May 24, 1966 W. F. SCHUCHARD ET AL 3,253,272

CODED ALARM STATION

Filed June 21, 1960 5 Sheets-Sheet 1

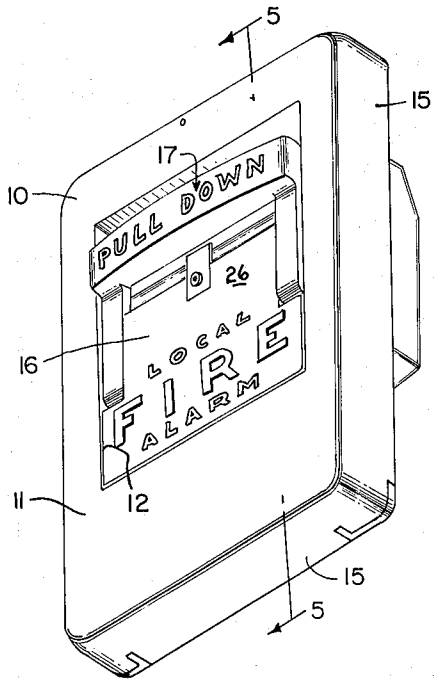


FIG. 1

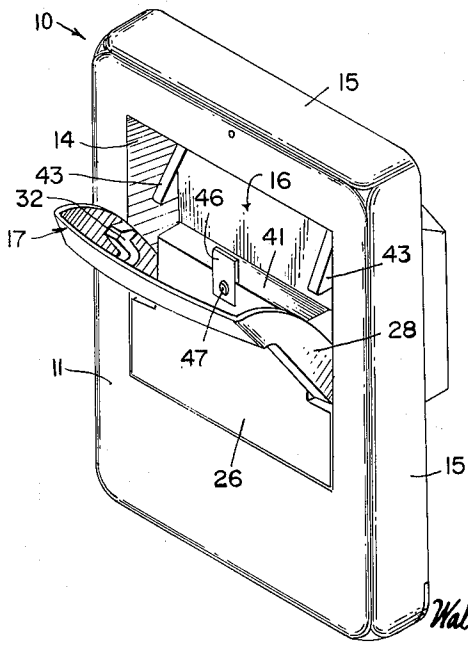


FIG. 2

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CODED ALARM STATION

Filed June 21, 1960 5 Sheets-Sheet 2

FIG.4

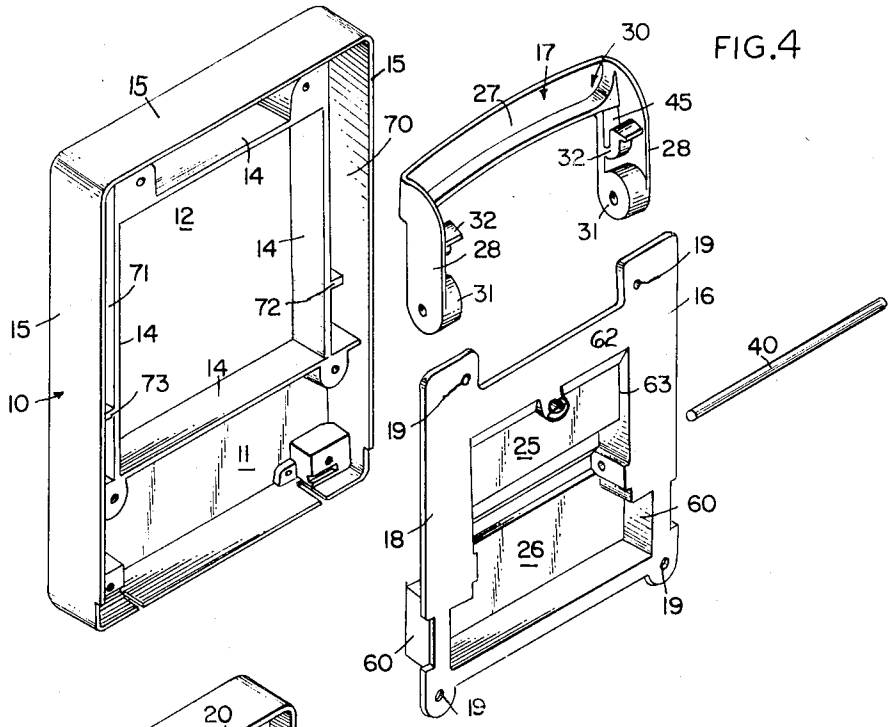
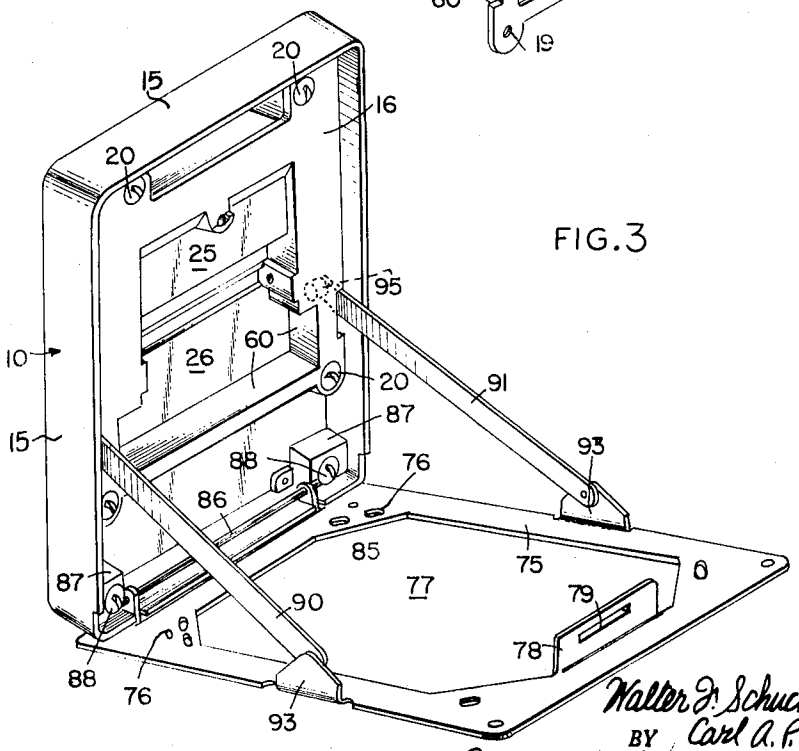


FIG.3



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CODED ALARM STATION

Filed June 21, 1960 5 Sheets-Sheet 3

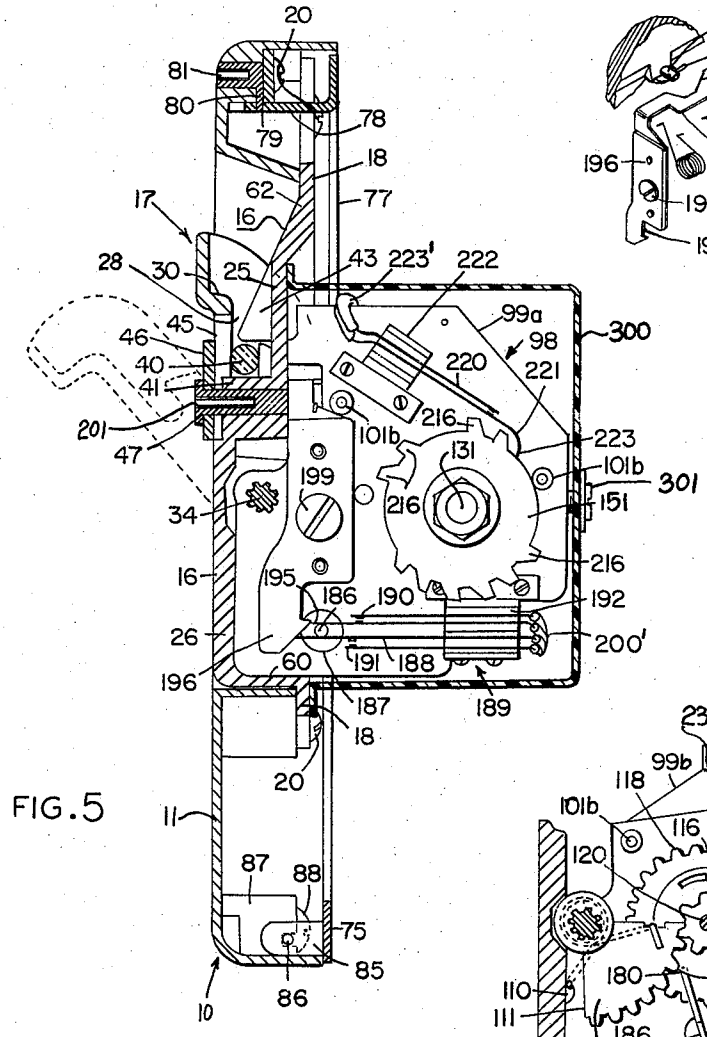


FIG.5

FIG.9

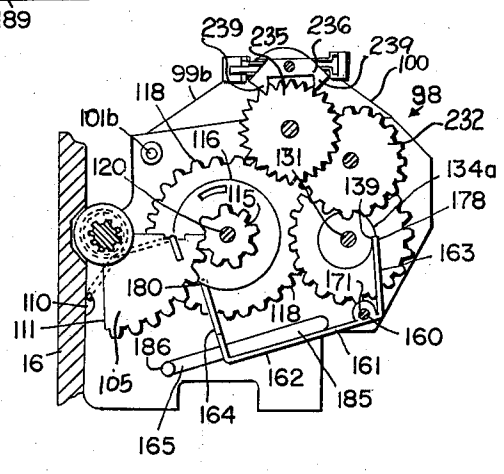


FIG.8

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CODED ALARM STATION

Filed June 21, 1960 5 Sheets-Sheet 4

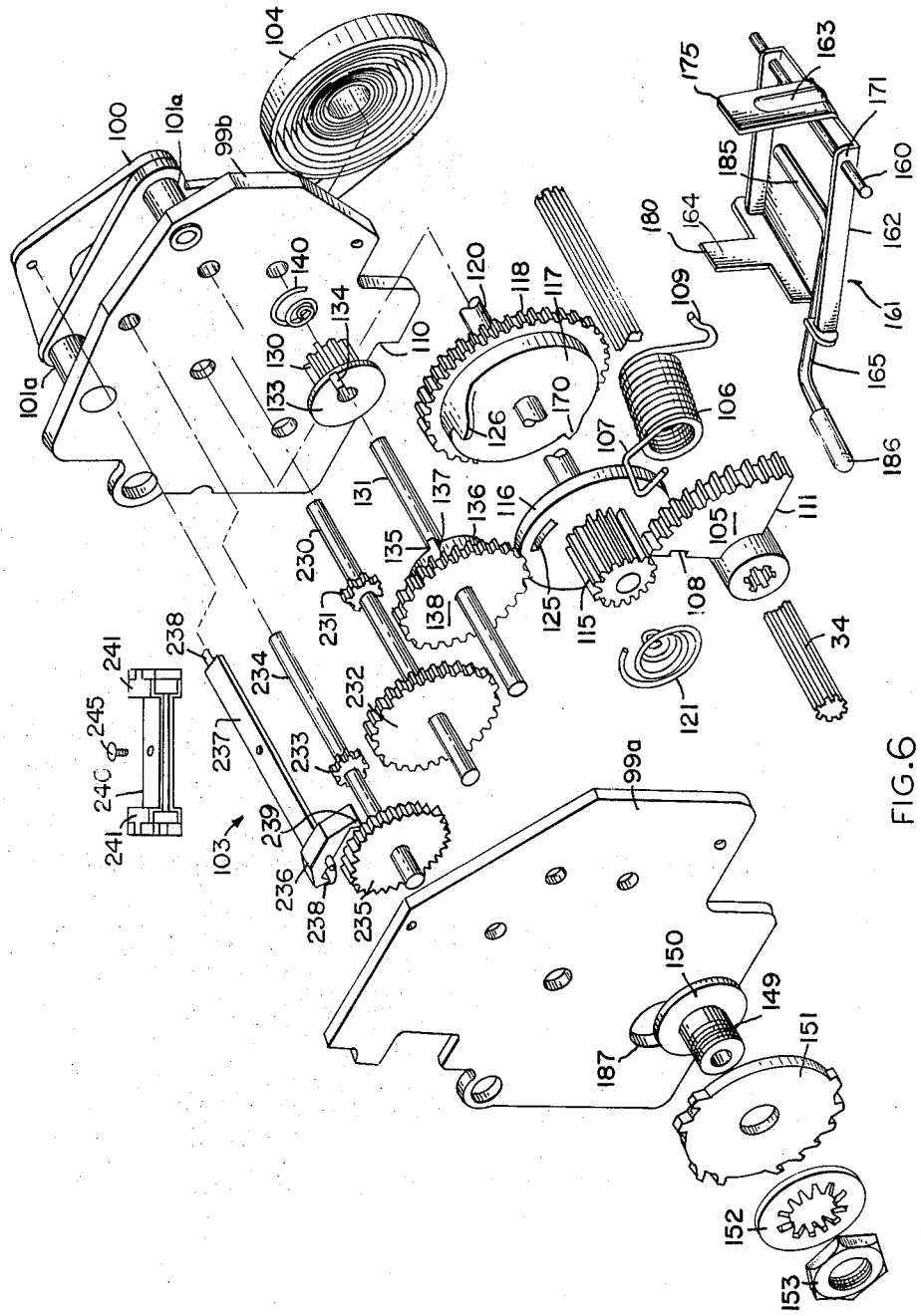


FIG. 6

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CODED ALARM STATION

Filed June 21, 1960 5 Sheets-Sheet 5

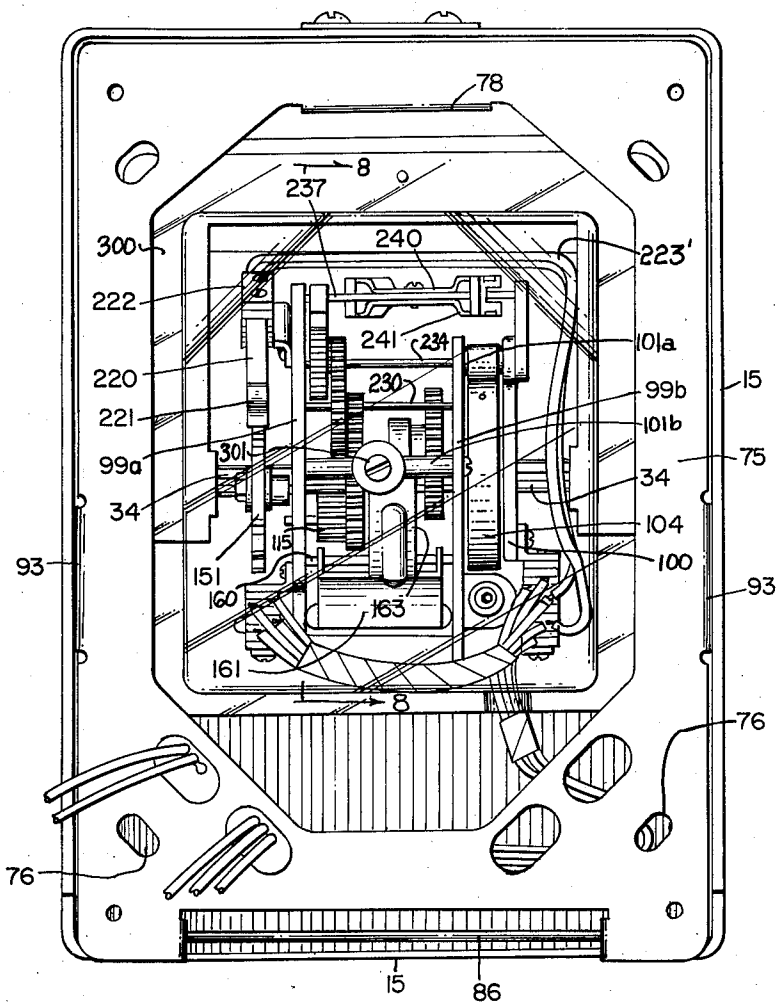


FIG. 7

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United States Patent Office 3,253,272 Patented May 24, 1966

3,253,272

CODED ALARM STATION

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Filed June 21, 1960, Ser. No. 37,786
31 Claims. (Cl. 340—307)

The present invention relates to a coded alarm station. More particularly it relates to a device capable of transmitting a coded signal to a central station when actuated.

Coded alarm stations of the type herein described are commonly used in fire alarm systems. In such systems, a plurality of alarm stations strategically located in a building, for example, are electrically connected to a central station. Each coded station is capable of transmitting an identifying electrical signal.

Several features in such stations are normally desirable. First, they must be relatively inexpensive to manufacture and easy to assemble. Secondly, they must be easy to service, install and test. Thirdly, they must be rugged, durable and reliable.

The present invention satisfies such requirements. In the present invention, there is provided a simply constructed but rugged and reliable coded alarm station. Operative gearing mechanism is optimumly designed to permit easy and inexpensive assembly.

Among the unique features in the present invention is a main drive shaft which functions to transmit drive power to the motor from the operating handle and also functions as a master assembly shaft interengaging major components of the structure.

The present invention also provides a unique housing or casing arrangement designed to provide maximum protection for the unit against weathering, and also for ease in installation and servicing.

The housing is also provided with means for supporting a false alarm deterrent glass rod. Such means are arranged to permit insertion or replacement of the rod without dismantling the casing. Further, the housing arrangement permits station testing without the need to break or remove the glass rod. The housing is also designed to securely lock the glass rod in position so that it will not slip or rattle.

An easily accessible pull handle is also provided in the face of the casing for operation of the station. The handle is interengaged with the motor gearing so that a single downward movement of the handle will actuate the station. The handle becomes disengaged after it has been pulled down so that it will not interfere with signal transmission once initiated.

Also provided in the present invention is a trip lever mechanism which is adapted to perform a plurality of functions. This mechanism upon actuation of the station, closes a shunt contact which may be used for a plurality of auxiliary signalling purposes. Such shunt contact might be used to actuate a steady on light at the central station for indicating when a particular station requires servicing. In addition, this mechanism functions to precisely stop the signal sequence after the transmission of a selected number of four successive repeat signals. This trip lever mechanism also operates to disengage the handle from the motor when the station is transmitting a signal.

The present invention also provides a locking mechanism actuated by the trip lever mechanism for holding the shunt contacts closed once closed by movement of the trip lever mechanism. This locking mechanism may be released and the lever mechanism reset by a unique arrangement including a moveable retaining plate for the glass rod. This retaining plate secures the glass rod in position for breaking when the handle is pulled. The

plate, however, may be moved for insertion of a new glass rod. On such movement a lever linkage system simultaneously resets the shunt contact.

In addition to these features, the present invention provides a unique governor system for controlling the sequential pulse rate of the coded signal.

These and other objects and advantages of the present invention will be more clearly understood when considered in conjunction with the accompanying drawings in which:

FIG. 1 is a front perspective view of the coded station taken from below,

FIG. 2 is a front perspective view of the coded alarm station taken from above with the pull handle partially pulled down,

FIG. 3 is a rear perspective view of the coded station showing the mounting frame open and the motor removed,

FIG. 4 illustrates a rear perspective exploded view of portions of the casing,

FIG. 5 illustrates a sectional view taken substantially along the line 5–5 of FIG. 1 illustrating the motor assembly in full outline,

FIG. 6 is an exploded view of the motor assembly,

FIG. 7 is a fragmentary rear elevational view of the invention,

FIG. 8 is a fragmentary cross sectional view of the invention taken along the line 8–8 of FIG. 7, and

FIG. 9 is a fragmentary detail of the locking mechanism.

The casing **10** is formed with a front face **11** having a rectangular aperture **12** formed in it. This aperture **12** is bordered by rectangular aperture walls **14** (FIG. 4), thereby forming a well or aperture **12**. The front face **11** of the casing **10** is bordered by side walls **15** integral and extending normal from the face **11**.

An aperture cover plate **16** (FIGS. 3 and 4) and a handle **17** are secured in the aperture **12** formed by the walls **14**. The aperture cover plate **16** is formed with offset sections **18**, **25** and **26**, best illustrated in FIGS. 4 and 5. The periphery of the cover plate forms a main uniplanar section **18**. This section **18** has a plurality of screw holes **19** formed preferably at its corners. Set screws **20** project through these holes and secure the plate **16** to the rear edges of the walls **14** so that forwardly projecting section **25** is secured, intermediate the forward and rear edges of the walls **14**, and the sectional **26** is secured coplanarly with the front face **11**.

Section **26**, coplanar with face **11** has generally an inverted T-shaped configuration with the stem of that having a width almost as great as the length of the cross bar of the T. The sidewalls of the section **26** are normal to the face **11**. The upper sidewall or connecting web **41** interconnects portions of sections **25** and **26**.

Section **25**, postioned intermediate the edges of walls **14**, forms an offset continuation of section **26**. The upper wall **62** of this section is inclined toward the plane of section **18**. The other walls are normal to section **18** opposite sidewalls **63** (FIG. 4) form continuations with the sidewalls **60** of the stem forming the T-shape of section **26**.

The handle **17** is formed with a cross member **27** and arms **28** at either end. The arms **28** are rearwardly offset from the cross member **27**. The cross member **27** is formed with a recess **30** along its upper rear edge to provide a finger gripping means. Each arm **28** is formed with journals **31** aligned with one another. Intermediate the ends of the arms **28** and projecting inwardly therefrom are the glass rod hook supports **32** shaped to secure the ends of the rod **40** to the arms **28**.

The handle **17** is secured to the aperture cover **16** by the splined main drive shaft **34**. The splined ends of the

main drive shaft 34 are secured in fixed relation in the splined journals 31 of the handle 17. The shaft 34 rotatably projects through the side walls 60 of section 26 of the aperture cover plate 16. The arms 28 of the handle are positioned on either side of the section 25 intermediate the section 25 and the side walls 14 which form the recess in the casing. The forward surface of arms 28 are coplanar with face 11 while cross member 27 projects forwardly forming a finger engageable projection best illustrated in FIG. 5. The glass rod 40 rests on the upper surface of web 41 which interconnects the section 26 with the section 25. Depending dogs 43 integral with the aperture cover plate and projecting forwardly from the sides of section 25 engage the upper portions of the glass rod at opposite ends to secure the rod against upward movement. The dogs 43 project forwardly to a point immediately behind the forward wall 45 of the arms 28 (FIG. 5).

Pivotally secured to the upper portion of the section 25 is a retaining or glass rod break plate 46. This bar is adapted to engage the center of the glass rod 40 on forward pivotal movement of the handle 17. Since the glass rod supports 32 carry the glass rod 40 in a forward direction on forward pivotal movement of the handle, the plate 46, secured to the non movable plate 16, will engage the rod at the center as the handle moves forward, causing the rod to break. The plate 46 is rigidly fixed to the rotatable shaft 47. This rotatable shaft 47 projects through the plate 16. The inner end of the rotatable shaft 47 (FIG. 9) is formed with a pin 48. This pin 48 is adapted to engage a lever arm assembly 50 which is used for resetting the shunt contact hereafter described in connection with the motor assembly.

Parallel channels 70 and 71 are formed between the side walls 14 and the walls 15. These channels extend from the upper end of the casing downwardly to the lower edge of the recess 12. Stops 72 and 73 project partially into the channels from the walls 14 (FIG. 4). The mounting frame 75 comprises a flat stamped out frame having holes 76 at its corners through which the station may be secured to a wall recess by screws or the like. The center of the frame has an opening 77 through which the motor projects (FIGS. 3 and 5). The frame 77 is formed with a forwardly bent tab 78 at its upper end with a slot 79 formed in the tab. This slot 79 is adapted to receive a dead bolt 80 or similar locking means of conventional nature positioned in the frame. A keyhole 81 is formed through the face of the casing for rotation of the dead bolt 80 into engagement with the slot 79 when the casing 10 is closed into flush alignment with the mounting frame 75.

The mounting frame 75 is also formed with forwardly projecting hinged tabs 85 at opposite corners of its lower end. These hinge tabs 85 are formed with a hole through which supporting shaft 86 projects. This supporting shaft 86 is secured at its ends in the mounting blocks 87 which are integrally formed at the lower corners of the casing. The shaft 86 fits into aligned slots formed at the rear of these mounting blocks 87 and is secured in this position by screws 88. The hinge tabs 85 are adapted to pivot freely about the fixed shaft 86. The casing 10 is also secured to the mounting frame by means of opposite hinge arms 90 and 91. These hinge arms 90, 91 are pivotally interengaged with forwardly turned side tabs 93 on the mounting frame 75. Each of the other ends of the hinge arms 90, 91 are formed with a cylindrical boss 95 extending inwardly and normal to the hinge arm. These bosses 95 are slidably positioned one each within a channel 70 and 71. When tab 78 of the mounting frame 75 is unlocked from interengagement with the casing, the casing may be moved in a pivotal movement to a 90° relation with the mounting frame as illustrated substantially in FIG. 3. The rigid hinge arms 90, 91 slide downwardly in the channels 70, 71 until the bosses 95 engage the stops 72, 73 thereby holding and securing the casing substantially normal to the mounting frame.

The sides of aperture plate 16 project over the channels 70, 71 leaving but a narrow slot between the side edges of the plate 16 and the inner surface of the walls 15 as is illustrated in FIG. 3. The bosses 95 are secured within the channel by the side edges of the plate 16, with the hinge arms slidably projecting through these slots.

The motor means generally illustrated FIGS. 5, 6, 7 and 8 at 98 is rigidly secured to the rear of the plate 16 by the main drive shaft 34 which projects through the side walls 63 of the plate 16 and through opposite motor support plates 99*a* and 99*b*. The motor support plates 99*a*, 99*b* and 100 are secured in fixed spaced relation by a plurality of posts 101*a* and 101*b*. The pair of plates 99*a* and 99*b* contain between them a gear train generally indicated at 103, while the plate 100 is spaced adjacent and parallel to plate 99*b*. The main drive spring 104 is secured between plates 99*b* and 100 with its outer end anchored to one post 101*a*. The motor support plates 99*a* and 99*b* are formed with holes in which the main drive shaft 34 is journalled. Rigidly fixed to this main drive shaft 34 is a quadrant gear 105. A helical spring 106, also coaxial with the drive shaft 34, has one end 107 engaging a notch 108 in the quadrant gear. The other end 109 of the helical spring 106 engages a corner 110 of support plate 99*b*. The spring 106 thereby tensions one edge 111 of gear 105 toward the rear wall of cover plate 16. The quadrant gear 105 engages pinion gear 115 which is integrally formed with one half of clutch plate 116 on shaft 120. The other half, clutch plate 117, integral with gear 118 is also mounted on spring driven shaft 120. Also coaxially mounted on the shaft 120 is the spring 121 which urges the clutch plate 116 towards the clutch plate 117. Clutch plate 116 has a slot 125 adapted to engage the beveled dog 126 so that on clockwise rotation of the shaft 120 as viewed in FIG. 8, the clutch plates 116 and 117 will lock together. The main spring 104 has its inner end anchored to the spring driven shaft 120. As indicated, the other end of the main spring is fixed to a post 101*a*. The gear 118 meshes with a pinion gear 130 which is freely rotatably mounted on shaft 131. The gear 130 is integral with a freely rotatable one way clutch plate 133 formed with an engaging shoulder 134. The shoulder 134 is adapted to engage a corresponding shoulder 135 on a coacting clutch plate 136. This clutch plate 136 is keyed to the shaft 131 and has a gear 135 formed integral with it. The shoulders 134 and 135 are adapted to engage to rotate the gears 138 in a clockwise direction as viewed in FIG. 6. A shoulder 139 forming a one way rotating cam surface is formed on the peripheral wall of the plate 135. A helical spring 140 coaxial with the shaft 131 spring tensions the clutch plate 133 into engagement with the plate 135. The gear 130 engages a gear 118 and is driven by it. Also secured to the shaft 131 on the opposite side of support plate 99*a*, is a sleeve 149, a spacing collar 150 on the sleeve, an insulated code wheel 151 which may if desired be formed of nylon or the like or which is otherwise suitably insulated, a lock washer 152 and a lock nut 153, which secures the code wheel 151 over the sleeve 149 and the sleeve in turn to the shaft 131. The code wheel is adapted to rotate with rotation of the shaft 131.

Pivotally mounted on shaft 160 is a trip lever 161. This trip lever is formed with a main body 162 and upper tab 163, a lower tab 164 and a contact actuating arm 165. The upper tab 163 bent substantially normal to the main body 162 bears at its free end against the peripheral surface of plate 135, and is adapted to engage at its free end the shoulder 137 to prevent rotation of the clutch plate 135. The lower tab 164 projects into bearing engagement with the clutch plate 117. This tab 164 is formed with a free edge 180 adapted to bear against the adjacent surface of clutch plate 116,

and is adapted to maintain the clutch plate **116** to the left as viewed in FIG. 6, against the force of tension spring **121** on actuation of the station. Normally the free edge **180** of the lower tab **164** during such actuation rides between the plate **116** and gear **118** with its edge riding on the surface of clutch plate **117**, thereby maintaining them disengaged. Since the width of the tab **164** is greater than the major width of the clutch plate **117**, the clutch plates **116** and **117** are maintained apart. In the inoperative position of the station, the free end of the lower tab **164** engages the stop **170**. The stop **170** is formed in the peripheral surface of the clutch plate **117**.

The trip lever **161** is formed with dogs **171**, with trip lever **161** supported on a shaft **160** which extends through holes in the opposite dogs **171**. These dogs **171** are formed at opposite sides of the main body **162**. The upper tab **163** is bent substantially normal to the main body **162** and engages the cam surface **134***a*. The free end **175** of this tab engages the shoulder **137** formed in the cam surface and prevents clockwise movement of the cam and thereby the clutch plate **133** until the free end **175** is disengaged from the shoulder **137**. This prevents rotation of the shaft **131** through the spur gears **118** and pinion gear **130**. The contact actuating arm **165** is formed of a rigid L-shaped member secured at one end **185** to the main body **162** (FIGS. 6 and 8). An angle portion **186**, of the arm **165** projects through a wide hole **187** in the supporting plate **99***a*, (FIG. 5). The end of this angle portion is covered with an insulating sleeve of nylon or the like. This free end engages a spring arm **188** of a shunt contact **189**. The shunt contact **189** is a double pole contact having spaced parallel leaf contacts **190** and **191** adapted to be connected in series, respectively, with leaf contacts **195** and **188**. The leaf contacts **190**, **191**, **195** and **188** are each parallel spaced and supported at one end in insulated relation by the shunt contact mounting block **200**[1]. The insulated contact mounting block **192** in turn secured by suitable means to the plate **99***a*. The contact leafs of block **200**[1] are suitably connected to an external circuit which may comprise a signal light or other transducer signalling means which, however, does not comprise a portion of the invention. The contacts **188** and **195** serve as electrical conductors and as tensioning means. The leaf spring contact **188** normally tensions the angle portion **186** in such a manner that the free end **180** of the lever **161** is tensioned into pressure contact with the peripheral cam surface of clutch plate **117**. In addition, when actuated, the trip lever **161** pivots until the angle portion **186** presses the contact leaf **195** into engagement with the hooked arm **196** of the lever arm assembly **50**.

This lever arm assembly **50** comprises an angle shaped member illustrated in FIG. 9 including a hook arm **196** having a hook end **197** and a cam arm **198** normal thereto. The hook arm **196** is pivotally secured by a suitable shaft **199** to the side of the support plate **99***a*. The cam arm **198** is formed with a beveled edge **200** adapted to be engaged by the pin **48**. When the pin **48** is rotated by a key inserted through the slot **201** in the shaft **47** the retaining plate **46** is rotated to release or replace the glass rod **40** and at the same time, the pin **48** bearing against the beveled edge **200** causes the hooked arm **196** to pivot about the shaft **199**. This will disengage the hook end **197** from the leaf **195**.

As indicated, the code wheel **151** is fixed to the shaft **131** on the outer side of plate **99***a* and is adapted to rotate with the shaft **131**. This code wheel **151** is provided with a series of teeth **216** arranged in any selected order or combinations. The code wheel illustrated in the drawings is a code wheel for transmitting the signal **2–2–6**. Other combinations are obviously possible. Leaf contacts **220** and **221** are mounted in the insulating block **222** in turn secured to the side of plate **99***a*. The leads **223**[1] from the contacts **220** and **221** are suitably secured within the casing and pass outwardly through the rear of it. The teeth **216** of code wheel **151** successively engage a bent over lip **223** of the contact **221** to close the contacts **220** and **221**, thereby emitting a pulse signal on rotation of the code wheel.

A shaft **230** journalled in plates **99***a* and **99***b* has keyed to it a small gear **231** and a larger gear **232**. The small gear **231** meshes with the spur gear **138**. The larger gear **232** meshes with another smaller gear **233** on the shaft **234** which is also journalled at its ends in the plates **99***a* and **99***b*. The gear **233** is rotatably fixed to the rotatable shaft **234** as is a larger gear **235**. This larger gear **235** meshes with a step release **236**. This step release **236** is fixed to the bar **237** and comprises a transverse bar having inwardly projecting teeth **239** at each end with the teeth **239** adapted to engage teeth of gear **235**. The bar **237** is formed with pins **238** at its ends which are in turn journalled in the plates **99***a* and **99***b*. Secured intermediate the ends of the plate **237** is the governor member **240**. This governor member comprises a flat bar pivotally and adjustably secured intermediate its ends to the plate **237**, by screw **245**. Counter weights **241** are secured at either end. By rotating the governor member **240**, into and out of alignment with the plate **237**, the speed of the device may be variably controlled.

In the operation of this device, a signal may be transmitted to the central station by pulling the handle **17** down all the way. This rotates the shaft **34** and in turn rotates the quadrant gear **105** against the tension of spring **106**. The quadrant gear **105** rotates the pinion gear **115** causing a rotation of the shaft **120**. This rotation in turn winds the main spring **104**. When the handle reaches a downward position, the quadrant gear **105** is tensioned in a reverse direction by spring **106**. This causes the pinion gear **115** to rotate in a counterclockwise direction as viewed in FIG. 6. When this initially occurs, the beveled dog **126** on the clutch plate **117** causes the clutch plate **116** to ride away from the plate **117** and thereby disengage the beveled dog **126** from the slot **125** in the clutch plate **116**. Thus, the handle **117** is disengaged from shaft **120**. The spring **104** then commences to rotate shaft **120** in a counter clockwise direction as viewed in FIG. 6. This causes clockwise movement of the pinion gear **130** which meshes with the gear **118**. Simultaneously, the tension of the spring-like leaf contact **188** against the angle portion **186** of the trip lever **161** causes the free end **180** of the lower tab **164** to drop between the gear **118** and clutch plate **116** thereby maintaining the clutch plates **116** and **117** in a disengaged position. At the same time, the upper tab **163** is moved from disengagement with the shoulder **134** thereby releasing the motor from its previously locked position, permitting the spring **104** to drive the shaft **120**. The shaft **120** rotates carrying with it the gear **118** which in turn rotates the pinion gear **130** in a clockwise direction as viewed in FIG. 6. This in turn rotates the shaft **131** and code wheel **151** when the clutch plate **133** engages the clutch plate **135**. The plate **135** which is fixed to the shaft **131** causes the shaft **131** to rotate in a clockwise direction as viewed in FIG. 6. This in turn causes a counter clockwise rotation of the gears **231** and **232** keyed to shaft **230**, and a clockwise rotation of gears **233** and **235**. The motor will run until the shoulder **134** rotates all the way back into engagement with the free end **175** of upper tab **163** at which time, the motor will stop. In the modification illustrated in the drawings, four complete cycles of the code wheel **210** occur when the handle is pulled all the way down.

A rectangular casing **300** may be suitably secured over the motor means by a screw **301** engaging the casing **300** and threaded into the post **101***b* (FIG. 7).

What is claimed is:

1. In an alarm station the combination of a casing forming at least in part an outer cover for said station and having an aperture formed therein, an aperture

cover plate, means securing said plate over said aperture, a pivotable handle having opposed arms positioned on one side of said cover plate, a motor assembly positioned on the other side of said plate and a common shaft journalled in said plate supporting said motor assembly and pivotably supporting said handle.

2. In an alarm station the combination of means for at least partially enclosing said station having an aperture formed therein, cover means for covering said aperture, a motor assembly comprising a motor positioned on one side of said cover means, actuating means for operatively actuating said motor on the other side of said cover means, and a common shaft rotatably journalled in said cover means, said shaft interengaging and supporting said motor assembly and said actuating means whereby movement of said actuating means will actuate said motor.

3. In an alarm station the combination of means for at least partially enclosing said station having an aperture formed therein, cover means for covering said aperture, an alarm generating motor assembly positioned on one side of said cover means, a pivotable handle for actuating said motor means, a rotatable shaft journalled in said cover means and projecting through a portion of said motor assembly thereby interengaging said motor assembly and said cover means to form a common support for said handle and said motor assembly, means rigidly interengaging said handle and shaft, and means operatively interengaging said motor assembly and shaft whereby said assembly will be actuated on rotation of said shaft.

4. A device as set forth in claim 3 wherein said means at least partially enclosing said station comprises a casing having a front face in which said aperture is formed, continuous sidewalls at the periphery of said face, and aperture walls spaced from said sidewalls bordering said aperture, and with said cover means secured within said casing adjacent said aperture walls.

5. A device as set forth in claim 4 wherein said motor assembly has a plurality of parallel motor support plates with said shaft projecting through and securing said plates with the edge thereof against said cover means.

6. A device as set forth in claim 4 wherein said sidewalls and aperture walls are parallelly spaced thereby forming a pair of parallel channels and said cover means projects over said aperture wall and partially constricts said channels, a mounting frame, means pivotally interengaging one end of said frame and said casing, a pair of hinge arms pivotally engaged at one end with said frame intermediate the ends of said frame, and means slideably interengaging the other ends of said hinge arms and said channels with one in each of said channels.

7. In an alarm station the combination of a casing having a front face in which an aperture is formed, means including walls adjacent said aperture forming parallel channels, a cover means for covering said aperture and adapted to support an operating mechanism, means securing said cover means over said aperture with portions thereof extending beyond said aperture and partially constricting the open sides of said channels along at least part of their lengths, a mounting frame for securing said alarm station to a wall, means pivotally interengaging said frame and said casing, a pair of hinge arms pivotally engaging said frame at a position remote from the location of pivotal interengagement of said frame and said casing, and means slideably interengaging the other ends of said hinge arms with said channels with one arm in each of said channels.

8. A device as set forth in claim 7 wherein said means forming a channel includes walls forming said aperture and peripheral sidewalls bordering said front face, said cover means having side edges positioned in spaced parallel relation with said peripheral sidewalls forming elongated slots longitudinal of said channels and through which said hinge arms project.

9. In an alarm station having a casing having a front face in which an aperture is formed, a cover means for covering said aperture with a portion of said covering means positioned rearwardly of said front face, a handle having a cross member with arms normal to and integral with the ends of said cross member, said arms having aligned, integral glass rod support hooks, one with each arm, means pivotally interengaging said arms and said casing, a glass rod with its end supported in said glass rod support hooks, engaging means projecting over said glass rod to prevent vertical movement thereof when said handle is in an inoperative position, means interengaging said rod intermediate its ends to restrain pivotal movement of said handle and interengaged rod from said inoperative position unless said rod is broken, means for adjustably moving said last mentioned means to and from engagement with said rod, whereby said rod may be pivoted with said handle from said inoperative position without breaking, thereby disengaging said rod from said engaging means for removal of said rod from said support hooks.

10. In an alarm station having a casing with a front face, means comprising a handle for actuating said station, means pivotally securing said handle means in said station, a frangible rod, means composite with said handle supporting said frangible rod, means secured to said station front face engaging said rod and operable to cause said rod to break on actuation of said handle, disengaging means for disengaging said last mentioned means from engagement with said rod whereby said handle may be actuated without said rod breaking.

11. A device as set forth in claim 10 wherein said means engaging said rod comprises a glass rod retaining plate, said disengaging means comprising means pivotally supporting said plate on said casing and means adapted to pivot said plate to and from engagement with said rod, said rod positioned between said plate and said casing.

12. In an alarm station having a casing with a front face having a recessed portion formed therein, a handle having a crosspiece and parallel arms integral with said cross piece, means journalling said arms in said recessed portion for pivotal rotation of said handle from an inoperative position whereby said station is actuated, said arms having upwardly open, aligned rod support hooks, a frangible rod supported by said hooks and adapted to be moved forwardly from said casing on pivotal movement of said handle, means securing said rod in said hooks when said handle is in an inoperative position comprising dogs integral with said casing and projecting forwardly into engagement with and above said rod when said handle is in an inoperative position, plate means restraining said rod from forward movement unless said rod is broken comprising a plate engaging said rod intermediate its ends, means adjustably securing said plate means to said casing whereby said plate means may be disengaged from said rod for free forward movement of said rod with said handle.

13. A device as set forth in claim 12 wherein said handle is formed with said arms rearwardly extending with respect to said cross piece and said hooks are displaced rearwardly with respect to said cross piece, and said cross piece lies substantially in the plane of said front face when said handle is in an inoperative position, said cross piece having a finger engaging recess formed therein.

14. In an alarm station the combination of a casing having a front face with peripheral and continuous sidewalls, means forming an aperture in said front face bordered by continuous aperture walls integral with said front face and extending rearwardly therefrom, an outer cover plate having a peripheral section extending about said cover plate and a base plate section projecting forwardly from said peripheral section and interconnect therewith by integral cover plate sidewalls, means securing said casing and cover plate together with said periph-

eral section continuously engaging said aperture walls in sealed relation and with said base plate section projecting forwardly into said aperture, said cover plate sidewalls being spaced from said aperture walls, a handle means for actuation of said station, and means projecting through said cover plate sidewalls for interengagement of said handle means and the operative mechanism of said station to enable ready removal of said handle and operative mechanism as a unit from said casing.

15. In an alarm station, actuating means for emitting a coded signal comprising support means, a spring driven shaft mounted in said support means, a main spring engaging said shaft and adapted to be wound by rotation of said shaft in one direction for subsequent rotation of said shaft in the other direction, a clutch having interengagable halves with one half keyed to said shaft and the other half axially slidably positioned on said shaft, means formed on said halves adapted to engage said halves when said shaft is rotated in said one direction and disengage said halves when said shaft is rotated in the other direction, a pinion gear integral with said other half, a quadrant gear interengaged with said pinion gear, a main shaft on which said quadrant gear is keyed journalled in said support means and also having an actuating handle keyed thereto, means spring tensioning said quadrant gear to move in a direction whereby said spring driven shaft is rotated in said other direction, a driving gear integral with said one half, a gear train operatively engaged with said driving gear and with a portion thereof keyed to a coded wheel shaft, and means including a coded wheel mounted on said coded wheel shaft for message transmission on rotation of said coded wheel shaft.

16. A device as set forth in claim 15 having a trip lever with a main body, upper tab and lower tab, means pivotally supporting said trip lever on said support means with said upper tab adapted to engage a gear in said gear train for stopping the operation of said activating means, said lower tab normally bearing against said clutch when said halves are together and normally moving to a position between said halves when said halves separate, said lower tab maintaining said upper tab in said engaged position when bearing against said clutch, and spring means normally tensioning said lower tab toward said clutch whereby said lower tab will move between said halves when said clutch halves disengage.

17. A device as set forth in claim 15 having a trip lever with a main body, upper tab and lower tab, means pivotally supporting said trip lever on said support means with said upper and lower tabs substantially normal to said main body, said gear train having a gear with an engageable shoulder formed therein with said shoulder and upper tab interengaged to maintain said actuating means inoperative, said lower tab bearing against said clutch when said halves are together, means for tensioning said lower tab toward said clutch and movement therebetween when said halves are separated whereby said upper tab will be disengaged from said engageable shoulder.

18. A device as set forth in claim 17 having a second gear train interengaged with said first gear train, governor means interengaged with said second gear train for control of said actuating means including a governor shaft mounted for oscillating motion about its axis, a step secured to said governor shaft and having a plurality of teeth adapted to engage a gear of said gear train in a stepped motion, and a lever pivotally secured intermediate its ends to said shaft mounted for oscillation with weights secured to the end of said last mentioned lever.

19. In an alarm station, actuating means for emitting a coded signal comprising a coded wheel, shaft means on which said coded wheel is mounted, a gear train for rotating said shaft, spring means adapted on tensioning to operatively drive said train for rotation of said shaft, actuating means for tensioning said spring means and normally operatively connected thereto, and means for disengaging said actuating means from said spring means while said shaft is rotating to allow free movement of said actuating means.

20. A device as set forth in claim 17 having means for automatically stopping rotation of said shaft after a selected amount of rotation.

21. In an alarm station, actuating means for emitting a coded signal comprising a coded wheel, shaft means on which said coded wheel is mounted, a gear train for rotating said shaft, spring means adapted on tensioning to operatively drive said train for rotation of said shaft, actuating means for tensioning said spring means comprising a spring driven shaft adapted to tension said spring on rotation in one direction, an operating handle, means including a clutch interengaging said handle and spring driven shaft for rotating said spring driven shaft in said one direction, and means for disengaging said clutch and disengaging said spring driven shaft and handle on rotation of said spring driven shaft on rotation in the other direction.

22. In an alarm station, actuating means for emitting a coded signal comprising a coded wheel, shaft means on which said coded wheel is mounted, a gear train for rotating said shaft, spring means adapted on tensioning to operatively drive said train for rotation of said shaft, actuating means for tensioning said spring means comprising a spring driven shaft adapted to tension said spring on rotation in one direction, an operating handle, means operatively interengaging said handle and spring driven shaft for rotation of said shaft in said one direction including a one way clutch disengageable on rotation of said shaft in the other direction, and means for maintaining said clutch disengaged comprising a trip lever having a lower tab adapted to be positioned between engageable portions of said clutch when said portions are disengaged.

23. A device as set forth in claim 22 having means normally tensioning said tab toward said clutch and said position between said portions, and wherein said means operatively interengaging said handle and said spring driven shaft includes a second gear train with spring means for normally tensioning said second gear train in a selected direction of rotation whereby said clutch portions are disengaged.

24. A device as set forth in claim 22 having means normally tensioning said tab toward said clutch and said position between said portions, an upper tab integral with said trip lever and engaging said gear train against movement when said clutch portions are interengaged.

25. A device as set forth in claim 22 having contact actuating means carried by said trip lever, and an electrical contact operatively controlled by said contact actuating means.

26. A device as set forth in claim 25 having engaging means for engaging and securing in select portions said electrical contacts when actuated by said contact actuating means, and means externally accessible of said station for releasing said contacts from said positions.

27. A device as set forth in claim 26 wherein said engaging means comprises a hook arm adapted to engage said contacts on movement thereof, means pivotally supporting said hook arm, and means externally accessible comprises a rotatable sleeve having a keyhole formed therein and mounted for rotation in said station, a pin secured normal to said sleeve, a lever arm assembly having a cam surface engageable by said pin, said lever arm assembly interengaged with said hook arm for movement thereof.

28. In an alarm station the combination of a casing forming at least in part an outer cover for said station and having an aperture formed therein, an aperture cover plate, means securing said plate over said aperture, a handle having opposed arms positioned on one side of said cover plate, a motor assembly comprising a motor positioned on the other side of said plate and a shaft journalled in said plate and operatively interengaging said arms and said motor assembly to actuate said motor by

said arms through said shaft, electrical contact means actuatable by said motor assembly whereby electrical contacts are moved to selected positions, hook arms means for securing said contacts in said positions, and means externally accessible of said station for releasing said contacts from said positions.

29. A device as set forth in claim **28** wherein said means externally accessible of said station comprises a lever linkage system interengaged with said hook arm means.

30. A device as set forth in claim **29** having a frangible rod, means securing said rod to said handle for movement therewith, and plate means projecting into the path of said rod whereby said rod will break on engagement with said plate means.

31. A device as set forth in claim **30** wherein said plate means is integrally associated with said lever linkage system and is adapted on movement of said lever linkage system to be moved from a position projecting into the path of said rod.

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