No. 842,377. PATENTED JAN. 29, 1907.

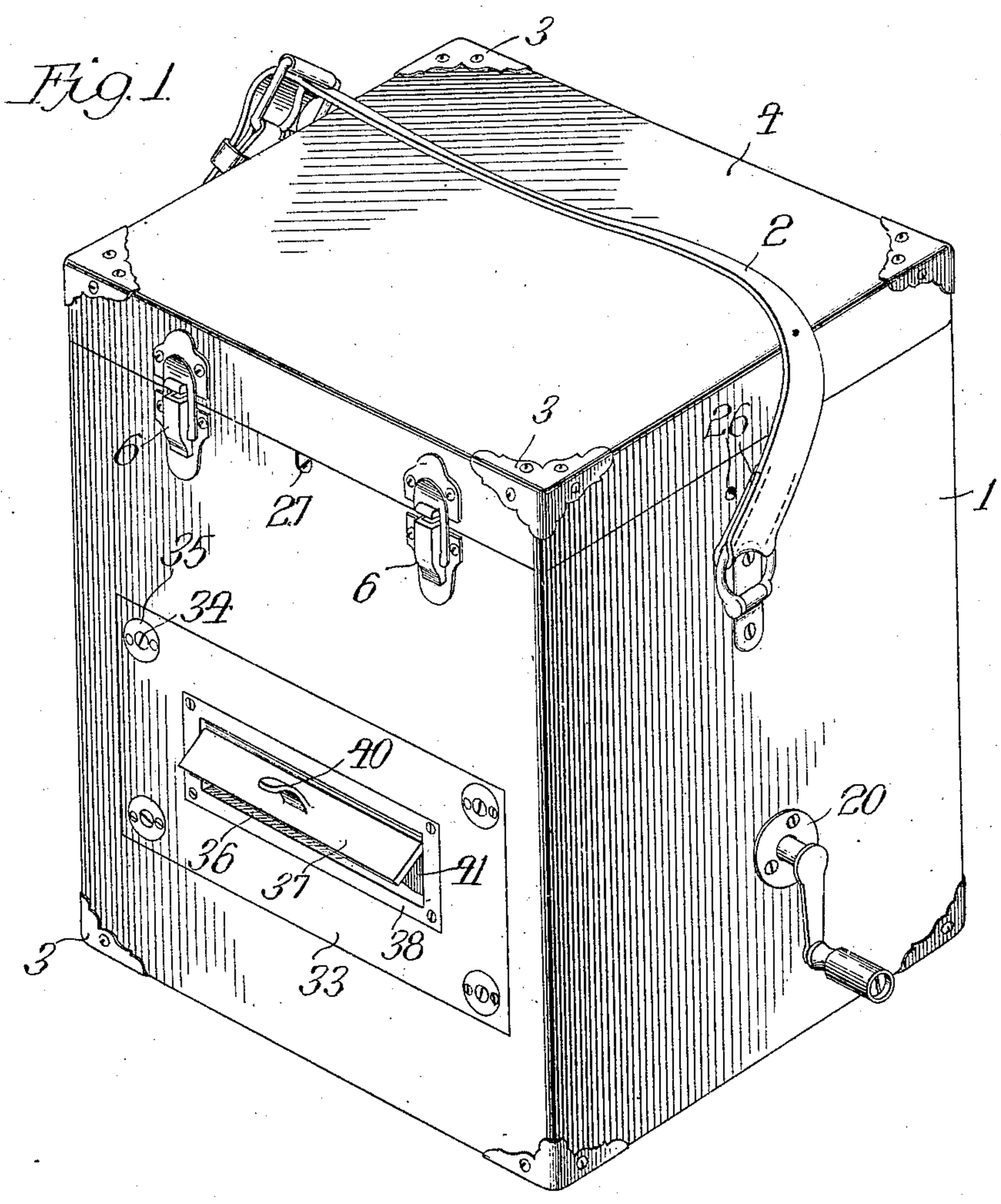
G. F. ATWOOD.

SIGNALING APPARATUS.

APPLICATION FILED FEB. 26, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



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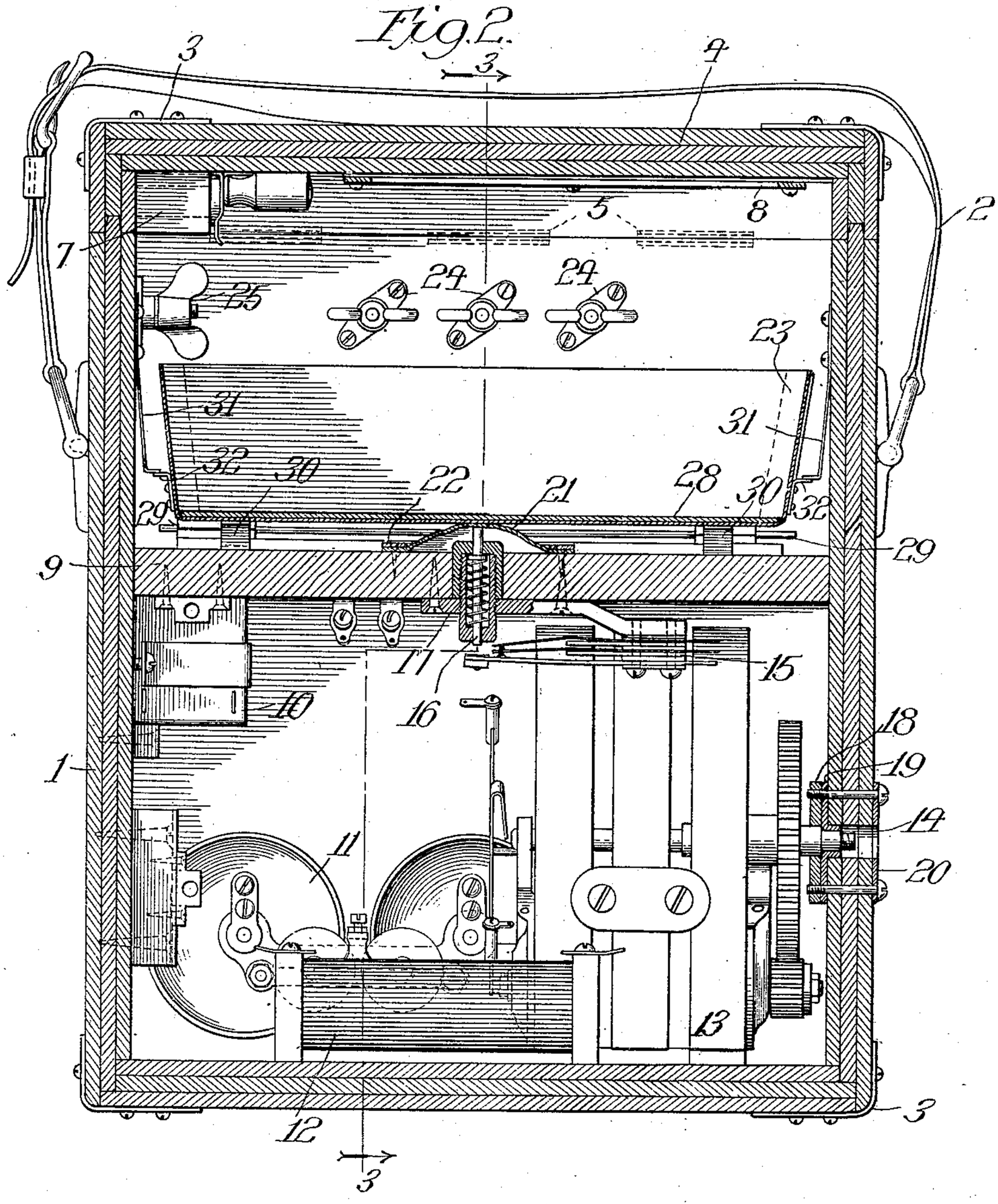
3 SHEETS—SHEET 2.

Fig. 2.



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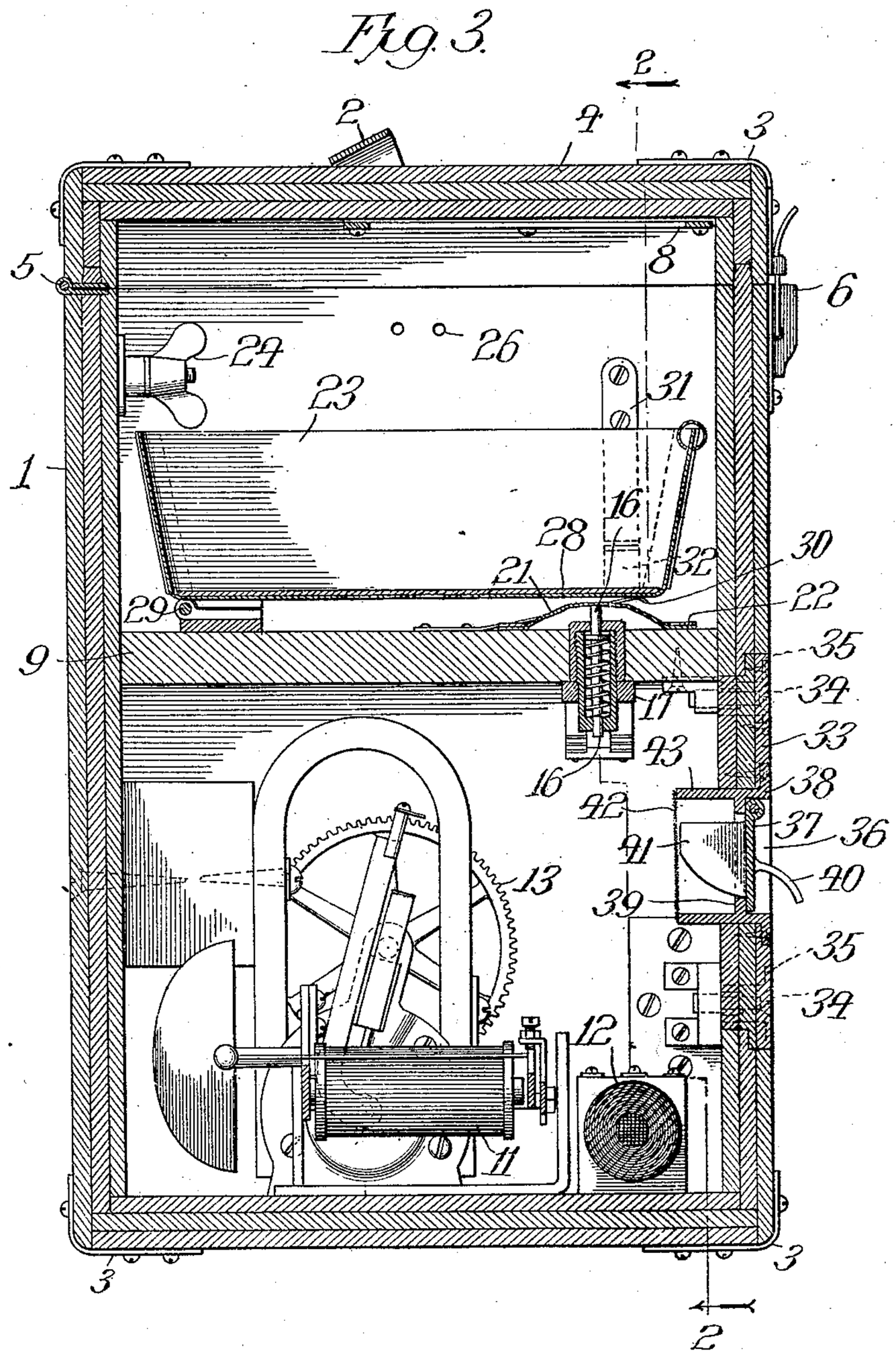
3 SHEETS—SHEET 3.

Fig 3.



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UNITED STATES PATENT OFFICE.

GEORGE F. ATWOOD, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SIGNALING APPARATUS.

No. 842,377. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed February 26, 1906. Serial No. 303,018.

To all whom it may concern:

Be it known that I, GEORGE F. ATWOOD, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Signaling Apparatus, of which the following is a specification.

My invention relates to electrical signaling apparatus, and more particularly to a portable telephone set adapted for outdoor use, where it is subjected to rough handling and exposed to adverse conditions of weather and the like.

My principal object is to provide a set so constructed and arranged that while all of its operating parts are readily accessible for use and repair they are at the same time protected from rain and the like, as well as from the entrance of insects, which are frequently a source of trouble in electrical apparatus used in exposed locations.

Furthermore, my object is so to construct the instrument having the weather and insect proof characteristics mentioned that it may possess the maximum structural strength, combined with the minimum weight, and thus be better adapted for use as a portable set.

The above-mentioned characteristics which the telephone set of my invention possesses particularly adapt it for such use as that to which an instrument is subjected in the military signal service, and it is primarily for such use that the set has been designed.

Referring to the accompanying drawings, Figure 1 is a perspective view of a telephone set embodying my invention. Fig. 2 is a front sectional elevation of the set on line 2 2 of Fig. 3, and Fig. 3 is a side sectional elevation thereof on line 3 3 of Fig. 2.

In the embodiment of my invention illustrated in the drawings I provide a box or case 1, substantially constructed of wood or other suitable material and preferably provided with a strap 2 to serve as a handle. In order that it may better be adapted to withstand the atmospheric conditions to which it may be exposed, the case is preferably built up, as shown, of layers of wood laid together with the grain of the different layers running at right angles. The case is also preferably provided with reinforcing-escutcheons 3 at its corners. The lid 4 of the box or case is secured thereto by the hinges 5 and has a tongue-and-groove connection with the body of the box, the groove in the present instance being formed in the lid and the tongue being a projection of the middle layer of the three of which the body of the box in the present instance is formed. The lid is adapted to be held shut by the hasps 6. It may be provided on the inside, as shown, with a socket 7 for holding the handle of the generator when it is not in use and with a frame 8, screwed to the inside of the lid for holding a card whereon may be printed the circuit-diagram of the set.

Within the box or case and extending transversely across the same is a partition 9, which serves to divide the interior of the box into two compartments. This partition is made weather and insect proof, so that the lid may be opened and the telephone used without permitting rain and the like or insects to gain access to the apparatus mounted in the lower compartment of the box.

The apparatus associated with the set will of course vary with varying requirements and conditions of use. In the present instance in the lower compartment of the case the following apparatus is mounted: In the upper left-hand corner a condenser 10, secured to the wall of the case by means of a metal strap and also supported by a cleat fastened to the wall of the case; on the bottom of the case a telephone bell or ringer 11, an induction-coil 12, and a generator of alternating ringing-current 13, with its shaft communicating with a hole 14 in the side of the case; on the top of the lower compartment a switch 15, having an actuating rod or key 16, passing through an escutcheon 17 into the upper compartment. The hole in the side of the case with which the shaft of the generator 13 registers is provided with a stuffing-box comprising a metal ring 18, clamping between it and the inside wall of the case a washer 19, of felt or other suitable material, by means of screws passing through the wall of the case and also through an annular escutcheon 20, surrounding the hole on the outside of the case.

The actuating rod or key of the switch 15, as has been stated, passes up through the partition 9 between the upper and lower compartments of the box, and in order to prevent the admission of moisture or the like to the lower compartment by way of the opening through which the actuating-rod and its escutcheon pass I provide a diaphragm 21, of leather or like material treated to render it waterproof and clamped tightly in place by means of a ring 22, held to the partition by screws or otherwise.

In the upper compartment is mounted a receptacle or tray 23, adapted to hold the telephone instrument when it is not in use. The telephone instrument may be of the well-known type where a receiver and a transmitter are combined to form one piece of apparatus, and it may be connected with the circuit of the set by means of the usual flexible conducting-cord in electrical connection at one end with the instrument and at the other end with the binding-posts 24, which are preferably of the wing-nut type and are mounted on the inside wall of the case. Other binding-posts 25, one only of which is shown, are also provided to receive the incoming line-wires, and holes 26 are provided in the wall of the case to permit the passage of the line-wires to the interior of the set. An opening 27 is also preferably provided through the wall of the case and communicating with the upper compartment to receive the telephone-cord, so that the lid of the case may be closed while the telephone is in use.

The tray or receptacle 23 for the telephone instrument is preferably of metal, as shown, and a mat 28, of rubber or the like, may lie in the bottom of the tray to serve as a cushion and to insulate the metallic portions of the telephone instrument from the tray. The tray is movably secured to the case, in the present instance by means of the hinges 29, and it is normally held in an elevated position by means of leaf-springs 30, one end of each of which engages the bottom of the tray, while the other end is fastened to the case. To limit the elevation of the receptacle by the springs, stops 31, secured to the walls of the case, are provided, which engage lugs 32, carried upon the tray. When the receptacle or tray is depressed by the weight of the telephone, it is caused to move down and, engaging the head of the actuating rod or key 16 through the diaphragm 21, moves the same to actuate the switch.

To furnish access to the apparatus mounted in the lower compartment, I provide a removable panel 33, secured in a shouldered opening, in the present instance in the front wall of the case. The panel is adapted to be held in place by screws 34, passing through escutcheons 35 and provided with enlarged screw-threaded ends which engage screw-threaded plates secured on the inside of the case. The screws 34 are so constructed and related to their escutcheons that while they may readily be unscrewed to permit the removal of the panel 33 they are not thereby loosened from the panel, but are retained in place, and thus kept from being lost.

In the front of the removable panel is an opening 36, provided with an adjustable closure in the form of a flap or lid 37, fulcrumed in the present instance at its upper edge in a frame-plate 38, suitably secured to the removable panel and provided with a shoulder 39, against which the lid 37 seats when it is closed. The flap or lid 37 is provided with an ear 40 projecting from its outer surface and by means of which it may be opened when desired. It is also fitted with segmental side pieces 41, which are so adjusted as to make frictional or rubbing contact with the adjacent sides of the frame-plate, and thus serve to retain the lid in any position to which it has been moved. These side pieces also serve as a shield in connection with the lid 37 to prevent the entrance of rain and the like to the interior of the case when the lid is opened. In order to prevent the access of insects and the like to the interior of the case, I provide a screen 42 of fine mesh, stretched across the opening in the front panel. In the present instance this screen is secured to an inward box-like extension 43 of the rectangular metallic frame-plate by soldering. Appropriate wiring is provided for connecting the various pieces of apparatus with each other and with the binding-posts, where connection is made with the external circuit.

In the operation of the telephone set of my invention the user signals the distant station by turning the shaft of the generator 13, having first opened the lid of the case and transferred the handle of the generator from its normal resting-place to the proper position on the end of the generator-shaft. He then lifts the telephone instrument from its receptacle or tray 23, whereupon the tray, being relieved of the weight, is elevated by the springs 30 and relieves the actuating rod or key 16 to permit the closure of the circuit by means of the switch 15. Communication is had in the usual manner through the combined receiver and transmitter. When a station equipped with the telephone set of my invention is to be signaled, this is accomplished by causing ringing-current to flow from the distant station, the ringing of the telephone-bell 11 thus produced being heard on the outside by way of the opening in the removable panel 33. When the atmospheric conditions are such as to require it, the flap or lid 37 may be adjusted so as to furnish an opening sufficient to permit the passage of the sound, while preventing the admission of rain and the like, and when the set is not in

use the lid may be closed tightly. The access of insects and the like to the apparatus in the interior of the case is prevented, as has been stated, by the screen 42, stretched across the opening, and by the insect-proof construction of the partition 9 and of the wall of the case surrounding the generator-shaft.

I claim—

1. In a signaling set, the combination with an inclosing case containing upper and lower compartments having mechanically-coöperating signaling apparatus mounted therein, of a waterproof partition between said compartments, said partition being provided with a flexible waterproof diaphragm through which the movement of the coöperating signaling apparatus is transmitted.

2. In a telephone set, the combination with an inclosing case containing upper and lower compartments, of an insect-proof partition therebetween, apparatus including a switch mounted in the lower compartment, a telephone-receptacle adapted to be depressed by the weight of the telephone located in the upper compartment, and an insect-proof connection through said partition between the switch and the telephone-receptacle.

3. In a telephone set, the combination with an inclosing case having two compartments, of a waterproof partition therebetween, a switch mounted in one compartment, a telephone-receptacle adapted to actuate said switch mounted in the other compartment, and a waterproof connection through said partition between said receptacle and said switch.

4. In a telephone set, the combination with an inclosing case having two compartments with a waterproof partition therebetween, of a switch mounted in one compartment, an operating-rod for said switch extending through the partition into the other compartment, a flexible waterproof diaphragm secured over the head of said actuating-rod, and a telephone-receptacle in said last-mentioned compartment adapted to be depressed by the weight of the telephone and brought into engagement through the diaphragm with the head of said rod to actuate said switch.

5. In a weatherproof telephone set, the combination with an inclosing case having an upper and a lower compartment with a waterproof partition therebetween, telephone apparatus mounted in both said compartments and having operative connection through said waterproof partition, a lid for said upper compartment forming the upper part of said case and affording access to the upper compartment, said lid having a tongue-and-groove connection with the upper part of the case to prevent the entrance of water thereto, and a removable side panel for affording access to said lower compartment, said panel having a weatherproof connection with the case.

6. In a telephone set, the combination with a weatherproof case, of telephone apparatus including a bell mounted within said case, and a removable panel for affording access to the interior of said case, said panel having an adjustable opening for permitting the passage of sound from the bell to the exterior of said case.

7. A signaling set comprising a weatherproof case provided with an opening in the wall thereof to permit the passage of sound from the interior of the case, signaling apparatus mounted within said case, and means for adjusting the size of said opening while preventing the entrance of rain thereto.

8. In a signaling set, the combination with a weatherproof case, of signaling apparatus mounted therein, the wall of said case being provided with an opening to permit the passage of sound from the apparatus mounted therein, and a hood arranged over the exterior of said opening to shield the same from rain.

9. In a signaling set, the combination with a weatherproof case, of signaling apparatus mounted therein, the wall of the case being provided with an opening to permit the passage of sound from the telephone apparatus mounted within said case, and an adjustable hood arranged over the exterior of said opening to shield the same from rain.

10. In a telephone set, the combination with a case having telephone apparatus mounted therein, said case having an opening in its wall to permit the passage of sound from the interior thereof, a screen or grating secured across said opening to prevent the entrance of insects and the like to said case, and an adjustable hood arranged over the exterior of said opening to shield the same from rain.

11. In a telephone set, the combination with a case having telephone apparatus mounted therein, said case having an opening in its wall to permit the passage of sound from the interior thereof, of an adjustable hood hinged over said opening to protect the same from rain, said hood being provided with resilient side pieces adapted to protect the opening at the sides of said hood, and to act as friction-stops to hold said hood in its adjusted position.

12. In a telephone set, the combination with a case having telephone apparatus mounted therein, said case having an opening in its wall to permit the passage of sound from the interior to the exterior thereof, of a frame mounted in said opening, a lid arranged over said opening and fulcrumed in said frame, said lid serving as a hood to protect said opening from rain, resilient side

pieces secured to said lid and adapted, when the same is raised, to protect from rain the opening at the sides of said lid, said side pieces having a slight outward inclination from their points of support and being arranged to engage the edges of said frame to frictionally hold the lid in any position to which it may be adjusted and to hold it in its closed position when it is moved thereto.

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Witnesses:
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