

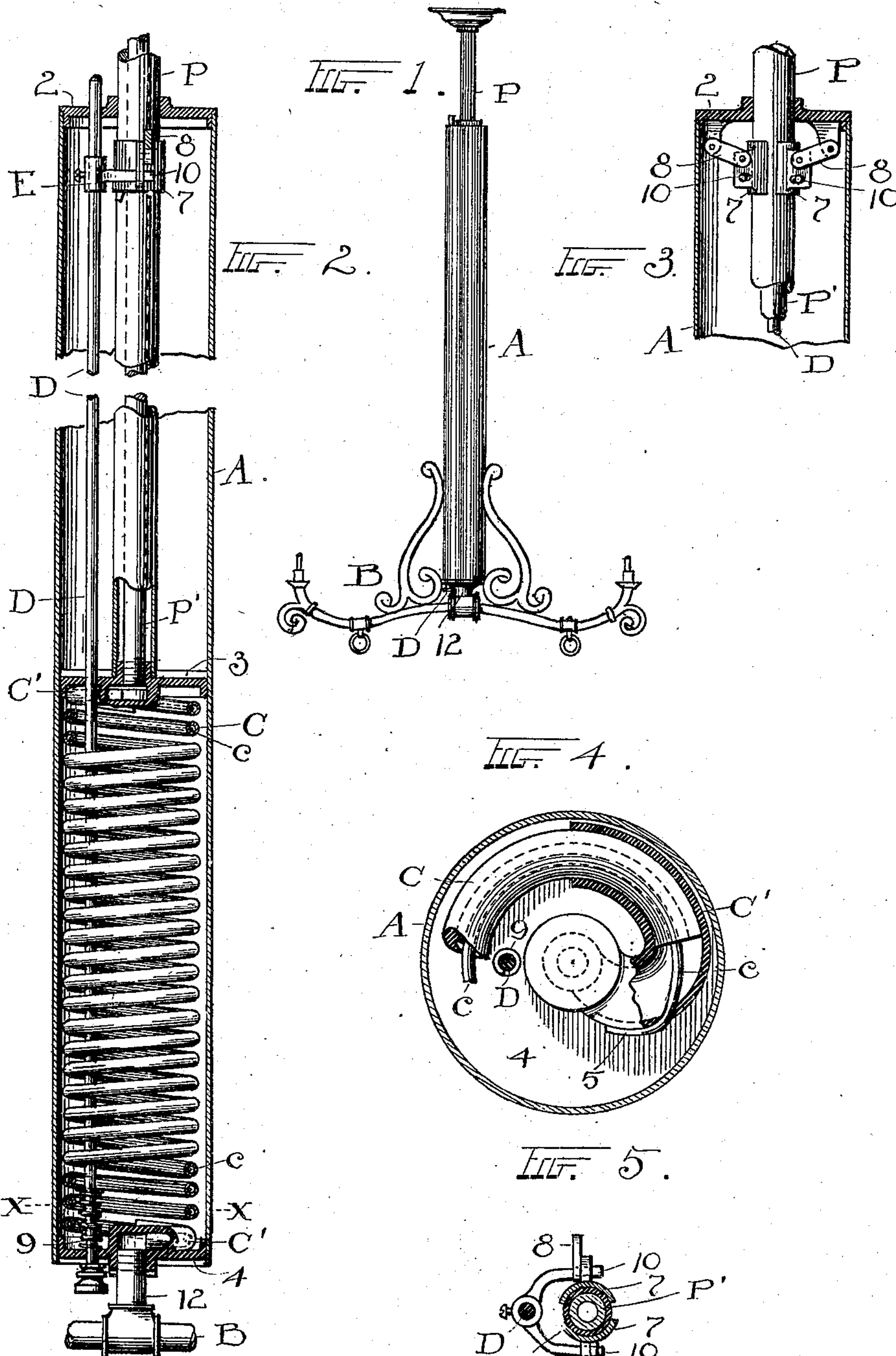
No. 814,988.

PATENTED MAR. 13, 1906.

B. F. SHUART.

DROP LIGHT.

APPLICATION FILED OCT. 6, 1904.



WITNESSES:

H. Moser.
R. Silvest.

INVENTOR.

Benjamin F. Shuart
BY *H. J. Fisher*
ATTORNEY.

UNITED STATES PATENT OFFICE.

BENJAMIN F. SHUART, OF OBERLIN, OHIO.

DROP-LIGHT.

No. 814,988.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed October 6, 1904. Serial No. 227,441.

To all whom it may concern:

Be it known that I, BENJAMIN F. SHUART, a citizen of the United States, residing at Oberlin, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Drop-Lights; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to drop-lights, or what may be termed an "extensible or drop chandelier or gas fixture," the idea being to provide an adjustable light or lamp structure for use in sitting-rooms, dining-rooms, libraries, and other places where a drop-light is desirable. The invention is not, however, to be confused with extensible or adjustable lamp-supports upon which kerosene or other lamps are placed and raised or lowered in respect to the ceiling, but is designed exclusively for use with a suitable kind of illuminating gas or vapor, natural or manufactured.

In the accompanying drawings, forming part of this specification, Figure 1 is a plain elevation, on a relatively small scale, of a drop, light or chandelier embodying my invention. Fig. 2 is a longitudinal sectional elevation of the supporting-cylinder shown in Fig. 1, the same being considerably enlarged over Fig. 1 and disclosing certain internal parts and the gas-pipe and a fraction of the gas-fixture beneath. Fig. 3 is a detail, partly in section, showing the automatic clutch mechanism for suspending my improved attachment from the gas-pipe, as hereinafter fully described. Fig. 4 is a cross-section, enlarged, on line *xx*, Fig. 2, looking down. Fig. 5 is a detail of the clutch mechanism.

In the device thus shown I have sought not only to overcome or avoid several very serious if not fatal objections found in the class of devices to which this invention relates, but to supply a thoroughly practical and desirable improvement which has the merit of being convenient and ornamental and highly serviceable both as to present and as I believe for indefinitely protracted service without danger from leakage or the wearing out of essential operating parts. To these ends the invention comprises a tube A, referred to herein as a "cylinder" to distinguish it from another part. In this instance and preferably the said cylinder is, say, two

inches across and ordinarily it need not have exceeding twenty-five to thirty inches in length or thereabout—that is, the drop need not be over eighteen inches at the most, and frequently it is less than this, and preferably the part A is one continuous tube or equivalent form from end to end.

The cylinder A has heads 2 and 4 in its end, and a similar head or diaphragm 3 fixed rigidly on the lower end of pipe P, fitted to have said cylinder slide thereon as head 2 slides on pipe P and serving as a stay and guide between said parts laterally. Head or cap 4 especially is removable, and flexible tube or hose C is engaged at its ends to the circular and substantially horn-shaped connections C', which are fixed at the top to pipe P', extending through head 3 and threaded into said connection and at the bottom by means of short pipe or coupling 12 with the chandelier B. The gas channel or duct is thus through heads 3 and 4, and in its up and down movements the cylinder A slides on and is guided by fixed gas-pipe P' through heads 2 and 3.

The hose or tube C is provided with a sustaining part consisting of a spirally-wound wire *c*, which in this instance is simply threaded through the hose or tube from end to end or the tube is sleeved thereon and secured at its ends in any suitable way in or upon the connections C'. One way of securing the wire is seen in Fig. 4, where the extremity is engaged and hooked through and soldered in wall of connection C', into which tube C is projected a sufficient distance to make it secure and gas-tight about its outside. This or any equivalent or sufficient end fastening of both tube C and the wire *c* may be adopted; but in this connection I wish to emphasize a distinguishing and highly important part of this invention.

Heretofore and universally, so far as I know and believe, the use of rubber hose for drop-lights of any and all kinds has been subject to the objection that the hose were liable to be bent short or buckled at the point of their attachment in coiling and uncoiling and in other ways. It has always followed that sooner or later, and usually in a short time, the rubber crystallized or became so weakened or attenuated at the extremity of the nipple or point of connection that it would leak gas and be put out of use. Then, again, in an inclosure like a tube or cylinder, if the

hose were permitted to spread its coils against the wall of the cylinder it would follow in all up and down adjustments of the parts that only the upper end of the rubber tube would respond, and this would be pulled out practically straight at every extension, and thus bring all the strain to this part of the tube while the remaining part would not open at all. Then, again, the friction of the coils against the cylinder would hold them so fast that it required a strained pull to open them, and they would not recoil for the same reason. Hence such an arrangement of the rubber tube within cylinder A would be fatal, because leakage of the operating end of the rubber coil would inevitably follow, and usually in a short time. For these reasons especially I have furnished my rubber hose or tube with a uniform wire coil throughout its length, entering the end supports of the tube, and of such smaller size in cross-section of coil as will keep the coils of the tube wholly apart from the wall of cylinder A in both opening and closing of the coil. By entering the ends of the wire into the end supports C' for the hose, whatever their form, and fixing said ends the wire prevents bending or buckling of the tube just outside said supports, where it formerly occurred and ruined the hose, and by having a uniform coil sufficiently less than the diameter of the cylinder I keep the coils of the hose or tube clear of the said walls. Then when lowering of the chandelier occurs the whole coil spreads from end to end uniformly in all its coils, absolutely avoiding all strain at any one point and providing a construction that is proof against leakage induced by strain in the hose. This danger being eliminated, a suitable quality of rubber will last for many years without disintegration, as is now well known.

I assume that rubber hose or tubing will be used; but if a different tubing be used the same general construction otherwise would obtain.

For the purpose of holding and locking the parts at any point any convenient and desirable means may be employed. In this instance I show a set of pivoted clutches 7 engaging pipe P normally and pivoted to the bottom of head 2 by links 8. The weight of the suspended parts will keep the clutches engaged indefinitely, and they are released to raise and lower the chandelier by rod D from below. Said rod extends through cylinder A and has a spring 9 to keep it up and is provided at its upper end with a fixed forked head E, the fingers 10 of which engage in eyes in the lower portion of clutches 7 and serve to pull said clutches down far enough to release their hold on pipe P. Then the chandelier can be raised or lowered, and the clutches will automatically engage the instant pull on rod D ceases, as the spring will throw the parts up again. In no case is the

interior of the inclosing cylinder A exposed to the gas, and hence it need not be gas-tight. Furthermore, it need not be a cylinder in the sense of a cylinder as such, and any equivalent support and inclosure other than the exact construction of said cylinder shown may be employed without departing from the spirit or the purpose of my invention. This is obvious, because, practically, the said part A is a supporting and inclosing part simply; but beyond this it need not necessarily be of the closed tube or cylinder style. However, for attractiveness and cleanliness, if for no other reason, it is desirable that the said part A be closed tight at all points to avoid the entrance of dust or the like to its interior and which might obstruct its operation more or less, as well as possibly cause deterioration of the rubber. In addition rod D has the function of a lock against the rotation of cylinder A or chandelier B, because it passes through fixed head 3 on fixed gas-pipe P at one side of its center and is engaged at its ends through cylinder-heads 2 and 4. Thus the chandelier is held in its original fixed position from turning.

What I claim is—

1. In extensible drop-lights, a flexible gas-conveying tube and a wire extending through the same from end to end, said tube and wire bent into spiral form of the same cross-section from end to end, and the ends of said wire projecting out beyond the ends of the tube, thereby affording portions for fastening said ends of the wire and the tube.

2. In extensible drop-lights, a flexible gas-tube bent to spiral form, a wire coil extending through said tube and adapted to hold the tube at uniform spirality from end to end and having its ends extending outward beyond the ends of said coil, and means in which both the ends of the tube and the ends of the wire are separately secured.

3. In drop-lights, a supporting-cylinder, a flexible gas-conducting hose and heads within said cylinder with which the ends of said hose are connected and the cylinder slidable on the upper of said heads, said hose being equipped with a wire coil extending from end to end thereof and the coils of the wire fixed to a width less than the interior of the cylinder and constructed to keep the hose out of contact with the side of the cylinder, substantially as described.

4. In drop-lights, a cylinder having a fixed head and a depending gas-pipe on which said head is slidably engaged, hose provided with a uniform wire coil extending through the same from end to end having a fixed width of coil sufficiently smaller than the interior of the cylinder to keep the hose out of contact with the wall of the cylinder, a head in the lower end of said cylinder having one end of said hose connected therewith, and another head on the lower end of said gas-pipe with-

in said cylinder having the other end of the hose connected therewith, substantially as described.

5 5. A cylindrical support for drop-lights, hose having a uniform coil from end to end within said support and having a wire extending through the bore thereof with uniform coils from end to end and constructed to hold all the coils of the hose apart from
10 the side of said support, in combination with a gas-supply pipe from which said support is suspended and gas connections for said hose at the end of said pipe and at the lower end of said support, respectively, substantially as
15 described.

6. A cylindrical support for a drop-light and a gas-pipe upon which said support is adjustable up and down, in combination with spirally-wound flexible hose located in said
20 support, and means in said hose extending from end to end constructed to spread the coils of the hose uniformly when extension occurs, and curved connections for the ends of said hose in the bottom of said support and
25 on the end of said gas-pipe within said support, substantially as described.

7. In drop-lights, a fixed gas-pipe and a head on its lower end, and a cylindrical support slidable on said head, a head fixed in the
30 lower end of said support, a uniformly-coiled hose connected at its ends with said heads and provided with an internal wire coil of uniform width from end to end and connected with said heads at its ends, substantially
35 as described.

8. In extensible drop-lights, a suitable support having a hollow interior and a gas-pipe on which it is adapted to slide up and down, a head on the extremity of said pipe and another head in the bottom of said support, and
40 curved supports inside of said heads for a gas-tube, in combination with a coiled flexible gas-conveying tube united with said supports at its ends, and a wire extending through the coils thereof, substantially as described. 45

9. A flexible gas-conveying tube and a wire having fixed and uniform coils from end to end extending through said tube internally and smaller than the bore of the tube, thus leaving a gas-passage about said wire, in
50 combination with a cylinder in which said tube is confined, a gas-pipe projecting into said cylinder from the top, heads on the lower end of said pipe and the lower end of said cylinder respectively, and the said tube and the
55 wire therein fixed to said heads, substantially as described.

10. The fixed gas-pipe and the head thereon, in combination with a cylinder slidable on said head and having a head in its top
60 slidably engaged on said pipe and a head in its bottom, and a rod through said heads preventing rotation of said cylinder, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses. 65

BENJAMIN F. SHUART.

Witnesses:

RAYMOND N. SHUART,
ARTHUR N. MOSER.