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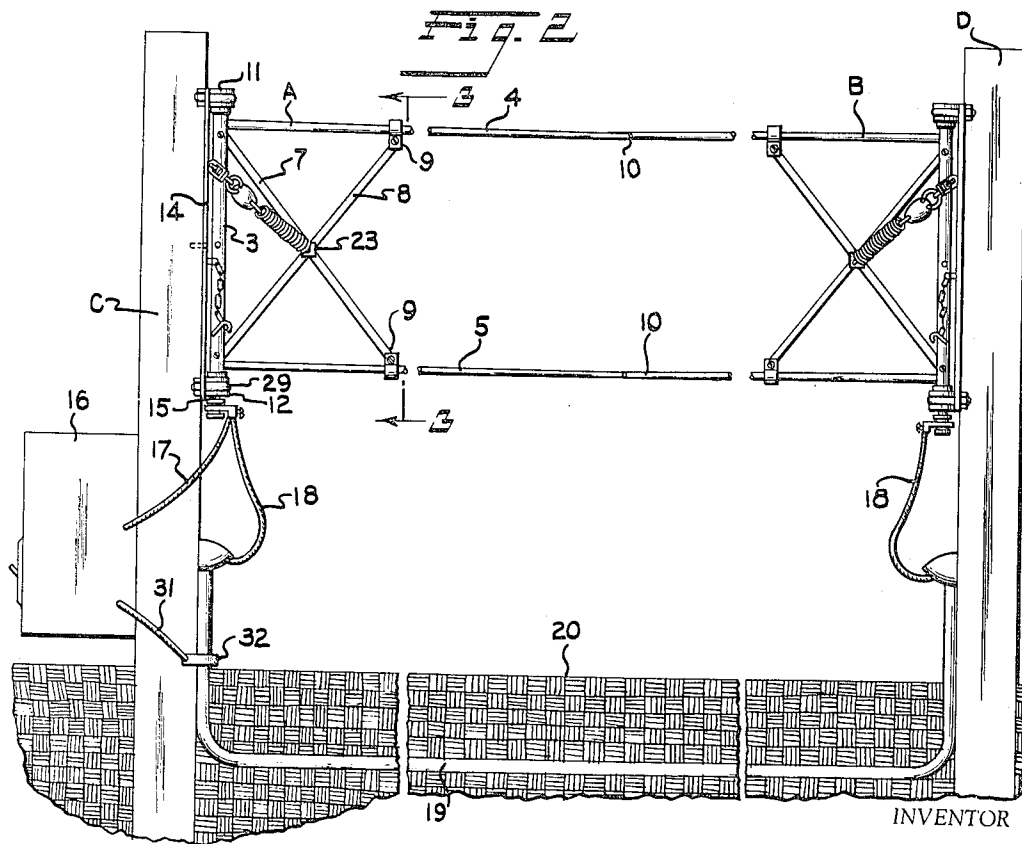
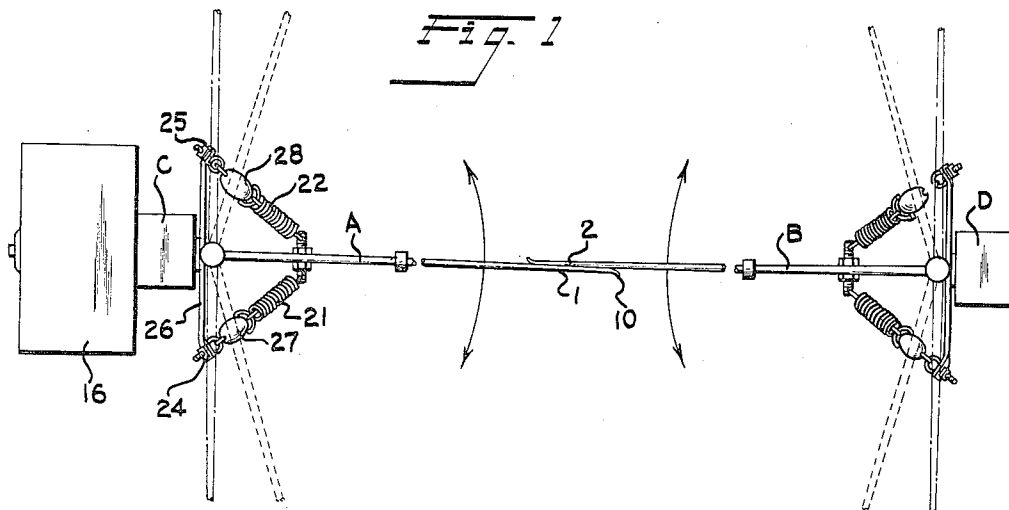
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FLEXIBLE BAR TYPE BUMP GATE

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2 Sheets-Sheet 1



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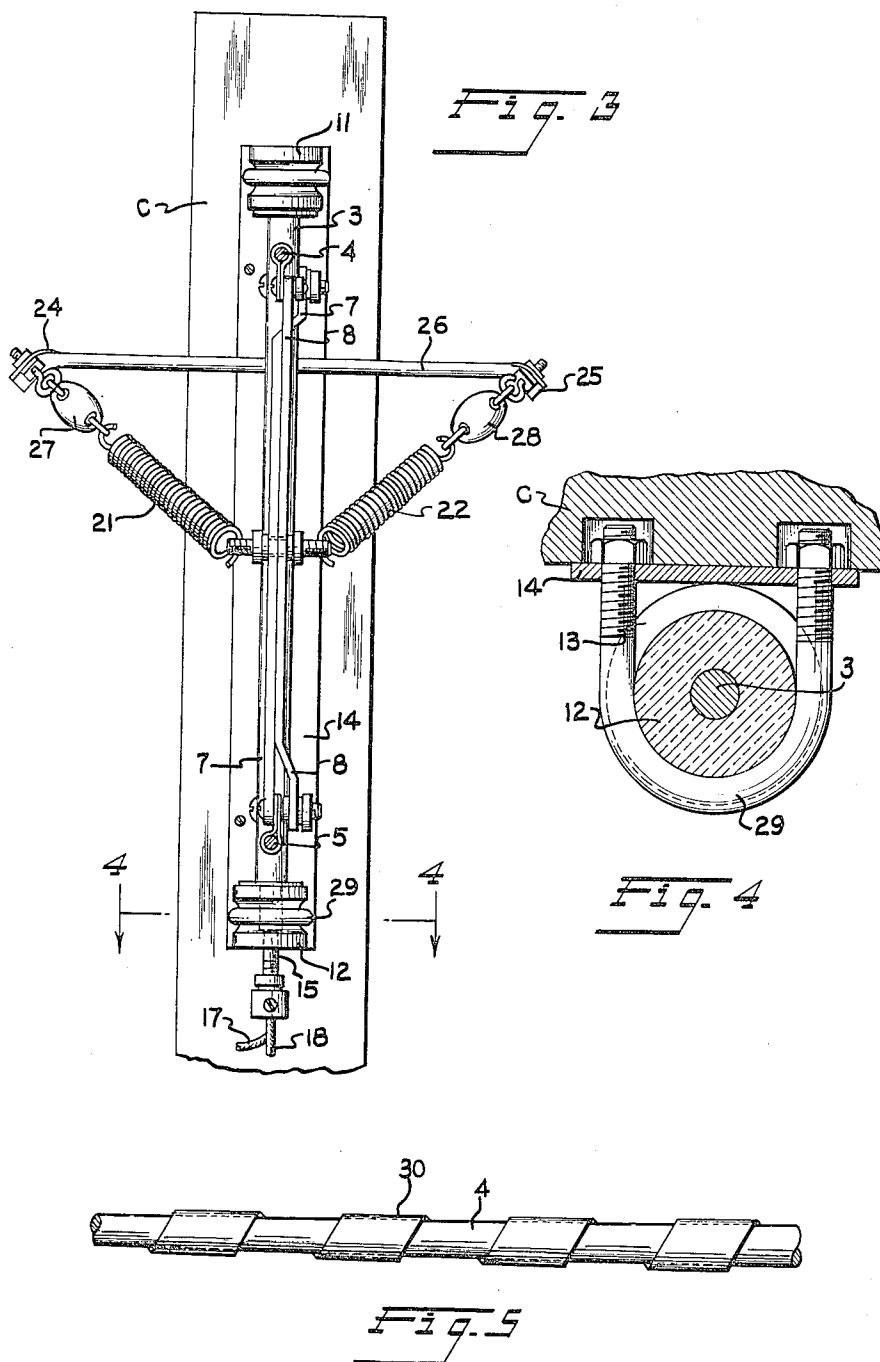
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FLEXIBLE BAR TYPE BUMP GATE

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4 Claims. (Cl. 39—84)

This case relates generally to gates and more specifically to an electrically charged gate which is adapted to be employed either as an independent unit or in cooperation with an electrically charged fence, such as is employed in rural sections to confine livestock within a certain area defined by the electrically charged fence enclosure.

Certain electrically charged gates of the prior art have been proposed which have required the stringing of wires on relatively high posts, disposed on opposite sides of the path or roadway traversed by the livestock, person or vehicle which passes through the gate. Such prior art structure of the twin gate type, have required that the posts be of a height that will permit the passage of a vehicle under a wire that is required to extend across the roadway between the tops of the respective posts disposed on opposite sides of the roadway. In such structures wires are strung down from the wire on top of the posts, to the respective twin gates to electrically charge the gates when in closed position through suitable contacts on each of the respective twin gates, to restore the electrically charged gate to normal operative condition.

One of the objects of this invention is to provide an electrically charged gate of the twin swinging-gate type, which is of simple, light weight but rugged construction and which may be readily mounted on relatively short posts or like supports and conveniently connected with the electrical charging unit in such manner as to overcome the objections of certain prior art structures hereinbefore referred to, so as to eliminate the necessity for the use of overhead wires suspended from high posts on opposite sides of the path or roadway across which the twin swinging gate structure is disposed.

A further object is to provide an electrically charged gate of the swinging-twin gate type to permit ready passage in either direction, the structure being such that each of the respective swinging gates are thoroughly insulated from a ground connection but yet are electrically charged in both an open and in a closed position.

A further object is to provide an electrically charged swinging gate structure in which the pivotal post and swinging gate are electrically charged for all positions of the gate when swung in either direction, but yet are insulated from a main base member through which the respective swinging twin gates are mounted upon relatively short posts, a minimum of wiring being exposed.

Still a further object is to provide a swinging gate structure for an electrically charged gate, in which a plurality of coiled springs cooperate with each one of the pivoted gates, and are so disposed as to automatically retain the gate in a normally central closed position irrespective of the direction in which the gate is displaced by a vehicle or thing passing therethrough, one end of each spring being connected to the electrically charged gate structure and the other end of said spring being connected to a mounting base support through an insulated section to prevent a ground connection.

A further object is to provide a swinging gate structure

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which for a section adjacent its point of pivotal support, is relatively rigid and is reinforced by crossed struts or bracing members, the outer end of the gate forming a plurality of spaced flexible members in parallel relation, extending outward from the first mentioned braced section, whereby the section of the gate beyond the braced section may be flexed by an object passing through the gate. Such a flexing of the electrically charged gate structure would contribute toward the formation of a good rubbing electrical contact with such object or livestock as may attempt passage through the gate. As is well known, the animal or object which contacts the electrically charged gate of fence is shocked by the circuit established to the ground through the animal or object.

One of the features of prime importance in contributing to the attainment of the above objects of this invention is the provision of insulator bearing supports at the upper and lower end of the vertical rod or post at one side of the gate, about which the gate swings in its pivotal movement, as such gate is displaced by an object passing therethrough.

One selected embodiment is illustrated in the accompanying drawings. It is understood however that certain changes and modifications of detail structure may be made, within the skill of the mechanic familiar with this art without departing from the scope of the invention as defined in the claims hereof.

Figure 1 is a top plan of a swinging twin gate structure as an independent unit, showing the electrical charging means mounted on one of the posts, and indicating the respective twin gates in open position by dotted line position, when the gates are swung in either direction.

Figure 2 is an elevation of the twin gate structure showing a ground portion in section, which illustrates the manner in which the electrical connections are made between the source of the electrical charging means, the twin gates, and the ground connection.

Figure 3 is an elevation, partly in section, taken on the line and looking in the direction of the arrows 3—3 of Figure 2, showing the manner in which the swinging gate is pivotally supported on the insulating bearings, and also shows the electrical connection with the vertical pivot post in said bearings; this view also shows the arrangement and disposition of the plurality of coiled springs and the insulator link, for yieldingly automatically maintaining the gate structure in a central position extending across the traveled passageway.

Figure 4 is an enlarged fragment partly in section through the insulating bearing and post, taken on the line and looking in the direction of the arrows 4—4 of Figure 3.

Figure 5 is a fragment of a portion of the flexible rod of the fence structure showing a tape wrapped thereon so as to leave the metal rod exposed between turns of the tape.

The swinging twin gates comprise a plurality of gate structures indicated generally as A and B which are of substantially identical structure, and mounted on suitable supports such as posts C, D, disposed on opposite sides of the road or passageway traversed by a vehicle, livestock or person, and across which the twin gate structures extend, in such a manner that the ends 1, 2 of the gates A, B respectively are in overlapping relation (see Figures 1 and 2) at the central portion of the passageway. By reason of the similar structure of the twin gates, it will suffice in the following detailed description to describe one of the gate structures, the means of mounting the same in order to be electrically charged for any position of the gate when moved in either direction, without the necessity for use of any exposed overhead wiring system extending across the passageway, and to describe the means for effecting the electrical connection

tions between the source of the electrical charge and the respective twin gate structures.

The main gate structure comprises a vertical pivotal metal post 3 and a plurality of flexible metal rods 4, 5 having one end suitably fixed in said post 3; the rods 4, 5 are spaced from each other, the rod 4 having one end secured in the upper end, and the rod 5 having one end secured near the lower end respectively of the vertical pivot post 3. The rods 4, 5 extend outward in parallel relation to a point just beyond the central portion of the passageway, so as to be preferably in overlapping relation with the twin gate structure extending from the post on the opposite side of the passageway. A relatively rigid section of the gate structure adjacent the vertical pivotal post 3 is provided by a truss like structure including a plurality of diagonally disposed intersecting bracing or strut members 7, 8 extending between the rods 4, 5 as shown in Figure 2. As shown, one end of the struts 7, 8 is secured in a suitable manner to the rods 5, 4 respectively, at a point such as 9 spaced from the pivot post 3 a distance sufficient to provide a reinforcing rigid portion for the rods 4, 5 of gate structure. The other end of the struts 7, 8 is shown as being fixed in vertical pivot post 3, at points adjacent the rods 4, 5 where such rods are fixed in said post 3. The portions of the rods 4, 5 extending from the point 9, at the outer end of the rigid portion, outward to the end 10 of said rods 4, 5, are tapered (Figs. 1 and 2) to provide a flexible portion of the gate structure, whereby such flexible portion of the passageway, whereby such flexible portion may be deflected and form a rubbing contact with objects in contact therewith or passing therethrough. Such a rubbing flexing portion contributes toward the formation of an effective electrical contact with the object or animal in contact therewith, so as to facilitate an effective ground shocking connection.

The gate structure is pivotally supported to permit swinging of the gate in either direction. As shown insulating bearings 11, 12 are disposed at the upper and lower ends respectively of the vertical pivot post 3 (see Figures 2, 3 and 4). As shown more clearly in Figure 4, showing an enlarged section of the insulator bearing 12, a groove 13, is disposed in the outer surface of said insulator bearing 12 which receives the U bolt 29 by means of which the gate structure is mounted on a vertically disposed base plate 14 which in turn is mounted by any suitable securing means on the post C or other suitable support.

An electrical contact post 15 is formed as an extension of the vertical pivotal post 3, said contact post 15 extending from the lower end of said post 3, and disposed below the lower insulator bearing 12.

An electrical charge is placed on the gate structure from a means 16 providing a source of electrical charge which may be the conventional and well known transformer means for providing the high potential charge for the gate structure. The charge is conducted to the gate structure by a conductor 17 from the source of electrical charge 16 to the contact post 15 formed as an extension of the pivot post 3. An electrical charge may be placed on the second twin gate through a conductor 18 which is carried through a high voltage insulated cable 19 placed in galvanized conduit below the ground 20 forming the passageway across which the twin gates extend.

A suitable ground connection for the means 16 providing the source of electrical charge, is provided by a grounded conductor 31 leading to a grounded connection 32 on galvanized conduit.

In order to provide automatically for a means for resiliently or yieldingly maintaining the twin gate structure in a central position extending across the road or passageway, a plurality of coiled springs 21, 22 are provided, one end of each of said springs being secured in any suitable manner to opposite sides of the gate struc-

ture at the point of intersection 23 of the struts 7, 8 (see Figures 2 and 3). The other end of the springs 21, 22 are secured to opposite ends 24, 25 of a strut 26 which is secured in any suitable manner to the base plate 14 (see Figures 1, 2 and 3). In order to maintain the electric charge upon the gate structure, insulator links 27, 28 are disposed in the connection between the ends of the springs 21, 22 respectively and the connection with the ends 24, 25 respectively of the strut 26.

The flexible ends of the rods 4, 5 may be wrapped with tape 30 so as to leave exposed metal 4 of the rods between turns of the tape. (See Figure 5). Such an arrangement provides cushioning of the rods to prevent marring or scratching of vehicle passing through gate. An on and off switch is provided at the source of electrical charge 16 to control said electrical charge when the gate is to be manually manipulated. A pin is provided to be inserted in the pivotal post to lock gate in an open position in either direction.

I claim:

1. An electrically charged gate structure comprising a support member, a cantilever whip-like gate rod having one end free and one end pivotally mounted upon said support member for swinging of the free end of said rod in a horizontal plane, said rod being tapered lengthwise from a point adjacent its pivotal connection to its free end, the mass of said rod decreasing and its flexibility increasing from a point adjacent its pivotal connection to its free end, whereby said rod may be struck by a rapidly moving vehicle to both pivot and flex the rod to an open position to permit passage of the vehicle, means connected to said support member and said rod biasing said rod to a closed position after the vehicle has passed therethrough, and means for supplying an electric charge to said rod.

2. An electrically charged gate structure as defined in claim 1 wherein said biasing means includes a pair of coiled springs.

3. An electrically charged gate structure comprising a pair of spaced supporting members, cantilever whip-like gate rods each having one end pivotally mounted upon each of said support members for swinging in a horizontal plane and having its other end free and extending toward the opposite support member when the gate structure is in closed position, each of said rods being tapered lengthwise from a point adjacent its pivotal connection to its free end, the mass of each of said rods decreasing and its flexibility increasing from a point adjacent its pivotal connection to its free end, whereby said rods may be struck by a rapidly moving vehicle to both pivot and flex the rods to an open position to permit passage of the vehicle, means connected to said support members and said rods biasing said rods to a closed position after the vehicle has passed therethrough, and means for supplying an electric charge to said rods.

4. An electrically charged gate structure including, a pair of spaced supporting members, a cantilever whip-like gate element pivotally mounted upon each of the support members and extending toward the opposite support member when the gate structure is in closed position, the gate elements including inner substantially rigid portions adjacent the supporting members joined by outer flexible end portions which overlap when the gate structure is in closed position, said gate elements being tapered lengthwise from their rigid portions to their outer flexible end portions, a transverse supporting element carried by each of the supporting members and projecting laterally therefrom to each side of the gate elements, coiled springs extending upwardly and outwardly from both sides of each inner section of each gate element at points spaced from the axis of rotation of the gate elements to the outer ends of the supporting elements whereby each gate element is restrained against swinging in either direction upon its

supporting member, and means for supplying an electric charge to the flexible sections of the gate elements.

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