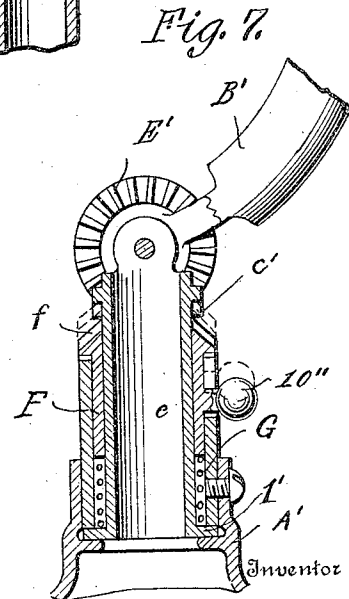
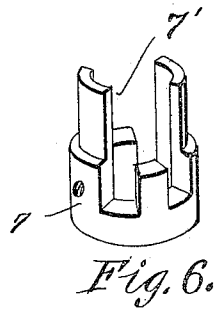
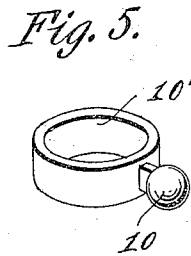
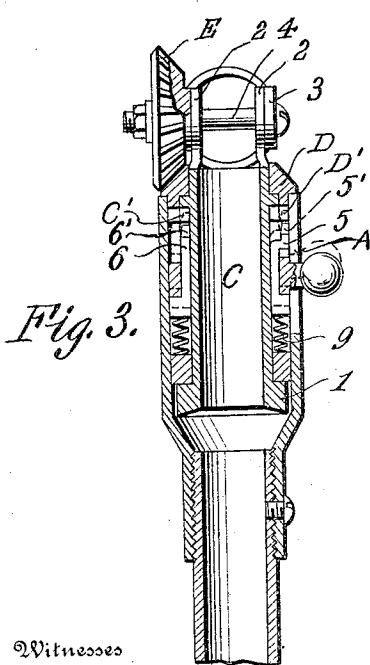
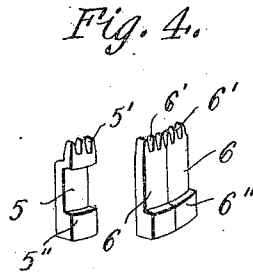
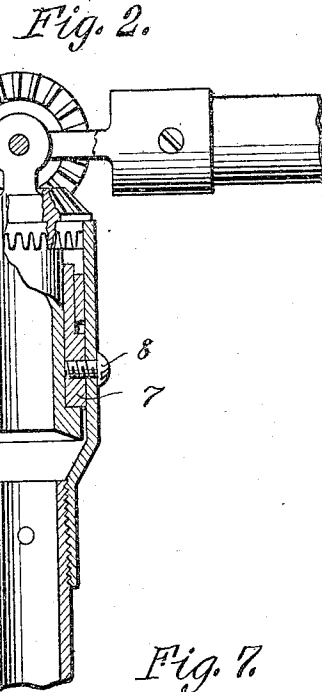
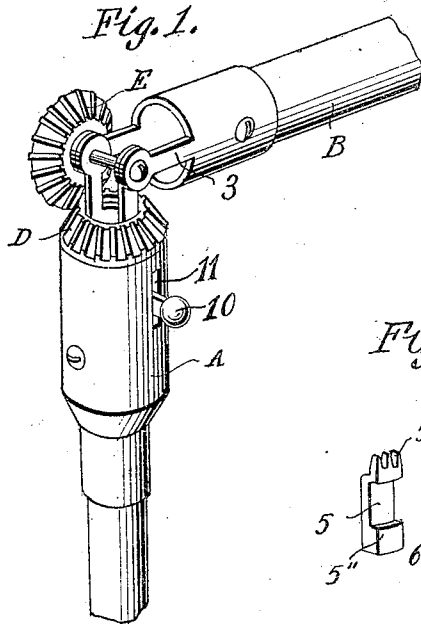


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ADJUSTING DEVICE FOR SUPPORTS.  
APPLICATION FILED MAR. 31, 1909.

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Patented Dec. 7, 1909.  
2 SHEETS—SHEET 1.



Witnesses

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By

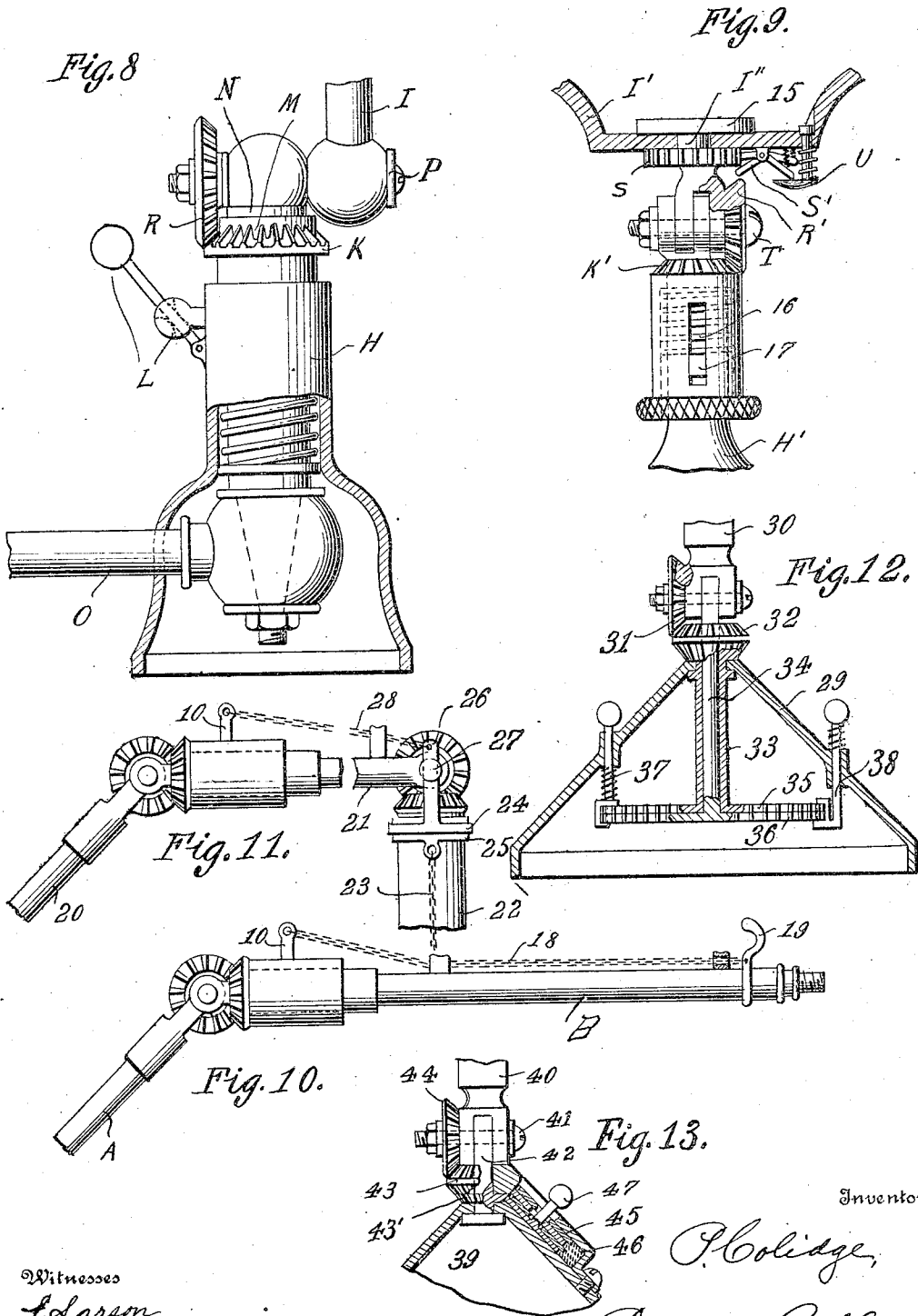
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# UNITED STATES PATENT OFFICE.

PAUL COLIDGE, OF NEW YORK, N. Y.

## ADJUSTING DEVICE FOR SUPPORTS.

942,545.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed March 31, 1909. Serial No. 487,045.

*To all whom it may concern:*

Be it known that I, PAUL COLIDGE, a subject of the Czar of Russia, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Adjusting Devices for Supports, of which the following is a specification.

The intent of this invention is to provide a novel form of adjusting device for supports that comprise two or more sections relative adjustment of which is desired in order to support a part such as a fixture, or the like, in adjusted positions.

The invention is of simple construction and designed particularly to facilitate quick adjustment.

Broadly speaking the invention may be used in connection with any form of supporting device wherein it is advantageous to employ adjusting means of this type, and particularly in connection with electric, gas, and similar fixtures, the invention affording substantially a universal connection between sections or members of the support of which it forms a part.

For a full understanding of the invention, reference is to be had to the following detail description, and to the accompanying drawings, in which—

Figure 1 is a perspective view showing the invention as when constructed for electric light fixtures, lamps, brackets, or the like; Fig. 2 is a vertical sectional view; Fig. 3 is a vertical section taken about at a right angle to that of Fig. 2, the locking catches being shown in depressed abnormal positions; Fig. 4 is a detail perspective view of the toothed catches; Fig. 5 is a detail perspective view of the operating handle; Fig. 6 is a detail view of the supporting member for the sliding catches; Fig. 7 is a general view, a vertical section, of a modification in which the locking gear is in a depressed abnormal position; Figs. 8 and 9 are views of additional modifications of the invention; Figs. 10 and 11 are side elevations showing the use of connections permitting of operation of the sections of the device for adjustment, the connections extending some distance from the interlocking gears; Fig. 12 is a vertical section of still another modification; Fig. 13 is a view partly broken away of a further modification.

Throughout the following detail description, and on the several figures of the draw-

ings similar parts are referred to by like reference characters.

Referring to the embodiment of the invention illustrated in Figs. 1 to 6 of the drawings A denotes one section of a section support and B another section, said sections being connected together for relative adjustment by means comprising the invention. For the purposes of this description the section A will be termed a supporting section and the section B an adjustable section. It will be understood, however, that both of the sections A and B are relatively adjustable and that under some conditions the section B may be the supporting section of the support instead of the section A, this being immaterial to the invention. The parts A and B comprise sections of a support such as an electric fixture and the section A is slightly enlarged at its upper portion to receive therein adjusting mechanism embodying a sleeve C provided at its lower end with a flange 1. The upper end of the sleeve C is formed with pivot lugs 2 having pivotal connection with similar lugs 3 extending from the adjacent end of the section B. A bolt or similar fastening constitutes the pivot 4 by which the parts A and B are connected together. Surrounding the upper portion of the sleeve C, which sleeve is rotatable in the section A, is a bevel gear D, said gear being formed on its lower portion with teeth D' with which locking catches 5 provided with teeth 5' at their upper portions are adapted to engage. Adjacent to the adjusting gear D the sleeve C is formed at its upper portion with a rim, the lower portion of which is formed with teeth C', said teeth being arranged between the outer portion of the section C and the teeth D' of the gear D. Arranged to engage with the teeth C' of the sleeve C are vertically movable locking catches 6 each of which is formed with teeth 6' at its upper portion. The locking catches 6 and 5 are arranged for movement in slotted portions 7' of a tubular member 7 arranged in the space between the sleeve C and the upper portion of the section A, and secured rigidly in place by means of fastening screws 8 that pass through the enlarged portion of the section A. The lower end of the member 7 abuts with the upper portion of the flange 1 on the sleeve C and prevents displacement of said sleeve though permitting free rotary movement of this part when released from

the locking means therefor. Coil or similar springs 9 are interposed between the catches 5 and 6 and the member 7 and normally tend to hold said catches in engagement with the teeth on the gear D and the sleeve C, Fig. 3 of the drawings illustrating said catches depressed, however, as when permitting adjustment of the sections of the support. In mesh with the gear D is a bevel gear E that is shown as an integral portion of one of the lugs 3 of the section B. This adjusting gear E may, however, be fastened permanently or otherwise attached for movement with the section B for the purposes of adjusting the parts. Furthermore, if desired, the pivot 4 may be dispensed with and separate pivots may be employed within the contemplation of the invention in order to pivotally connect the adjacent lugs 2 and 3 at opposite sides of the parts A and B.

The operation of adjustment is accomplished in the following manner. By depressing a handle 10 extending through a slot 11 in a side of the section A, a ring 10' connected with said handle, or integral therewith, by engagement with shoulders 5'' and 6'' on the catches 5 and 6, respectively will move said catches downwardly to the positions in which they are arranged in Fig. 3. When the catches 5 and 6 are disengaged from the teeth C' and D' by operation of the handle 10 it will be apparent that the section B of the device may be moved about the axis formed by the pivot 4, the gear D freely rotating, and in addition to this since the sleeve C is released from the catches 6 it is apparent that said sleeve may be rotated with the section B to permit of movement of the section B about the axis of the sleeve. In other words the sections A and B are adapted for relative adjustment by relative rotary movement and also by pivotal movement in the above described manner. Combinations of the movement of the section B about the pivot 4 and with the sleeve C will permit of obtaining almost any desired angular adjustment of the parts A and B limited only by said parts coming into contact should the section B be moved downwardly too far.

The purpose in providing a plurality of the catches 5 and 6 is to secure a nicety of adjustment, the teeth of these catches being so formed that no matter where the sleeve C or gear D stop in the adjustment of the sections A and B, at least one of the catches will be disposed so that its teeth can readily engage with the adjacent teeth of the part with which it coöperates.

The modification of the invention shown in Fig. 7 embodies the supporting section A' and the adjustable section B', the former, however, being a part of a base in this instance. The upper portion of the section A'

is formed so as to readily receive therein a locking gear F which is freely movable vertically and is normally forced upwardly by a coiled or similar spring G into engagement with teeth c' of a sleeve c rotatably mounted in the section A' in a manner similar to the mounting of the section C in Fig. 3. To the sleeve c is directly pivoted the section B' in a manner before described and with which section B' is connected the gear E'. The teeth f of the locking gear F are adapted not only to engage the teeth c' but also the teeth of the gear E'. Under normal conditions the sections A' and B' are held at a predetermined adjustment by the interlocking engagement of the teeth c', and the teeth E' with the teeth f of the locking gear F. The locking gear F is not rotatable since the handle 10'' is connected directly therewith and passes through a slot in the side of the section A'. When it is desired to adjust the sections A' and B' the handle 10 is depressed as shown in Fig. 7 so that the teeth f are disengaged from the teeth c' as well as the teeth E', and thereby the sleeve c is permitted to rotate for rotary adjustment of the section B', while in like manner the section B' is adapted for pivotal movement because the gear E' is released from the locking gear F. A flange 1' on the lower end of the sleeve c holds the sections A' and B' in connected relation.

Referring to Fig. 8 the parts illustrated are in substantially the same mechanical relation as described with reference to the structure in Fig. 7. However, the sections of the device in Fig. 8 are intended to represent pipe sections through which a flow of liquid, gas, or the like, may pass. In Fig. 8 the supporting section is denoted H and the adjustable section I. In Fig. 8 the locking gear K is vertically movable by a handle L and is adapted to engage teeth M on the member N which is a pipe section rotatably connected at its lower end with a part O of the section H. The member N is freely rotatable with respect to the section H and carries the section I pivoted thereto by the member P. The gear K coacts with the teeth M and also the gear R, the latter being movable with the pivot P of the section I in order to admit of the desired adjustment. The operation of the parts in Fig. 8 is the same as in Fig. 7, though some of the parts are somewhat differently made, and section I is afforded a greater range of movement by its location to one side of K'.

In Fig. 9 the supporting section is H', and the adjustable section I'. The section I' is rotatable on a pin I'' having a head 15 at its upper end and formed with a toothed gear S with which catches S' are adapted to engage. The catches S' are pivoted to the part I' and the pin i'' is pivoted by a pivot T to the upper end of the section H'. The

pin I'' has the gear R' which meshes with the locking gear K', the latter being formed at the upper end of a sleeve movable vertically on the section H'. A spring 16 normally tends to force the locking gear K into connection with the gear R' and the guide lug 17 on section H' passes through a slot in the sleeve of the gear K' to guide the latter in its vertical movement. A finger piece U is adapted to throw the catches S' out of engagement with the gear S and when this is done the section I' can rotate on the pin I''. When the locking gear K' is moved downwardly the gear R' is released and the section I' can be moved pivotally with respect to H'. In Figs. 10 and 11 the adjusting means shown in Figs. 1 to 6 is employed so this means will not be again described but in Fig. 10 the operating device connected with the handle 10 is a chain or flexible connection 18 connected with a remotely situated handle 19 on the section B of the support. The connection 18 is guided in any suitable way and the handle 19 is movable on the section B. The idea illustrated in Fig. 10 is merely to show that the invention may be operated from a distance.

Fig. 11 carries out the idea in Fig. 10, since three sections 20, 21, and 22 are illustrated connected by the adjusting gears included in the invention. A connection 23 on section 22 is directly connected with an annulus 24 rotatable on a slidable ring 25, said annulus having a stem 26 adapted to pass through a pivot 27 and attached to the connection 28 of the more remote adjusting gears. It is evident that by pulling on the connection 23 the adjusting device for the section 20 may be operated and in this manner the connections might be applied to any number of sections comprising the support. The connection 28 being flexible can pass through the opening in the pivot 27 and provided for the stem 26. Fig. 12 is another modification in which the supporting section is denoted 29 and the connected section 30. The section 30 has the gear 31 meshing with the gear 32 the latter being movable with a sleeve 33 on a spindle 34, the latter passing through the gear 32 and being pivotally connected with the section 30. The parts 30 and 29 are held in proper relative adjustments by gears 35 and 36 on the lower ends of the sleeve 33 and spindle 34 respectively. The toothed parts or gears 35 and 36 are engaged by catches 37 and 38 respectively and it is thought that the operation of the parts will be evident from the foregoing without specific description and in view of the analogous operations of the parts in the other modifications, catch 37 being pulled upward, and catch 38 being depressed for readjusting purposes.

The modification in Fig. 13 shows the supporting section 39 and the supported section

40, the latter being pivoted at 41 to a spindle 42 mounted for rotation on the section 39. The spindle 42 has a double bevel gear 43 rotatable freely thereon and a fixed or integral gear 43'; also a locking gear 44 movable with section 40 meshes with the upper portion of the gear 43. On the side of the section 39 are a plurality of catches 45 caused to engage with the lower portion of the gear 43 by springs 46, and operable by a finger piece 47. The catches 45 when engaged with the gears 43 and 43' lock the spindle 42 from rotation and furthermore prevent pivotal movement of the section 40. The manner of adjustment of the parts is obvious.

Having thus described the invention, what is claimed as new, is:

1. In a device of the class described, the combination of a supporting section, a member rotatably connected thereto, a second section pivotally connected to the rotatable member, a toothed member coaxial in respect to the rotatable member, another toothed member engaging the above mentioned toothed member and coaxially movable with the pivoted section aforesaid, and means for locking one of said toothed members and the rotatable member from movement to thereby hold the sections in adjusted positions.

2. In a device of the class described, the combination of a supporting section, a toothed member rotatively mounted thereon, a second section pivoted to the first section, adjusting members, one of which is coaxial with the pivot aforesaid and movable with the pivoted section and the other of which is coaxial with the rotative member, said adjusting members being engaged, and a locking device coacting with one of the toothed members to prevent pivotal or rotative movement of the sections aforesaid with respect to one another.

3. In a device of the class described, the combination of a supporting section, a rotative member carried thereby, another section pivoted to the rotative member, a toothed element movable with the pivoted section and coaxial with respect to the pivot means, a second toothed member coaxial with respect to the rotative member and meshing with the first mentioned toothed member, and a sliding locking device carried by one section and engageable with one toothed element and the rotative member to lock the sections in adjusted positions.

4. In a device of the class described, the combination of a supporting section, a sleeve rotatable thereon, another section pivotally connected with said sleeve, an adjusting gear carried by the last mentioned section and arranged coaxially with reference to its pivot, an adjusting gear mounted for movement on the supporting section and engaging the gear of the other section, and means

carried by the supporting section for engagement with the sleeve and the gear of said section to lock these parts from movement and hold the sections in a predetermined adjustment.

5 5. In a device of the class described, the combination of a lower supporting section, an upper section, a sleeve rotatable on the supporting section and having pivotal connection with the upper section, a gear movable with the upper section and secured thereto coaxially with reference to its pivot, a second gear meshing with that above mentioned and mounted loosely on the supporting section, locking catches arranged to engage the sleeve and the gear on the supporting section to prevent movement of these parts with reference to said section, and means for operating said catches simultaneously to permit of rotative and pivotal movement of the upper section on the lower section.

6. In a device of the class described, the combination of a supporting section, a sleeve rotatably mounted in its upper portion and provided with teeth, an upper section pivoted to said supporting section, a bevel gear carried by the upper section and coaxially secured thereto with reference to its pivot, another bevel gear loosely mounted on the supporting section with its teeth in mesh with the gear before mentioned and having other teeth projecting into space between the rotatable sleeve and supporting section, a plurality of locking catches arranged to engage the teeth of the last mentioned gear

and those teeth on the rotatable sleeve, to lock the sections in a predetermined adjustment, and a device for operating said locking catches.

7. In a device of the class described, the combination of a supporting section, a sleeve rotatably mounted in its upper portion and provided with teeth, an upper section pivoted to said supporting section, a bevel gear carried by the upper section and coaxially secured thereto with reference to its pivot, another bevel gear loosely mounted on the supporting section with its teeth in mesh with the gear before mentioned and having other teeth projecting into space between the rotatable sleeve and supporting section, a plurality of locking catches arranged to engage the teeth of the last mentioned gear and those teeth on the rotatable sleeve, to lock the sections in a predetermined adjustment, a ring movable between the sleeve and supporting section and longitudinally thereof, said supporting section having a slot in its side and the ring aforesaid engaging the locking catches, a finger piece projecting from the ring through the slot for operation of the catches, and springs normally tending to hold the catches in engagement with the adjacent teeth on the sleeve and adjacent bevel gear.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL COLIDGE.

Witnesses:

PETER BAY,  
JOSEPH CEYKA.