H. TIDEMAN.

MECHANISM OF THE LAZY TONG GENUS.

APPLICATION FILED MAR. 9, 1908.

899,769.

Patented Sept. 29, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

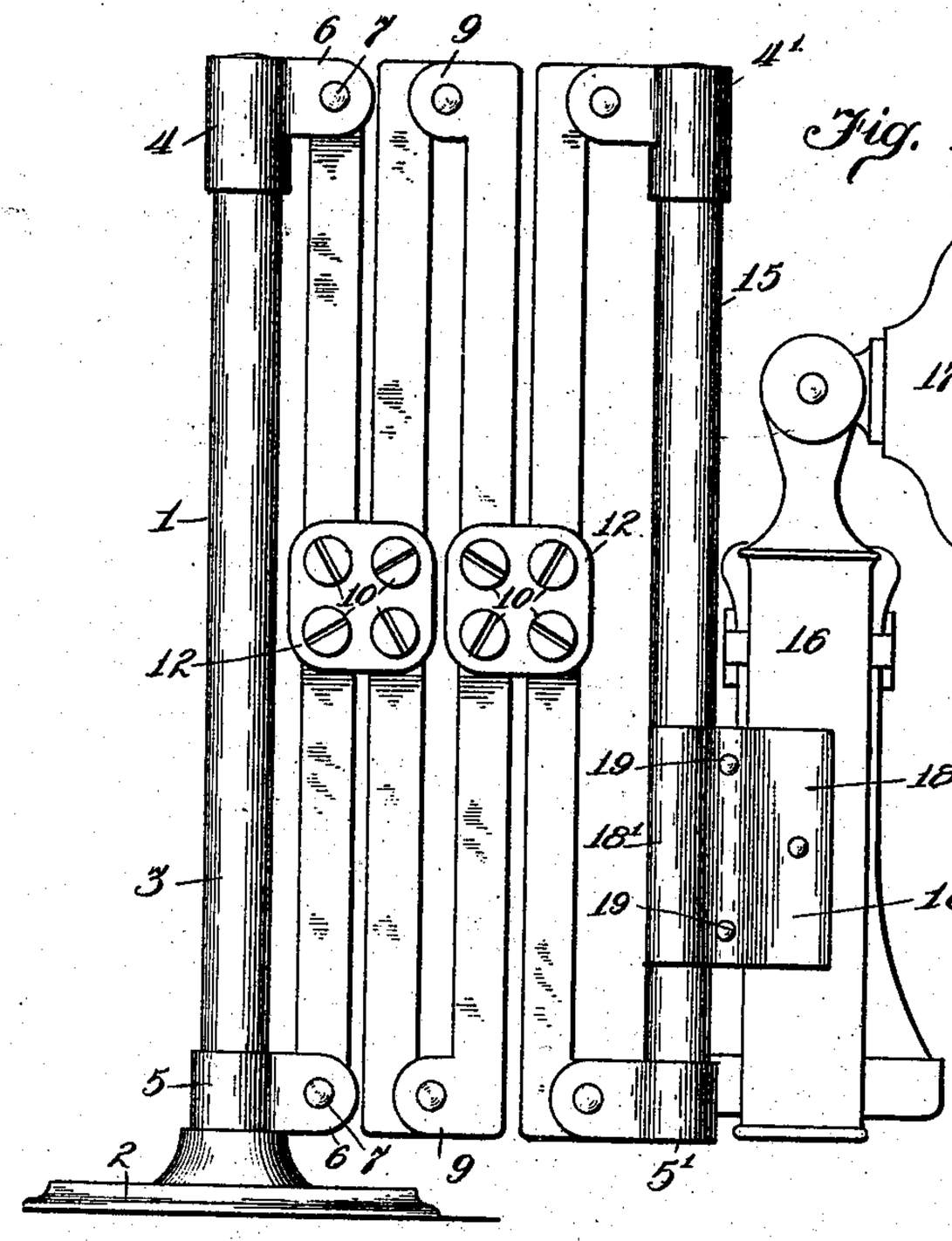
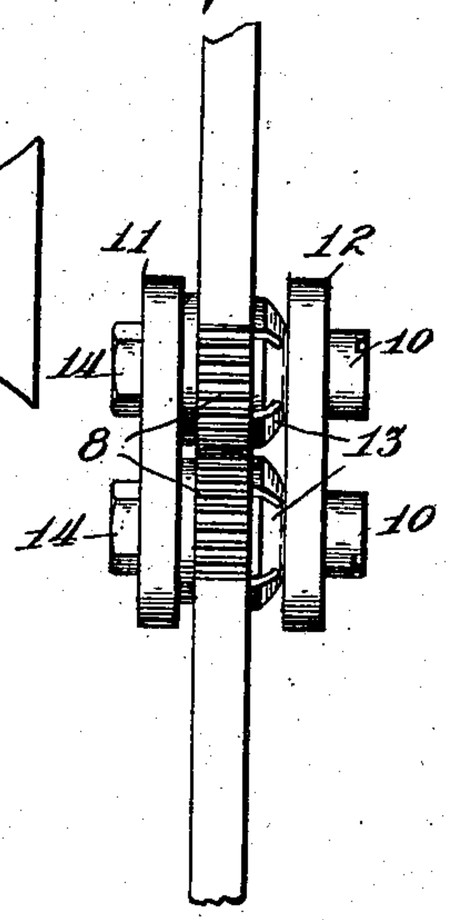


Fig. 4



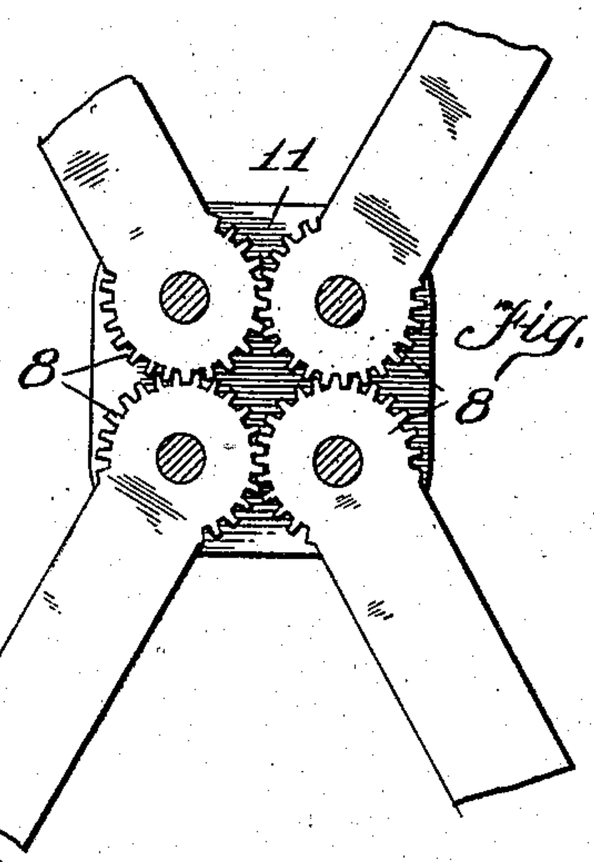


Fig. 3.

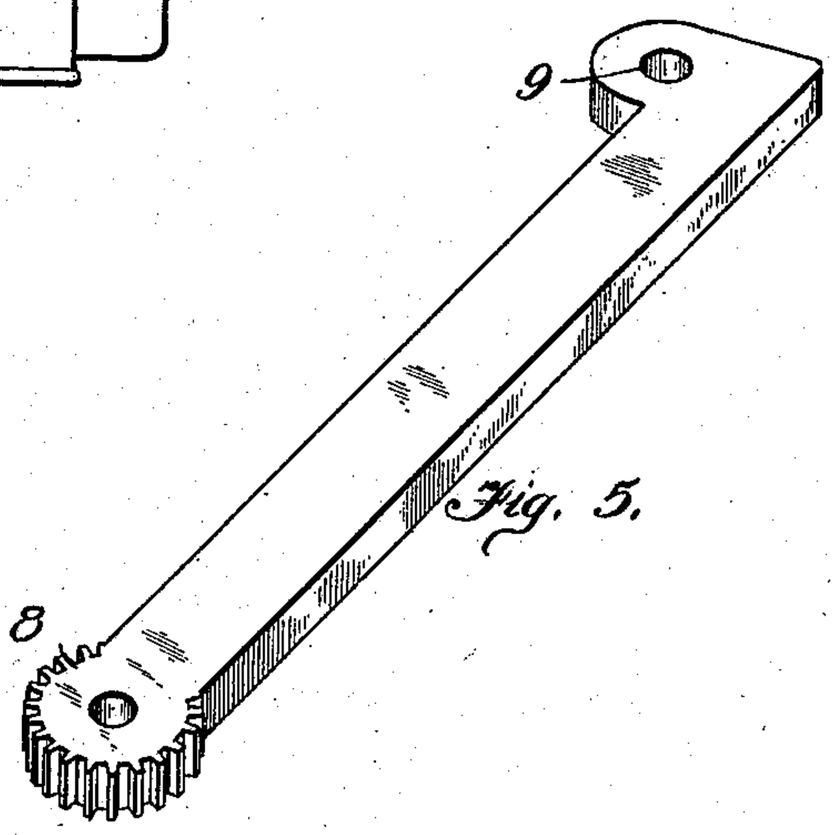


Fig. 5.

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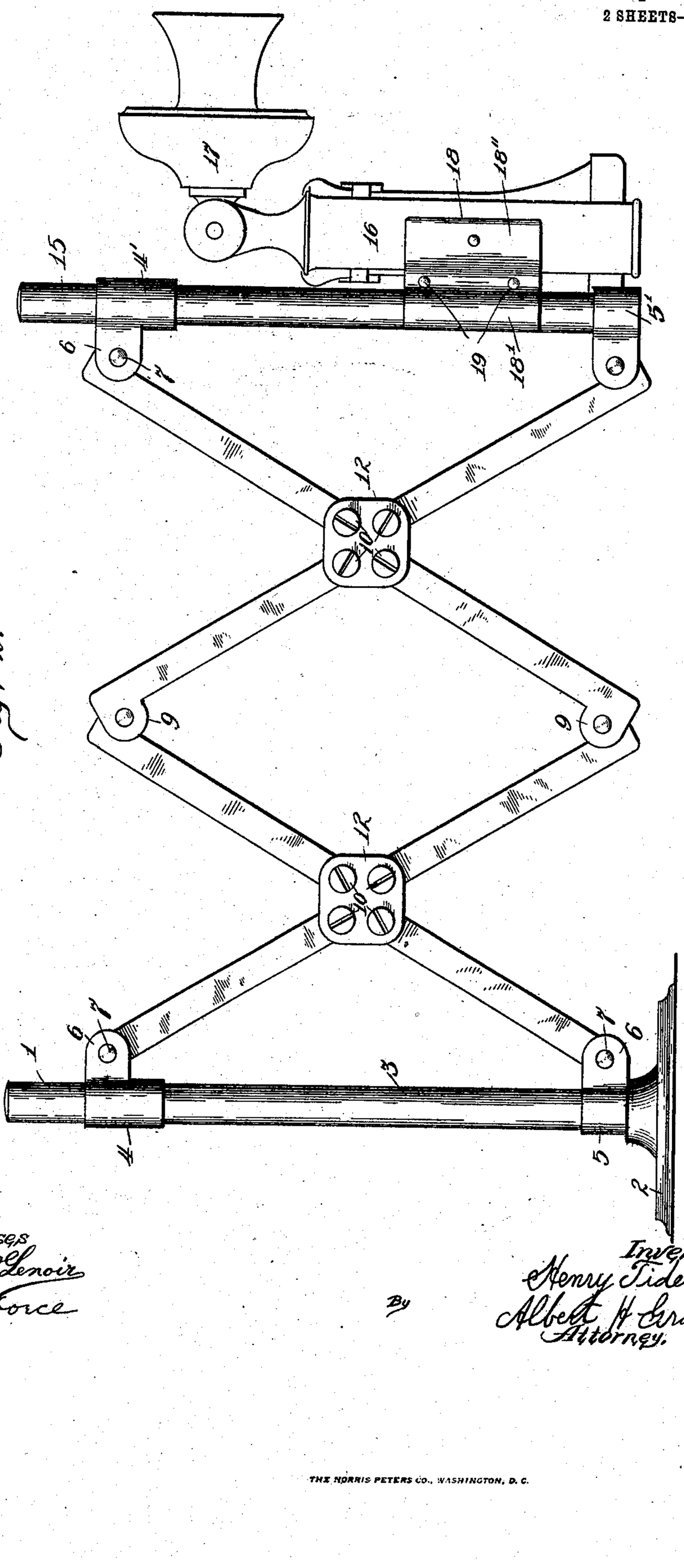
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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MECHANISM OF THE LAZY-TONG GENUS.

No. 899,769. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed March 9, 1908. Serial No. 420,011.

To all whom it may concern:

Be it known that I, HENRY TIDEMAN, a citizen of the United States, residing at Menominee, in the county of Menominee and State of Michigan, have invented certain new and useful Improvements in Mechanisms of the Lazy-Tong Genus, of which the following is a specification.

This invention relates to improvements in the mechanisms of the lazy-tong genus and the specific application of the same shown herein is in an extensible telephone bracket.

Among the salient objects of the invention are to provide a mechanical movement or mechanism whereby a member attached to one end of the system of levers may be maintained in parallelism with another stationary element at the other end of the system; to provide a construction in which the support or member at the end of the system will be carried back and forth in a direct line so that, when used as a telephone bracket, for example, it may be mounted on a flat desk top and extended and retracted without interference with said top extending it uplifted but very slightly above the latter; to provide a construction characteristic of great rigidity in all of its positions of extension and retraction; to provide a construction which is practically rigid against torsional movements and lateral deflections, notwithstanding, however, that the parts are capable of movement easily upon each other; to provide a construction in which the several lever elements are exact counterparts of each other and are therefore interchangeable and may be struck out by means of a single die or otherwise suitably formed most economically; to provide a construction in which the joints are kept tight by an automatic compression device, thus obviating the parts becoming loose by wear; and in general, to provide an improved mechanism of the character referred to.

To the above ends the invention consists in the matters hereinafter described and more particularly pointed out in the appended claims:

In the drawings—Figures 1 and 2 show the invention embodied in a telephone bracket, which is shown closed and extended respectively; Fig. 3 is a sectional detail showing the manner in which the lever elements are intergeared; Fig. 4 is an edge elevation of the part shown in Fig. 3; Fig. 5 is a side elevation of one of the lever elements.

Referring to the drawings, 1 designates a suitable standard comprising a base 2 adapted to be rigidly bolted or screwed to any suitable support as a desk, and an upright 3 of uniform cross sectional dimensions and serving as a stem upon which is mounted to reciprocate a slide 4. A clasp 5 is also secured to the lower end of the standard 3; both slide and clasp being provided with laterally outstanding ears 6 between which the corresponding ends of the first pair of lever elements are pivoted as indicated at 7.

The lever elements may be said to comprise sets of four, each member of which terminates at one end or is provided with a gear segment as 8 and is, at its opposite end, provided with a suitable ear 9 offset laterally so that the adjoining sets may be pivotally connected lazy-tong fashion as shown clearly in the drawings. The gear segments are arranged to intermesh with each other in such manner that twelve opposite members extend substantially in a line with each other and are maintained in a line with each other at all times. To this end the gear segments are safely mounted on screw journals 10 arranged in quadrangular relation and mounted to extend through cheek plates 11 and 12 arranged at the respective sides of the gears. The gear segments are preferably constructed and are shown as made integral with the ends of the respective lever elements and in the same plane with the latter. In order to maintain a tight joint a set of spring washers 13, one for each screw bolt, is interposed between each lever element and one of the cheek plates, as seen clearly in Fig. 4. These spring washers are held in compression by suitable setting-up and confining nuts 14 of the several screw bolts.

At the end of the system of levers, *i. e.*, mounted upon the outer ends of the last pair, is a second standard 15. This standard is rigidly connected at its lower end with the corresponding lever member by means of the clasp 5′ and carries a slide 4′ which is similarly connected to the corresponding upward lever element. Upon the standard 15 is mounted a telephone of the desk type,

comprising, as usual, a standard 16 and the usual transmitter 17 mounted thereon. The standard 16 is conveniently rigidly united with the standard 15 of the extension bracket by means of a sheet metal clasp 18 having a tubular portion 18″ which embraces and clasps the member 15, and a pair of semicircular rings or jaws 18‴ which embrace the respective sides of the telephone standard 16 and are suitably secured to the latter. The parts are rigidly and conveniently clamped together by means of screws 19 inserted through the web portion between the standards 15 and 16.

The operation of this particular embodiment of the invention is entirely obvious without description. It is to be noted, however, that in extending or retracting the bracket the entire system of levers are moved in direct lines perpendicularly with the stationary standard 1, and, accordingly, if mounted on a flat desk the bracket may be adjusted very close to the top of the latter without any danger of encountering it. It is to be noted further that as the mechanism is extended the slides 4 and 4′ will descend or rise correspondingly, but that even when the mechanism is fully extended so that the upper and lower sets of lever elements are nearly parallel with each other and approximately horizontal, the points of attachment of the levers with the respective standards 1 and 15 will nevertheless be practically separated a substantial distance. In other words, the bracket will have a post attachment of substantial width and the telephone supporting standard will be in a similar manner reliably supported at the end of the system of levers. The tension of the spring washers upon their respective lever elements will insure the mechanism remaining reliable at any point of extension or retraction, as well as preventing the joints from becoming loose and the whole mechanism unduly flexible or wabbly.

The system of levers connected in the manner described will find other practical applications than as an extension telephone bracket and the mechanism is therefore claimed generally as well as specifically.

I claim as my invention:

1. A mechanism of the lazy-tong genus, comprising one or more sets of interconnected lever tongs each set comprising four arms, four gear segments intermeshing with each other and each rigid with a corresponding arm, and a mounting upon which said gear segments are journaled.

2. A mechanism of the lazy-tong genus comprising one or more sets of interconnected lever arms, each set comprising four arms arranged in alined pairs, and each arm terminating in a gear segment, the several gear segments of the set being arranged to intermesh, a slide support at each end of the lever system, a slide mounted upon each slide support, and suitable connections between the end arms of the lever system and the slide and slide support at the respective ends.

3. In a folding structure, four lever arms arranged radially and pivoted on separate pivots adjacent to their inner ends, each said arm being provided with a segmental gear meshing with the gears of the two adjacent arms.

4. In a folding structure, two or more sets of arms connected in series, each set consisting of four arms pivoted on separate pivots adjacent their inner ends, each arm being provided with a segmental gear concentric with the pivot of the arm, and the several gears arranged to mesh with each other.

5. A mechanism of the lazy-tong genus comprising one or more sets of interconnected lever arms, each set comprising four arms, four gear segments of like radius arranged to intermesh each rigid with its arm, cheek plates between which said gears are mounted, and spring pressed friction means bearing yieldably against the several lever arms adjacent to their pivots.

6. A mechanism of the lazy-tong genus comprising a standard adapted to be secured fixedly in an upright position, a pivot support and a slide mounted upon said standard, the slide being mounted movably thereon, one or more sets of interconnected lever arms, each set comprising four arms, a gear segment rigid with each arm, the several gear segments arranged to intermesh, a mounting upon which said gear segments are journaled to hold them into intermeshing relation, two of said arms being connected, the one with said slide and the other with said pivot support, and a supporting element mounted upon the last pair of arms of the series, said supporting element comprising a standard, a pivot support fixed upon the standard and a slide movable upon the standard.

7. A mechanism of the lazy-tong genus, comprising one or more sets of interconnected lever arms, each set comprising four arms, each of which terminate in a gear segment, a pair of cheek plates between which said gear segments are interposed and journaled, and a spring friction device interposed between each gear segment and one of the cheek plates.

8. An extension telephone bracket of the lazy-tong genus, comprising a standard provided with a base and carrying a normally stationary pivot support and a slide, a plurality of sets of lever arms of the lazy-tong genus pivotally joined in a series, each set comprising four arms united in approximately radial relation, means so uniting said arms comprising a gear segment upon the end of each arm, a journal support, four journal bearings carried by said journal sup-

port and arranged in equidistant quadrangular relation, said gears being mounted upon said journal supports and arranged to intermesh with each other, an upright at the outer or free end of the series of arms carrying a normally fixed pivot support, and a movable slide, respectively connected with the lower and upper terminal arms, and means supporting a telephone instrument from the lower portion of said upright.

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