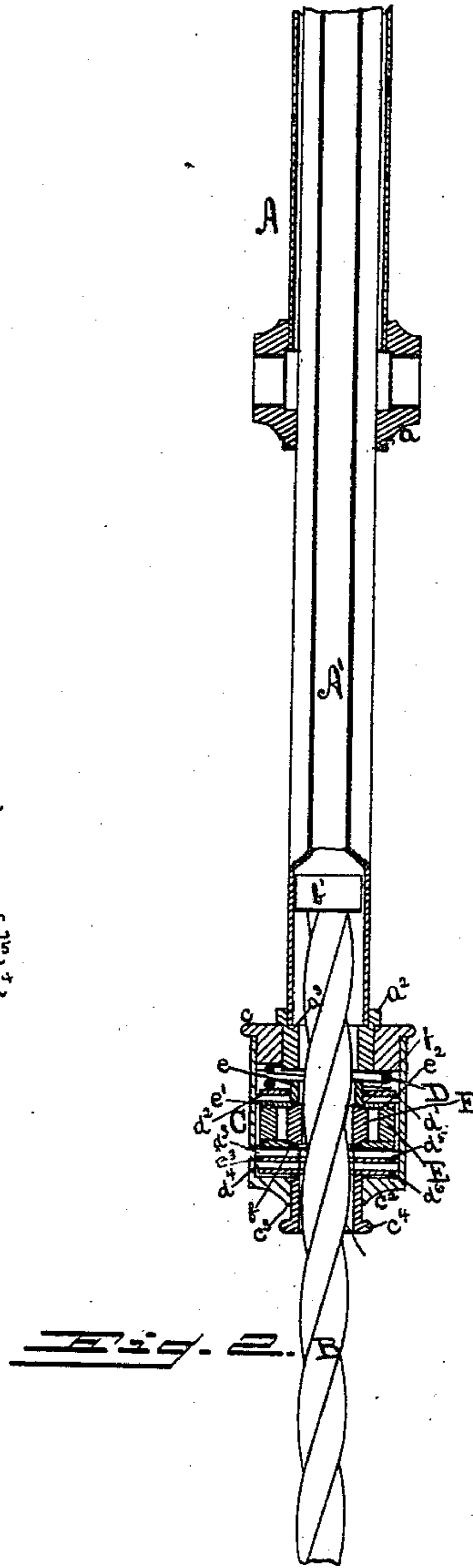
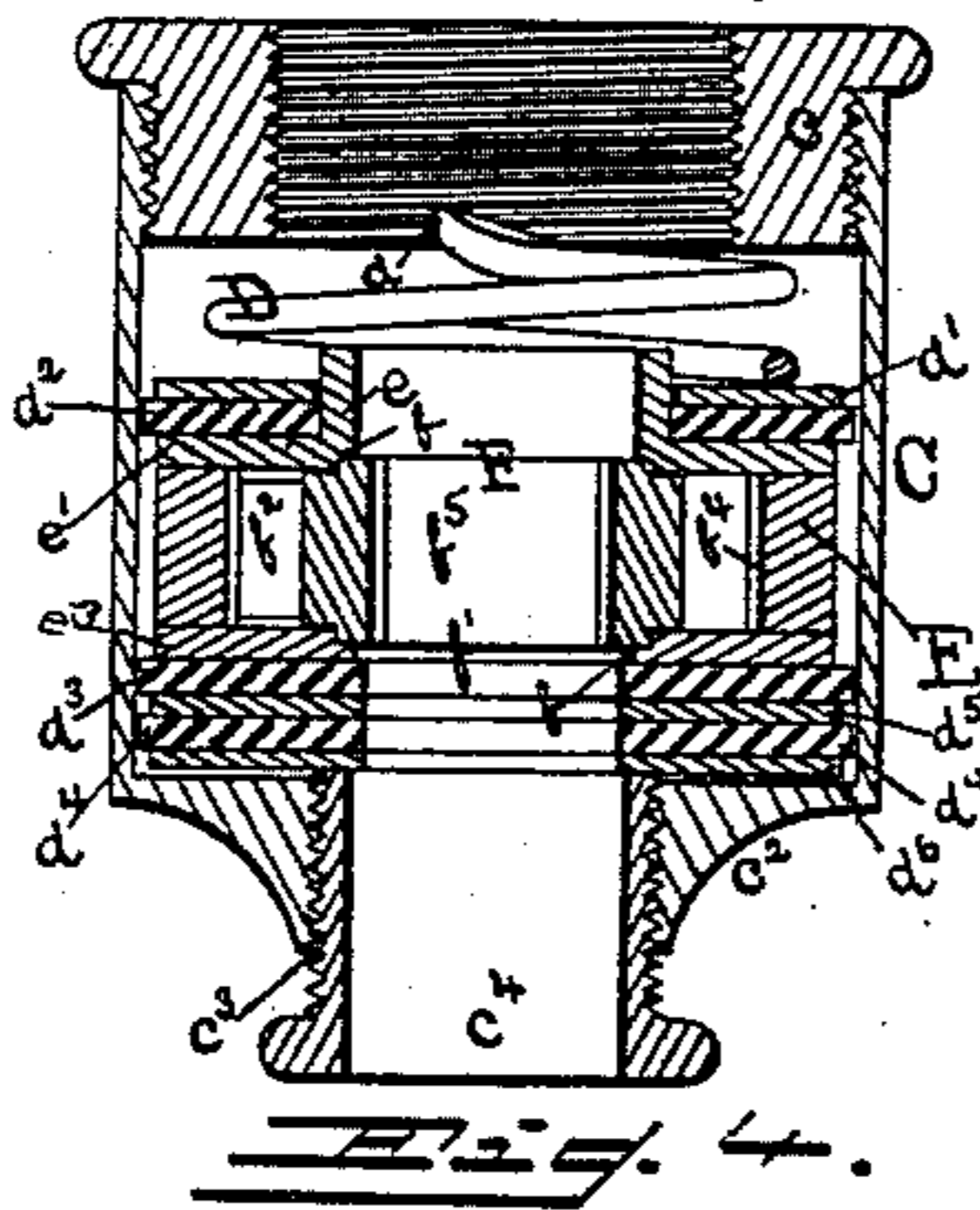
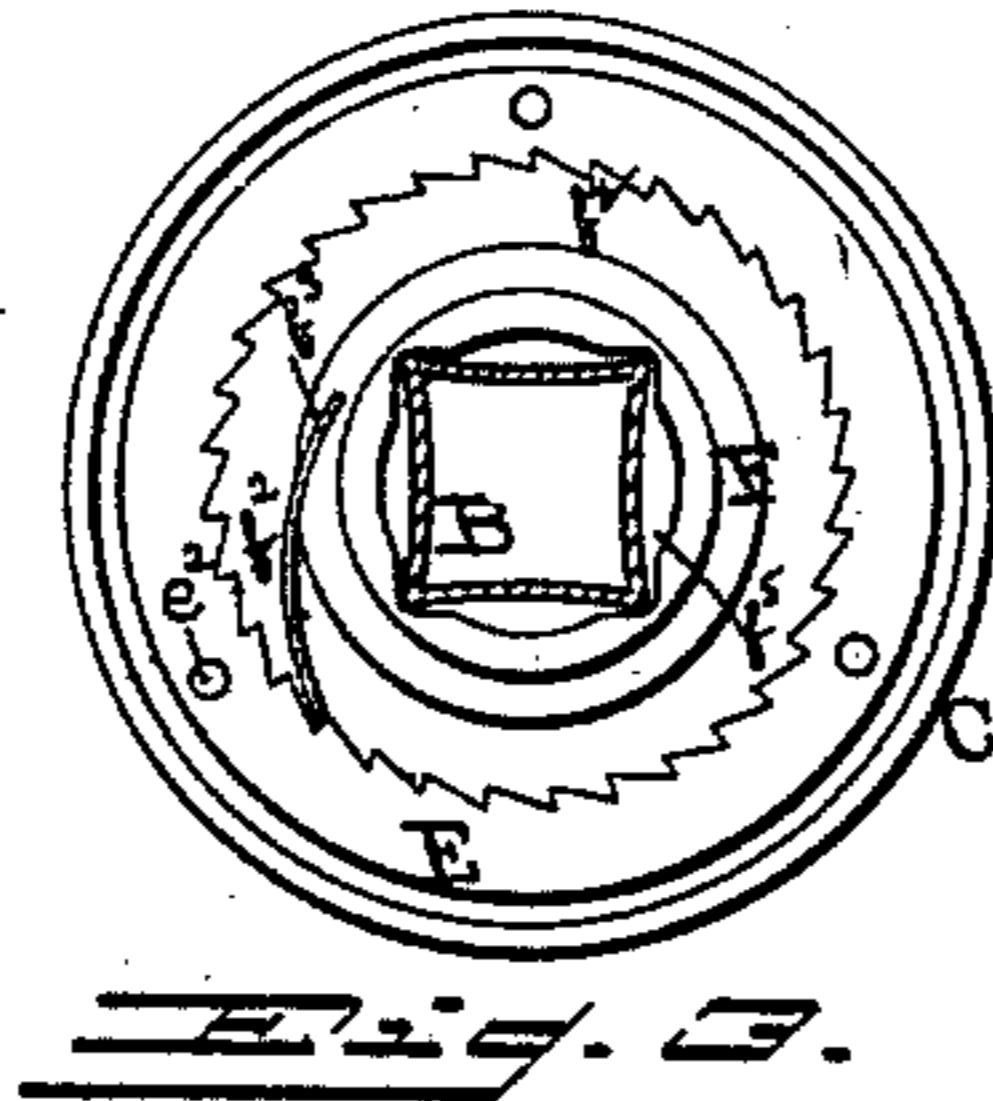
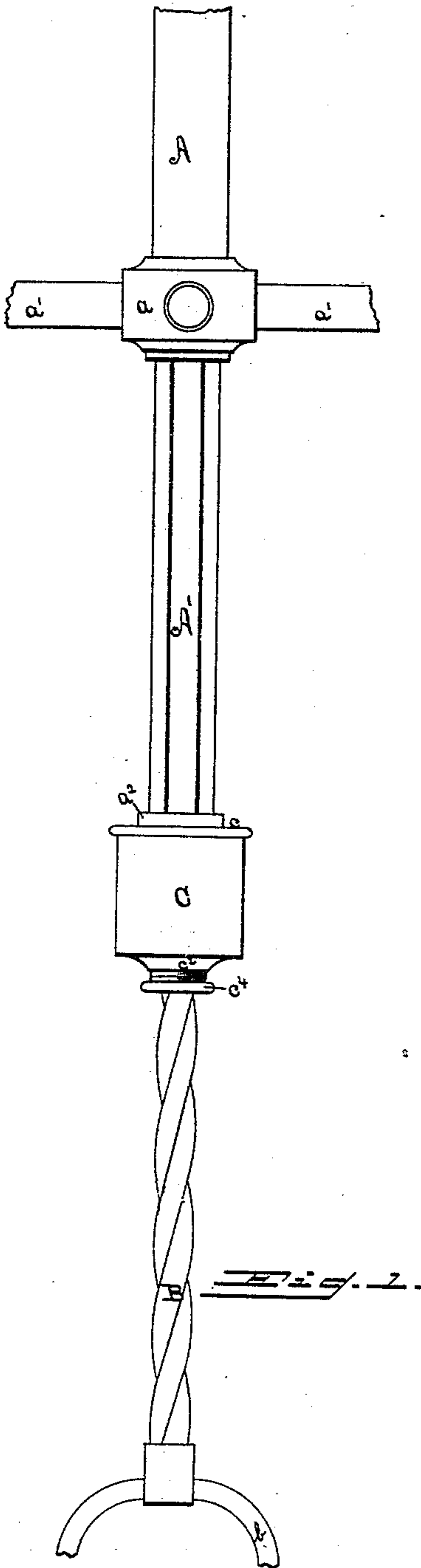


(No Model.)

H. HORN.  
EXTENSION CHANDELIER.

No. 420,270.

Patented Jan. 28, 1890.



WITNESSES

*John Longstreet*  
*Oliver N. Disson*

INVENTOR

*Heriman Horn*  
By his Attorney  
*Wm. B. Powell*

# UNITED STATES PATENT OFFICE.

HERMAN HORN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
HORN, BRANNEN & FORSYTHE MANUFACTURING COMPANY, OF  
PENNSYLVANIA.

## EXTENSION-CHANDELIER.

SPECIFICATION forming part of Letters Patent No. 420,270, dated January 28, 1890.

Application filed February 13, 1889. Serial No. 299,747. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN HORN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Extension-Chandeliers; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings.

My invention has relation to extension-chandeliers of the class shown and described in Letters Patent of the United States No. 140,459, granted to James Brannen on July 1, 1873, and has for its object to improve the construction and increase the efficiency of the same.

My invention consists in certain details of construction and in the combination of parts, as hereinafter fully described and claimed.

In the drawings, Figure 1 is an elevation of my improvement applied to a chandelier, portions of the latter being broken away. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an enlarged plan of outer shell and inner casing, with their covers removed so as to show the inner collar, pawl, and rack, and a cross-section of the twisted pipe. Fig. 4 is a vertical central section of my improvement complete.

A represents the main gas-pipe provided with the distributor *a*, having arms *a'*, through which pipe and distributor gas passes into the short branch pipe *A'*, from whence it finds its way into an inner pipe and then into the extension-pipe B, after the manner shown in the above-mentioned patent.

C is the shell or casing containing the clutch mechanism, and is cylindrical in form and provided with screw-caps *c*, having a central internally-threaded opening *c'*, which screws onto the threaded flange *a''* on branch pipe *A'*. Thus it is suspended on the latter. The lower end of this casing diminishes in size, as shown at *c''*, and is also provided with the central threaded opening *c''*, for reception of the adjusting device or stuffing-box *c''*. The inside of this stuffing-box is smooth, as is also the inside of flange *a''*, allowing clearance-space for the passage of extension-pipe

B, which latter sustains the usual "harp" or drop-light fixture, the arms of which are shown broken away at *b*. The cap *c*, which is screwed into the top of casing C, is of considerable depth and is formed with a notch *d* in its under side for the reception of the outer end of the short spiral spring D, soldered to the upper surface of friction-plate *d'*. This friction-plate encircles the rim or flange *e* of the cover *e'* of rack-casing E, said cover being secured on pins *e''* in the edge of said casing. Interposed between said plate and cover is a washer *d''*, of leather, felt, or other material, forming a jamb between the two metallic surfaces, as do the similar washers *d''* *d''* between the friction-plates *d''* *d''* and the bottom of casing E. Said plates and washers are provided with central openings for the passage of the extension-pipe. Therefore, while there is considerable friction exerted on said casing, the smooth surfaces of the washers will permit the metallic surfaces to rotate regularly thereon. In the event of its being necessary to produce more friction therein or to take up wear of the parts, the stuffing-box, which bears against the plate *d''*, is screwed inwardly against the yielding pressure exerted by the spring-plate *d'* until the necessary friction is attained; or, on the contrary, if the friction is too great the same can be lessened by reversing the operation.

Journaled in grooves *f* in the edges of the central openings *f'* in top and bottom plates *e'* *e''* of casing E is a small collar or ring F, having a central opening *f''*, substantially square therein, for the reception of the twisted extension-pipe B, which is square in cross-section. This ring is provided with a flat curved spring *f''*, secured in a slit or kerf *f''* in the outer circumference of the same, serving the purpose of a pawl and engaging with teeth *f''* on the inner circumference of casing C, so that when the twisted pipe with its attached fixture is drawn downwardly the spiral thereof, formed by the twisting of a square pipe, will rotate the casing E through the medium of the spring-pawl *f''* engaging with the teeth *f''*. On the other hand, if said pipe be pushed upwardly the small ring F will be

rotated in the opposite direction independently of the casing E, spring-pawl  $f^2$  merely riding over the teeth  $f^4$ . Therefore the only power or force necessary in pushing the drop-light fixture upwardly to its normal position is an amount only sufficient to overcome the weight of said fixture, and the extension-pipe, the pawl, and teeth offering no resistance to such operation, while when drawing the same downwardly the friction exerted on the casing E by the friction-plates and washers is sufficient to preclude the possibility of said fixture dropping accidentally; yet the washers, being of slightly-yielding material and presenting a smooth surface to the friction-plates, will permit of the easy rotation of said casing when power is applied to the sliding tube. At the same time, owing to their yielding nature, said washers will permit of the slight embedding of the metallic plates in the surface thereof, thus preventing the accidental movement above suggested.

The extent of withdrawal of the extension-pipe is limited by contact of the head  $b'$  with the shoulder  $a^3$  on the inside of flange  $a^2$ .

I am aware that twisted pipes have been heretofore employed in extension-chandeliers; but I do not wish to be understood as claiming such use broadly.

What I claim as my invention is as follows:

1. In an extension-chandelier, the combination, with the extension-pipe and clutch-casing thereof, of the series of alternating metallic friction-plates  $d^5 d^6$  and felt washers  $d^2 d^3 d^4$  on both sides of said casing and within a suitable shell, said series having at one end an adjusting device and at the other end a spring resistance-plate, substantially as shown and described.

2. In an extension-chandelier, the combination, with the extension-pipe thereof, of a clutch therefor consisting of the casing E, within a suitable shell and having on the inner surface of its periphery the teeth  $f^4$ , and having journaled therein the centrally-located ring F, with a central opening therein for the passage of said extension-pipe and its pawl  $f^2$  in engagement with said teeth, said casing being limited in its rotation by the pressure

of suitable friction devices on both of its ends, substantially as shown and described.

3. In an extension-chandelier, the combination, with the pipe B and the clutch-casing E, of the friction-plate  $d'$ , provided with the spiral spring engaging with the notch  $d$  in the cap  $c$  of the shell C, and the washer  $d^2$ , encircling the rim  $e$  of said casing and pressing thereon, the friction-plates  $d^5 d^6$ , with openings for the passage of said pipe, and the washers  $d^3 d^4$ , with similar openings, and the stuffing-box  $c^4$ , threaded into the shell C, substantially as and for the purpose described.

4. In an extension-chandelier, the combination, with the twisted extension-pipe B and the shell C, containing the friction-plates and washers and sustaining the stuffing-box, of the ring F, having the spring-pawl  $f^2$ , secured in the slit  $f^3$ , and engaging with the ratchet-teeth  $f^4$  in the casing E, said ring being journaled in grooves  $f$  in the edges of the openings  $f'$  in top and bottom plates  $e' e^3$  of said casing, and having the square opening  $f^5$  for engagement with the square or flat surfaces of the twisted pipe, substantially as and for the purpose set forth.

5. In an extension-chandelier, the combination, with the pipe B, of the shell C, secured to pipe A' and containing the clutch-casing E, having the cover  $e'$  on pins  $e^2$ , with the flange  $e$ , said cover and bottom plate  $e^3$  having central openings  $f'$ , ring F, with square opening  $f^5$ , and the pawl  $f^2$  in the slit  $f^3$ , engaging with the teeth  $f^4$  and journaled in the grooves  $f$  in said casing, friction-plate  $d'$ , with its spring D, engaging with the notch  $d$  in the cap  $c$ , said plate and the stuffing-box  $c^4$  in the opening  $c^3$  in the portion  $c^2$  having interposed between them and the said casing the washers  $d^3 d^4$  and the plates  $d^5 d^6$ , as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of February, A. D. 1889.

HERMAN HORN.

Witnesses:

WM. H. POWELL,  
R. DALE SPARHAWK.