

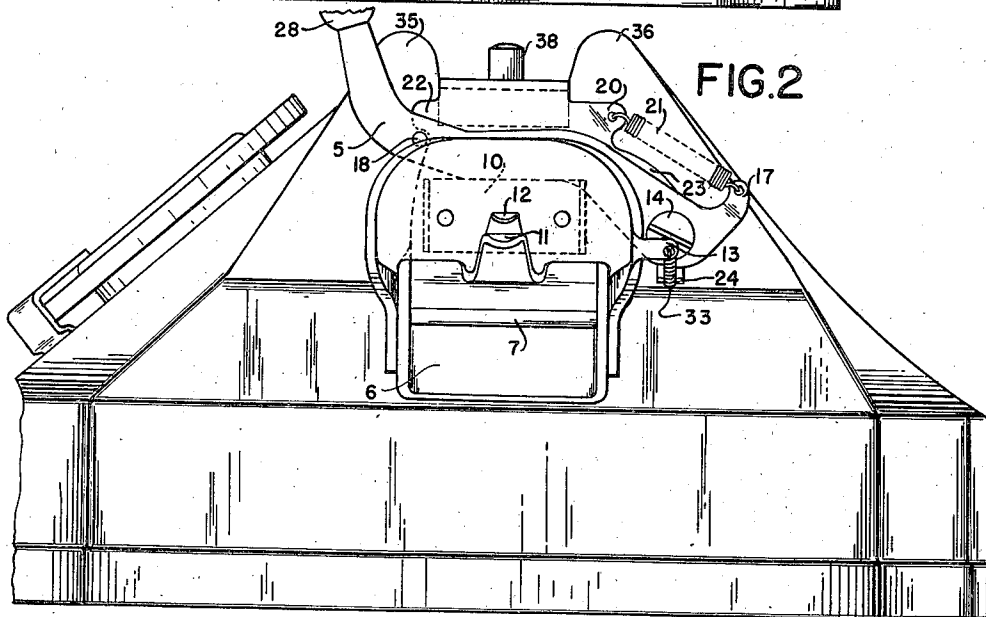
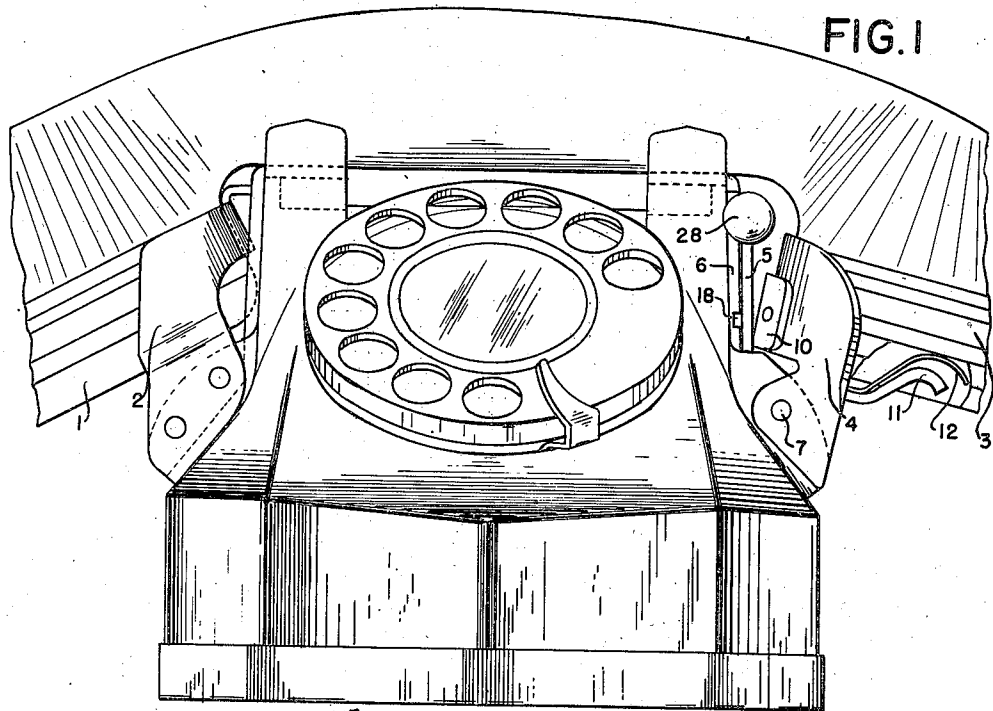
Sept. 30, 1947.

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HANDSET TELEPHONE MOUNTING

2,428,091

Filed April 13, 1944

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 3

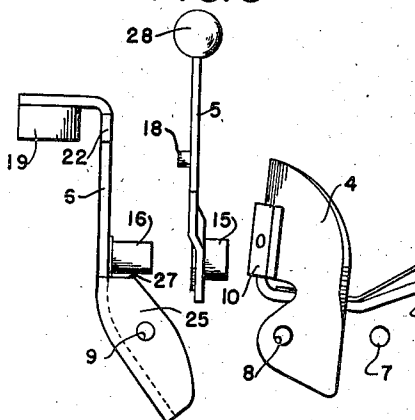


FIG.4

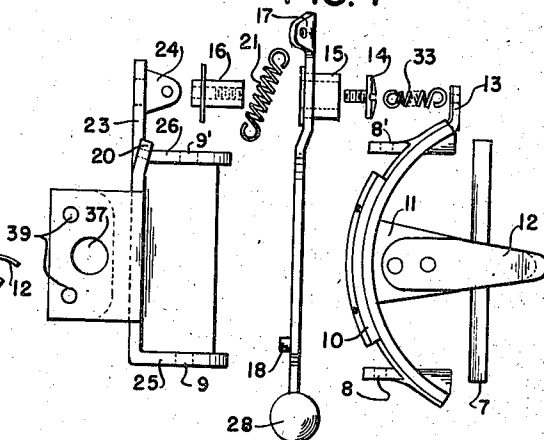


FIG. 7

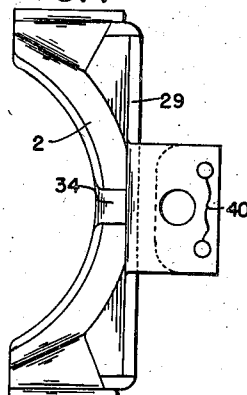


FIG. 5

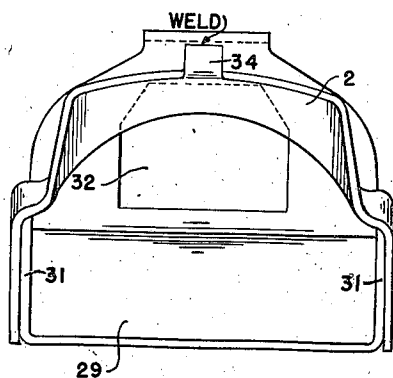
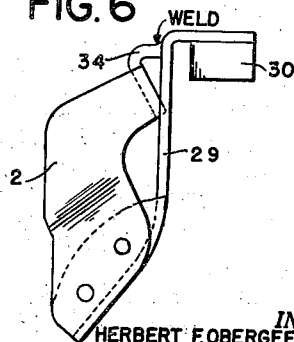


FIG. 6



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HANDSET TELEPHONE MOUNTING

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11 Claims. (Cl. 179—146)

1

This invention relates in general to improvements in handset telephone mountings and more particularly to mountings that lock the handset directly on the telephone to prevent the displacement thereof.

One object of the invention is the provision of a mounting arrangement to prevent the displacement of the handset under extreme conditions, such as shock or concussions.

One feature of the invention is the provision of means for manually releasing a portion of the mounting means to permit easy removal of the handset by its user.

A further feature of the invention is that the placing of the handset on its mountings is sufficient to cause the handset to be locked securely to the telephone set.

The foregoing object and features, and others not mentioned will be described hereinafter with reference to the accompanying drawings, in which

Fig. 1 is a front view of a desk telephone showing the handset securely locked in normal position and illustrating the invention.

Fig. 2 is a view taken from the right side of Fig. 1 showing the locking mechanism and handset mounting with the handset removed.

Fig. 3 is an exploded view taken from the front of the telephone showing the main parts of the locking arrangement located on the right side of the telephone.

Fig. 4 is an exploded view taken from the top of the telephone showing all the parts of the locking arrangement located on the right side of the telephone.

Fig. 5 is a view taken from the left side of Fig. 1 showing the handset mounting.

Fig. 6 is a side view of Fig. 5 taken from the right.

Fig. 7 is a top view of Fig. 6.

There have been numerous devices invented for locking or holding a handset in a vertical position, or to a wall telephone set, but the present arrangement, as shown in the drawings and described in the specification, of locking a handset to a desk telephone is believed to be new and novel. The handset when locked to the desk telephone can be used as a handle to carry the phone or place the phone in any desirable position. Cup shaped hands are provided on the right and left sides of the desk phone for supporting the ends of the handset as shown in Fig. 1. The transmitter portion 1 of the handset fits securely into the band 2 on the left side of the phone. The band 2 is designed to have the same contour as

2

the transmitter and is placed at an angle so as to securely hold that part of the handset. The receiver portion 3 of the handset fits securely into the band 4 on the right side of the telephone.

This band 4 having the same contour as the receiver 3 and so designed that the pressure of the receiver on it will cause the band to move around its pivot and release a locking lever 5 which will lock the handset to the desk phone.

To remove the handset from the phone the user merely grasps the handset with the left hand and with the left thumb pushes the locking lever 5 upwards as seen in Fig. 1. When the locking lever is in its uppermost position, exerting a slight pressure upwards on the handset will cause the cup shaped band 4 to move around its pivot and permit the receiver portion of the handset to be withdrawn. After the receiver end has been raised sufficiently the transmitter end will slide out of the band 2 and completely free the handset for use. The locking arrangement is simple to operate and positive in its action.

Referring now in detail to the drawings illustrating the invention in its preferred embodiment. The handset support and locking mechanism shown on the right side of the desk phone in Fig. 1 is shown in Fig. 2 and also shown in an exploded view in Figs. 3 and 4. The cup shaped band 4 which in one of the pivoting members of the locking mechanism, is fastened to the metal supporting member 6 by the pivot pin 7 which passes through the holes 8, 9, 8' and 9', the pivot pin being flared at both ends in holes 8 and 8' fastening the pin 7 tightly to the band 4. The pivot pin 7 is free in the holes 9 and 9' to allow the band 4 to rotate freely with pivot pin 7 in holes 9 and 9'. Securely fastened to the cup shaped band 4 is a metal block 10 curved to fit the band 4 as shown in Figs. 3 and 4. This metal block 10 supports the locking lever 5, the other pivoting member of the locking mechanism, when the handset is removed, as shown in Fig. 2.

Extending outward from the middle of band 4 is the actuating arm 11 as shown in Figs. 2, 3 and 4. This arm 11 is formed out of the same piece of metal as band 4. Securely fastened to the arm 11 is a curved flat metal spring 12 which the handset comes into contact with when the handset is replaced on the telephone. The pressure on the spring 12 by the handset causes the actuating arm 11 to move the band 4 clockwise on its pivot and to move the block 10 away from underneath the locking lever thereby releasing the locking lever 5. The locking lever 5 will move downward under pressure of the tension

3

spring 21 and wedge itself between the sides of the lever rest 10 and the supporting member 6 as shown in Fig. 1. This action will cause the cup shaped band 4 to press tightly against part of the curved side surface of the receiver end of the handset. Also a part of the band 4 is an ear 13 extending out to the right as seen in Fig. 2. Attached to this ear is a coil tension spring 33 which tends to pull the band 4 counterclockwise about its pivot toward the telephone so that when the locking lever 5 is manually moved upwards, and the handset lifted, the band 4 will move toward the telephone and the metal block 10 will be placed under the lever so as to hold the lever up and keep the mechanism ready for receiving the handset again.

The locking lever 5 is supported by a bushing 16 projecting out from the member 6 as shown in Figs. 2, 3 and 4 and consists of a flat metal member. A sleeve bushing 15 is securely fastened to the locking lever 5 at the lower end as seen in Figs. 3 and 4 and fits over the bushing 16. The mounting screw 14 screws tight against bushing 16 and leaves the sleeve bushing 15 free to pivot around bushing 16.

To the right of the sleeve bushing 15 on the lower end of lever 5 and extending upwards, is an ear 17 as shown in Fig. 2 to which is attached the coil tension spring 21 which exerts a pulling pressure on the lever 5 tending to rotate it counterclockwise around its pivot when viewed as in Fig. 2. The small metal stop 18 which is riveted to the locking lever 5 just below the point where the lever bends sharply upwards, as shown in Fig. 2, prevents the lever from moving upward more than a predetermined distance. On the end of the locking lever 5 extending upwards as seen in Figs. 1 and 2 is a metal knob 28 securely fastened to the arm for easy handling of the locking lever 5 when it is to be manually operated.

The supporting member 6 to which the locking lever 5 and the cup shaped band 4 are attached carries a mounting block 19 riveted by rivets 39 or welded to the bent-over upper portion of the supporting member as shown in Fig. 2. The mounting block 19 fits between the two posts 35 and 36 on the right side of the handset cradle or rest and has a hole 37 through which the switching spring operating plunger 38 moves. Two screws (not shown) that hold the switching springs on the inside of the telephone, screw into threaded holes on the under side of the mounting block 19 thereby holding the supporting member 6 securely to the telephone. The contour of the supporting member 6 closely follows the shape of the side of the telephone as shown in Fig. 1. Extending outward to the right from the upper main portion of the supporting member is an ear 20 to which is fastened one end of the tension spring 21 as shown in Fig. 2. Extending outward to the left from the upper main portion of the supporting member 6 is a portion 22 of the supporting member, the purpose of which is to limit the upward movement of the locking lever. The metal stop 18 on the lever 5 will contact the extending portion 22 as lever 5 is manually moved upward. Below the ear 20 of plate 6 and extending outward therefrom to the right and downward as seen in Fig. 2 is an arm 23 to which is fastened the bushing 16 upon which the locking lever 5 mounts. Directly below the bushing 16 is an ear 24 extending outward from the face of the arm 23. One end of the tension spring 33 is fastened to this ear and the other end is fastened

4

to ear 13 of the cup shaped band 4. From the lower portion of the supporting member 6 are formed the flanges 25 and 26 which are bent at right angles to the member 6 and extend outward away from the face thereof. A portion 27 of flange 25 extends straight out from the face of member 6 before curving downward. This straight portion 27 limits the downward movement of the locking lever. The holes 9 and 9' in flanges 25 and 26 support the cup shaped band 4 by means of the pivot pin 7 as previously described.

The handset mounting arrangement on the left side of the phone as seen in Fig. 1 consists of the supporting member 29 and the cup shaped band 2. The supporting member 29 has a mounting block 30 which is riveted by rivets 40 or welded to the bent over upper portion of the supporting member 29 as shown in Fig. 6. The mounting block 30 fits between the two posts on the left side of the handset cradle in a manner similar to the mounting of block 19 and has a hole through which the switching spring operating plunger moves. From the lower portion of the supporting member 29 are formed the flanges 31. These flanges are bent at right angles to the supporting member 29 and extend outward away from the face of member 29. To these flanges the bottom extending portions of the cup shaped band 2 are fastened either by riveting as shown in Fig. 6 or by welding the two portions together.

The cut away center portion 32 of the supporting member 29 permits the transmitter portion of the handset to fit securely in the cup shaped band 2 without having the handset mounting further out from the telephone.

In the middle and top of the curved portion of the cup shaped band a metal portion 34 extends upwards and bends sharply at an angle to the right as shown in Fig. 6. The metal portion 34 fits into a cut out portion of the supporting member 29 just below the point where the member 29 bends at right angles to the face (Fig. 6) and is welded to the member 29 at this point.

In order to remove the handset when the telephone is in normal condition with the handset locked securely to the telephone, the user grasps the handset with the left hand to lift the same and with the left thumb pushes the locking lever 5 upwards until the metal stop 18 on the locking lever 5 contacts the extending portion 22 of the supporting member and stops the upward movement of the locking lever 5. As lever 5 rises it no longer prevents movement of band 4 and as the receiver portion is lifted upwards and as the handset pivots around the transmitter portion the cup shaped band 4 pivots towards the phone until the metal block 10 contacts the side of the supporting member 6. As the receiver portion is lifted the handset pivots around the transmitter portion due to the cup shaped band 2 engaging the transmitter portion. When the handset is pivoted to approximately a 30° angle the transmitter portion will slide easily out of the cup shaped band 2 which will completely free the handset for use.

To replace the handset upon the telephone the handset is held at approximately a 30° angle so the transmitter is lower than the receiver. The transmitter is then inserted into the cup shaped band 2, and as the handset is lowered it pivots around the transmitter portion of the handset until it touches the flat curved metal spring 12 attached to the actuating arm 11. The pressure of the receiver portion on the spring 12 causes

5

the cup shaped band 4 to pivot clockwise away from the phone. As the band 4 moves, the metal block 10 is withdrawn from underneath the locking lever 5. The lever 5 then moves downward under pressure of spring 21 wedging itself between the sides of the supporting member 6 and the metal block 10 until it contacts the straight portion 27 of the flange 25. This action by the locking lever 5 causes the pivotal cup shaped band 4 to press tightly against the curved side portion of the receiver and also causes the transmitter portion of the handset to press tightly against the cup shaped band 2. The handset is securely locked to the phone and shocks, concussions or dropping will not cause displacement of the handset.

It will be noted that switching spring operating plungers are associated with the mounting block 19 and with the mounting block 30. The operation of either one of the plungers is sufficient to cause the complete operation of the switching springs. When the handset has been removed from the cradle the band 4 can be moved manually to withdraw the block 10 from underneath the lock lever 5. The lever 5 then moves downward under pressure of spring 21 wedging itself between the sides of the supporting member 6 and the block 10. This action by the locking lever holds the pivotal cup-shaped band 4 in a position which prevents its engagement with the receiver portion of the handset when the transmitter portion of the handset is engaged with the cup-shaped band 2. The locking device can thus be made ineffective when there is little probability of disturbances which might displace the handset. The handset can be moved on or off the cradle for operating one of the plungers and the switching springs to permit full use of the telephone without the necessity of performing an unlocking operation each time the handset is removed.

The locking device can again be made effective by moving the handset to a position where the receiver portion of the handset will not interfere with the movement of the pivotal cup-shaped band 4. The lock lever 5 is then manually moved upwards until it disengages the metal block 10. The cup-shaped band 4 pivots towards the phone until the metal block 10 contacts the side of the supporting member 6. When the manual control of the lock lever 5 is removed the lever 5 then moves downward under pressure of spring 21 until it engages the metal block 10. The cup-shaped band 4 is held in position for receiving and engaging the receiver portion of the handset after the engagement of the transmitter portion of the handset and the cup-shaped band 2 so that the handset can be locked to the telephone as previously described.

From the foregoing description it will be apparent that the applicant has devised a novel mounting arrangement for securely fastening the handset to the telephone. However the mounting arrangement is capable of employment in other and different forms without departing from the spirit and scope of the appended claims.

What is claimed is:

1. In a cradle type telephone, a handset having a handle with transmitter and receiver units on the ends thereof, a plunger in the cradle for operating switching springs, a pivoted member on one side of the cradle, means tending to move said member into normal position to allow said handset to be placed in the cradle, said member engaged by one of said units when the handset

6

is placed on the cradle to move the member about its pivot, means operated when the member is so moved to prevent its return to normal position to thereby rigidly secure said handset to the cradle and in engagement with said plunger.

2. In a cradle type desk telephone, a handset having a handle with transmitter and receiver units on the ends thereof, a pivotal member on one side of the cradle, means tending to move said member into normal position to allow said handset to be placed in the cradle, said member engaged by one of said units when the handset is placed on the cradle to move the member about its pivot, a lever automatically operated when the member is so moved to engage said member and prevent its return to normal position to thereby rigidly secure said handset to the cradle.

3. In a cradle type telephone having oppositely disposed cradle supports with an operating plunger in each support, a handset including transmitter and receiver units, a pair of retaining members one for each unit, each member supported by a block mounted in one of the cradle supports and through which a plunger extends, each member formed to correspond to the contour of one of the units and engaging its associated unit to lock the handset in place on the cradle.

4. In a cradle type telephone having oppositely disposed cradle supports with an operating plunger in each support, a handset including transmitter and receiver units, a pair of retaining members one for each unit, each member supported by a block mounted in one of the cradle supports and through which a plunger extends, each member formed to correspond to the contour of one of the units and engaging its associated unit, a lock stop engaging one of said members to lock the handset in place on the cradle, said lock stop operable to disengage said one member to unlock said handset to permit its removal from the cradle.

5. In a telephone instrument, a handset having transmitter and receiver units thereon, a support for the handset, switching means operated when the handset is placed on its support, locking means automatically operated when the handset is placed on the support for preventing its removal therefrom, said support permitting the fingers of one hand to grip the handset, said locking means operable by the thumb of said hand for releasing said handset, thereby permitting the removal of the handset from the support.

6. In a cradle type telephone, a handset having transmitter and receiver units on the ends thereof, a stationary element and a movable element which engage said units when the handset is placed on the cradle, a locking lever automatically engaging said movable element to maintain it in engagement with the handset when said handset is placed on the cradle to rigidly secure the handset to the cradle, said locking lever operated by the thumb of one hand to release the movable element while the fingers of said hand grip and move said handset, said movable element automatically operative when said lever is so operated and said handset so moved to hold said lever in said last position and to permit removal of the handset from the cradle.

7. In a telephone instrument, a handset having transmitter and receiver units thereon, a cradle for the handset, a plunger for operating switching springs when said handset is placed on the cradle, a stationary member and a pivoted member on opposite sides of said cradle, said station-

7

ary member engaging one of said units and said pivoted member moved about its pivot by the other of said units to engage said other unit when the handset is placed on the cradle, locking means operated by the movement of said pivoted member to maintain said pivoted member in engagement with said other unit to lock the handset to the telephone instrument and in engagement with said plunger, said locking means operated by the thumb of one hand to permit disengagement of said pivoted member and said other unit, the fingers of said hand gripping said handset and moving said other unit to disengage it from said pivoted member and remove the handset from the cradle.

8. In a telephone instrument a cradle having oppositely disposed supports with an operating plunger in each support, a handset having a handle with transmitter and receiver units on the ends thereof, a stationary retaining member and a movable retaining member, each member supported by a block mounted in one of the cradle supports, each member formed to correspond to the contour of one of said units, said stationary member engaging one of the units when the handset is placed on the cradle to operate said plungers, said movable member moved to engage the other of said units when the handset is placed on the cradle to lock the handset in place on the cradle, and a lever operated by the thumb of one hand to unlock the handset, the fingers of said hand gripping said handset and moving it to permit its removal from the cradle.

9. In a cradle type telephone, a handset having a handle with transmitter and receiver units on the ends thereof, a plunger in the cradle for operating switching springs, a movable member on one side of the cradle, means tending to move said member to normal position to allow said handset to be placed on the cradle, said member engaged by one of said units when the handset is placed on the cradle to move said member from normal position, means operated when the member is so moved to prevent its return to normal position thereby rigidly securing said handset to the cradle and in engagement with said plunger, said last means manually operative to release said movable member permitting it to move to normal position when said handset is removed from the cradle.

8

10. In a telephone instrument, a handset having transmitter and receiver units thereon, a support for the handset, switching means operated when the handset is placed on its support, locking means automatically operated when the handset is placed on its support to lock the handset to the telephone instrument and in engagement with said switching means, said locking means including a manually operable lever for releasing said handset from the telephone instrument, said locking means manually operable to a locked position when the handset is off its support to make said locking means ineffective to lock the handset to the telephone instrument, thereby permitting the handset to be moved on or off its support for operating said switching means independent of the locking means, said lever manually operable to release said locking means from its manually operated position.

11. In a cradle type telephone, a handset having transmitter and receiver units on the ends thereof, a plunger in the cradle for operating switching springs, locking means for rigidly securing the handset to the cradle thereby providing means for lifting the telephone by the handset for moving the telephone to any desirable position, said locking means including a lever manually operable to release the handset to permit the removal thereof from the cradle, said locking means manually operable to a locked position when the handset is off the cradle to make said locking means ineffective for securing the handset to the cradle, said switching springs responsive to movement of the handset on or off the cradle when said locking means is locked in its manually operated position.

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