing the new carbon 7 into alignment with the negative carbon 41 substantially without losing the arc and so quickly that the change cannot be noticed. As the carriage 4 moves to the position shown in Fig. 4 of the drawings the nuts 25 move away from the abutment 23 thereby removing the tension from the springs 24 for permitting the adapter 10 to open the jaws 16 and drop by gravity from the recess 9 to the bottom of the lamp. The lower portion 42 of the plate 19 extends below the carriage 4 for engagement with the base 1 for limiting the movement of said carriage when impelled by the spring 28.

It will thus be seen that a construction and arrangement has been provided whereby substantially all of the positive carbon may be consumed. It will also be seen that a new carbon will be automatically brought into use without the necessity of shutting down the projecting machine. When a shut down is made to change the film the carbon in the bore 6 may be transferred to the adapter 10 and a new carbon may be inserted in said bore 6 and secured in properly adjusted position relative to the old carbon in said adapter 10, as hereinbefore described. When the shift or change is made the old carbon 12 readily slides laterally out of the notch 38 of the guides 36 and the new carbon 7 readily slides laterally out of the notch 37 and drops into said notch 38.

It is believed that the many advantages of a carbon holder constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. In an arc lamp including a negative carbon, a base movable toward said negative carbon, a carriage slidable on said base, means for securing positive and reserve carbons on said carriage with said positive carbon in position for coaction with the negative carbon, means for shifting the carriage for bringing the reserve carbon into position for coaction with the negative carbon, and a trigger engaged with the carriage for releasably securing said carriage.

2. In an arc lamp including a negative carbon, a base movable toward said negative carbon, a carriage slidable on said base, means for securing a pair of positive carbons on said carriage with one of said positive carbons in position for coaction with the negative carbon, means for shifting the carriage for bringing the other of the positive carbons into position for coaction with the negative carbon, and means controlled by the movement of the base toward the negative carbon for releasably securing the carriage in the first named position, the last named means including a trigger pivotally mounted on the base and engageable with the carriage for securing said carriage against movement on said base, and a stationary trip mounted in the lamp and engageable with the

trigger for disengaging said trigger from the carriage.

3. A carbon holder for arc lamps comprising a base, a carriage slidable on said base, clamping jaws releasably securing a positive carbon on said carriage in position for coaction with a negative carbon, means for securing a second positive carbon on the carriage, means for actuating the carriage for bringing the reserve carbon into position for coaction with the negative carbon, and coacting means on the carriage and the base for releasing said positive carbon when said carriage is actuated.

4. A carbon holder for arc lamps comprising a base, a carriage slidable on said base, an adapter, for the reception of used positive carbons, removably mounted on the carriage, means for securing an unused positive carbon on the carriage, resilient means for actuating the carriage for bringing the unused positive carbon into position for coaction with a negative carbon, means for releasably securing the carriage against actuation by said resilient means, and coacting means on the carriage and the base for securing the adapter on said carriage and for releasing said adapter when the carriage is actuated by said resilient means.

5. A carbon holder for arc lamps comprising a base, a carriage slidable on said base, an adapter, for the reception of used positive carbons, removably mounted on the carriage, means for securing an unused positive carbon on the carriage, resilient means for actuating the carriage for bringing the unused positive carbon into position for coaction with a negative carbon, means for releasably securing the carriage against actuation by said resilient means, and coacting means on the carriage and the base for securing the adapter on said carriage and for releasing said adapter when the carriage is actuated by said resilient means, said resilient means including a pair of jaws pivotally mounted on the carriage and engageable with the adapter, a plate mounted on the carriage, rods pivotally connected, at one end, to the jaws and extending slidably through the plate, a bracket mounted on the base, a rod mounted in said bracket and in the plate, an abutment fixed on one end portion of the second named rod, the first named rods extending slidably through said abutment, and coil springs mounted on the first named rods and engaged with the abutment and operatively connected to said first named rods for yieldingly urging the jaws toward clamping position against the adapter.

6. A carbon holder for lamps comprising a stationary member, a movable member on said stationary member, means for securing a pair of carbons on the movable member, and means for actuating the movable member for shifting one of the carbons to the position of the other carbon relative to the lamp.

7. A carbon holder for lamps comprising a carriage, means for mounting a pair of carbons on said carriage, and means for actuating said carriage for moving one of the carbons to the position of the other carbon relative to the lamp.

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