

[54] TWIN LEVER RADIO-TELEGRAPH KEY UNIT

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[51] Int. Cl. H01h 21/86

[58] Field of Search..... 178/101, 102, 103, 178/104, 105, 106, 107, 108

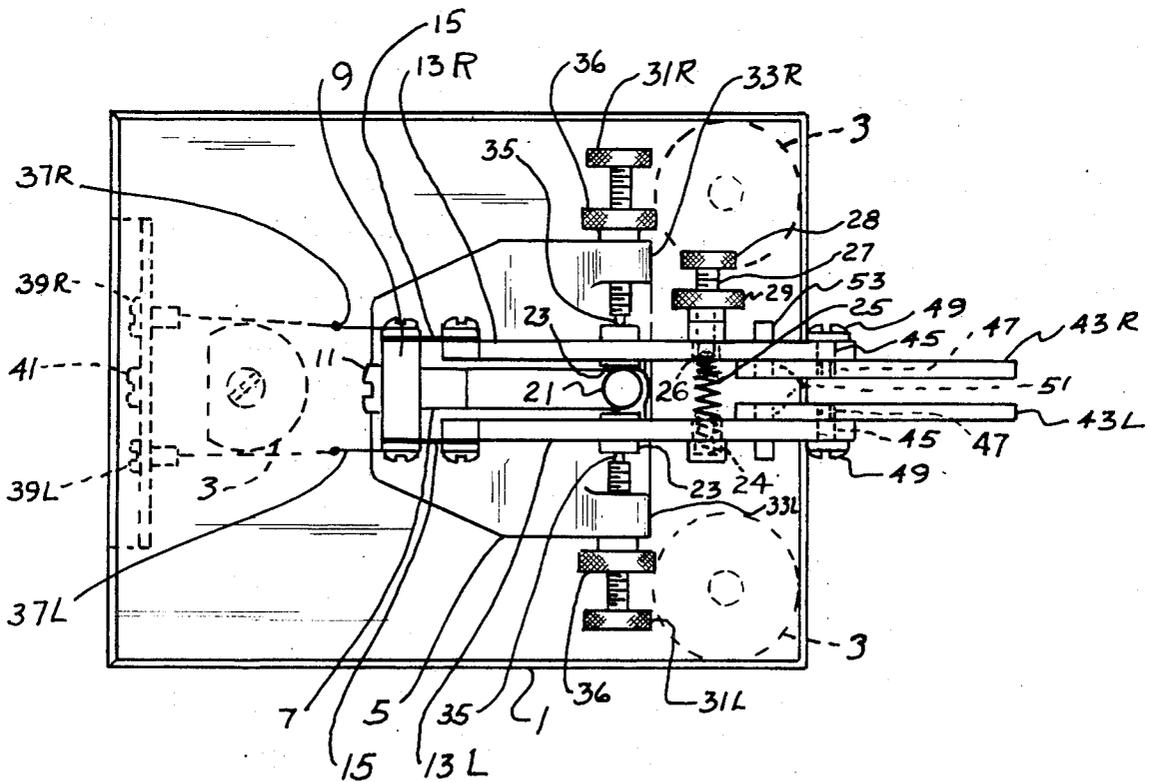
[57] ABSTRACT

A twin lever radio-telegraph key unit has the levers hinged at their ends remote from the paddles to an upright insulated block by flat flexible metal strips, and a single contact post is positioned between the levers intermediate the ends of the levers. An adjustable spring between the levers biases them to the open position against adjustable stops.

[56] References Cited
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3,160,705 12/1964 Stout..... 178/101

15 Claims, 5 Drawing Figures



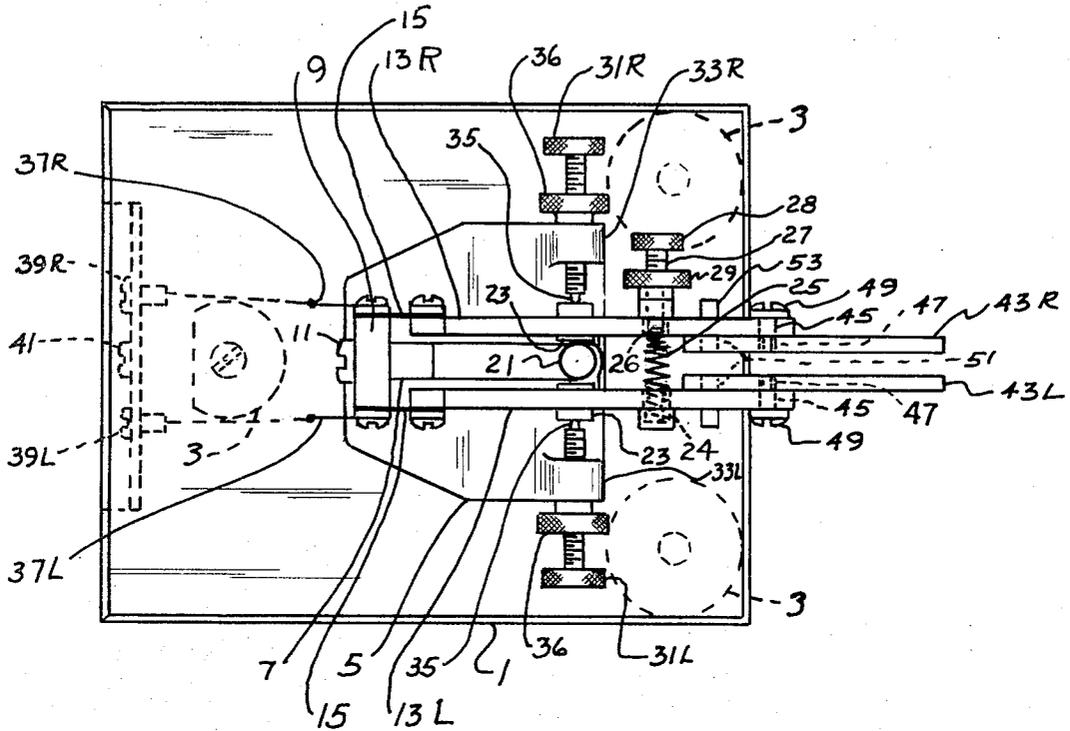


FIG. 1.

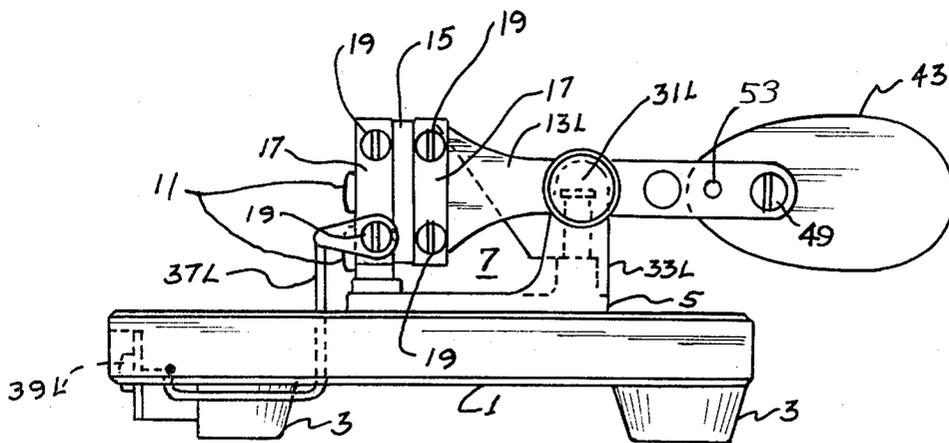


FIG. 2.

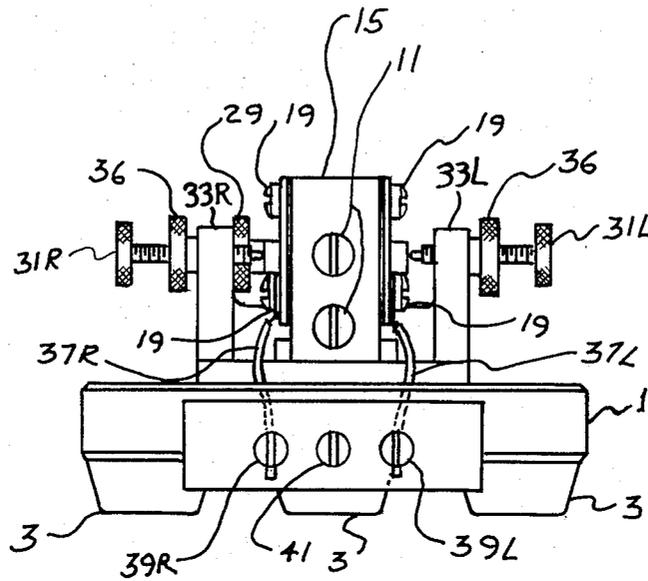


FIG. 3.

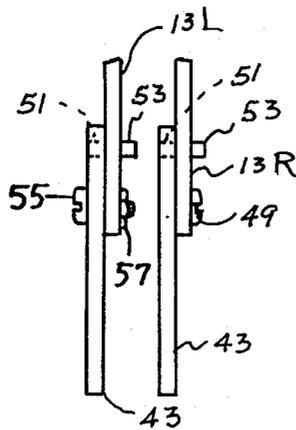


FIG. 4.

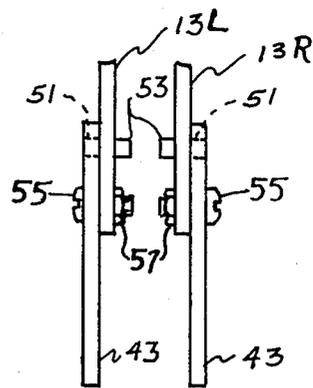


FIG. 5.

TWIN LEVER RADIO-TELEGRAPH KEY UNIT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to twin-lever radio-telegraph key units and consists particularly in an improved suspension of the levers.

2. The Prior Art

Conventionally in twin-lever key units, the levers are fulcrumed intermediate their ends, frequently on vertical pivot pins with needle bearings at their ends, and the contacts are laterally outboard of the ends of the levers remote from the finger grips or paddles. In the only disclosure of which I am aware, of a twin-lever key unit with the levers fulcrumed at their ends, the lever fulcrums, or hinges, though apparently of conventional type, are not shown in detail, and two contact posts are provided.

SUMMARY OF THE INVENTION

Among the objects of the invention are the elimination of loose or high resistance connections because of poor pivot connections, closer contact adjustment because of absence of lateral or vertical play in the levers, and reduction in contact bounce because of damping effect of the hinge construction.

Other objects include a reduction in the number of adjustments to two-contact spacing and spring tension by elimination of pivot adjustment, and selectability of paddle spacing.

The unit provides a solid low resistance circuit from the contact points to the terminal strip, is complete in itself so that none of its parts need be separately supported on the base. Simple but effective insulation of the contact points on the levers from the base is effected by supporting the lever hinges on a single block of insulation. The unit provides a better feel in operation because of the elimination of adjustable pivots.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of a twin-lever key unit embodying the invention.

FIG. 2 is a side elevational view of the key unit illustrated in FIG. 1.

FIG. 3 is an end elevational view of the key unit.

FIG. 4 is a fragmentary plan view of the paddle end of the levers showing one adjustment of the paddle spacing.

FIG. 5 is a view similar to FIG. 4 showing another adjustment of the paddle spacing.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The instrument has a rectangular metal base 1 supported on rubber feet 3.

The key unit includes a horizontal base part 5, secured to the top of base 1 and an upstanding central longitudinal rib 7, to the rear vertical edge of which a rectangular block 9 of insulating material is secured by screws 11. A pair of key bars or levers 13L and 13R, positioned on opposite sides of rib 7 are vertically widened at their rear ends for hinged mounting on block 9. The hinges are formed by flat pieces 15 of thin flexible metal, to the forward vertical margins of which levers 13 are secured by plates 17 and vertically spaced screws 19. The rear vertical margins of hinge pieces 15 are similarly secured to the sides of insulating block 9.

With this arrangement it will be evident that the levers 13 are slightly pivotal horizontally by reason of the flexibility of hinge pieces 15. Nonhorizontal movement is prevented by the vertical spacing of screws 19 and the vertical rigidity of the hinge pieces. By reason of the mounting of levers 13L and 13R on insulating block 9, they are fully insulated from frame 5, 7 and base 1.

Midway between the ends of the key bars, a grounded vertical contact post 21 rises from the forward end of rib 7 between the levers 13 and is adapted for selective engagement by contacts 23 on either of them abreast of post 21.

Levers 13 are resiliently spaced from each other and from the contact post 21 by a coil spring 25 transversely positioned between a seat 24 in lever 13L, and a compression adjustment screw 27 is threadably mounted in lever 13R in alignment with spring 25 from which the spring is insulated by a tip 26 comprising a short plastic rod protruding from the end of the screw and surrounded by a plastic washer. For facilitating manual adjustment, screw 27 has a knurled head 28 and for maintaining the adjustment threadably mounts a knurled nut 29. The spacing of the individual levers from contact post 21 can be manually regulated by knurled head adjustment screws 31L and 31R, mounted in transverse alignment with post 21 on upstanding brackets 33L and 33R on the key frame base plate 5 to abut, through insulated tips 35, against the outer surfaces of the respective levers. Knurled nuts 36 are threadably mounted on screws 31L and 31R to maintain the adjustments.

The levers are individually connected by wires 37L and 37R to separate terminals 39L and 39R on the base, which is grounded through center terminal 41.

Each lever is provided at its end with a finger-engageable insulated paddle 43L, 43R.

For mounting the paddles 43L, 43R on levers 13L and 13R respectively, each of the latter is formed with a hole 45 in its front end portion and the paddles have a matching threaded hole 47. The paddles are normally mounted in lapped relation with the inner surfaces of the levers and are secured to the levers by screws 49 inserted from the outer surface of the lever through lever holes 45 and threadably received in paddle holes 47. To prevent rotation of paddles 43L and 43R about screws 49, their inner ends are formed with holes 51, and levers 13L and 13R are formed on both their surfaces with circular bosses 53 which are slidably received in holes 51. With the paddles mounted as shown in FIG. 1, a minimum inside spacing of about one-eighth inch is provided.

The spacing of the paddles can be increased by shifting one or both of them to the outside of the respective levers, as shown respectively in FIGS. 4 and 5. This requires use of a longer screw 55 and a nut 57 to secure the outwardly shifted paddles to the respective levers because of the impossibility of inserting the screws 49 from the restricted space between the levers.

The details of the unit may be varied substantially without departing from the spirit of the invention and the exclusive use of such modifications as come within the scope of the appended claims is contemplated.

I claim:

1. A twin lever radio-telegraph key unit comprising a base part, an upright block supported on said base part, a pair of flexible elements of conductive sheet metal rigidly secured along corresponding vertical mar-

gins respectively to opposite sides of said block, conductors conductively connected respectively to said corresponding vertical margins of said flexible elements, spaced apart parallel metal levers rigidly and electrically conductively secured at one end respectively to the other vertical margins of said flexible elements, and contact means supported on said base part and extending upwardly therefrom into the space between said levers intermediate their ends for selective conductive engagement with said levers, said contact means being otherwise electrically insulated from said conductors.

2. A key unit according to claim 1 wherein said block is of insulating material, and said contact means is conductively connected to said base part.

3. A key unit according to claim 2 wherein said contact means is a single upright post.

4. A key unit according to claim 3 including spring means between said levers biasing the same away from engagement with said post.

5. A key unit according to claim 4 including abutment means engageable with the outer sides of said levers for limiting their spacing from said post.

6. A key unit according to claim 5 wherein said abutment means comprises upstanding brackets on said base laterally outwardly of said levers and screws threadably mounted in said brackets.

7. A key unit according to claim 6 in which said screws have insulating tips engageable with said levers.

8. A key unit according to claim 7 including a central upright rib between and parallel to said levers, said block being secured to an end of said rib.

9. A key unit according to claim 2 including a ground terminal conductively connected to said base part and a pair of terminals conductively connected respectively to the stationary margins of said flexible sheet metal el-

ements.

10. A key unit according to claim 1 wherein each said lever is provided with an insulating finger grip paddles on it end remote from said block.

11. A key unit according to claim 10 wherein each of said paddles is formed with a pair of holes spaced apart longitudinally of the lever, each said lever being formed with a hole aligned with one of said paddle holes for receiving a securing element, and with a pair of aligned bosses projecting from opposite sides of the lever and slidably receivable in said other paddle holes.

12. A key unit according to claim 4 wherein said spring means is a metal compression spring electrically insulated from at least one of said levers.

13. A key unit according to claim 12 wherein said compression spring is a coil spring seated at one end against one of said levers, said other lever threadably mounting an adjustment screw engaging the opposite end of said spring.

14. A key unit according to claim 13 wherein said adjustment screw has an electrically insulating tip in direct engagement with said spring.

15. A telegraph key unit comprising a base part, a support element on said base part, a flexible element of conductive sheet metal rigidly secured along one margin to said support element, a conductor electrically connected to said one margin of said flexible element, a metal lever rigidly and electrically conductively secured at one end to an opposite margin of said flexible element spaced from said one margin and contact means on said base normally disengaged from said lever but selectively engageable therewith by manual movement of said lever accommodated by flexure of said flexible element, said contact means being otherwise electrically insulated from said conductor.

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