

No. 803,980.

PATENTED NOV. 7, 1905.

C. H. BORDEN.
TELEPHONE HOLDER.
APPLICATION FILED MAR. 1, 1905.

4 SHEETS—SHEET 1.

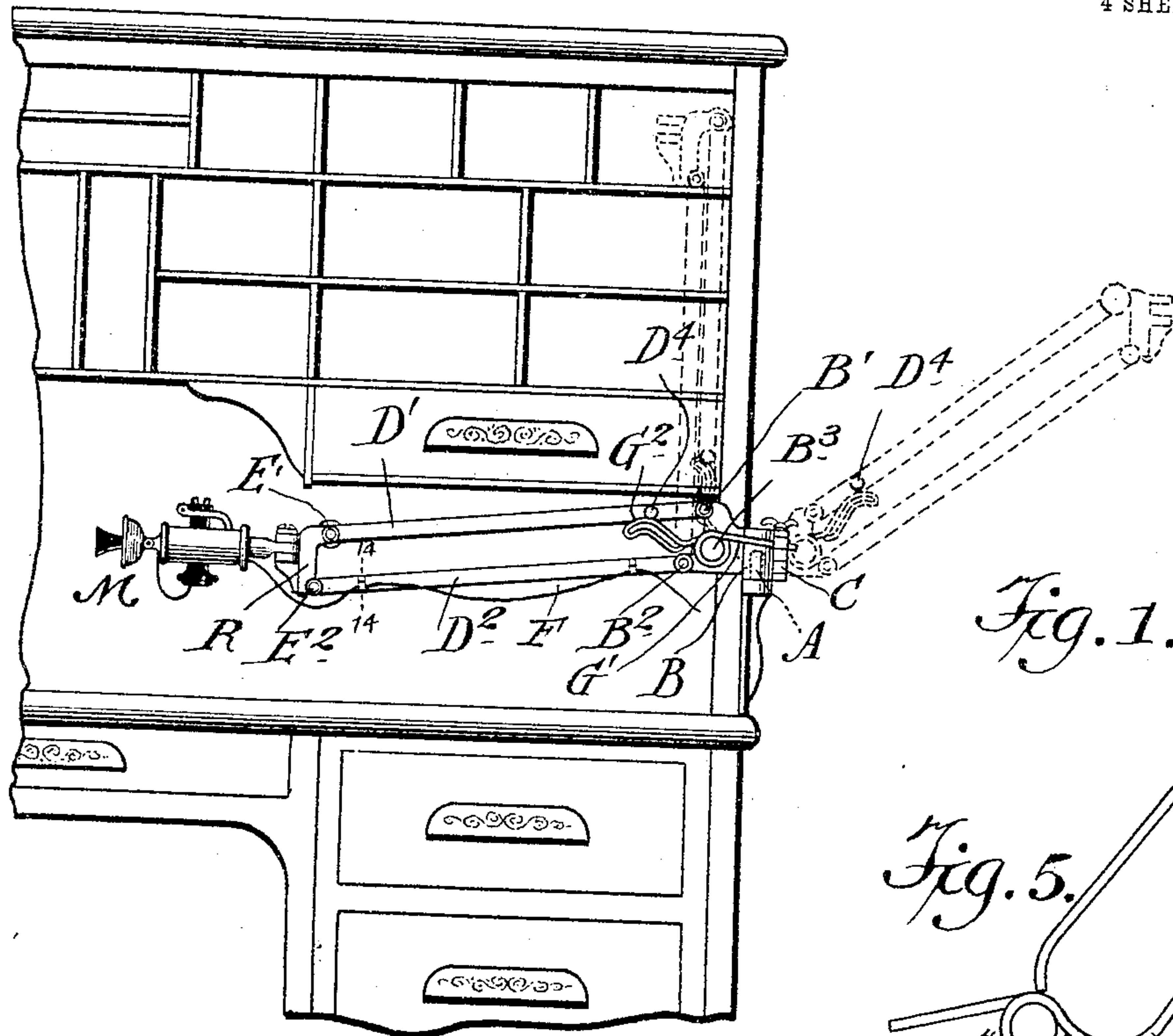


Fig. 1.

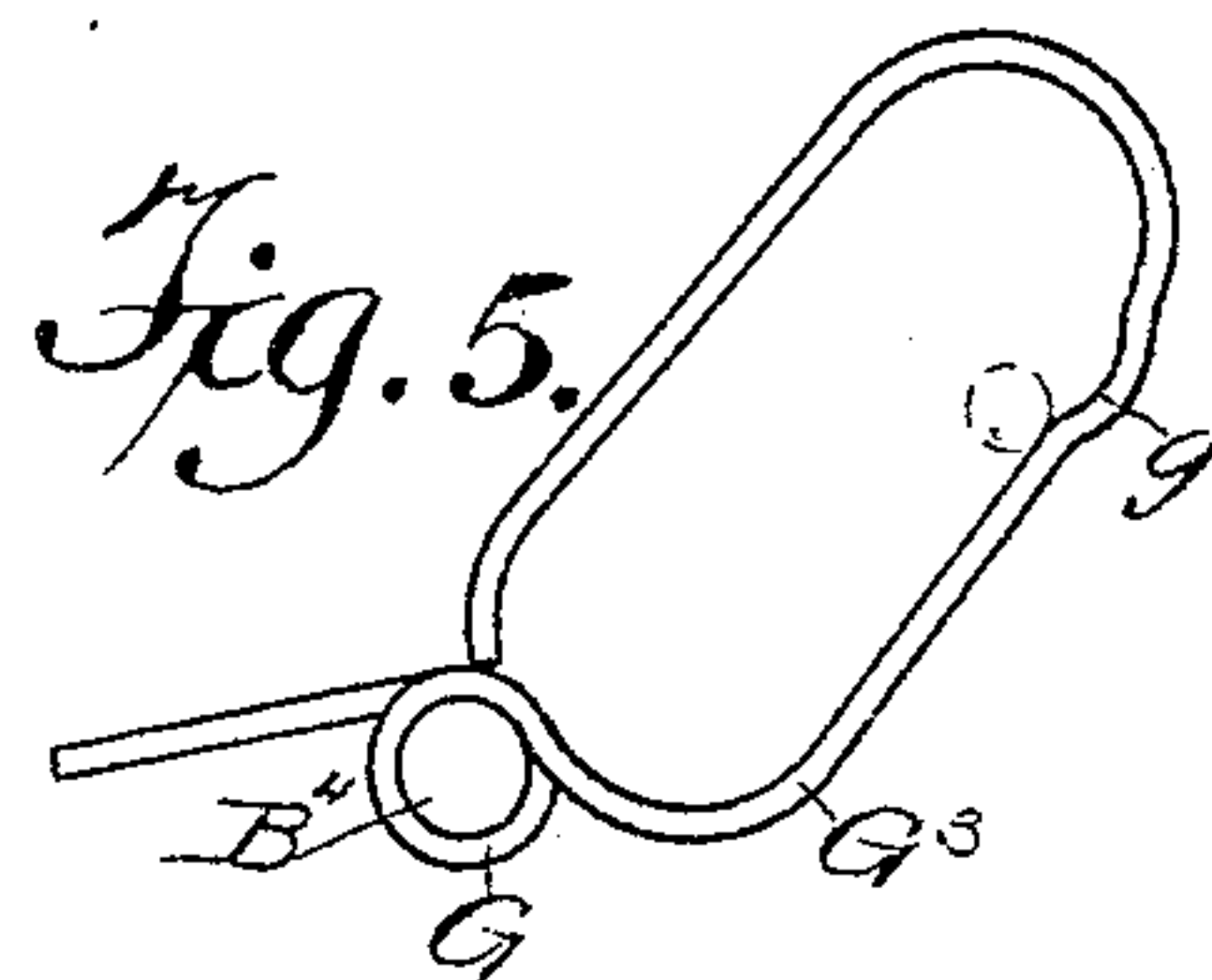


Fig. 5.

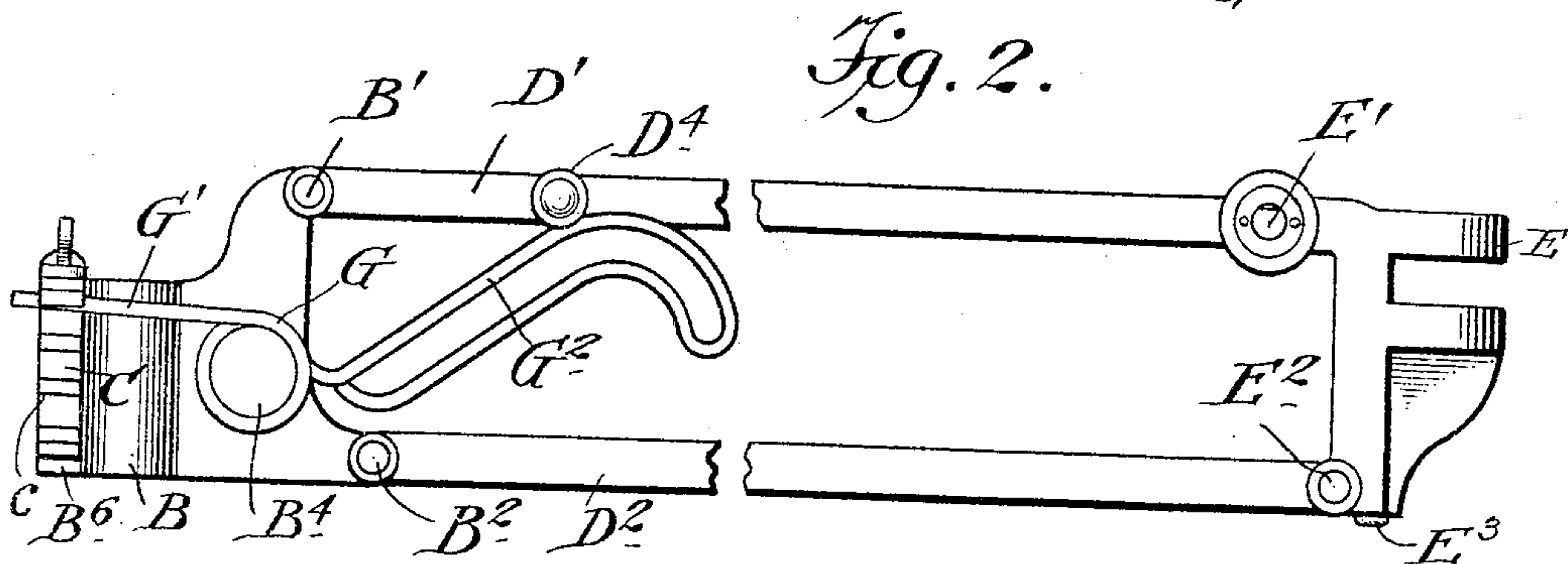


Fig. 2.

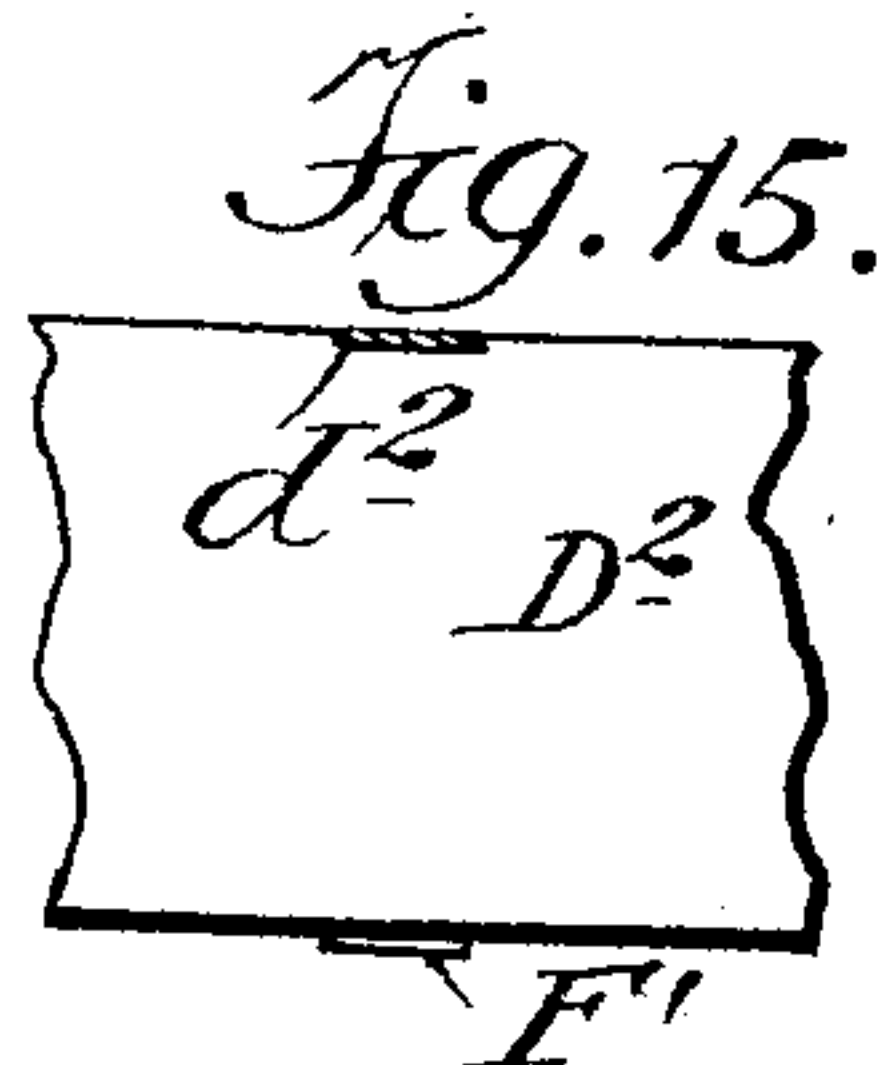


Fig. 15.

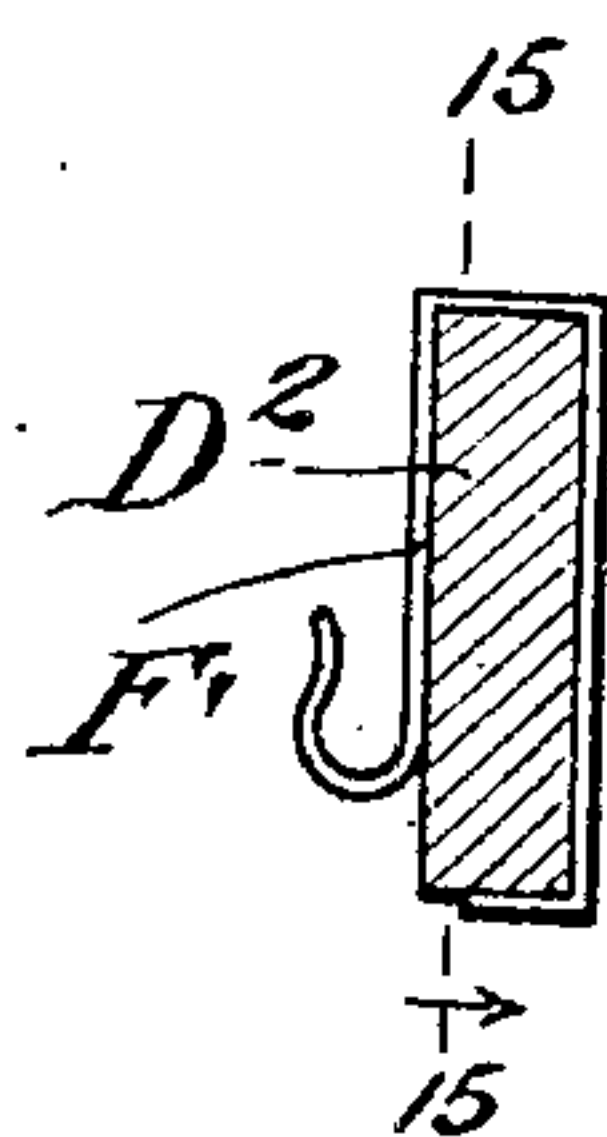


Fig. 14.

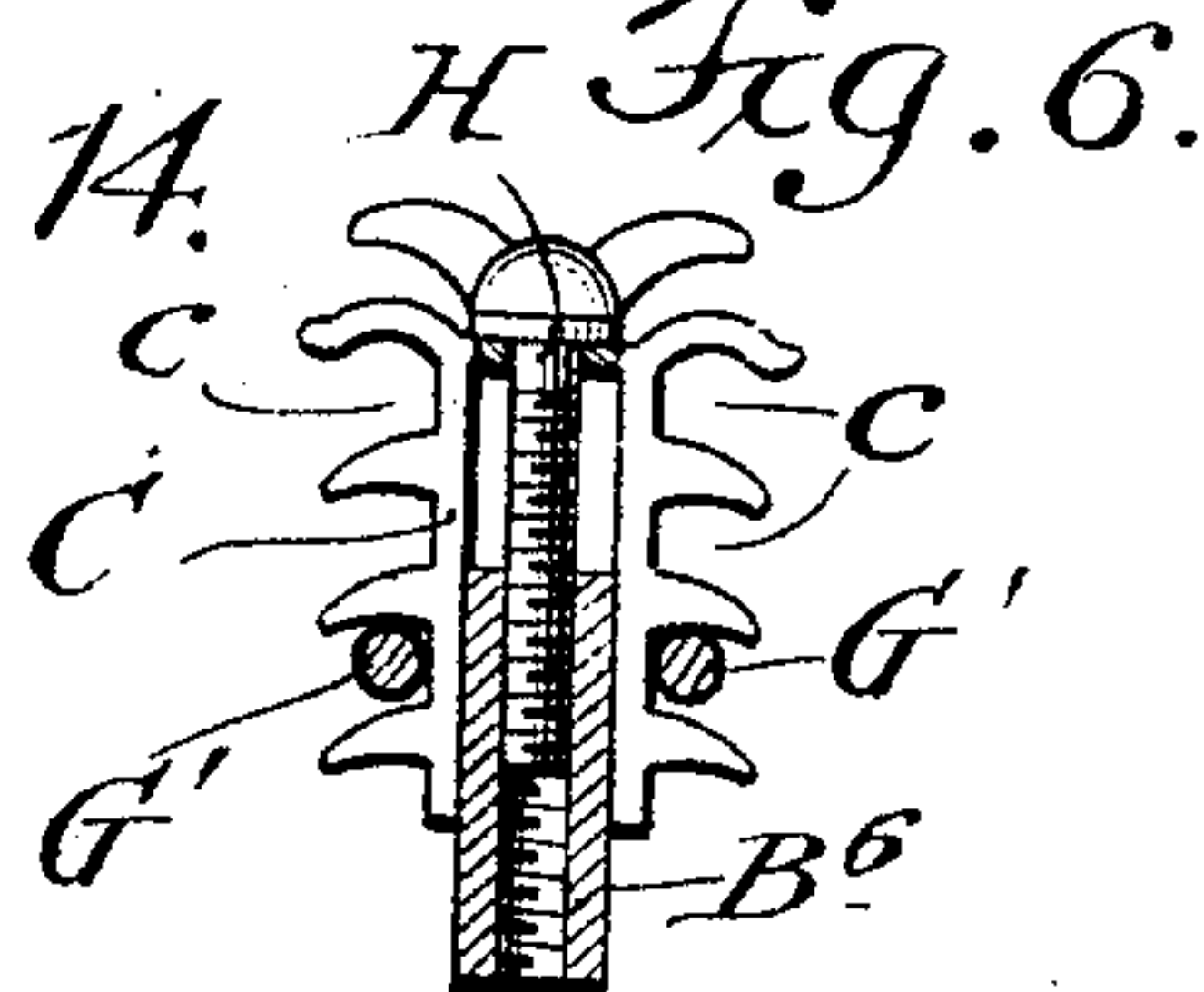


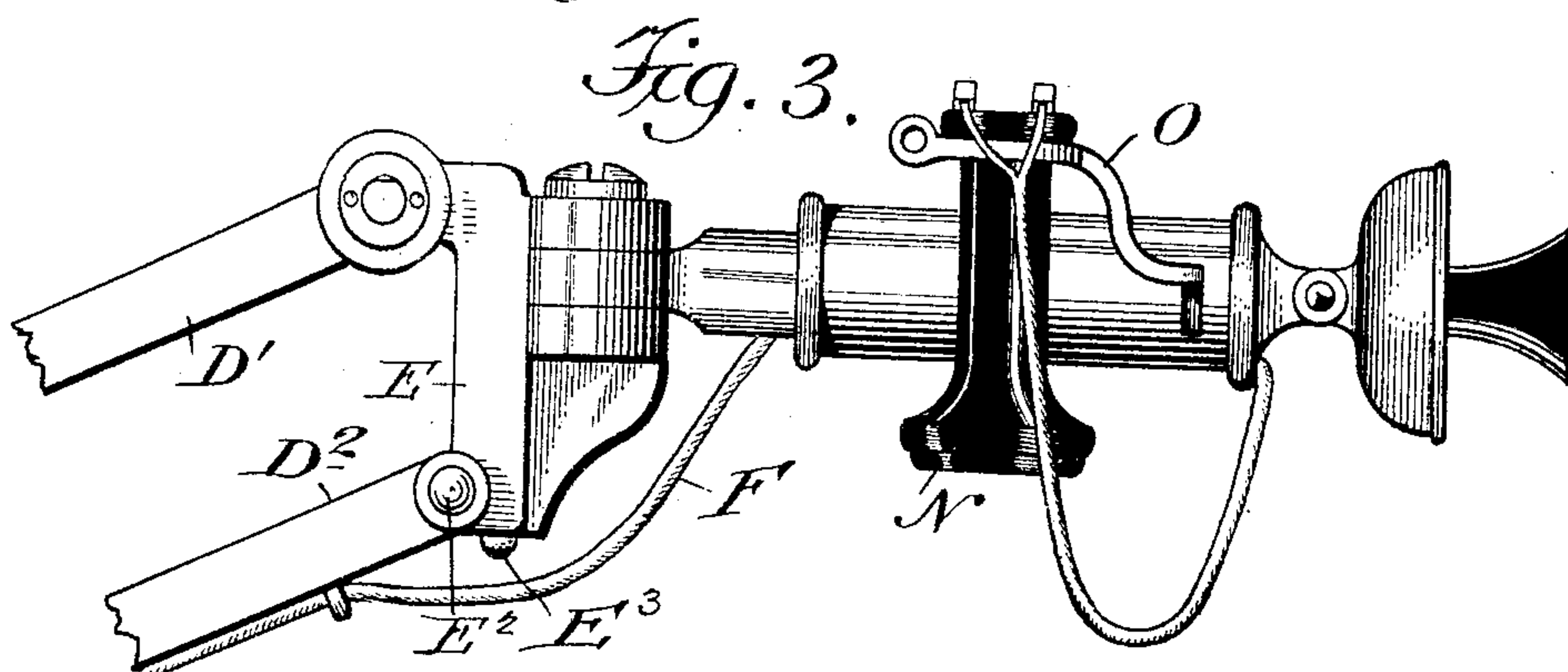
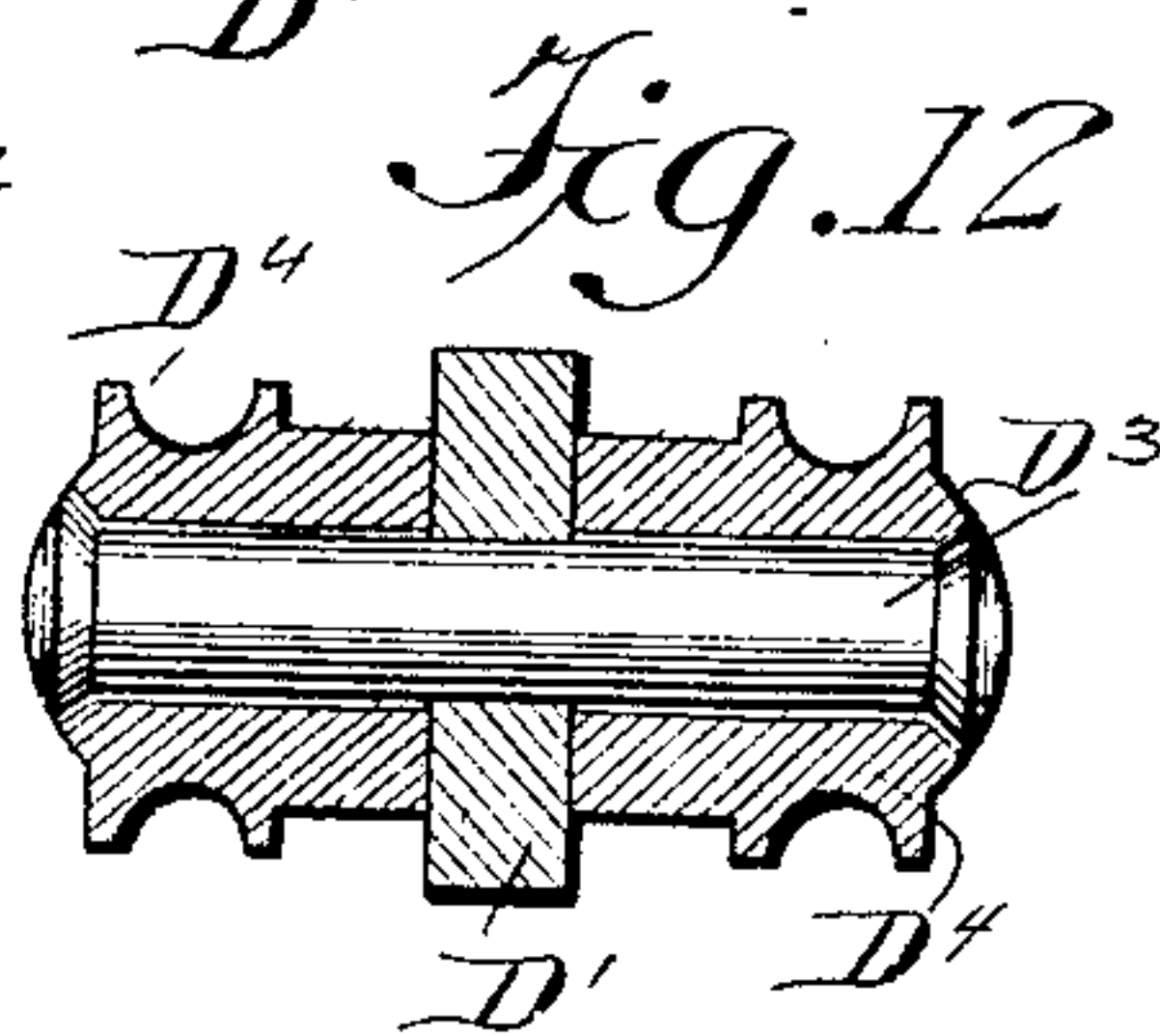
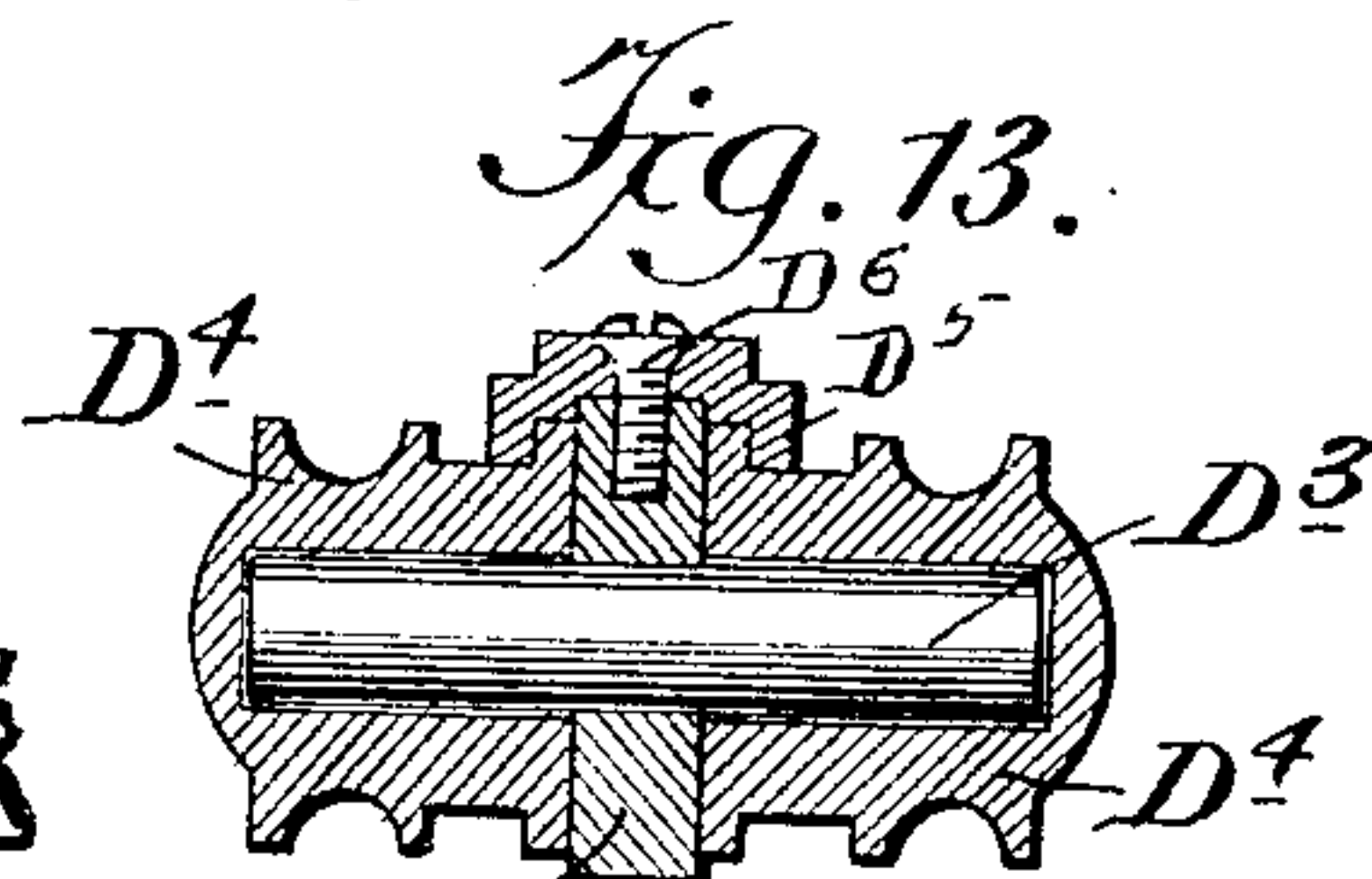
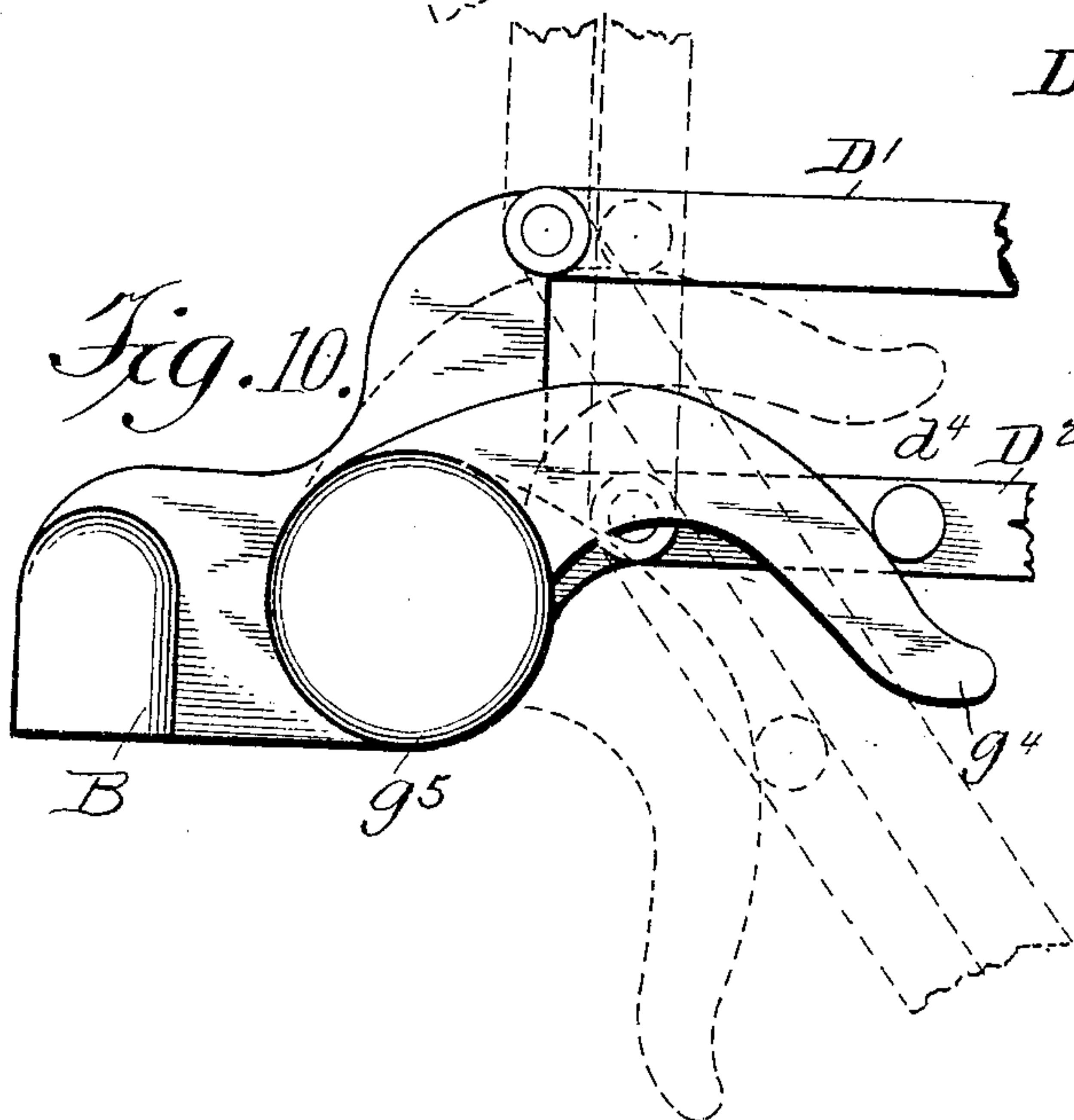
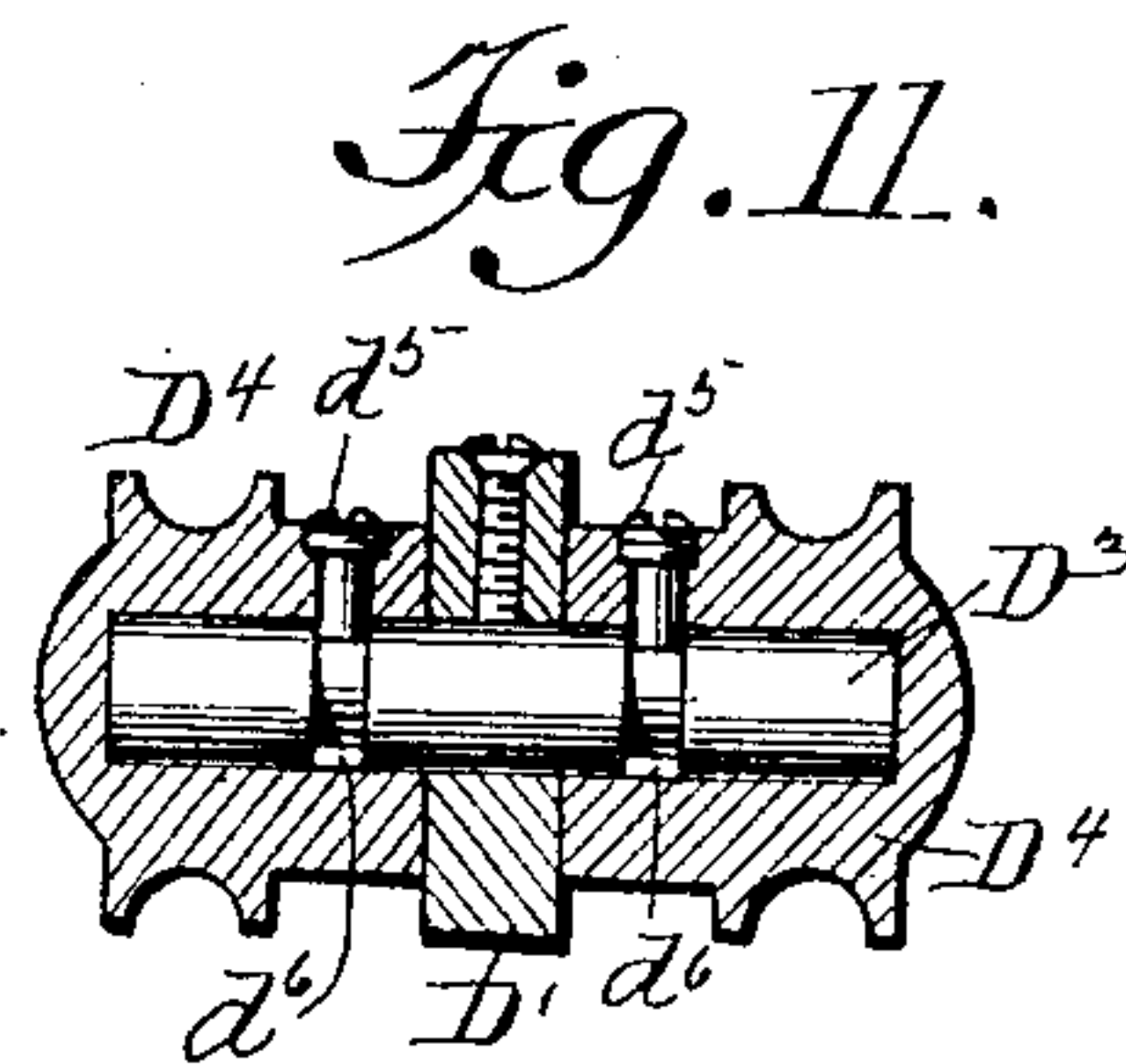
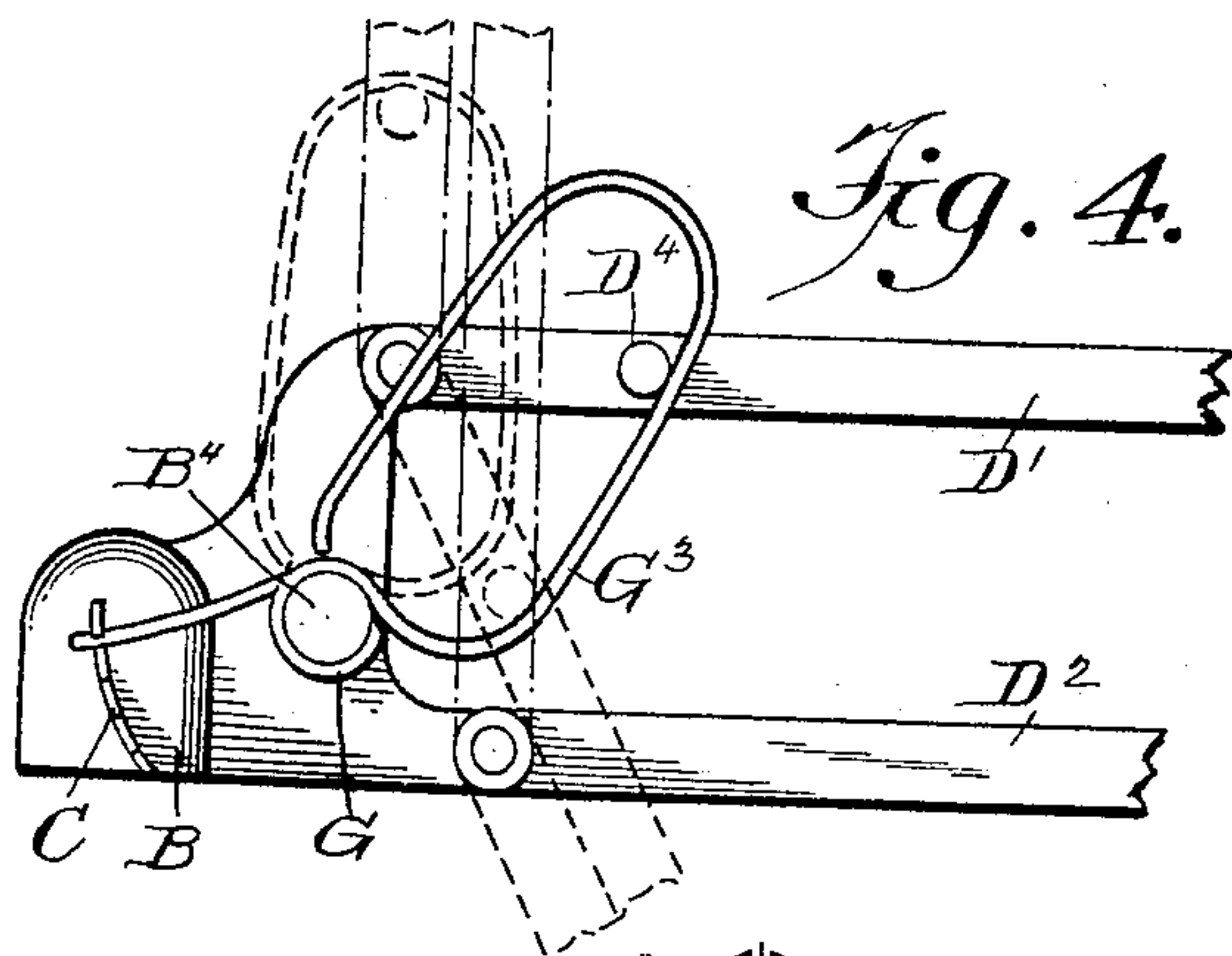
Fig. 6.

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4 SHEETS—SHEET 2.

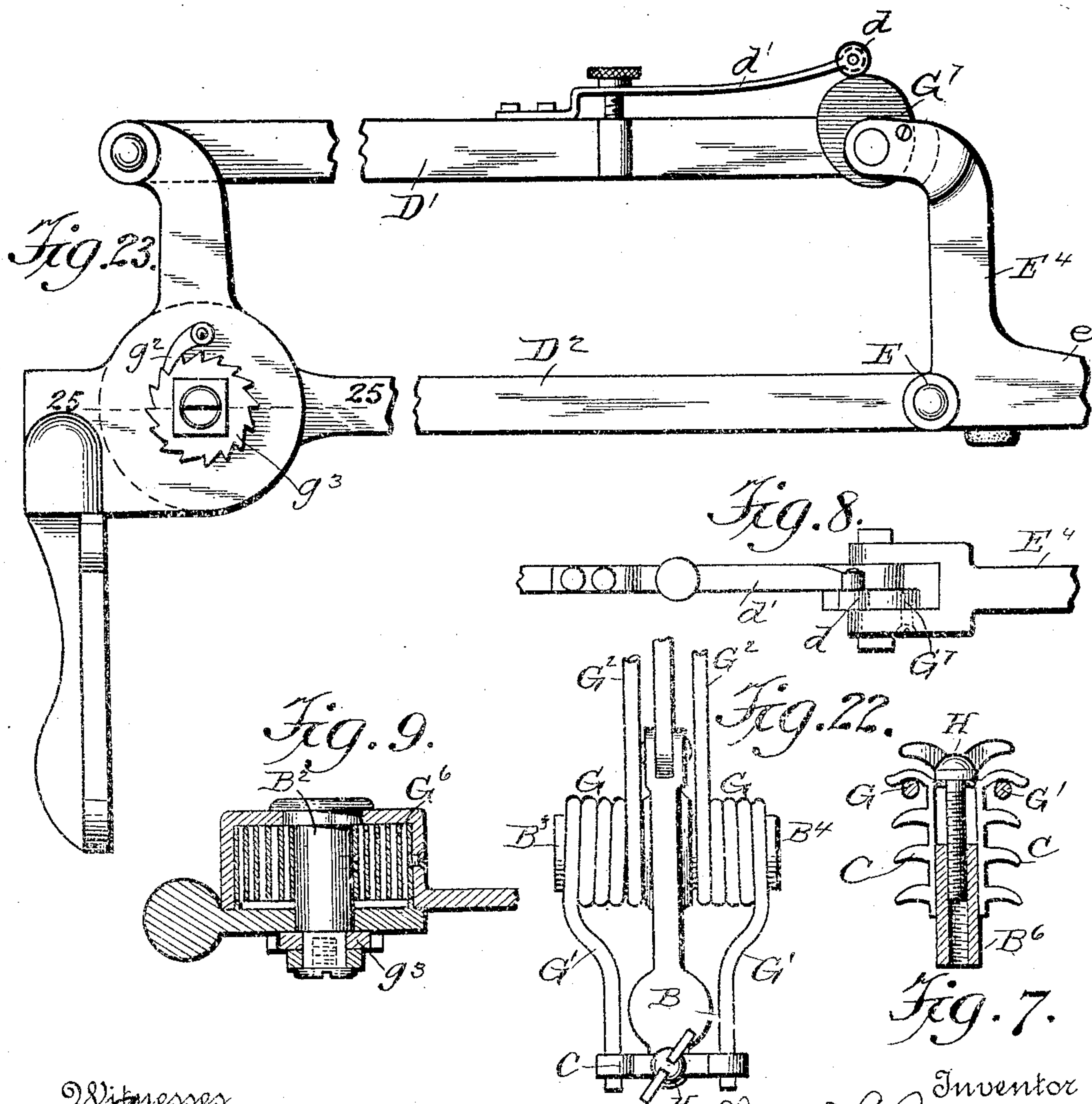


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4 SHEETS—SHEET 3.

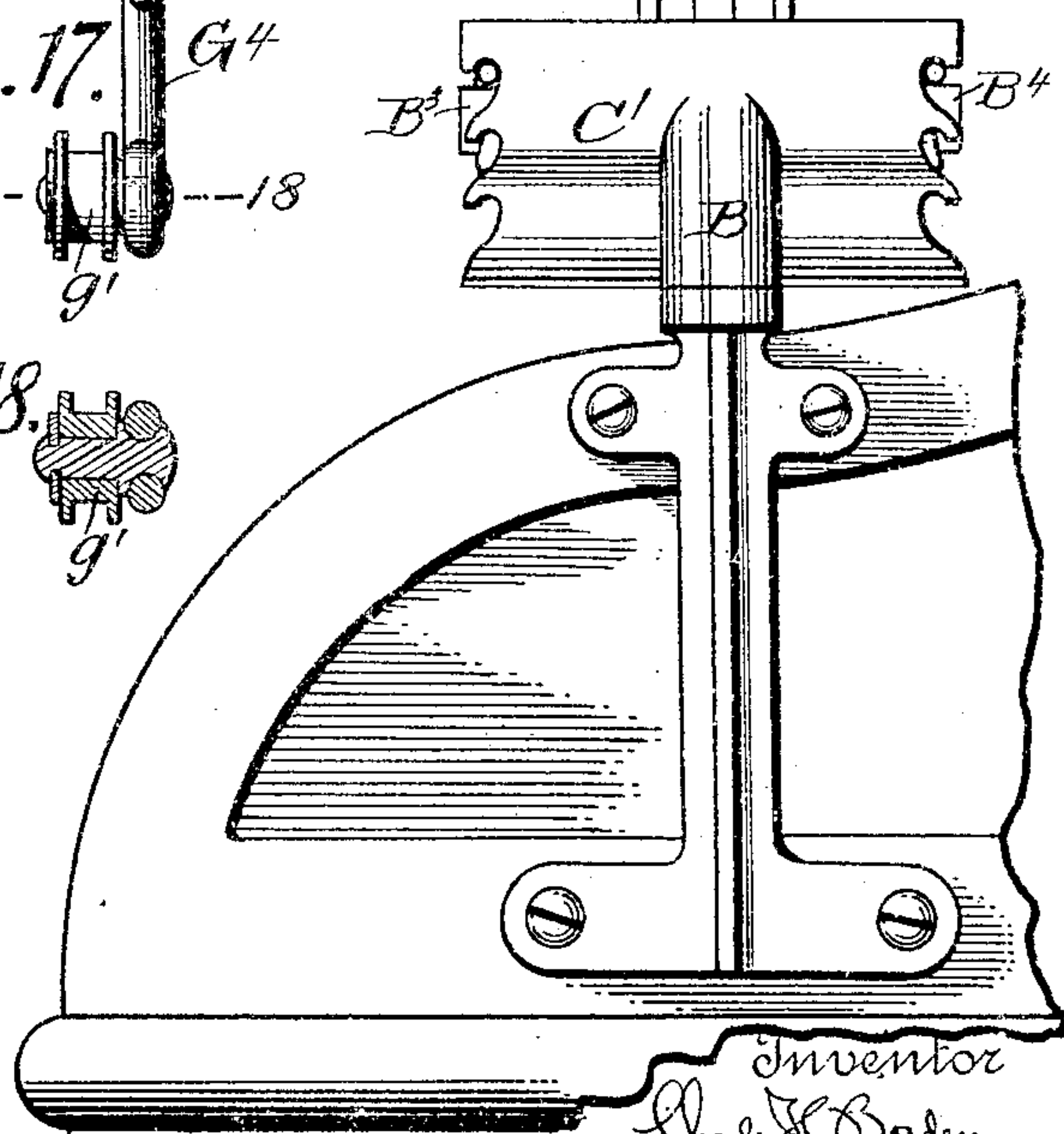
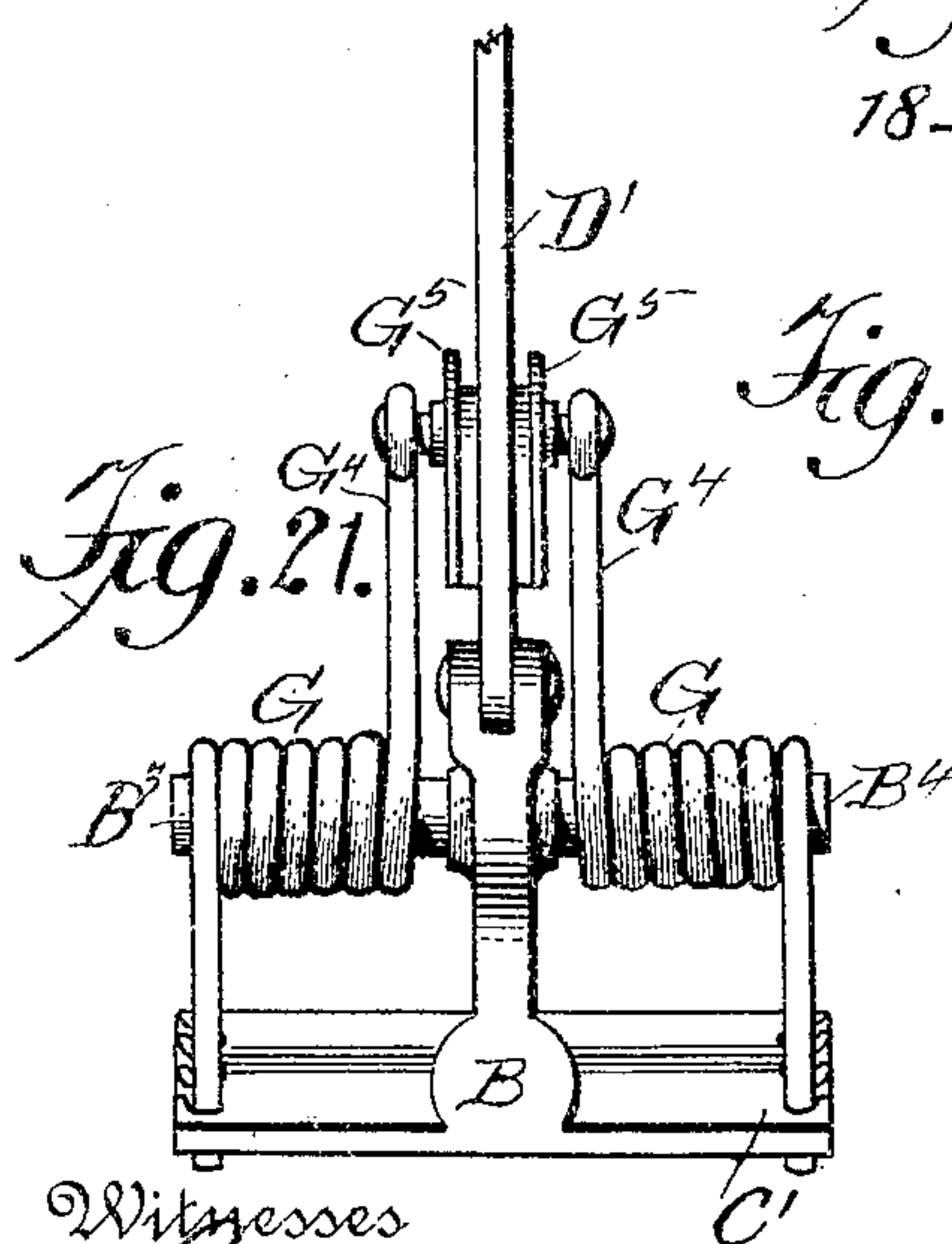
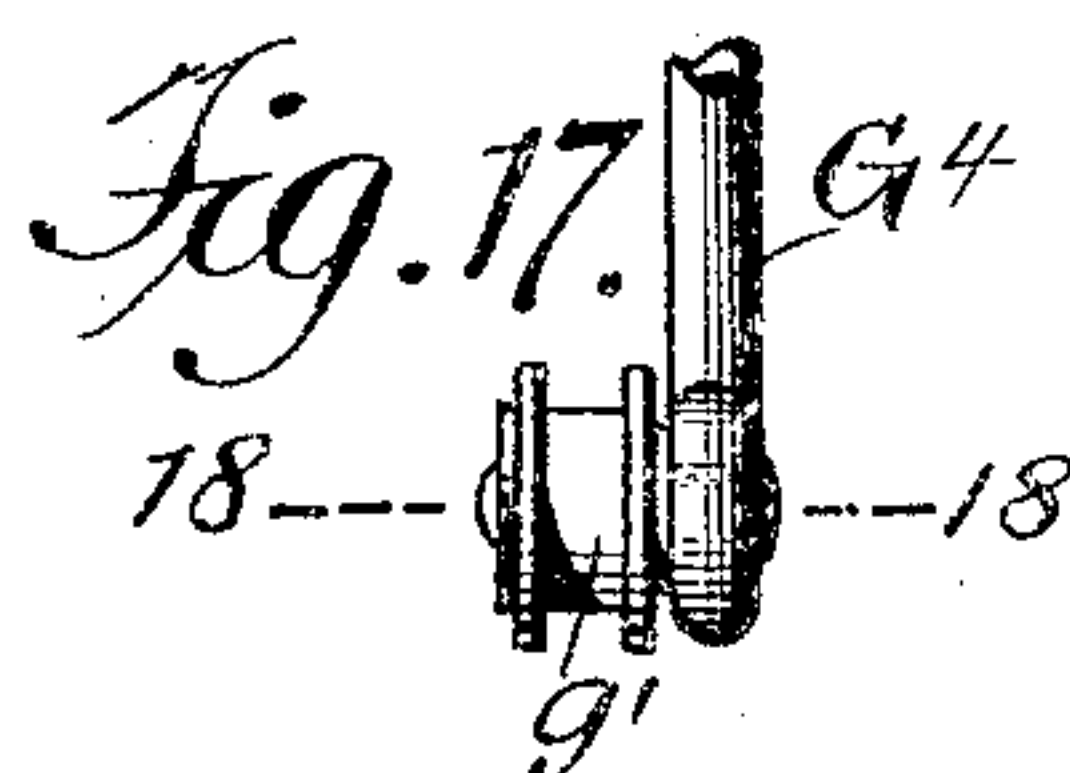
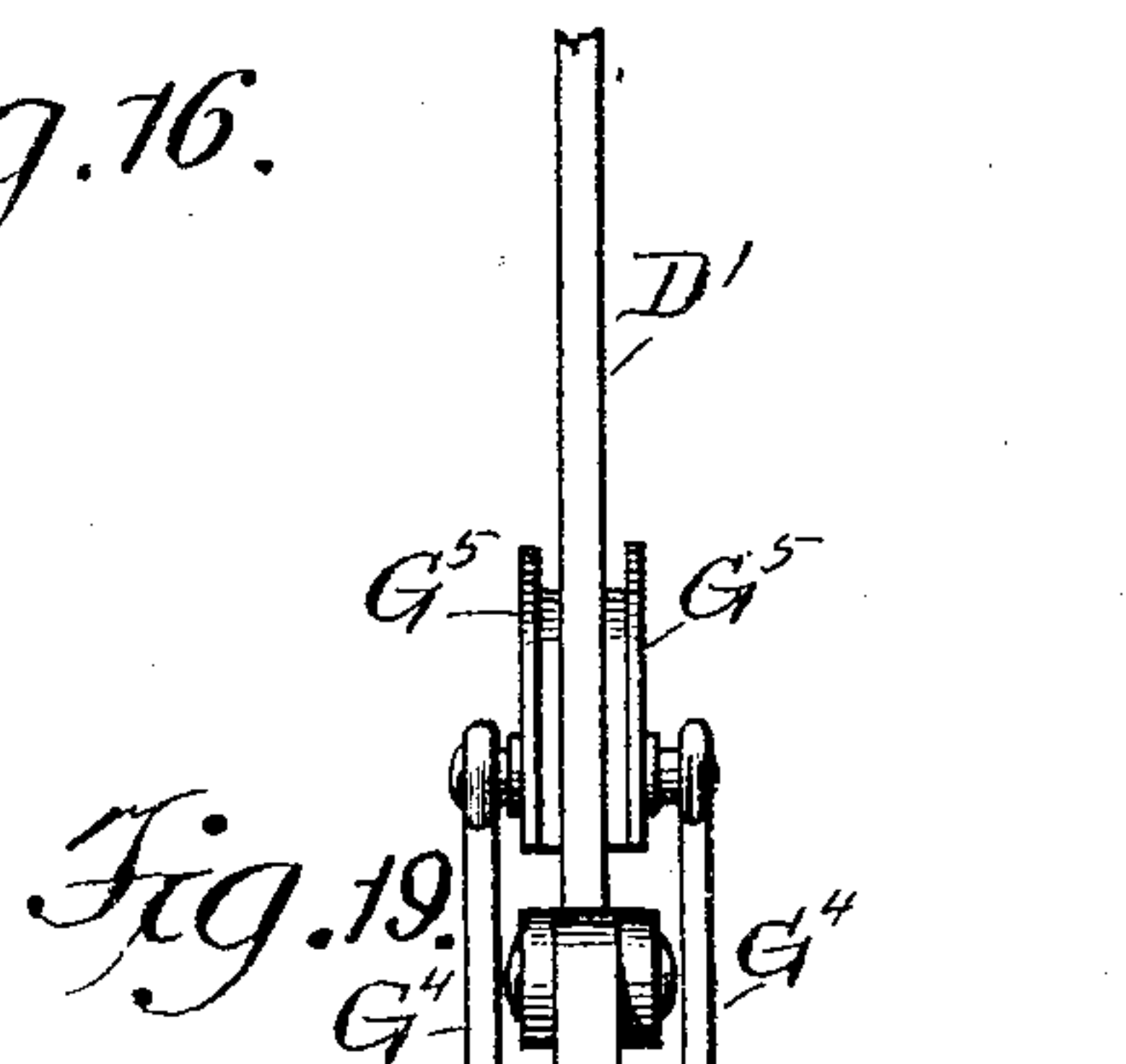
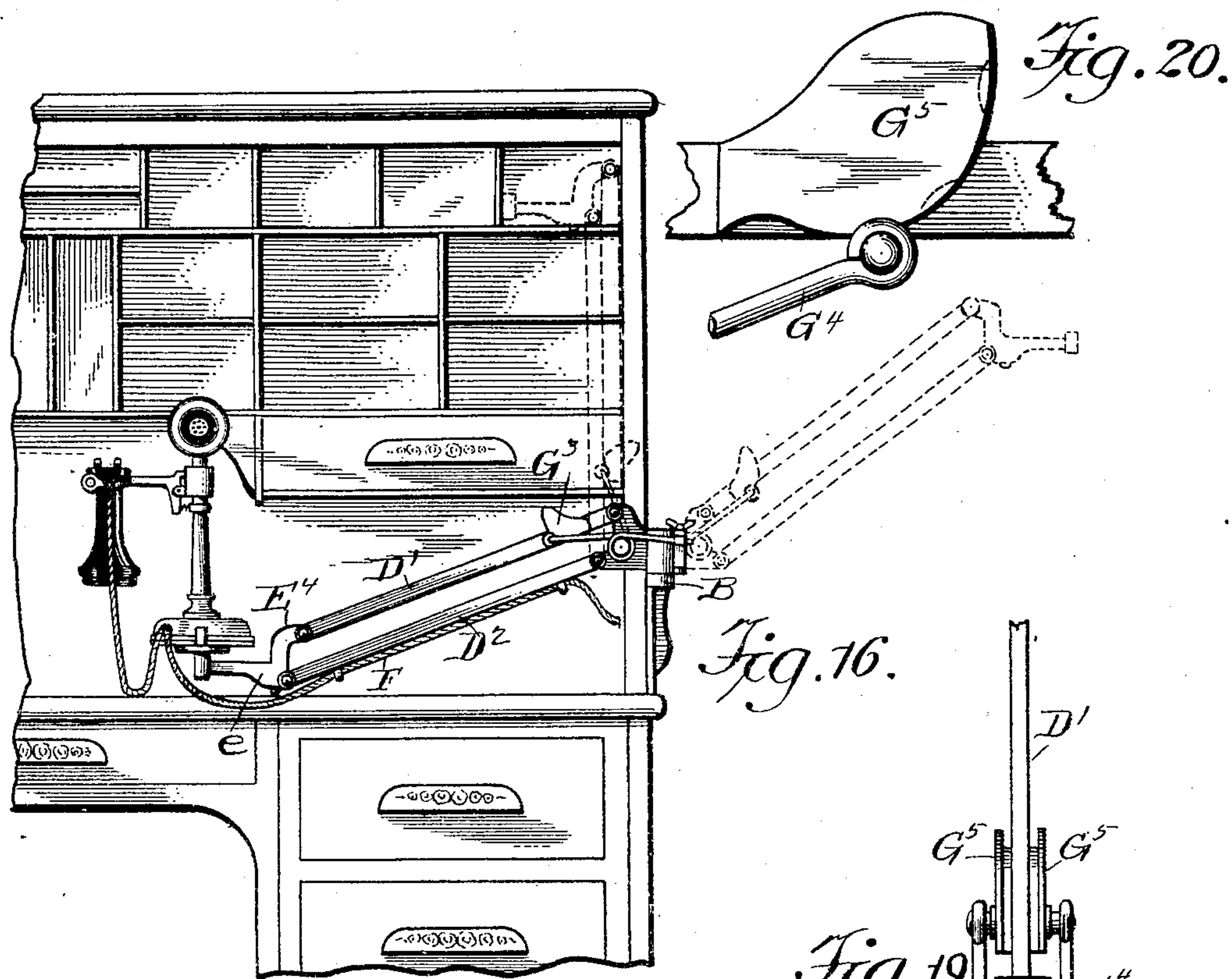


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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

CHARLES H. BORDEN, OF STAMFORD, CONNECTICUT.

TELEPHONE-HOLDER.

No. 803,980.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed March 1, 1905. Serial No. 247,835.

To all whom it may concern:

Be it known that I, CHARLES H. BORDEN, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Telephone-Holders, of which the following is a specification.

The improvement relates to that class of holders for telephones or other articles which embody a parallel-ruler-motion device and counterbalancing-spring which can be raised and lowered and moved horizontally in various directions.

My improved holder, like many others, is adapted to be attached to any sufficiently strong stationary support, as the wall of an apartment or a desk.

An important feature of my invention is the combination, with the parallel-ruler motion and counterbalancing-springs, of a cam means to compensate for the varying tension of the spring in the varying positions of the holder. The tendency to raise by the action of the spring at different points in the traverse may be compensated for to a varying extent by changing the outline of the cam.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1, Sheet 1, is an elevation, on a small scale, showing the entire holder in use on a desk. The full lines show the telephone instrument in a low position to accommodate one sitting at the desk, while the dotted lines show it in position to accommodate one standing by. Fig. 2, Sheet 1, is a side elevation on a larger scale. The bars extend horizontally to the right. Fig. 3, Sheet 2, is a corresponding view including a further portion, showing the kind of telephone instrument for which this form is especially adapted. Fig. 4, Sheet 2, is a side view of a portion on a larger scale corresponding to Fig. 1 slightly modified. By aid of dotted lines it shows the holder in three positions. Fig. 5, Sheet 1, is a side view of modified form of cam-arm on the spring. Fig. 6, Sheet 1, is a rear elevation of a portion partly in section. Fig. 7, Sheet 3, is a corresponding view showing the spring-arms changed in position to reduce the tension of the spring. Fig. 8, Sheet 3, is a plan view of a portion. Fig. 9, Sheet 3, is a horizontal section on the line 25

25 in Fig. 23. Fig. 10, Sheet 2, is a side view showing a further slight modification in three positions. Fig. 11, Sheet 2, is a section through a roller corresponding to Fig. 15 with the retaining means modified. Fig. 12, Sheet 2, is a corresponding section showing another modification of the roller. Fig. 13, Sheet 2, is a section on a large scale longitudinal through the roller which receives the action of the spring-cam. Fig. 14, Sheet 1, is a cross-section of a portion on the line 14 14 in Fig. 1. Fig. 15, Sheet 1, is a vertical section on the line 15 15 in Fig. 14. The remaining figures show modifications. Fig. 16, Sheet 4, is a front view showing the entire apparatus. Fig. 17, Sheet 4, is a plan view of a portion. Fig. 18, Sheet 4, is a horizontal section on the line 18 18 in Fig. 17. Fig. 19, Sheet 4, is an elevation of a portion on a larger scale as seen from the right in Fig. 16. Fig. 20, Sheet 4, is an elevation of a small portion on a larger scale. It is shown with the bar extending to the right. Fig. 21, Sheet 4, is a plan view of a portion. Fig. 22, Sheet 3, is a corresponding view slightly modified. Fig. 23, Sheet 3, is an elevation corresponding to the dotted view in the right side of Fig. 16 with the parallel bar adjusted lower and the cam and spring modified.

Similar letters of reference indicate like parts in all the figures where they appear.

Referring to the drawings, A is an upright pin firmly secured to a desk. A base casting B is pivotally mounted thereon. It has two cylindrical projections B³ B⁴ in line one on each side. Around each of these a sufficiently strong spring is coiled, each having, two arms. The coil in each is marked G, and G' and G² are the arms, respectively.

B' is an upper horizontal pivot-bolt, and B² a similar lower pivot-bolt set in B. They secure two parallel bars D' and D², each adapted to turn in the same vertical plane, and the outer ends of these are pivoted to a movable outer piece by corresponding horizontal bolts E' E². The transmitter M and its attachments are supported in the outer piece E, as shown in Fig. 1, with any ordinary or suitable provisions for manipulating and with its load may be raised and lowered at will, always holding itself horizontal. The arrangement of the pivot-bolts B' and B² and E' and E² permits the outer piece to be raised to a vertical position nearly over the pivot A, which allows the instrument to be

supported higher than would be otherwise possible and to be held with absolutely no disposition to sink even if the provisions for balancing and securing are for any reason inefficient.

The mainsprings G are adjustable as follows: The arm G' of each is adapted to engage with notches c in the side, respectively, of a carriage C , mounted on an upright post B^0 on the base B , with liberty to be raised and lowered. The other arm G^2 is bent or filed, or both, to allow its outer side to serve as a carefully-formed cam. The bar D' carries a transverse pin D^3 , on which loosely turn rollers or wheels D^4 , each of which is lubricated at its internal bearing on the pin D^3 , but is always dry and clean at its periphery. Each wheel is pressed upward by the corresponding spring-cam as the telephone instrument is raised or lowered. The outer edge of each cam bears against its proper wheel D^4 and travels along its lower side. The lifting and sustaining force of the spring at different points in its sweep may be varied by simply changing the form of the cam at the different parts.

The tension of either spring may be changed at will. To make a change, the arm G' is pulled out of the notch c , in which it is now resting, and is transferred to and engaged in the adjacent notch above or below. If it is the notch below its present notch, the tension will be increased. It is not essential that the force of the springs be equal. For a moderate increase in the force with which the parallel bars and their load—the outer piece and appended parts—are lifted by the spring action one spring G is thus increased in tension by adjusting its arm G' into a notch lower than it formerly occupied. If a greater change is required, both springs may be thus increased in tension.

It will be desirable in most cases to adjust more finely. In such cases the thumb-screw H , which is tapped in the upright portion B^0 of the base-casting B , may be operated. (See Fig. 7.) Turning this screw one way depresses the carriage C with all the notches c , with the effect to increase the tension of the springs on each side of the device. This screw H may be adjusted with any required degree of nicety to accommodate the needs or the fancy of the user.

When using the form of telephonic receiver and transmitter shown in Figs. 1 and 3, I prefer to bend up the hook O for the receiver N , so that it will not touch a flat table or desk when the bracket is turned down, the buffer E^3 striking the desk first.

When the desk form of telephone set is used, as shown in Fig. 16, the outer piece E^4 of the parallel-ruler motion is made L-shaped to provide a supporting-arm e for the telephone projecting horizontally near the level of the lower pivot E^2 , Figs. 16 and 23, so that

when the bracket is lowered to the position shown by full lines in Fig. 16 the telephone is but a very slight distance above the position it would occupy if it stood on the desk.

The conductor-wires to the telephone instruments are in the usual flexible cord F , Fig. 1, which is held in clips F' . (Shown more clearly in Figs. 14 and 15.) These clips are secured to one of the bars, preferably D^2 , by being sprung into notches d^2 in the bars, the clips being made of spring metal for the purpose.

Various modifications may be made in the construction of the apparatus. Thus the compensating cam may be modified considerably. Thus in Fig. 4 I have shown the cam-arm G^2 of the coiled spring as an open ring. In Fig. 5 I have shown it with a notch g to receive the antifriction-roller D^4 on the bar D' in the horizontal position of the parallel bars.

In the modification Figs. 16 to 21 I have shown the inner arms G^4 of the two coiled springs G , which are mounted on opposite sides of the bars D' D^2 , as approximately straight and provided with antifriction-rollers g' to run on cams G^5 , secured to the upper bar D' . In Figs. 19 and 21 the arms G' of the springs G are adapted to be engaged with notches in a plate C' , formed in one with the swiveled supporting-base B .

In Figs. 8, 9, 10, and 23 I have shown the counterbalancing-spring in the form of a clock-spring G^6 , which may be coiled around one of the pivot-bolts B^2 , as shown in Figs. 9 and 23. The tension of this spring may be adjusted by a pawl and ratchet g^2 g^3 , as will be readily understood. In connection with such a spring various forms of compensating cams may be used. Thus in Fig. 23 I have shown a cam G^7 secured to the outer piece E^4 and acted on by an antifriction-roller d , carried by a spring-arm d' , mounted on the bar D' . In Fig. 10 I have shown the casing g^5 , to which the outer end of the clock-spring is secured, as carrying a cam-arm g^4 , acting on a pin d^4 on the lower bar D^2 .

In Figs. 11, 12, and 13 I have shown three constructions for holding the antifriction-rollers D^4 on their supporting-pin. In each case a pin D^3 passes through the bar D' and the rollers are mounted on the opposite ends of the pin. In Fig. 13 the rollers are retained in place by a cap-piece D^5 , held to the bar D' by a screw D^6 and embracing annular flanges on the inner ends of the rollers. In the modification Fig. 11 the rollers are held in place by screws d^5 in the rollers entering at their inner ends annular grooves d^6 in the pin. In Fig. 12 the pin passes entirely through both rollers and has its outer ends upset to form shoulders to retain the rollers in place after they have been put on the pins.

I am aware that a compensating spring or

its equivalent, in combination with an adjustable holder or bracket, is not broadly new, for such a device is shown in the patent of W. S. How, No. 316,459, dated April 28, 1885, and I therefore do not claim, broadly, such subject-matter herein.

I claim as my invention—

1. An adjustable holder for telephones, &c., comprising two bars and end pieces forming a parallel-ruler motion with a counterbalancing-spring means in combination with a cam to compensate for the varying tension of the spring in the varying positions of the holder.

2. In a holder for telephones, &c., the combination of a supporting-base, two bars pivoted thereto, an outer piece on which the telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, spring means to counterbalance the weight of the parts and a cam to compensate for the varying tension of the spring in the varying positions of the holder.

3. In a holder for telephones, &c., the combination of a support and base swiveled thereto, two bars pivoted thereto, an outer piece on which the telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, spring means to counterbalance the weight of the parts and a cam to compensate for the varying tension of the spring in the varying positions of the holder.

4. In a holder for telephones, &c., the combination of a swiveled base, two bars pivoted thereto, an outer piece on which the telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, spring means to counterbalance the weight of the parts, a cam to compensate for the varying tension of the spring in the varying positions of the holder, and a device to make a rolling contact with the cam.

5. In a holder for telephones, &c., the combination of a supporting-base, two bars pivoted thereto, an outer piece on which the

telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, a spring to counterbalance the weight of the parts, a cam to compensate for the varying tension of the spring in the varying positions of the holder, and means to adjust the tension of the spring.

6. In a holder for telephones, &c., the combination of a supporting-base, two bars pivoted thereto, an outer piece on which the telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, a spring to counterbalance the weight of the parts, a cam to compensate for the varying tension of the spring in the varying positions of the holder, and a device having notches, to any of which the spring may be connected to adjust its tension.

7. In a holder for telephones, &c., the combination of a supporting-base, two bars pivoted thereto, an outer piece on which the telephone may be mounted, and to which said bars are pivoted, to form a parallel-ruler motion, two coiled springs on opposite sides of the bars to counterbalance the weight of the parts, and a device with two sets of notches to which the respective springs may be connected to adjust their tensions.

8. In a holder for telephones, &c., the combination of a supporting-base, two bars pivoted thereto, an outer piece on which the telephone may be mounted and to which said bars are pivoted, to form a parallel-ruler motion, a coiled counterbalancing-spring connected at one end to one of said parts and formed with a cam at the other end and an antifriction-roller on a relatively movable part to run on said cam.

Signed at New York city, in the county of New York and State of New York, this 18th day of February, A. D. 1905.

CHAS. H. BORDEN.

Witnesses:

LOUIS F. BRAUN,
B. G. BRADY.