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PATENTED DEC. 13, 1904.

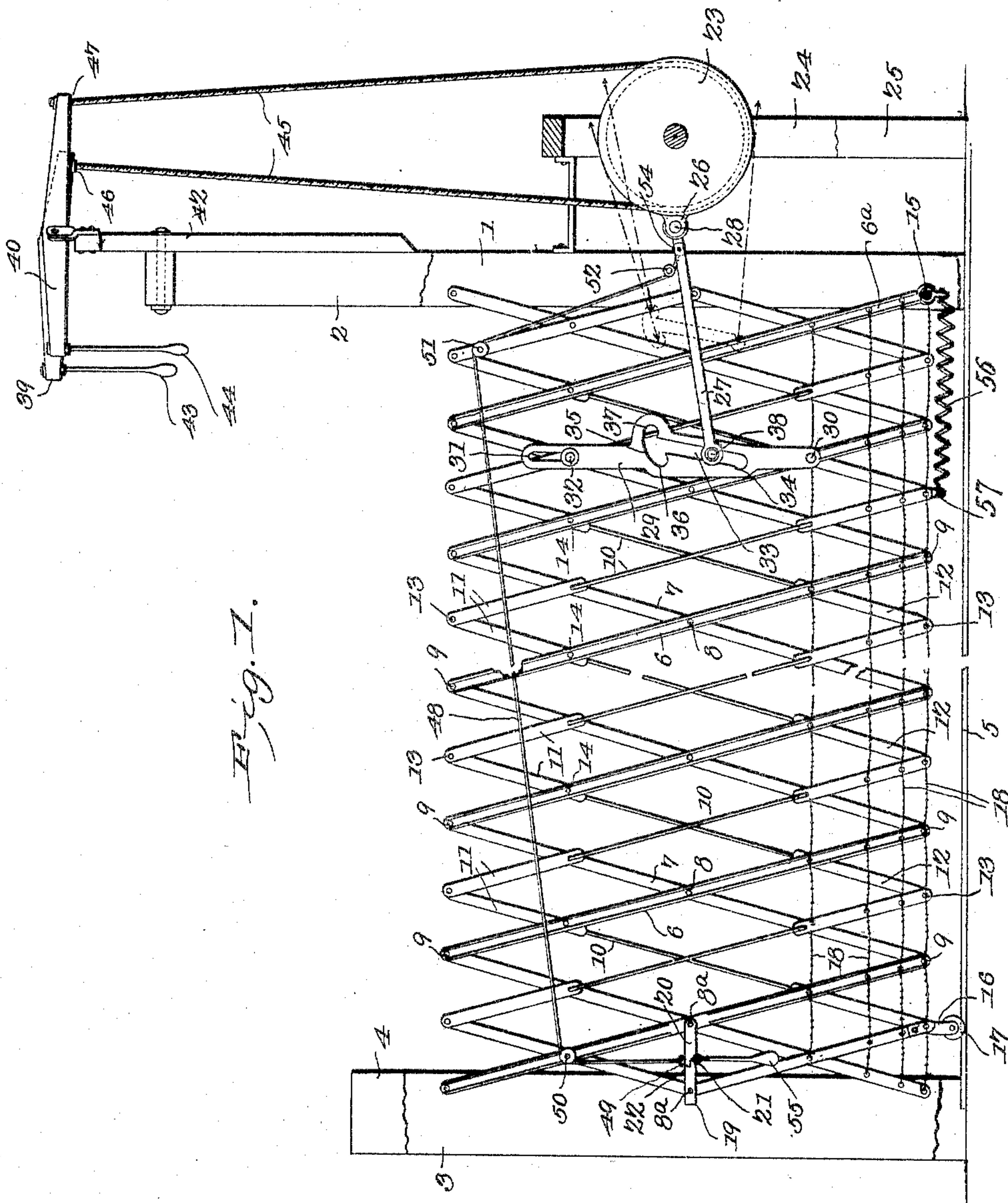
A. D. ACERS.

GATE.

APPLICATION FILED SEPT. 16, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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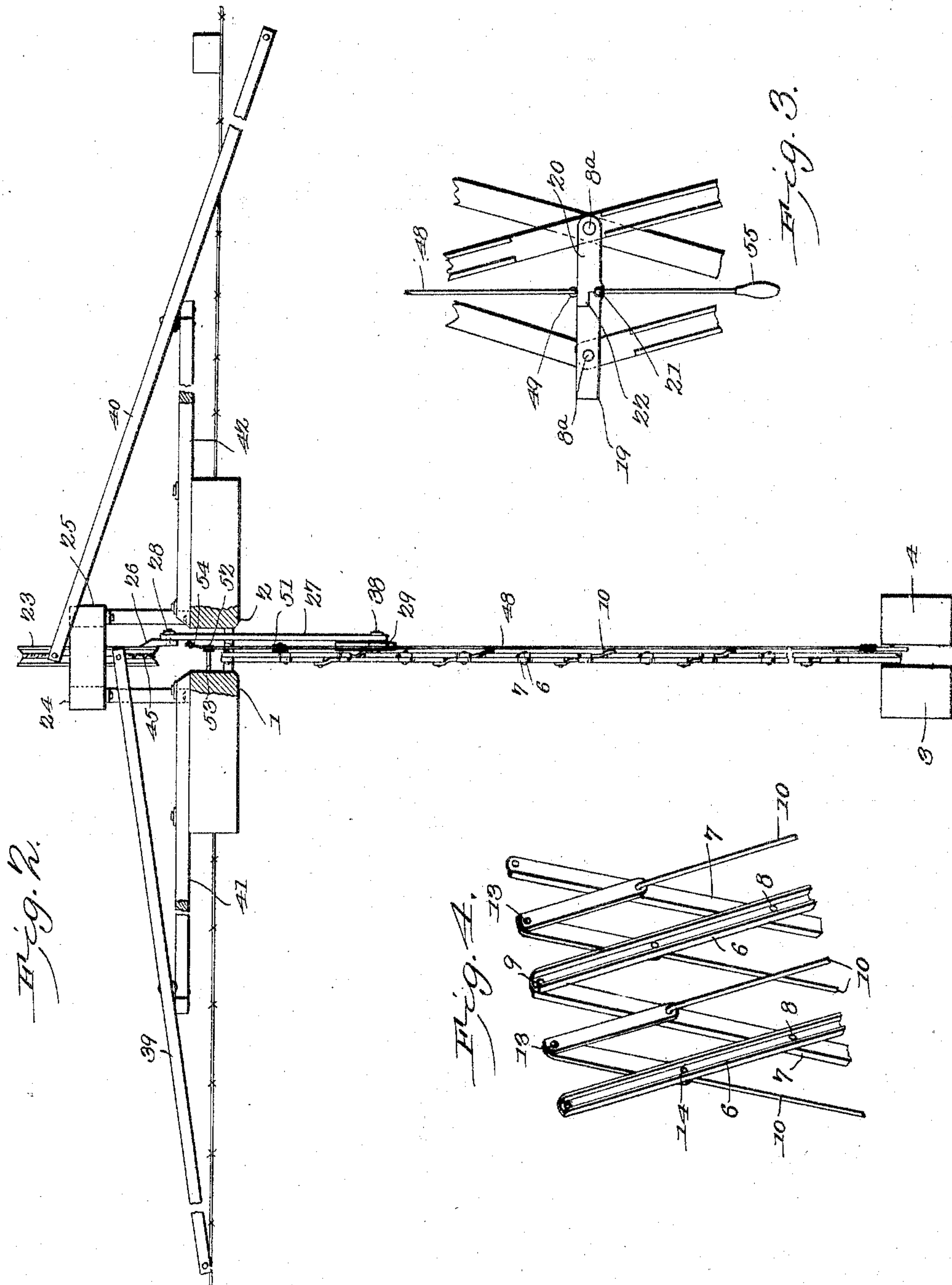
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ARTHUR DAVID ACERS, OF NORMAN, OKLAHOMA TERRITORY.

GATE.

SPECIFICATION forming part of Letters Patent No. 777,236, dated December 13, 1904.

Application filed September 16, 1904. Serial No. 224,706. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR DAVID ACERS, a citizen of the United States, residing at Norman, in the county of Cleveland and Territory of Oklahoma, have invented a new and useful Gate, of which the following is a specification.

This invention relates to gates, and is designed to provide an improved collapsible gate capable of being readily folded into open position and extended into closed position and also especially adapted for use upon roadways.

Another object of the invention is to provide for conveniently opening and closing the gate without requiring that the operator dismount and at the same time to effect a locking of the gate, so as to prevent accidental opening thereof.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation showing the gate of the present invention, parts being broken away to disclose the means for opening and closing the gate. Fig. 2 is a top plan view thereof. Fig. 3 is a detail view of the latch. Fig. 4 is a fragmentary perspective view illustrating a detail in the construction of the collapsible gate.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

In carrying out the present invention a pair of spaced hinge-posts 1 and 2 are erected at one side of the roadway, and a pair of shorter spaced latch-posts 3 and 4 are erected at the opposite side of the roadway, and a metal track 5 is laid across the roadway in alignment with the spaces between the respective pair of posts, so as to guide the gate when being collapsed and extended.

The gate proper is of a lazy-tong construc-

tion and consists of pairs of angle or channel bars 6 and 7, which are crossed at their middles and pivotally connected at their points of crossing, as indicated at 8, with their extremities pivotally connected, as at 9, to the corresponding extremities of the opposite members of the adjacent pairs of members. Alternating with the bar members are rod or wire members 10, which are connected to the inner ends of upper and lower flat links 11 and 12, the adjacent links being converged outwardly and pivotally connected, as at 13. Each of these links crosses the adjacent bar and is pivotally connected thereto by a pivot 14, which is formed by bending the adjacent end of the rod or wire 10 transversely and passing the same through the link and the bar, thereby forming a connection between the link and the wire and also a pivotal connection between the link and the adjacent bar. It will here be noted that the links are disposed alternately at opposite sides of the bars, so as to insure a flat folding of the gate. By alternating the rods or wires with the channel or angle bars the weight of the gate is materially reduced, while its strength is preserved, which is an important feature of this invention. The downwardly and rearwardly inclined innermost bar 6^a is pivotally supported at its lower end upon a pivot-pin or cross-bar 15, extending between the hinge-posts 1 and 2, while one of the forward bars or links is provided at its lower end with a bracket 16, carrying a grooved roller 17, which is mounted to travel upon the track 5, and thereby support and guide the gate when being collapsed and extended.

A series of substantially parallel chains or cables 18 are stretched from end to end of the gate at the lower portion thereof and hung from the several pivotal connections of the bar members so as to obstruct the open spaces between said bar members when the gate is extended and closed, thereby to prevent poultry and small stock from passing through the gate, said chains or flexible devices of course sagging downwardly when the gate is collapsed and opened, so as not to interfere with the opening and closing of the gate.

The hinge-posts and the latch-posts are set

at such a distance as to permit the outer or forward end of the gate to enter between the latch-posts in the extended position of the gate, so as to support the latter against lateral strains, as clearly indicated in Fig. 2 of the drawings.

To lock the gate in its extended and closed position, it is merely necessary to render the lazy-tong construction rigid, and this is accomplished by means of a latch consisting of a pair of members 19 and 20, which are pivotally connected, as at 8^a, at their outer ends to the intermediate pivotal connections of adjacent bar members of the gate, preferably at the forward end of the gate. These latch bars or members are connected at their inner ends by a hinge 21, located at the lower sides of the members, the inner opposite ends of the members having a lap-joint 22, which prevents downward breaking of the hinge, but permits of upward breaking thereof. When the latch members are in longitudinal alignment, the pivotal connections 8^a are held against movement toward and away from one another, thereby rendering the entire lazy-tong construction of the gate rigid, and the gate will thereby be latched or locked in its closed and extended condition. By breaking the hinge-joint upward, the pivotal connections 8^a will be free to approach one another and the entire gate structure thereby rendered flexible and capable of being collapsed into its open position. It will here be explained that it is not necessary to positively interlock the gate with the latch-posts for the reason that the gate does not swing, and therefore the gate is locked when rendered rigid, the forward end of the gate, however, being projected between the latch-posts, so as to brace the gate and prevent breaking of its pivotal support 15 by lateral pressure against the gate, which may be occasioned by stock and the wind.

For convenience in collapsing and extending the gate a drum or pulley 23 is mounted in a vertical position between a pair of short posts 24 and 25, erected in rear of the hinge-posts 1 and 2. Upon one side of this drum or pulley is a crank-arm 26, normally directed toward the gate and having a pitman or connecting-rod 27 pivotally connected thereto, as at 28. Carried upon one side of the gate is an upright cross-head 29, which has its lower end supported, as at 30, upon one of the pivot-joints of the gate and has its upper end provided with a longitudinal slot 31, receiving a guide 32, extending from the adjacent pivot-joint of the gate, so as to accommodate the rise and fall of said pivot during the collapsing and extending of the gate. An upright longitudinal slot 33 is formed in the intermediate portion of the cross-head and set at a slight inclination to the vertical, the lower end of the slot being extended slightly in a forward direction, as at 34, to form a seat

or socket, there being a transverse slot or enlargement 35 intersecting the top of the main slot 33 and producing a seat or socket 36 at the forward side of the main slot and below a similar seat or socket 37 at the rear of the main slot. The forward free end of the arm 27 is provided with a guide-pin 38, having an antifriction-roller working in the slotted portion of the cross-head, so that when the drum or pulley 23 is rotated and the arm 27 thereby shifted back and forth the cross-head 29 will likewise be shifted back and forth, carrying the gate therewith, so as to collapse and extend the same.

In order that the drum or pulley 23 may be conveniently rotated, substantially horizontal controlling-levers 39 and 40 are fulcrumed intermediate of their ends upon arms 41 and 42, respectively, projected upwardly from the hinge-posts 1 and 2 and provided at their outer ends with pendent handles 43 and 44. Each of these levers is set obliquely across the roadway, so as to have its outer end overhanging the roadway in position to be grasped by a traveler without dismounting, while its inner end overhangs the drum or pulley 23. A cable 45 embraces the drum and has its opposite ends connected to the inner ends of the respective levers, as at 46 and 47, whereby manipulation of the respective levers will rotate the drum in opposite directions, thereby to open and close the gate.

In explanation of the operation of the cross-head if the drum 23 be rotated to elevate the crank-arm 26 the pin 38 will travel upwardly in the slot 33 until it becomes engaged with the seat 37, whereupon the gate will become collapsed, and thereby opened. With the gate in its open position and the pin 38 in the seat 37 upon the reversing movement of the drum 23 the arm 27 will be moved forwardly and the pin 38 shifted into the front socket 36, whereby the push of the arm 27 will be transferred to the gate and the latter will thereby be extended, and thus closed. The gate being closed and the pin 38 in the socket 36, if the drum 23 is rotated so as to swing the crank-arm 28 downwardly the pin 38 will be pulled out of the socket 36 and then will drop down through the slot 33 to the bottom thereof, when the rearward movement of the arm 27 will collapse, and thereby open the gate. With the crank-arm 28 at the bottom of the drum and the latter being rotated to swing the crank forwardly and upwardly the pin 38 being in the bottom of the slot 33 will be pressed forwardly into the socket 34 and the gate thereby pushed to extend and close the same.

By reason of the fact that the gate is normally rendered rigid by the latch it is necessary to release said latch to permit the gate to be collapsed, and this is automatically accomplished in the following manner: A flexible connection 48—such, for instance, as a wire

or cable—is connected, as at 49, to the inner end of the rear latch member 20, from which it extends upwardly and over a guide-pulley 50, carried by the upper pivotal connection of the adjacent gate-bars. From the pulley 50 the connection 48 extends rearwardly and over a pulley 51 upon the upper rear portion of the gate, from which it depends and passes beneath a guide-pulley 52, carried by a bracket 53, mounted upon one of the hinge-posts, the lower extremity of the connection being fastened to the arm 47, as at 54. By this arrangement when the arm 27 is moved upwardly to open the gate the rear end of the connection 48 will be drawn upwardly, which results in a rearward pull upon the major portion of the connection and a consequent upward breaking of the hinge-joint of the latch, so as to render the gate flexible and capable of being collapsed. When the arm 27 is moved downwardly to open the gate, a rearward pull is imparted to the connection 48, and the latch is thereby released. A suitable weight 55 is hung from one of the members of the latch, so as to draw the latch members to their locked position when the connection 48 is slackened during the closing of the gate. It will here be noted that the latch may be manually released by a pedestrian without manipulating one of the controlling-levers and the gate slightly collapsed, so as to afford a passageway between the forward end of the gate and the latch-post sufficient to permit of the pedestrian passing therethrough.

It will be understood that the momentum gathered by the gate in closing is considerable, and to prevent damage to the gate and the actuating means it is proposed to cushion the gate by means of a helical spring 56, located beneath the gate, with one end engaged with the pivot pin or support 15 of the gate and its opposite end engaged with one of the bottom joints of the gate, as indicated at 57. When the gate is open, this spring is not under tension; but when the gate is closed it is stretched, and thereby under tension, the effect of the spring being to cushion the gate and prevent damage thereto during the final stage of the closing thereof. When the gate is closed and in its extended condition, the latch of course maintains the lazy-tong structure rigid, so as to prevent collapsing and opening thereof by the spring. As the spring is under tension when the gate is closed, it operates to assist in collapsing and opening the gate when the latch is released by the gate-actuating means.

Having fully described the invention, what is claimed is—

1. A collapsible gate including a lazy-tong frame structure and a vertical series of cables extending longitudinally of the gate across the lower portion thereof to close the openings in the frame and prevent the passage of poultry and small stock therethrough.

2. A collapsible gate having a lazy-tong frame structure including crossed rigid frame-bars pivotally connected at their points of crossing and terminally pivoted to adjacent rigid frame-bars, outwardly-converged flat links pivotally connected at their outer ends and disposed between the ends of the crossed frame-bars, and rods extending between corresponding upper and lower links with their ends formed into pivotal connections piercing the links and the adjacent rigid frame-bars.

3. A collapsible gate having a lazy-tong frame structure and including a latch to render the frame rigid when extended, said latch consisting of two members having their outer ends pivotally supported upon pivotal connections of the frame structure with their inner ends connected by a hinged joint which is breakable in one direction only.

4. A collapsible gate having a lazy-tong frame structure and latch members pivotally supported upon adjacent pivotal connections of the frame structure and having a hinged connection capable of being broken in one direction only.

5. In a gate, the combination of a collapsible frame structure, an upright cross-head carried by the gate and provided with an upright slot having front and rear sockets at the upper end thereof, and a throw-bar having a pin working in the slot and capable of alternate engagement with the seats or sockets thereof.

6. In a gate, the combination of a collapsible frame structure, an upright cross-head having one end supported upon a pivotal connection of the gate and its opposite end provided with a longitudinal slot receiving another pivotal connection of the gate, the intermediate portion of the cross-head being provided with an upright slot having front and rear seats or sockets at the upper end thereof, and a throw-bar having a pin working in the slot and capable of alternate engagement with the seats or sockets.

7. In a gate, the combination of a collapsible frame structure, a drum mounted independently of the gate, a throw-bar extending between the drum and the gate, a cable engaged with the drum, and controlling-levers connected to opposite portions of the cable.

8. In a gate, the combination of a collapsible frame structure, a latch therefor, a vertically-swinging horizontally-reciprocatory throw-bar connected to the gate, a guide carried by the gate, another guide independent of the gate, and a flexible connection engaged with the latch and the guides and also connected to the throw-bar.

9. In a gate, the combination with a gate-post, of a collapsible frame structure, a vertically-swinging horizontally-reciprocatory throw-bar connected to the gate and mounted to work past the gate-post, a latch upon the gate, a guide upon the gate, another guide upon the gate-post, and a flexible connection

engaged with the latch and the guides and also connected to the throw-bar.

10. In a gate, the combination with a gate-
5 post, of a lazy-tong frame structure connected
members carried by the gate and having a
hinged connection capable of breaking in one
direction only, an upright cross-head carried
by the gate and provided with an upright slot,
10 a crank mounted independently of the gate, a
throw-bar connected to the crank and having
a pin working in the slot of the cross-head,
means to swing the crank in opposite direc-
tions, guides upon the front and rear portion
15 of the gate, another guide upon the gate-post,
and a flexible connection having one end en-
gaged with one of the latch members with
its opposite end connected to the throw-bar
and intermediate portions engaged with the
20 guides.

11. In a gate, the combination of a collapsi-
ble frame structure, an upright cross-head car-
ried by the gate and provided with an upright
slot having front and rear sockets at its up-
25 per end and a front socket at the lower end
thereof, and a throw-bar having a pin work-
ing in the slot and capable of alternate en-
gagement with the seats or sockets thereof.

12. In a gate, the combination of a collapsi-
ble frame structure, an upright cross-head hav- 30
ing one end supported upon a pivotal connec-
tion of the gate and its opposite end provided
with a longitudinal slot receiving another piv-
otal connection of the gate, the intermediate
portion of the cross-head being provided with 35
an upright slot having front and rear seats or
sockets at its upper end and a front socket at
the lower end thereof, and a throw-bar hav-
ing a pin working in the slot and capable of
alternate engagement with the seats or sockets. 40

13. In a gate, the combination with a gate-
post, of a lazy-tong gate structure, a pivotal
support for the bottom of the gate upon the
post, a latch to render the gate rigid when
closed, and a helical spring lying beneath the 45
gate with one end connected to the pivotal
support and its opposite end connected to the
gate.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 50
the presence of two witnesses.

ARTHUR DAVID ACERS.

Witnesses:

FRED CARDER, Jr.,
A. R. CLEMENT.