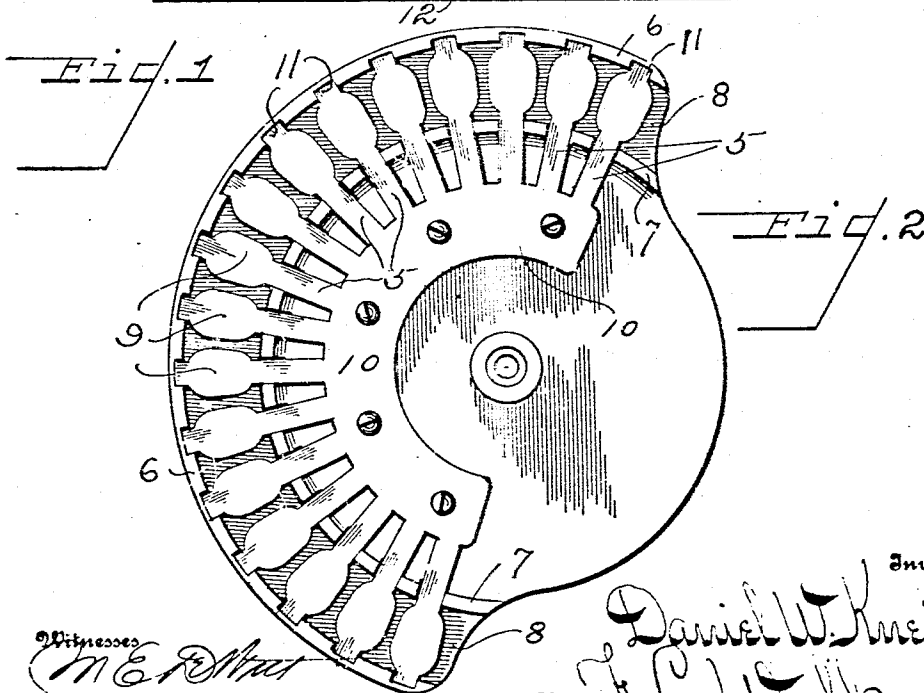
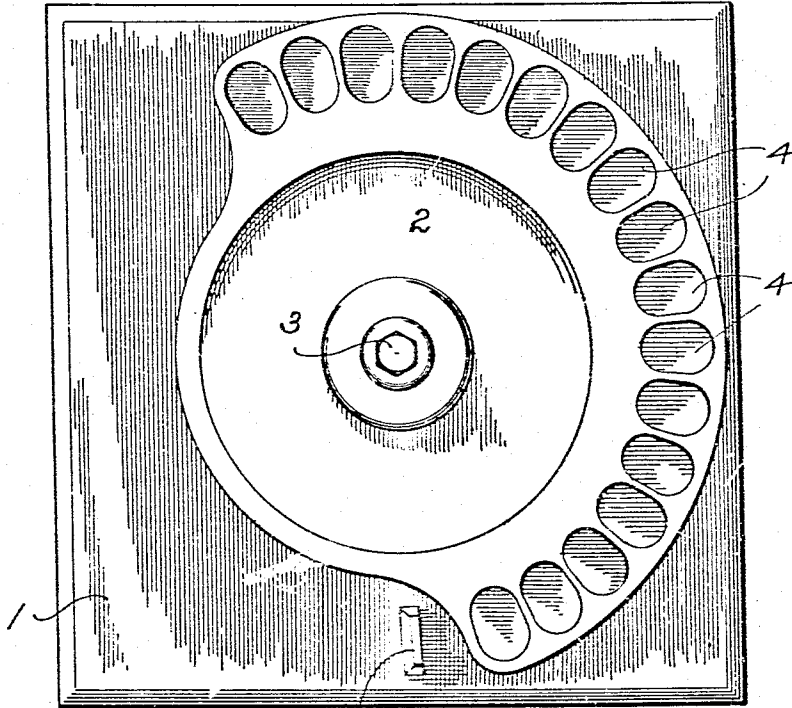


D. W. KNEISLY.
DIAL FOR SELECTIVE SIGNALING APPARATUS.
APPLICATION FILED MAY 3, 1909.

949,797.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.



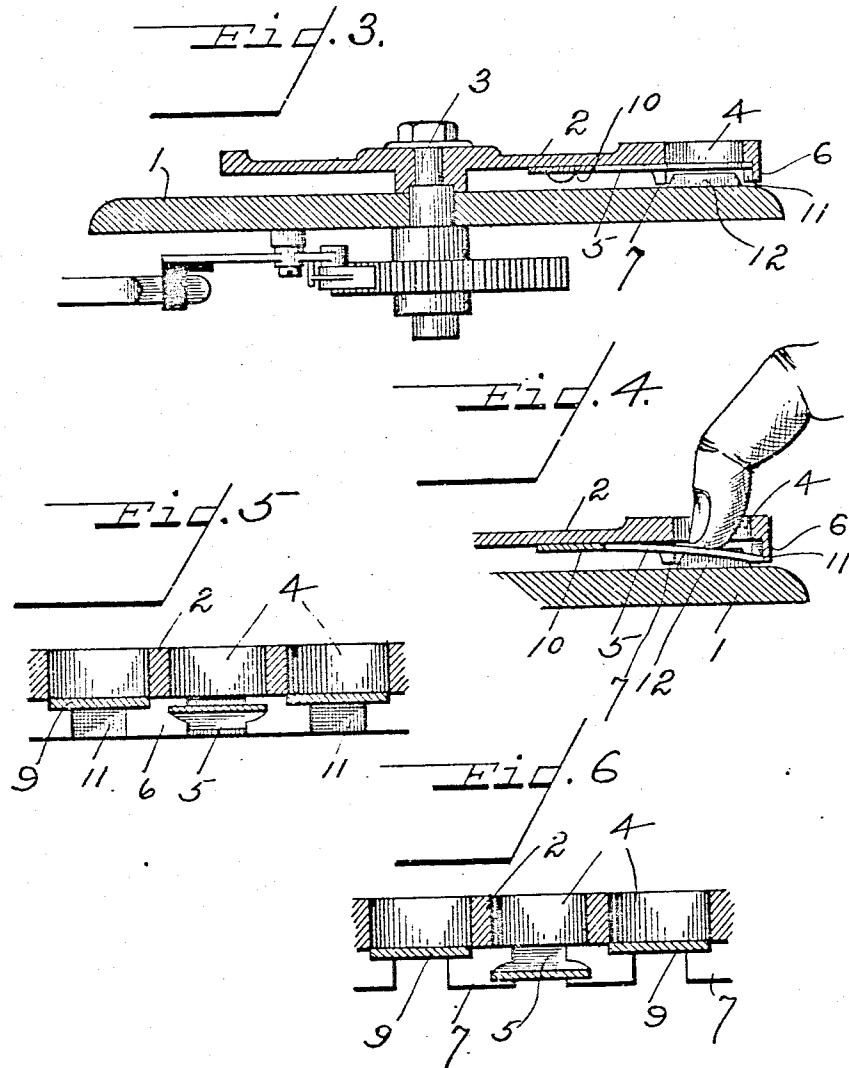
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UNITED STATES PATENT OFFICE.

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DIAL FOR SELECTIVE SIGNALING APPARATUS.

949,797.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed May 3, 1909. Serial No. 493,729.

To all whom it may concern:

Be it known that I, DANIEL W. KNEISLY; a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dials for Selective Signaling Apparatus, of which the following is a specification.

My invention relates to the operating dial of selective signaling apparatus and particularly to means for positively limiting the dial to predetermined limits of travel.

The object of the invention is to simplify the structure of such devices whereby they will not only be cheapened in construction but will be rendered more efficient and positive in operation, easily operated, and unlikely to get out of repair.

It has been customary to provide with dials having finger holes, a guard or stop adapted to be engaged by the finger of the operator to limit the movement of the dial. But it has been found in practice that when such dials are operated by children or by women possessing small fingers, the dial is frequently permitted a greater limit of travel and the selective apparatus thereby caused to overthrow or mis-operate. To overcome such difficulty and provide means for positively limiting the movement of the dial to predetermined limits of travel independent of the size or position of the operator's finger, is one of the primary objects of the invention.

With the above primary and other incidental objects in view, the invention consists of the features of construction, the parts and combinations thereof, and mode of operation or their equivalents, as hereinafter described and set forth in the claims.

Referring to the drawings, Figure 1 is a plan view of the selective dial mounted on the base and showing the stationary stop. Fig. 2 is a bottom plan view of the selective dial removed from the base. Fig. 3 is a transverse sectional view through the selective dial and base showing in conjunction therewith impulse sending mechanism. Fig. 4 is a detail sectional view through the dial showing parts in operated position. Figs. 5 and 6 are enlarged detail sectional views on line *x x* of Fig. 2 viewed in opposite directions.

Referring to the drawings, 1 is the base upon which the dial is pivotally mounted

and which may comprise the cover of a box or casing containing the selective mechanism. A revoluble dial 2 is pivoted at 3 upon the base 1 and is provided about its periphery with a plurality of openings 4 for the insertion of the operator's finger. The openings 4 extend entirely through the dial member 2. Secured to the under side of the dial member 2 is a plurality of flexible fingers 5 one for each of the openings 4 under which the said fingers 5 extend and from which said fingers form movable bottoms. Adjacent to the periphery of the dial 2 and on the under surface thereof there is provided a downward projecting flange 6 70 and concentric therewith a second flange 7 forming between said flanges an annular groove or depression 8. It is within this groove or depression 8 that the openings 4 are located, which openings are closed on their under side by the flexible fingers 5. The flexible fingers 5 are preferably though not necessarily enlarged as at 9 which entirely closes the openings 4. The flexible fingers 5 may be separately attached to the dial 2, but for convenience in manufacture and to facilitate the assembling, they are preferably formed from a single piece of metal and radiate from a common plate 10 which is attached to the dial 2 by screws or otherwise. The projecting flange 7 on the under side of the dial is provided with a series of notches or recesses through which the flexible fingers 5 extend. The fingers 5 project outward beyond the extremity of the openings 4 and into the notches or recesses 11 in the inner annular surface of the dependent flange 6. Projecting from the surface of the base 1 is a stop or lug 12 in such position that it will register with the groove or depression 8 of the dial 2 when said dial is rotated as particularly shown in Figs. 3 and 4.

In operating the device, the finger hole is selected corresponding to the signal desired and the finger of the operator inserted in said finger hole, thereby depressing the movable bottom or spring finger 5 thereof out of its normal plane and into the plane of the stop 12 which it engages upon the rotation of the dial and thereby limits the movement of the dial as particularly shown in Fig. 4. It is to be understood that when in normal position the spring fingers 5 occupy a plane above the level of the stop 12 and that so

long as none of the spring fingers are depressed by the insertion of the finger within the finger hole 4 the dial may rotate freely and the fingers will not engage the stop 12.

5 However, any one of the spring fingers 5 when depressed by the finger of the operator or by a pencil or any other implement inserted in the finger hole 4 is moved into the plane of the stop 12 and will limit the movement of the dial when in engagement therewith, the limit of travel being of greater or less extent, according to the location of the spring finger depressed. The engagement of the spring finger in the recess 11 of the flange 6 and in the notch 13 in the flange 7 causes the shock due to the engagement of the spring finger 5 with the stop 12 to be received by the dial and prevent the displacement of the finger 5. It will be obvious that with this arrangement the dial is stopped accordingly in each position at a predetermined point and that the dial cannot possibly overthrow and that by moving the dial to the limit of its stroke the operating mechanism will receive a full stroke which is not the case when the movement is limited by the contact of the operator's finger with the common plate inasmuch as the operator's finger may occupy various positions in engaging the dial thereby permitting the dial to have greater or less movement and the extent of the movement is rendered very uncertain.

From the above description it will be apparent that there is thus produced an operating dial of the character described, possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportion, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

Having thus described my invention I claim:

1. In a device of the character described, an operating member having a series of finger holes therein, movable bottoms in said finger holes, a stationary stop with which the said movable bottoms will engage when in operated position and thereby limit the movement of the operating member, substantially as specified.

2. In a device of the character described, an operating member having a series of finger holes therein, resilient members within said finger holes, and adapted to be

depressed out of their normal plane by the finger of the operator inserted in the finger hole, a stationary stop located out of the normal plane of the resilient members, said resilient members being adapted to engage said stop when pressed out of their normal plane and thereby limit the movement of the member, substantially as specified.

3. In a device of the character described, a revoluble dial having a series of finger holes therein, a plurality of spring fingers attached to said dial and extending across the finger openings, a stop member adapted to be engaged by the spring fingers when pressed from their normal position, thereby limiting the revoluble movement of the dial, substantially as specified.

4. In a device of the character described, a revoluble dial having a series of finger holes therein, a plate secured to said dial, a plurality of integral spring fingers on said plate, one for each finger hole with which the finger registers, a stop located out of the normal plane of said fingers, said fingers being adapted to be pressed out of their normal plane and into that of the stop by the finger of the operator inserted in said finger hole, substantially as specified.

5. In a device of the character described, a revoluble dial having a series of finger holes therein, annular flanges on said dial at opposite sides of the series of finger holes, said flanges having recesses or notches therein in alignment with said holes, resilient fingers extending across the finger holes and engaging the notches of the flanges on opposite sides thereof, substantially as specified.

6. In a device of the character described, a revoluble dial having a series of finger holes therein, said dial having an annular groove therein, a stop extending within the annular groove, depressible members extending across the finger holes and engaging recesses at opposite sides of said annular groove and normally cut of the plane of said stop but adapted to be pressed into the plane of the stop by the finger of the operator inserted in the finger hole and thereby arrest the dial in predetermined position, substantially as specified.

In testimony whereof, I have hereunto set my hand this 12th day of April A. D. 1909.

DANIEL W. KNEISLY.

Witnesses:

HARRY F. NOLAN,
F. L. WALKER.