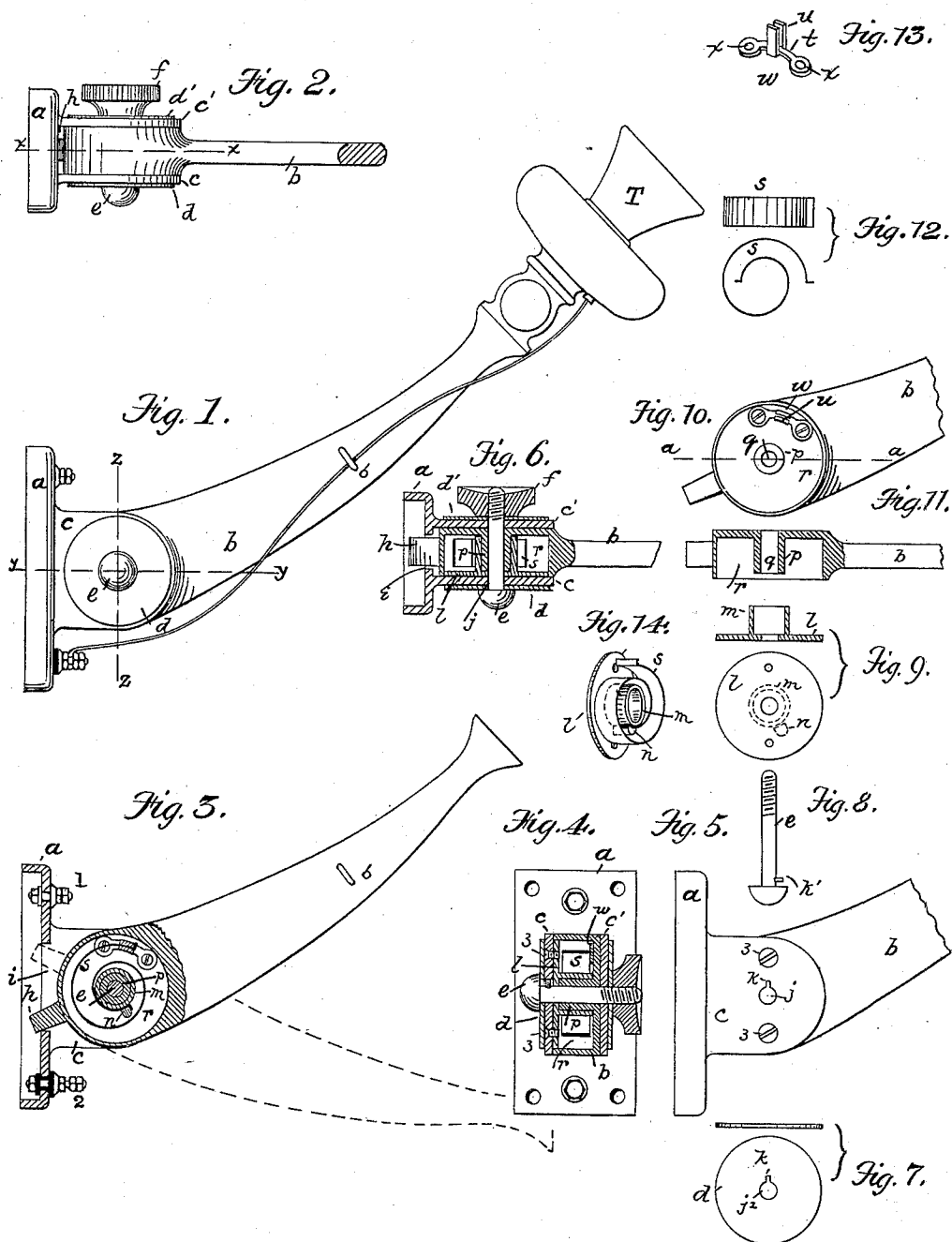


(No Model.)

H. V. HAYES.
TELEPHONE SUPPORT.

No. 469,474.

Patented Feb. 23, 1892.



WITNESSES
Scorville Pierce
U. M. Berthold.

INVENTOR
Hammond V. Hayes

UNITED STATES PATENT OFFICE.

HAMMOND V. HAYES, OF CAMBRIDGE, ASSIGNOR TO THE AMERICAN BELL TELEPHONE COMPANY, OF BOSTON, MASSACHUSETTS.

TELEPHONE-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 469,474, dated February 23, 1892.

Application filed June 22, 1891. Serial No. 397,080. (No model.)

To all whom it may concern:

Be it known that I, HAMMOND V. HAYES, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Adjustable Telephone-Supports, of which the following is a specification.

This invention relates to telephonic transmitters, and especially to adjustable supports therefor. Heretofore the convenience of mounting a transmitter upon such an adjustable support has been universally acknowledged and certain different forms have been devised and employed. The form of adjustable arm which has been most extensively employed is described in Letters Patent of the United States granted June 5, 1888, to Ezra T. Gilliland, No. 384,201, and, briefly described, comprises a parallel motion, one of the rods of which is inclosed within the other, whereby the mouth-piece of the instrument is maintained at all times vertical and the vibratory diaphragm at all times horizontal, irrespective of the height to which the arm and mouth-piece are elevated.

The object of the vertically-adjustable arm is of course to accommodate the height of the transmitter mouth-piece to the varying height of the several persons who may use it. The parallel-motion arm involves a relatively costly as well as complicated construction, and is, moreover, not adapted for heavy transmitters. Some forms of transmitters which are coming into use are comparatively heavy, being furnished with metal cases and solid metallic working parts. To provide an adjustable supporting-arm capable of convenient vertical adjustment adapted to support easily any reasonable weight and of simple and economical construction is the object of this invention.

In supporting a heavy transmitter upon an adjustable arm the leverage becomes so great as to make some method of counterbalancing imperative. In the support which is the subject of this invention the transmitter or telephone proper, serving as a weight, tends to depress the arm; but a counterbalancing-spring is provided acting against the said weight and constantly tending to elevate the arm.

It is found that by adjusting the friction at the center of motion or pivoted joint to a suitable degree of tightness the two opposing forces can easily be equilibrated, so that the arm can be placed in any position between its highest and lowest limits, and will stay wherever placed until changed to some other position. The arm may be made solid, but has a circular recess at the pivoted end, and within this recess is fixed a small stop or gripping device, to which one end of the counterbalancing-spring is attached, and which serves as a support therefor, and also as a means whereby the spring in its endeavor to relax is enabled to exercise power against the depressing force, and thereby to maintain the elevation of the arm at any point where placed. The inner end of the spring is fastened to a lug or fixed holder secured to a disk which closes one side of the circular recess, but which is fixed by screws to the bracket upon which the arm is mounted, and is independent of the said arm, the only mechanical connection between the disk and arm being through the intermediation of the spring, which has its fixed end secured to the disk and its movable end secured to the arm.

In the drawings which illustrate and form a part of this specification, Figure 1 is a side elevation of a telephone and its adjustable arm and bracket complete. Fig. 2 is a plan view of the bracket and the lower portion of the arm. Fig. 3 is a side elevation, partly in section, on the line xx of Fig. 2 of the bracket and arm. Fig. 4 is a vertical section on the line zz of Fig. 1. Fig. 5 is a view of one side of the bracket and a portion of the arm with the pivotal screw removed. Fig. 6 is a horizontal section on the line yy of Fig. 1. Figs. 7, 5, 8, 9, 10, 11, 12, 13, and 14 are details of separate parts placed as nearly as possible in the order of their actual arrangement proceeding from one side of the bracket to the other.

The bracket a , ordinarily of cast metal, has ears c , centrally perforated at j , between which is supported, by means of the pivot-screw e , the adjustable supporting-arm b , carrying at its outer extremity the telephone T , usually a transmitter. The bracket-ears c and c' are of ordinary construction. The arm b is solid, and

the telephone T may be attached to its outer end in any preferred way.

Figs. 3, 10, and 11 best show the internal construction of the arm. At the rear of the space between the bracket-ears a slotted space *i* is made in the base-plate, and the arm proper is provided with a heel *h*, which as it is elevated or depressed moves within the said slotted space, as indicated by dotted lines, and the upper and lower edges of said slot thus serve as limits for the traverse of the arm. As clearly indicated in Fig. 11, the arm *b* at its fixed end has a circular recess *r*, with a sleeve *p*, having a central hole *q* projecting from its closed side centrally. Fixed by screws or rivets to the said closed side, which forms a permanent floor for the said recess, is a spring-holder or gripping-piece *w*. (Shown in plan in Figs. 3 and 10, but in perspective in Fig. 13.) This stands upright on the said floor and is fixed thereto by the holes *x* in its feet, which are united by a bridge *t*, from which projects outwardly a jaw-clamp *u*, which, as clearly shown in Fig. 3, grips the outer end of the steel spring *s*, the shape and relative size of which is indicated in Fig. 12. The spring *s* is however held, as shown, at its fixed end between a cylindrical lug *n*, flattened on one side, and a sleeve *m*, both arranged on the internal surface of a complementary metal disk *l*, which closes the recess *r* of the arm, and which is placed immediately within one of the bracket-ears and is secured by screws 3 thereto. The sleeve *m* of this disk slips over the sleeve *p* of the arm-recess, and the two ends of the spring *s* are thereby made to coincide.

In putting the appliance together the spring is placed on the disk *l*, with its inner end between the sleeve *m* and adjacent lug *n*, and the whole is then placed over the recess *r* of the arm, when the said sleeve *m* will fall into position surrounding the sleeve *p*, and the outer end of the spring can without difficulty be placed in the jaw *u* of the gripping-piece *w*. The arm so prepared is now placed between the ears *c* of the bracket *a*, and the disk *l* is secured to one of them by the screws 3. The pivot-screw *e* is then run through a finishing plate or washer *d*, having a central hole *j*², and the said screw or bolt threaded, however, only for a short distance from its end is passed through the bracket-ears *c* and *c'* and the sleeve *p*.

It will be observed that a small open slot or keyway *k* is cut into the hole *j*² of the plate *d*, that a similar keyway is also cut in the hole of the bracket-ear *c*, and that a key or projection *k'* is fixed to the pivoted bolt *e* just within its head, which projection fits within the said keyways. This prevents the bolt from turning around in the hole as the arm is elevated or depressed or when the adjustment of its nut is changed. Finally, a second plate *d'* is placed external to the other bracket-ear *c'*, and the thumb-screw nut *f* is

placed upon the threaded end of the pivot-bolt which projects completely from one side of the bracket-ears to the other for this purpose, and is tightened up to furnish a proper adjustment.

Suitable binding-screws 1 and 2 are placed on the bracket-base for the reception of the electric connecting-wires. One of these may lead in a manner well understood through the metal substance of the arm to the telephone-instrument T, while the other, the binding-screw 2, being insulated for that purpose, may be led by an insulated wire or flexible cord from the said binding-screw through the loop 6 on the side of the arm to a similarly-insulated binding-screw on the telephone-instrument.

By the above arrangement when the arm is lowered the end of the spring *s*, attached to the gripping-piece which is fixed to the arm, is slightly moved round, while the other end is held fast to the bracket, and when the arm is elevated the spring in like manner relaxes. A simple and efficient counter-balance is thus effectuated, co-operating with a moderate friction of the clamping-nut, and the telephone may thus be easily placed and retained without changing the adjustment of the screw in any desired position.

I claim—

1. The combination of an adjustable telephone-supporting arm pivoted at its fixed end to a stationary bracket, a spring coiled around the pivot and exerting a constant elevating force on said arm, and a clamping-nut for regulating the force of said spring, substantially as described.

2. In an adjustable telephone-supporting arm, the combination of the sleeved recess and the spring-holder contained therein at the fixed end of said arm with the surrounding sleeve and cylindrical lug both mounted upon a complementary closing-disk for the said recess, and the counterbalancing-spring contained within the said recess, secured at its inner end between the said lug and surrounding sleeve and at its outer end to the said spring-holder, and thereby forming a mechanical connection between the said disk and the said arm, substantially as and for the purposes specified.

3. The combination, substantially as hereinbefore described, of a pivoted telephone-supporting arm adjustable in a vertical plane, a bracket to which is pivoted the fixed end of said arm, a recess at the fixed end of said arm, a plate or disk fixed rigidly to the said bracket and closing one side of said recess, a coiled spring fixed at one end to said plate and by its other end to a point within and attached to said recess and tending to unwind and thereby to elevate said arm, a bolt pivoting said arm to said bracket, and a friction-clamp for said pivoting-bolt, whereby the power of said spring may be modified.

4. In an adjustable telephone-support, the

combination of the bracket-holder having its front plate slotted as described, of the adjustable arm pivoted within said bracket and having a heel-piece projecting rearwardly beyond the pivot and working in the said slotted space for the purpose of limiting the traverse of the arm in either direction, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of June, 1891.

HAMMOND V. HAYES.

Witnesses:

GEO. WILLIS PIERCE,
FRANK C. LOCKWOOD.