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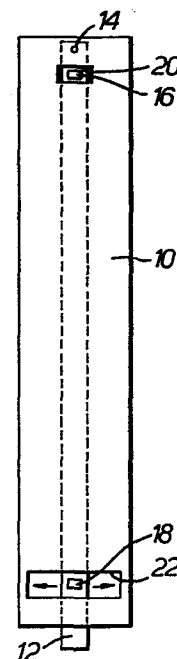
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⑤④ **Automatic or manually opening gate.**

⑤⑦ A gate, door or the like characterised by one fixed position hinge (16) and a second hinge (18) which is movable to incline the hinge axis of the gate or door to bias the gate or door to swing on its hinge axis to an open and/or closed position.



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"AUTOMATIC OR MANUALLY OPENING GATE"FIELD OF THE INVENTION

This invention relates to an automatic or manual or an automatic/manual opening gate, door, window
5 or the like.

BACKGROUND

The prior art is replete with arrangements for the automatic opening of gates, doors and windows and it is an object of the present invention to provide an
10 arrangement which is simpler than the prior art arrangements to manufacture, will have a long life and which can be adapted to be easily operated by a variety of devices.

THE INVENTION

15 The present invention is a gate, door or the like characterised by one fixed position hinge and a second hinge which is movable to incline the hinge axis of the gate or door to bias the gate or door to swing on its hinge axis to an open and/or closed position.

20 Preferably the said second hinge is movable between a first position in which the weight of the gate biases the gate to move to an open position and a second position in which the weight of the gate biases the gate to move to a closed position.

25 The second hinge may be positioned below said

fixed hinge position.

In an important aspect of the invention the two positions of the second hinge are located in an imaginary line at 45° to the planes of the gate in its
5 closed and open position, assuming a 90° opening.

The second hinge may be moved from one position to another by a variety of means.

In one example of the invention the latch of the gate is automatically disengaged as the second hinge
10 is moved to its opening biased position. Alternatively a mechanism may be provided which, when actuated, moves the hinge to its opening biased position as well as releasing the catch or other fastening means.

It will be appreciated that whatever means are
15 provided to move the hinge from one position to another and back again, such means may be remotely controlled. However, one of the features of the present invention provides that the gate or the like can also be openable or closable manually since the gate is freely rotatable
20 on its hinges, thus avoiding the problem usually associated with automatically opening gates that can only be operated by the automatic means. Where such automatic means involve coded signals, such as electrical or radio impulses, it is impossible for anyone other than the
25 bearer of the coded signals to open the gate.

The means to move the second hinge may be electrical, the current being supplied by a battery which is chargeable by solar energy. Such battery may be included in the post carrying the hinges.

5 The hinges may both have stop members and may be connected with a torsion bar to arrest too violent an opening or closing movement.

 The second hinge may be located on a pendulum arrangement the two positions thereof being dictated by
10 the extremes of its swing. The pendulum may have a slot acted on by an eccentric member driven by a motor which derives its power from the current supplied by a battery as discussed above.

 It may be a matter of choice as to whether the
15 second hinge is located in its opening or closing biased position when the gate is in its closed position. This will depend on the mechanism chosen to move the hinge from one position to the other.

EMBODIMENT OF THE INVENTION

20 Embodiments of the invention will now be described by way of example with reference to the accompanying drawings where:-

 Figure 1 is a front elevation of a gate post;

 Figure 2 is a side elevation of the gate post
25 shown in Figure 1;

Figure 3 is an isometric view of a gate on the post of Figures 1 and 2;

Figure 4 is a plan view of the gate assembly; and

5 Figure 5 is an isometric view of a double gate.

Referring to the drawings a gate post 10 of rectangular section houses a hinged member 12 pivoting about hinge point 14.

Attached to the hinged member 12 are the top 10 gate hinge 16 and the lower gate hinge 18 which protrude from the gate post through two slots 20 and 22 respectively. As can be seen from Figure 2 the top gate hinge 16 protrudes further than the lower gate hinge 18.

Referring to Figure 3, it can be seen that the 15 centre of gravity of the gate 24 may be biased to either open or close the gate by moving the hinged member as indicated by the arrows. Movement of the member 12 to the right (or away from the viewer) inclines the hinge axis and causes the gate 24 to be biased to swing 20 clockwise as seen from above (or towards the viewer).

It should be noted from Figure 2 that the centre line of the hinges in the other vertical plane is inclined toward the gate to enhance the required bias when the hinged member is moved. It will be noted that 25 although the hinge centre line is inclined, the gate

itself extends substantially horizontally from the hinge when in a stable i.e. unbiased position.

Figure 4 shows a plan view of the gate assembly and how the gate post 10 is preferably mounted relative to the open and closed positions of the gate. It can be seen the two positions of the lower hinge are located in an imaginary line at 45° to the planes of the gate in its open and closed positions, a 90° opening being assumed. A torsion bar 26 as shown in Figure 3 may connect the two hinges whereby tension may be applied to dampen the gate movement if required.

It will be appreciated that the present invention may be applied to double gates such as driveway gates. This is shown in Figure 5 where the motor actuator 28 operates a push rod and lever mechanism 30 which alters the bias on the hinges to open the gate. It should be noted that the lower hinges move through an arc when the mechanism 30 is actuated and this has the effect of initially lifting the two gates clear of a spring catch 32 which automatically engages the gates in the closed position. When the gates are in the open position, actuation of the mechanism 30 causes a similar initial lifting of the gates which may be similarly used to unlatch the gates from latches which engage them in the open position.

Alternatively the gates may be unlatched by the mechanism 30 triggering the catch at the same time as it moves the lower hinges.

Many modifications may be made to the
5 embodiments described. Clearly the top hinge may be the movable hinge instead of the bottom one or indeed both hinges may be made movable. The actuator used may be responsive to any suitable form of remote actuation and may be a rotary actuator acting directly on the movable
10 hinge rather than a linear actuator, as described, acting on the hinge through a linkage. The bearings themselves are desirably self-aligning and, at least in the case of the fixed hinge also thrust bearings.

CLAIMS:

1. A gate, door or the like characterised by one fixed position hinge and a second hinge which is movable to incline the hinge axis of the gate or door to bias the gate or door to swing on its
5 hinge axis to an open and/or closed position.

2. A gate, door or the like as claimed in claim 1 in which the said second hinge is movable between a first position in which the weight of the gate biases the gate to move to an open position
10 and a second position in which the weight of the gate biases the gate to move to a closed position.

3. A gate, door or the like as claimed in claim 2 in which said second hinge is movable from its first position towards its second position
15 initially to bodily raise and thereby unlatch the gate and vice versa.

4. A gate, door or the like as claimed in any preceding claim in which said second hinge is positioned below said fixed position hinge.

20 5. A gate, door or the like as claimed in any preceding claim in which the two positions of the second hinge are located in an imaginary

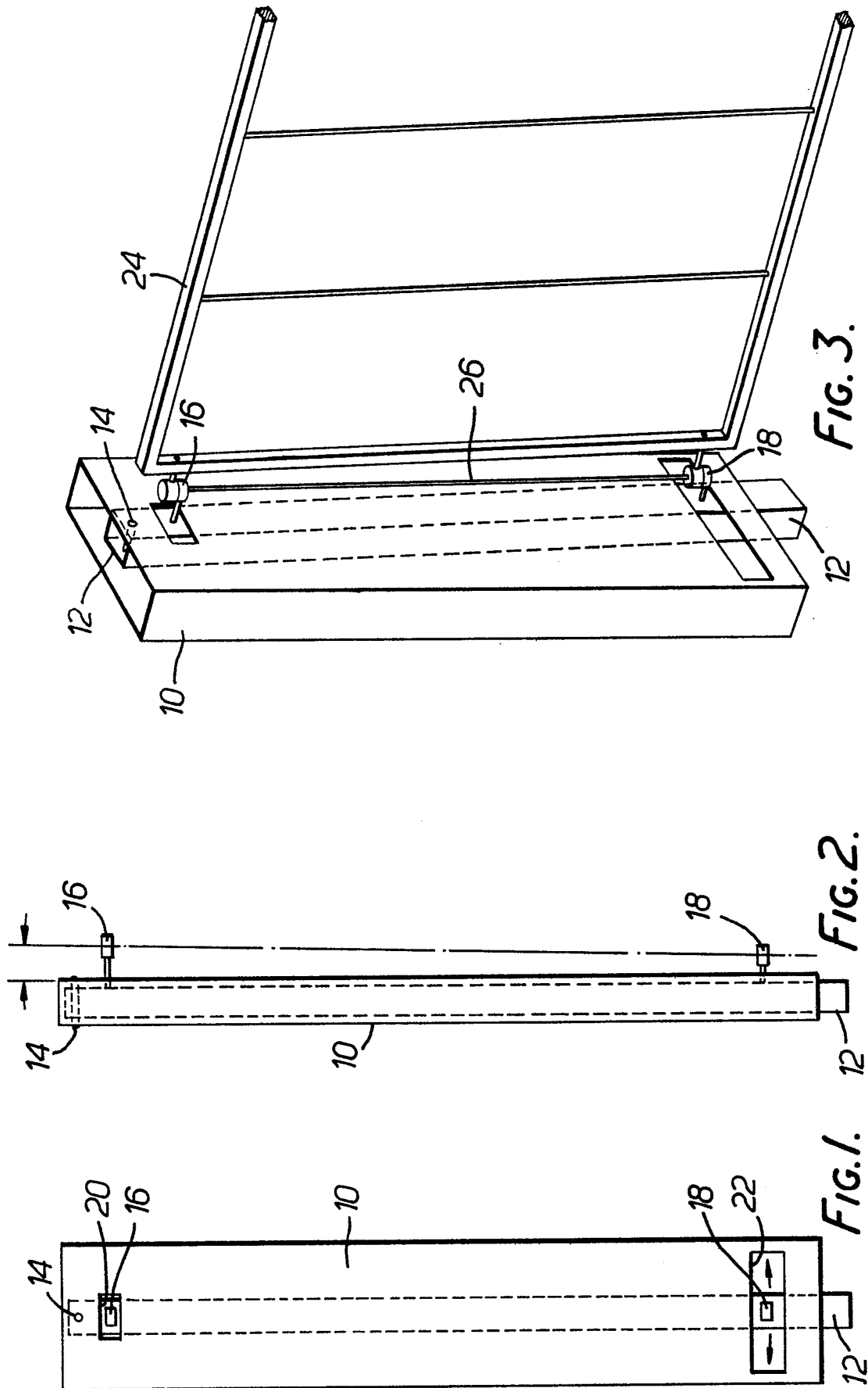
line at 45° to the planes of the gate in its closed and open position, assuming a 90° opening.

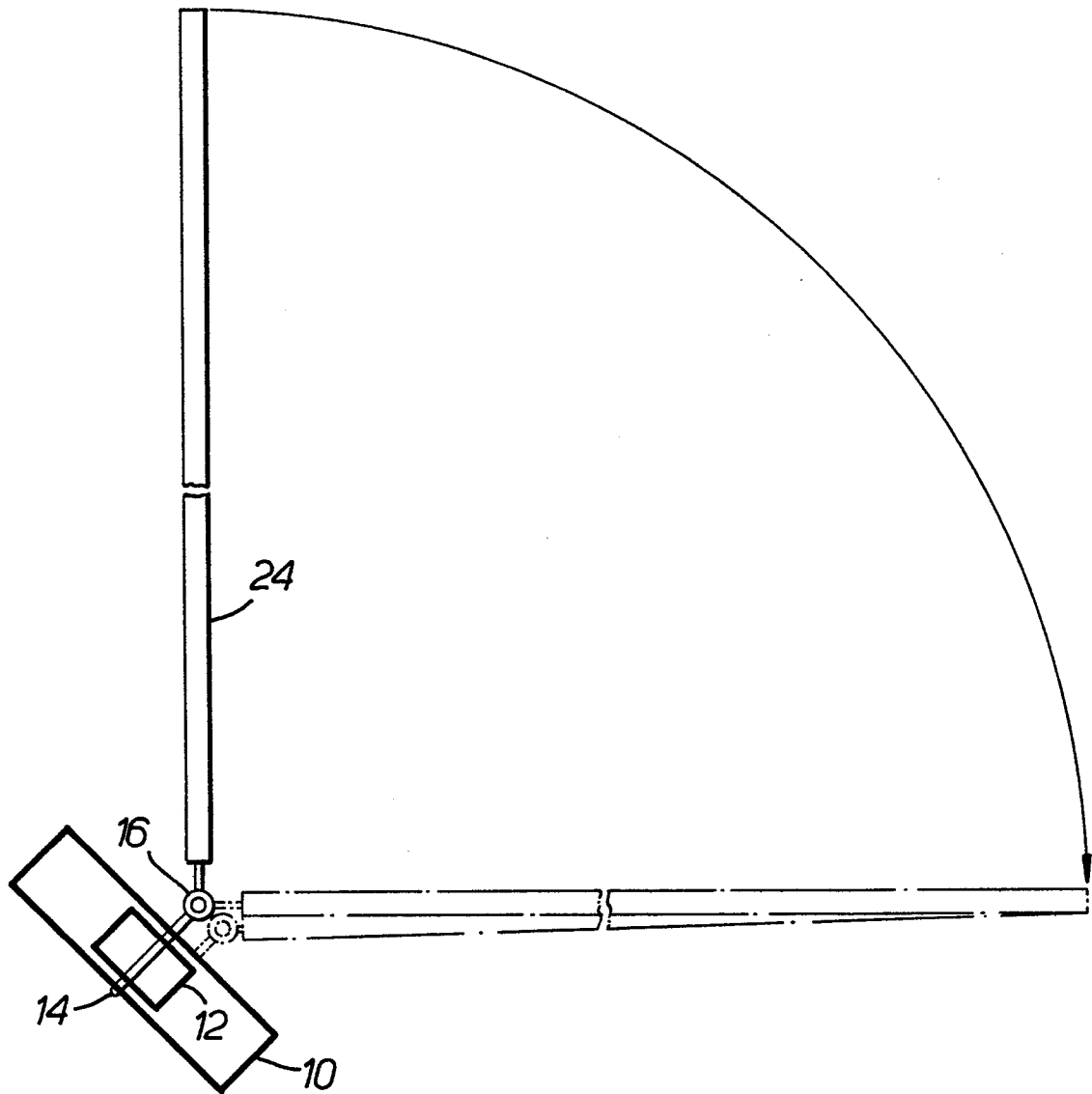
6. A gate, door or the like as claimed in claim 1 in which a latch of the gate is connected
5 to the second hinge in such a manner that as the latch is released it moves the second hinge to bias the gate to open or close.

7. A gate, door or the like as claimed in claim 1 in which mechanism for moving the second
10 hinge to bias the gate to open or to close releases a latch retaining the gate in its closed or open position.

8. A gate, door or the like as claimed in any preceding claim including a linearly operable
15 actuator for moving the second hinge between its first and second positions.

9. A gate, door or the like as claimed in any of claims 1 to 7 including a rotary actuator for rotating the second hinge between its first
20 and second positions.



*FIG. 4.*

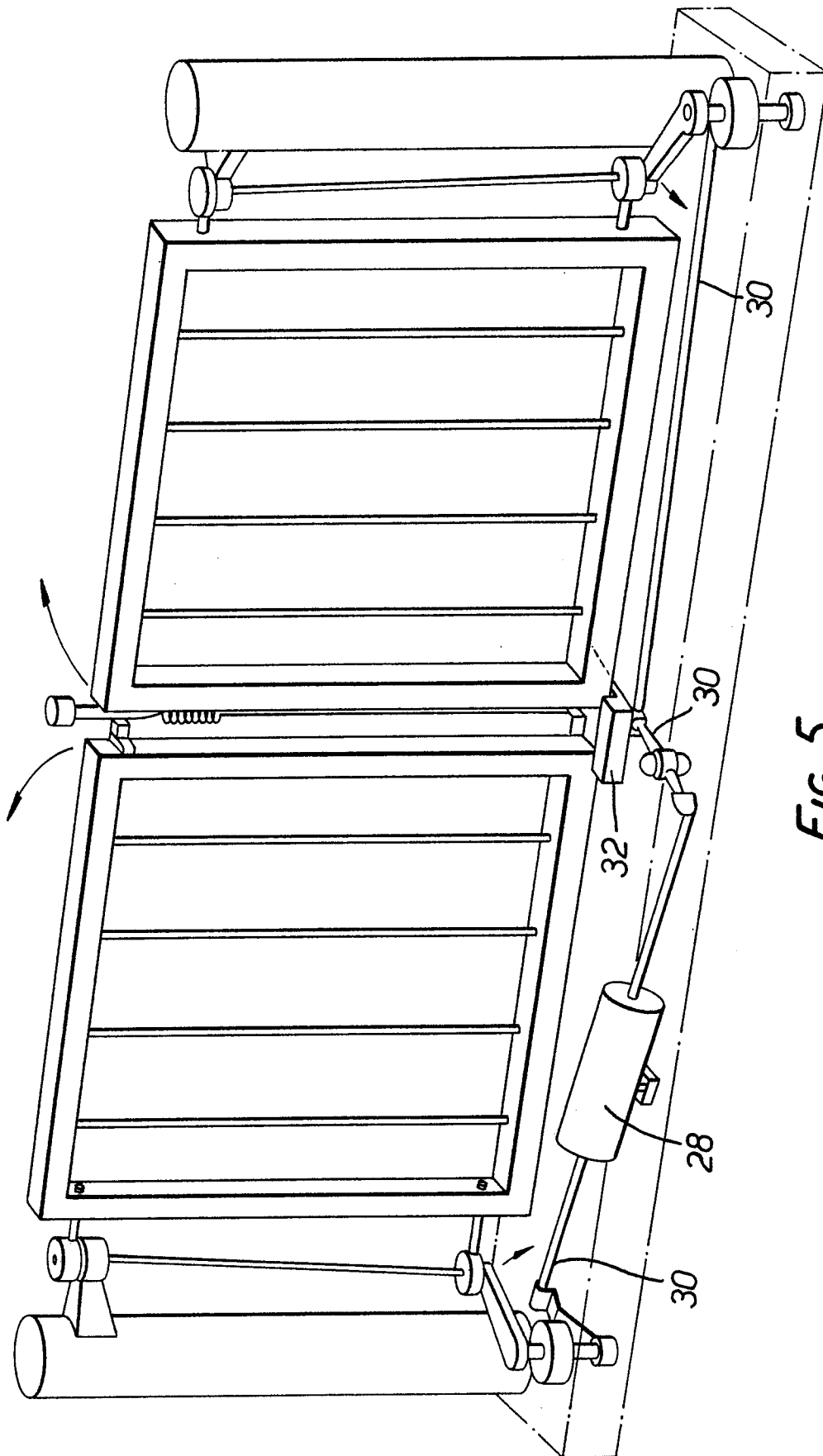


FIG. 5.