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PATENTED DEC. 10, 1907.

G. E. THROOP & S. A. FREEMAN.

ELECTRIC LAMP HOLDER.

APPLICATION FILED SEPT. 15, 1906.

2 SHEETS—SHEET 1.

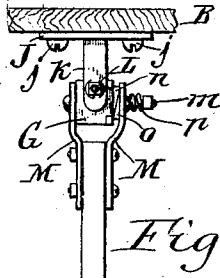


Fig. 1.

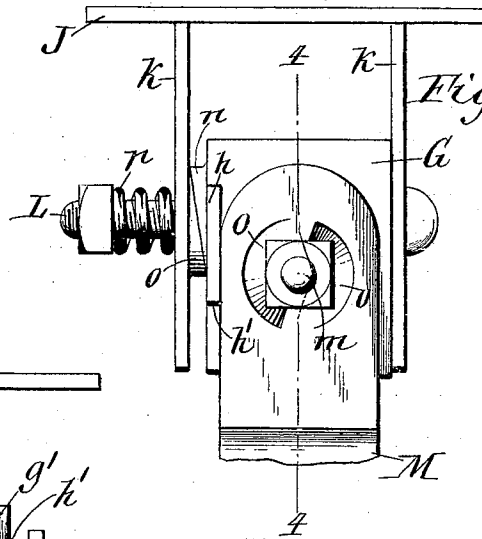


Fig. 3.

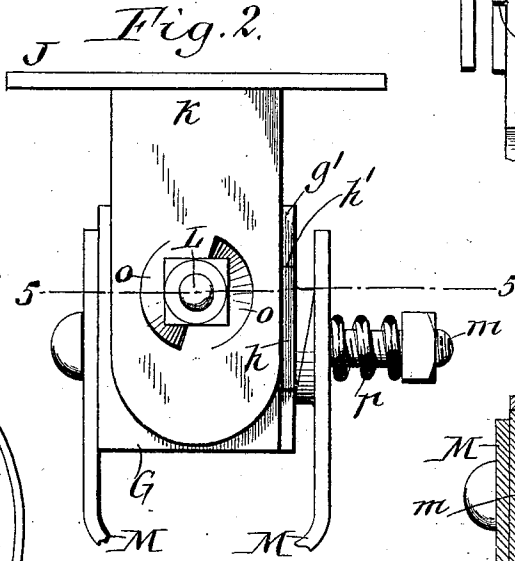


Fig. 2.

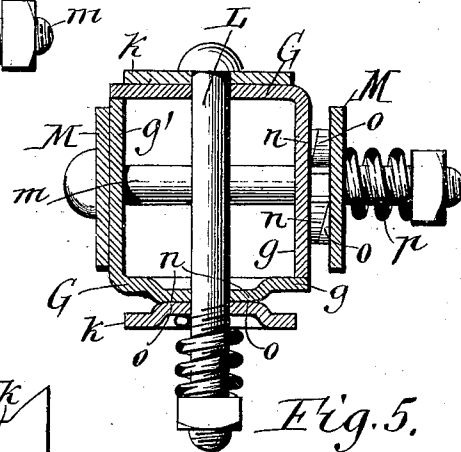


Fig. 5.

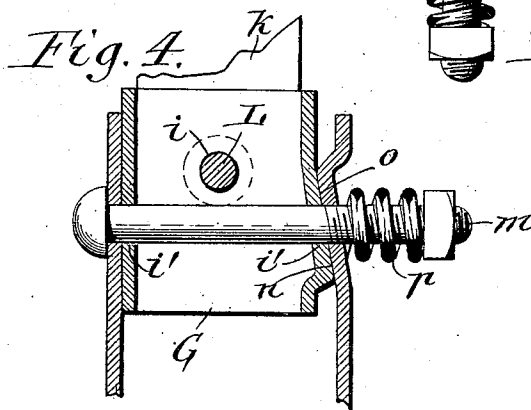


Fig. 4.

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Witnesses.

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2 SHEETS—SHEET 2.

Fig. 10.

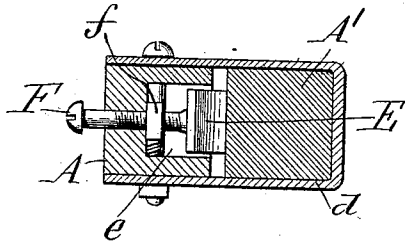


Fig. 9.

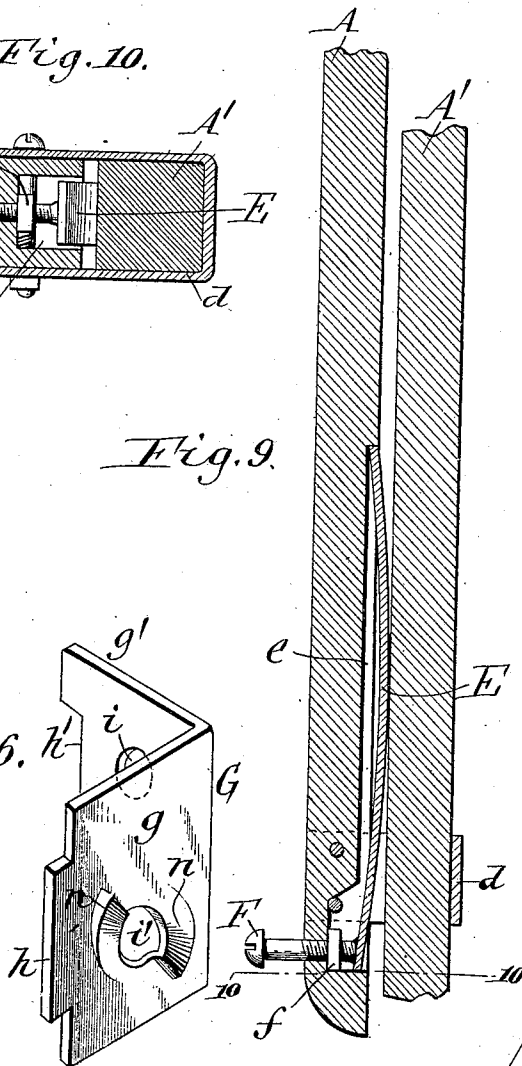


Fig. 6.

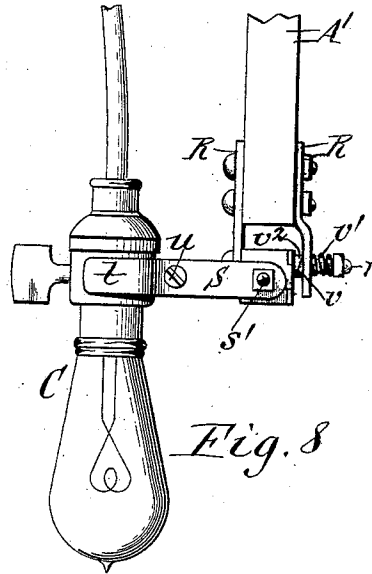
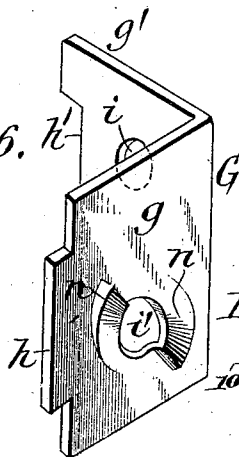


Fig. 8.

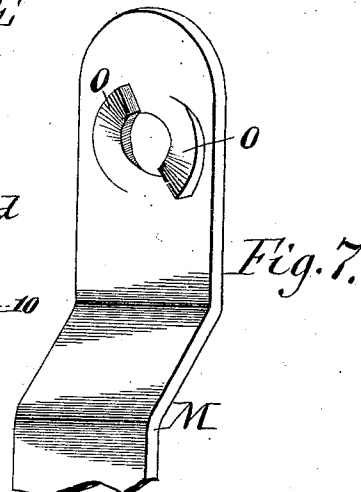


Fig. 7.

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UNITED STATES PATENT OFFICE.

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OLIN GAS ENGINE COMPANY, OF BUFFALO, NEW YORK.

ELECTRIC-LAMP HOLDER.

No. 873,108.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed September 15, 1906. Serial No. 334,803.

To all whom it may concern:

Be it known that we, CHARLES E. THROOP and SAMUEL A. FREEMAN, citizens of the United States, and residents of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Electric-Lamp Holders, of which the following is a specification.

This invention relates to holders for electric lamps and has the object to provide a holder for this purpose which is simple and durable in construction, which can be manufactured at low cost and which is provided with efficient and reliable means whereby the same may be lengthened or shortened and also turned bodily for bringing the lamp into the required position.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a side elevation of an electric lamp holder embodying our improvements. Fig. 2 is a side elevation, on an enlarged scale, of the upper universal joint of the holder viewed in the same direction as Fig. 1. Fig. 3 is a similar view of the same viewed at right angles to Figs. 1 and 2. Fig. 4 is a fragmentary vertical section in line 4—4, Fig. 3. Fig. 5 is a horizontal section in line 5—5, Fig. 2. Fig. 6 is a perspective view of one of the coupling sections of the universal joints. Fig. 7 is a similar view of one of the jaws or arms of the universal joints. Fig. 8 is a fragmentary side elevation, on an enlarged scale, of the lower part of the lamp holder viewed at right angles to Fig. 1. Fig. 9 is a longitudinal section, on an enlarged scale, of the lower part of the holder. Fig. 10 is a transverse section in line 10—10, Fig. 9.

Similar letters of reference indicate corresponding parts throughout the several views.

The body of the lamp holder comprises two supporting bars A, A' of wood or other material one of which is mounted on a support B and the other carrying an electric lamp C and which are capable of sliding lengthwise one on the other in the manner of a telescopic joint for the purpose of lengthening or shortening the holder.

The preferred means of slidingly connecting the body bars shown in the drawings, as an example, consists in overlapping the inner opposing ends of the body bars and providing the inner end of each bar with a

guide loop *d* which receives the adjacent portion of the other bar.

For the purpose of holding the body bars in their adjusted position, a frictional clamp is provided which is constructed as follows and shown in Figs. 1, 9 and 10:—E represents a bow-shaped clamping spring which is arranged in a recess *e* in the inner face of one of the bars and bears at the central part of its convex side against the opposing inner face of the other bar. The clamping spring is confined against lengthwise movement in the recess by engaging its ends with opposite ends of the recess. One end of the clamping spring rests against the bottom of the recess *e* while its other end rests on the inner end of an adjusting screw F which works in a screw nut *f* seated in the recess *e*. Upon tightening the screw F more or less the tension of the spring E may be varied so as to increase or decrease the frictional contact of the spring with the opposing bar to suit the requirements.

At its upper end the upper bar A is connected with the support B by a universal joint which is preferably constructed as follows: G, G represent the two sections of a hollow coupling head or swiveling block, each section consisting of two flanges, wings or walls *g*, *g'* arranged at right angles to each other and preferably constructed integrally of sheet metal. Two of these angular sections abut or fit against each other at their longitudinal edges and are held against lengthwise displacement relatively to each other by a tongue *h* on the longitudinal edge of one section interlocking or engaging with the recess *h'* on the corresponding edge of the other section forming a box-shaped coupling head. Each coupling section is provided in one of its walls or wings with an opening *i* and in its other wall with an opening *i'*, said openings being lengthwise out of line and adapted to cooperate with similar openings in the other section of the coupling head or block.

J represents a base plate or bracket secured to the support B by screws *j* or otherwise and provided with two depending arms or jaws *k*, *k* which are arranged on opposite sides of the swivel block and are pivotally secured thereto by a horizontal bolt L passing transversely through the companion openings *i* of the swivel block sections and

through openings in the bracket arms, as shown in Figs. 1, 2 and 5.

The upper end of the upper body bar A is provided with two arms or jaws M, M which are arranged on opposite sides of the swiveling block and pivotally connected therewith by a horizontal bolt *m* passing transversely through the companion lower openings *i* of the swivel block and through openings in the arms M, M. By turning the body bars on the lower bolt *m* and the swiveling block on the bolt L which is arranged at right angles to the bolt *m* the lamp carried by the bars may be moved up and down in any direction relatively to the supporting point of the bars.

The frictional engagement of the arms of the bracket and upper bar with the outer side of the swivel block operates to hold the lamp in place without the aid of other devices if the bars are not shifted laterally and upward from a vertical pendent position to a position which is at a considerable angle to the vertical position. When however the bars are moved laterally and upwardly at a considerable angle, it requires more friction to hold the bars in position and additional means are therefore provided which cause an increase in the frictional contact between the swivel arms and block of the upper universal joint as the bars are raised into a horizontal position or considerably out of a vertical position. The preferred means for this purpose shown in the drawings are constructed as follows: The outer side of one wall of each pair through which a swivel bolt passes is provided with one or more cam faces or inclines *n* which coöperate with corresponding inclines or cams *o* on the opposing inner side of the adjacent swivel arm. The companion cams or inclines are firmly pressed together by a spiral spring *p* which surrounds the respective swivel bolt and bears at one end against a shoulder formed at the outer end of said bolt by its nut or head while its opposite end bears against the outer side of the swivel arm having the inclines or cams. The relation of the coöperating inclines around the swivel bolts L and *m* is such that when the body bars are in a vertical pendent position the low part of each cam or incline is arranged opposite the high part of its companion cam or incline, as shown in Figs. 1, 2 and 3; whereby the cam swivel arms are permitted to approach most closely to the swivel block and consequently producing only a moderate frictional contact between these parts. Upon raising the bars so that the same approach more or less nearly a horizontal position the coöperating cams move so that the high part of one cam approaches the high part of its companion cam, thereby causing an increase in the friction contact between the same and enabling the bars to be held reliably in this po-

sition. When the bars are raised about the bolt *m* as a pivot only the set of cams or inclines around this bolt come into action and when the bars are raised about the bolt L then only the set of cams or inclines around the latter come in play but when the bars are raised at such an angle that they turn partly about both of these bolts then both sets of cams operate together. The cams *n*, *o*, as shown, are formed by stamping or pressing the same out of the stock of the metal arms and walls which carry the same but if desired the same may be otherwise constructed.

The lamp is connected with the lower end of the lower body bar by a universal joint which is constructed as follows: Q represents a swivel block or coupling head which is constructed in all respects like the swivel block of the upper universal joint and the same description will therefore apply to both. R, R represent a pair of inner swivel arms secured to the lower end of the lower bar and arranged on opposite sides of the lower swivel block. *r* is a transverse swivel bolt whereby the inner swivel arms R are pivotally connected with the upper part of the lower swivel block. S, S represent two outer swivel arms which have their upper ends arranged on opposite sides of the lower swivel block and pivotally secured thereto by a swivel bolt *s* which is arranged at right angles to the bolt *r*. The lower ends of the arms S, S are constructed in the form of clamps or jaws *t*, *t* which are drawn against opposite sides of the neck of the lamp C by a transverse bolt *u* connecting said arms below the lower swivel head. One of the arms R is provided with cams or inclines *v* around its bolt *r* which are pressed by a spring *v*¹ against corresponding cams *v*² on the adjacent wall of the lower swivel head and one of the arms S is provided around its bolt *s*¹ with cams *w* which are pressed by a spring *w*¹ against corresponding cams or inclines *w*² on the adjacent wall of the lower swivel block. By this means the lamp when turned upwardly so that the weight is more or less nearly horizontally opposite the lower swivel block, the friction in this universal joint will be increased accordingly for holding the lamp reliably in position.

We claim as our invention:

1. An electric lamp holder comprising two bars slidable lengthwise one upon the other, and means constructed and operating to hold the bars frictionally in place relatively to each other comprising a bow spring arranged in a recess in one of said bars and resting at one end on the bottom of said recess while its convex central part bears against the other bar, and an adjusting screw mounted on the bar containing the recess and bearing against the other end of said spring, substantially as set forth.

2. An electric lamp holder comprising two

bars slidable lengthwise one upon the other, and means constructed and operating to hold the bars frictionally in place relatively to each other comprising a bow spring arranged in a recess in one of said bars and resting at one end on the bottom of said recess while its convex central part bears against the other bar, a screw nut seated in said recess, and an adjusting screw working in said nut and bearing against the other end of said spring, substantially as set forth.

3. An electric lamp holder comprising a supporting bar, a bracket adapted to be secured to a support, and a universal joint connecting said bar and bracket and comprising a swivel block and pivotal connections between said block and said bracket and bar, said block having the form of a rectangular frame and being constructed of two L-shaped sections, the ends of one section abutting against the ends of the other section, substantially as set forth.

4. An electric lamp holder comprising a supporting bar, a bracket adapted to be secured to a support, and a universal joint connecting said bar and bracket and comprising a swivel block and pivotal connections between said blocks and said bracket and bar, said block being constructed of two sections each of which consists of two integral walls arranged at right angles to each other and said sections having their longitudinal edges abutting and interlocked by means of a tongue formed on the longitudinal edge of one section and engaging with a recess in the longitudinal edge of the other section, substantially as set forth.

5. An electric lamp holder comprising a supporting bar, a bracket adapted to be secured to a support, and a universal joint connecting said bar and bracket comprising a swiveling block having the form of a rectangular frame and being constructed of two L-shaped sections, the ends of one section abutting against the ends of the other section, an upper bolt passing transversely through said sections and pivotally connecting the same with said bracket, and a lower bolt passing transversely through said sections and pivotally connecting the same with said bar, substantially as set forth.

6. An electric lamp holder comprising a bracket, a supporting bar pivotally connected with said bracket, and means constructed to automatically vary the friction in said connection in different positions of the supporting bar, substantially as set forth.

7. An electric lamp holder comprising a bracket, a supporting bar pivotally connected with said bracket, and means constructed to automatically vary the friction in said connection in different positions of the supporting bar comprising cooperating inclines or cams arranged on the parts which are piv-

oted one relatively to the other, substantially as set forth.

8. An electric lamp holder comprising a bracket, a supporting bar pivotally connected with said bracket, and means constructed to automatically vary the friction in said connection at different positions of the supporting bar comprising cooperating inclines or cams arranged on the parts which are pivoted one relatively to the other, and a spring which presses said inclines or cams together, substantially as set forth.

9. An electric lamp holder comprising a bracket, a supporting bar and a pivotal connection between said bar and bracket comprising a block, a pair of arms arranged on opposite sides of said block, a pivot bolt passing through said arms and block, cooperating inclines or cams arranged on said block and one of said arms, and a spring operating to press said inclines or cams together, substantially as set forth.

10. An electric lamp holder comprising a bracket, a supporting bar, and a universal joint connecting the bar and bracket and consisting of a swivel block, a pair of upper arms connected with the bracket and arranged on opposite sides of the swivel block, an upper pivot bolt connecting said upper arms with said block, a pair of lower arms connected with said bar and arranged on opposite sides of the swivel block, a lower pivot bolt arranged at right angles to the upper pivot bolt and connecting said lower arms with said block, inclines or cams arranged on one arm of each pair around its pivot bolt and cooperating with similar inclines or cams on the adjacent part of said block, and springs surrounding said pivot bolts and operating to press the inclines or cams of said arms and block, together, substantially as set forth.

11. An electric lamp holder comprising a supporting bar, a lamp clamp, and a universal joint connecting said clamp with said bar comprising a swivel block having the form of a rectangular frame and being constructed of two L-shaped sections, the ends of one section abutting against the ends of the other section, substantially as set forth.

12. An electric lamp holder comprising two members movable one relatively to the other, and a universal joint connecting said members comprising a swivel block pivotally connected with both of said members and composed of two right angular sections which abut at their longitudinal edges and one section having a tongue at one of its longitudinal edges which engages with a recess in one of the longitudinal edges of the other section, substantially as set forth.

13. An electric lamp holder comprising two members movable one relatively to the other, a pivotal connection between said

members, and means constructed to automatically vary the friction in said pivotal connection in different relative positions of said members, substantially as set forth.

- 5 14. An electric lamp holder comprising a bar, a pair of clamps adapted to engage with opposite sides of a lamp, a swivel block, a pair of inner arms connected with said bar and arranged on opposite sides of said block,
10 an inner bolt pivotally connecting said inner arms with said block, a pair of outer arms connected with said clamps and arranged on opposite sides of said block, an outer bolt pivotally connecting said outer arms with
15 said block, inclines or cams arranged on one

arm of each of said pairs and cooperating with similar inclines or cams on the adjacent parts of said block, springs for pressing said inclines or cams together, and a bolt connecting said outer arms and adapted to press the clamps against the lamp, substantially as set forth.

Witness our hands this 25th day of August, 1906.

CHARLES E. THROOP.
SAMUEL A. FREEMAN.

Witnesses:

THEO. L. POPP,
E. M. GRAHAM.