

(No Model.)

3 Sheets—Sheet 1.

W. R. WHITE.
GATE.

No. 583,558.

Patented June 1, 1897.

Fig. 1.

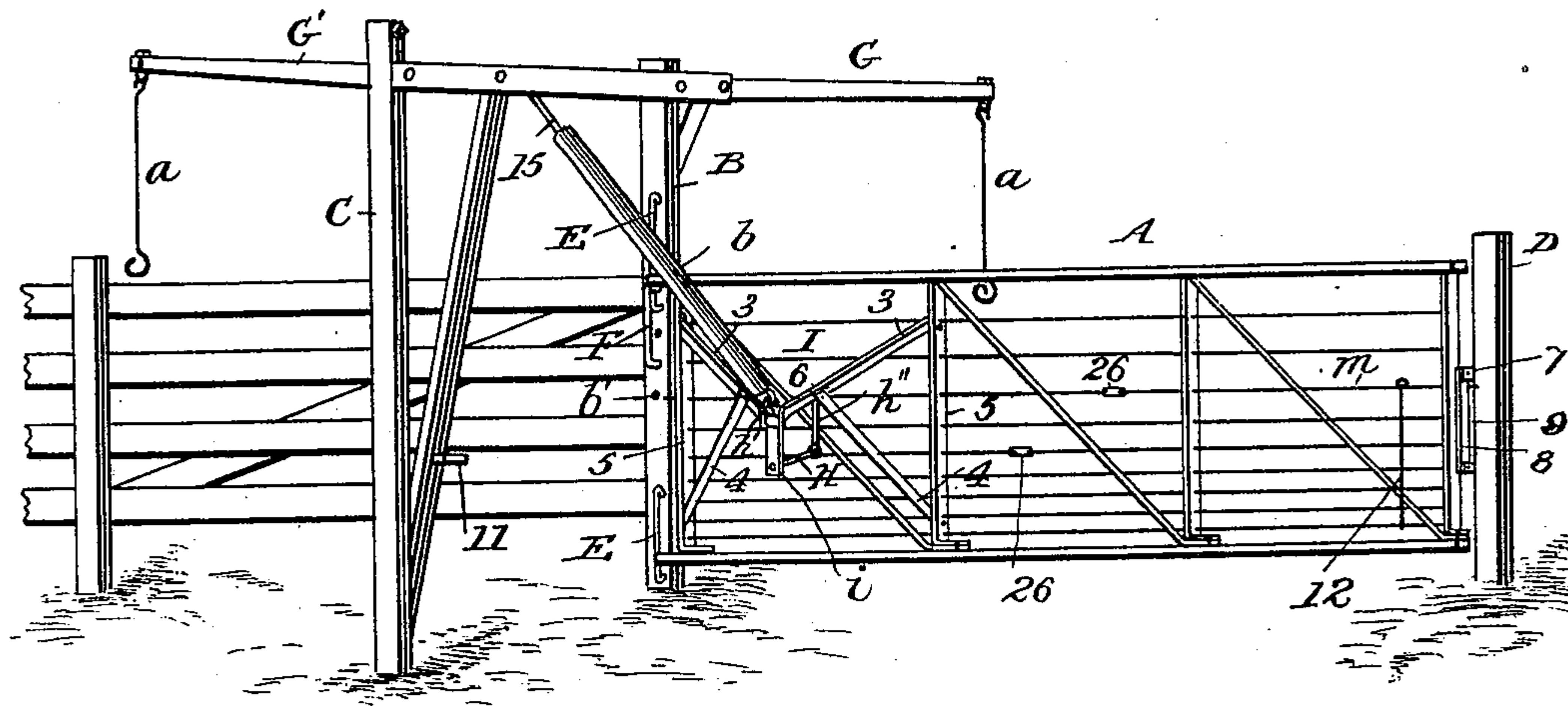


Fig. 2.

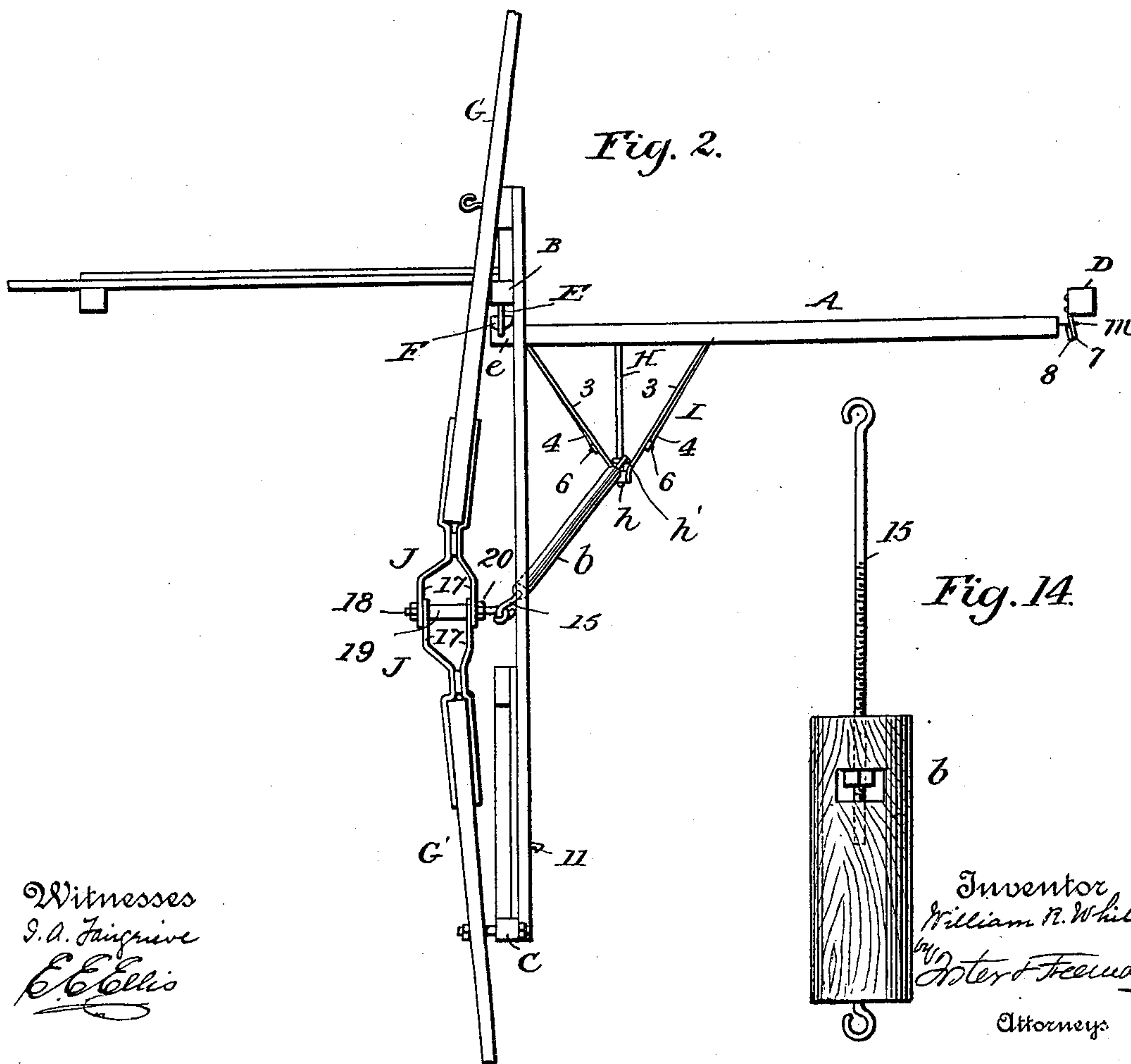
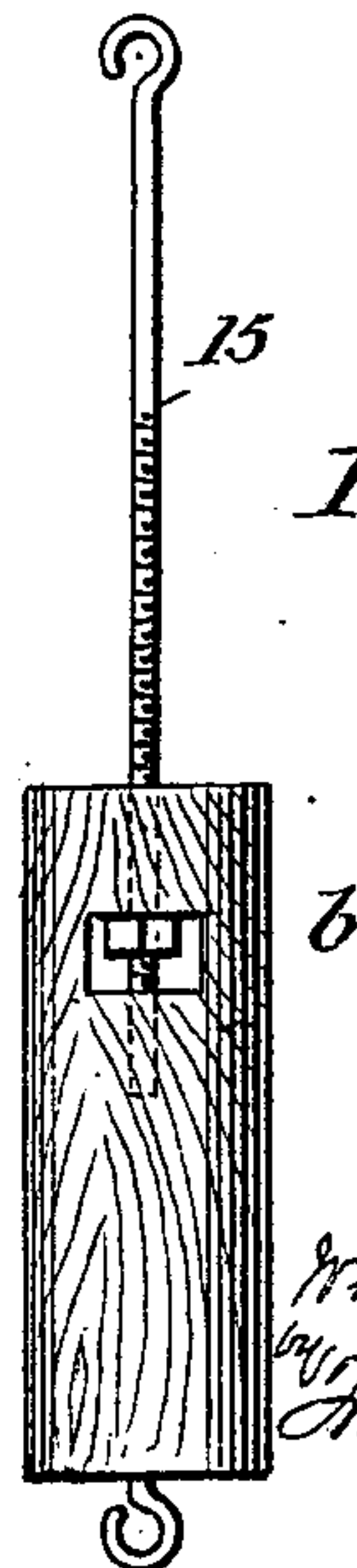


Fig. 14.



Witnesses
J. A. Fairgrave
E. E. Ellis

Inventor
William R. White
by J. A. Fairgrave
Attorneys

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Fig. 3.

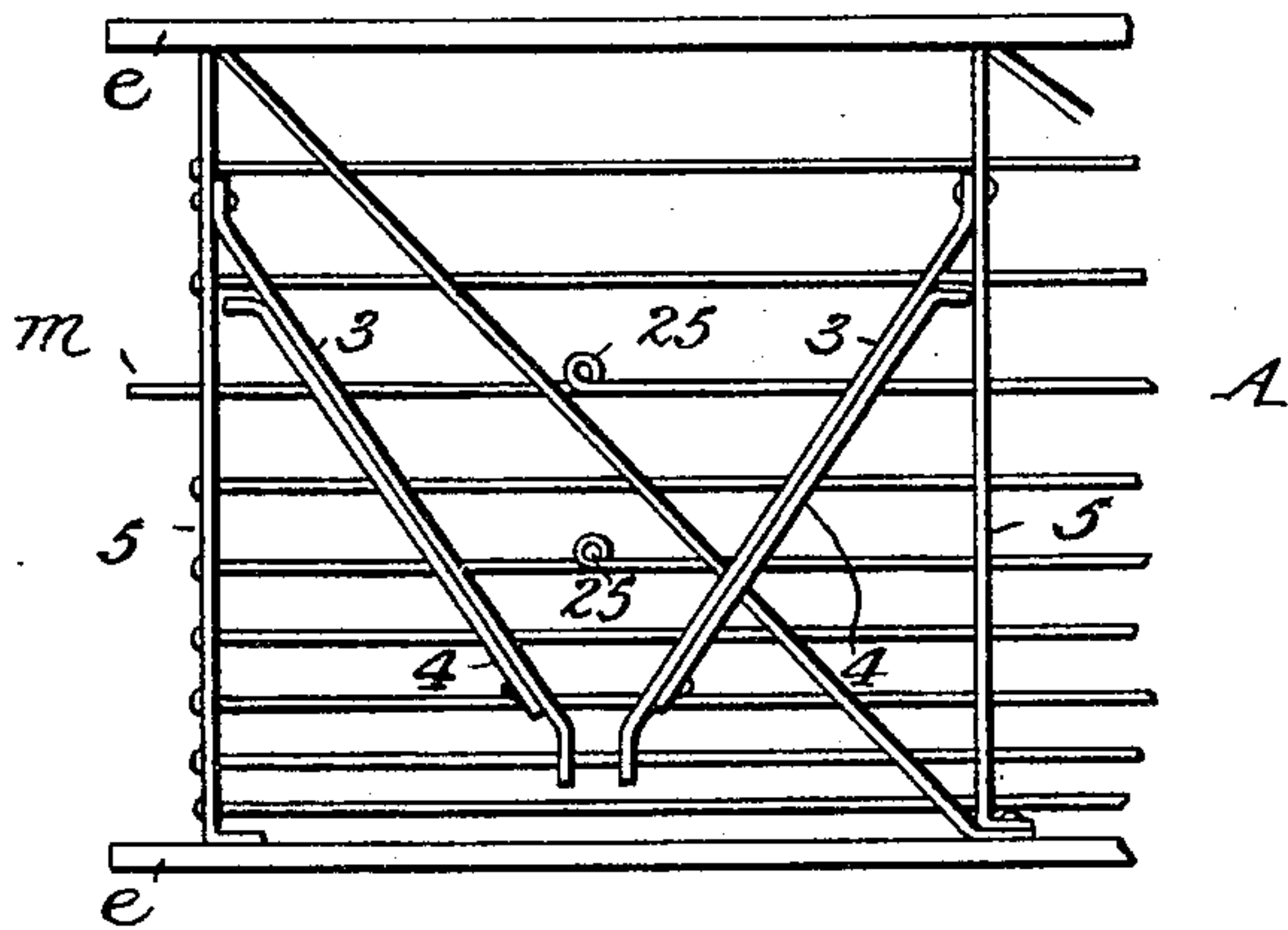


Fig. 4.

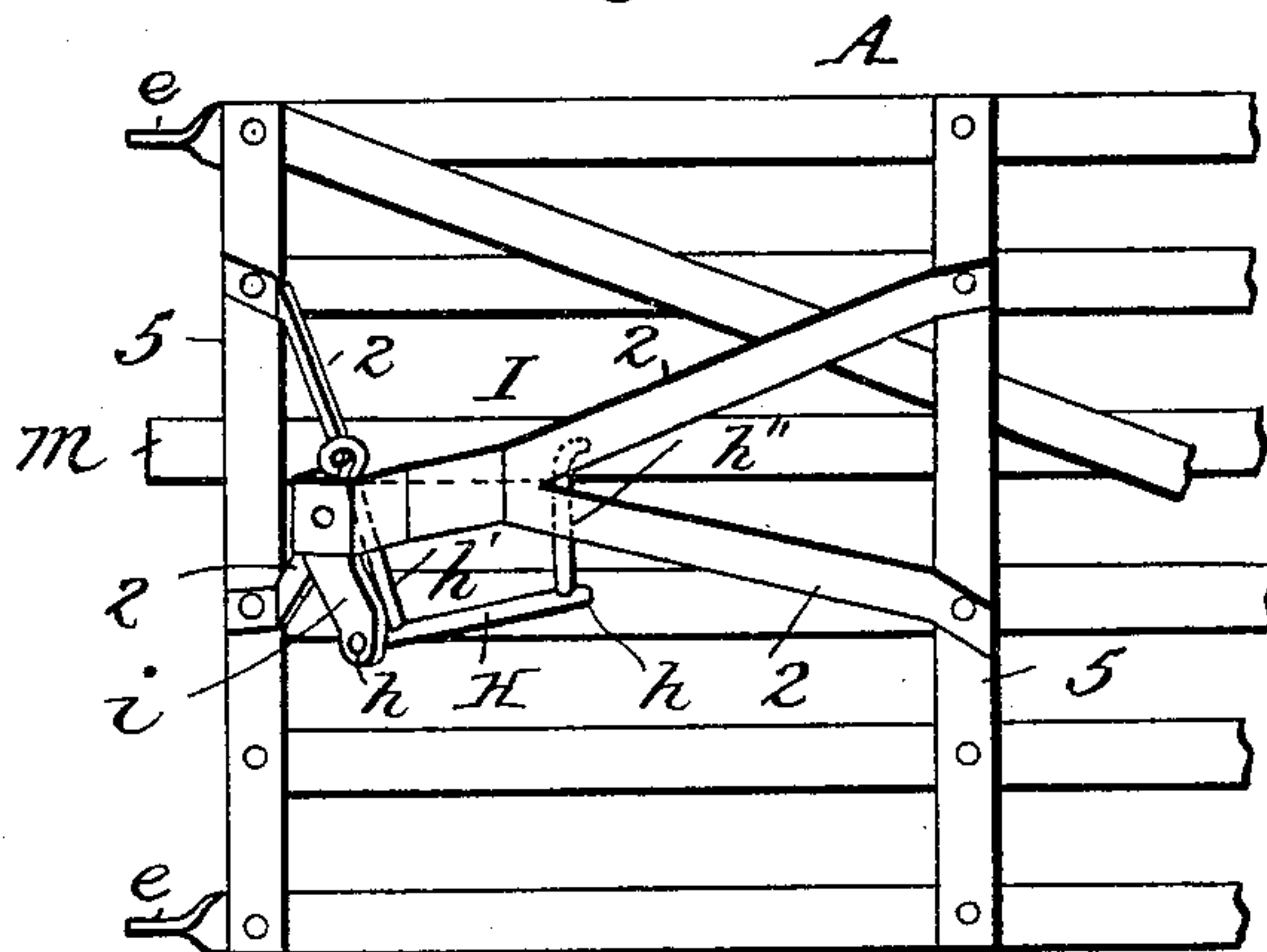


Fig. 5.

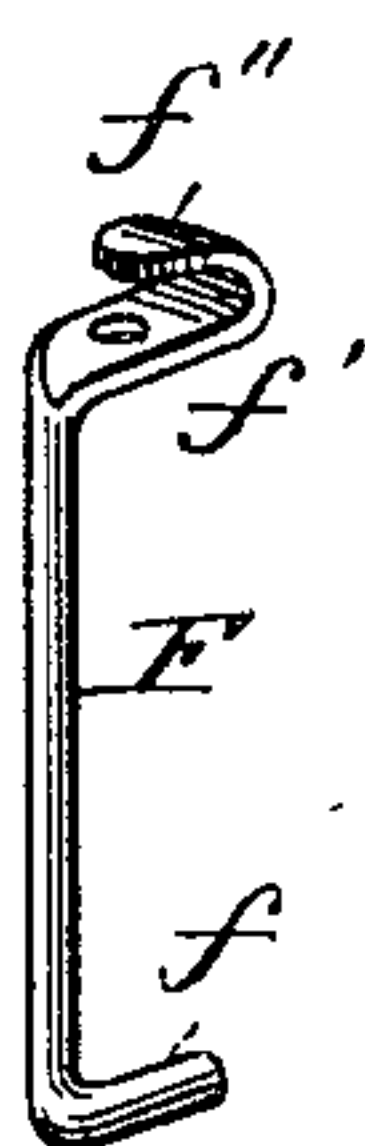


Fig. 6.

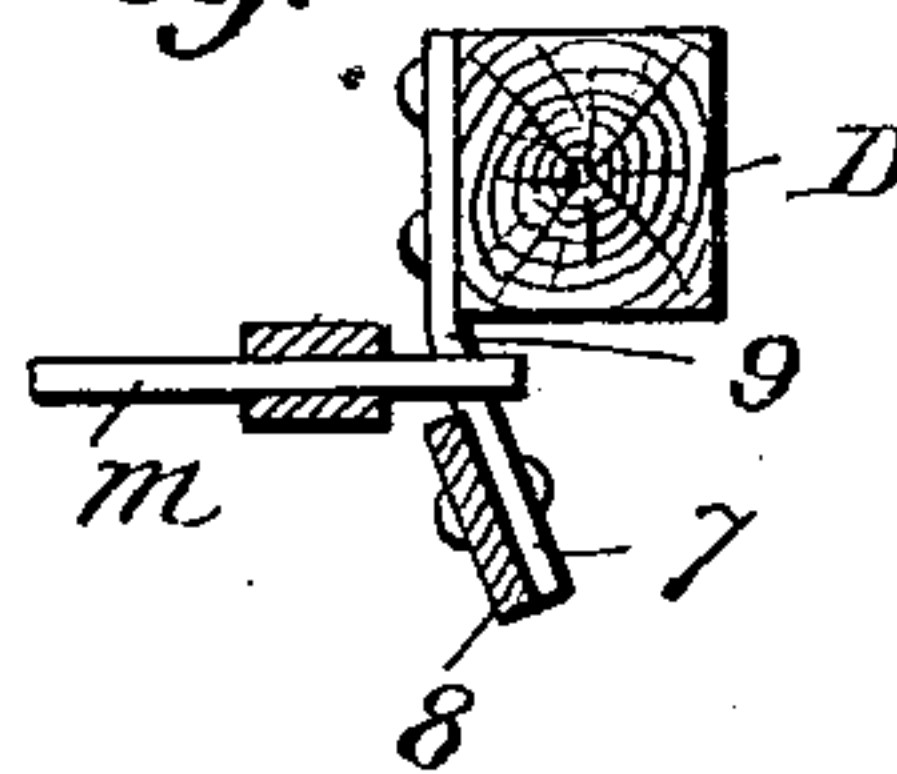


Fig. 7.

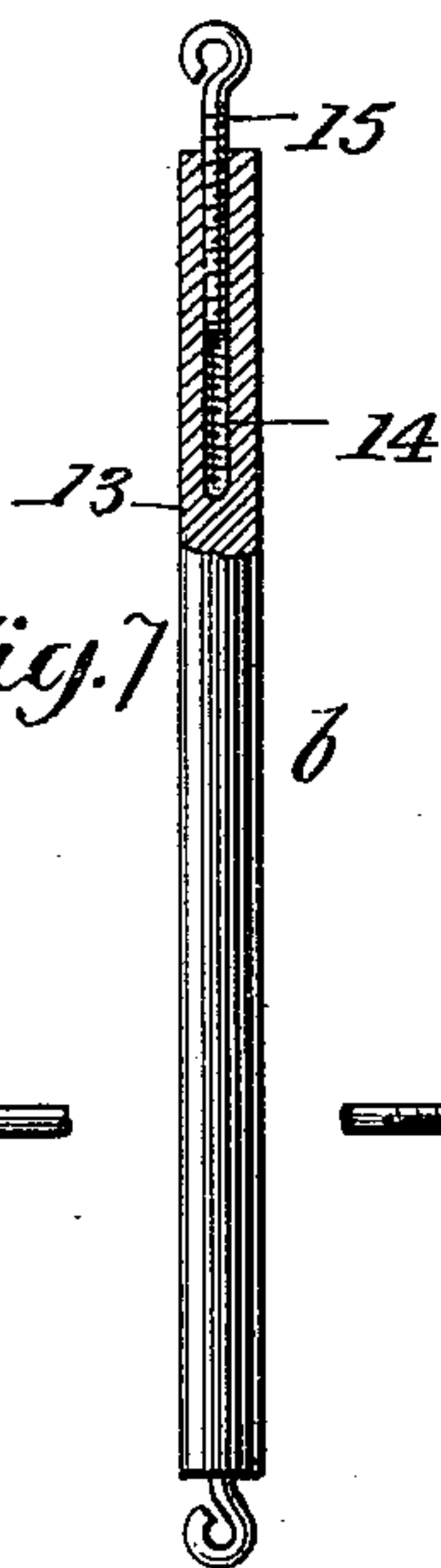


Fig. 8.



Fig. 9.



Witnesses
J. A. Fairgrave
E. E. Ellis

Inventor,
William R. White
by Foster & Freeman
Attorneys

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Fig. 10.

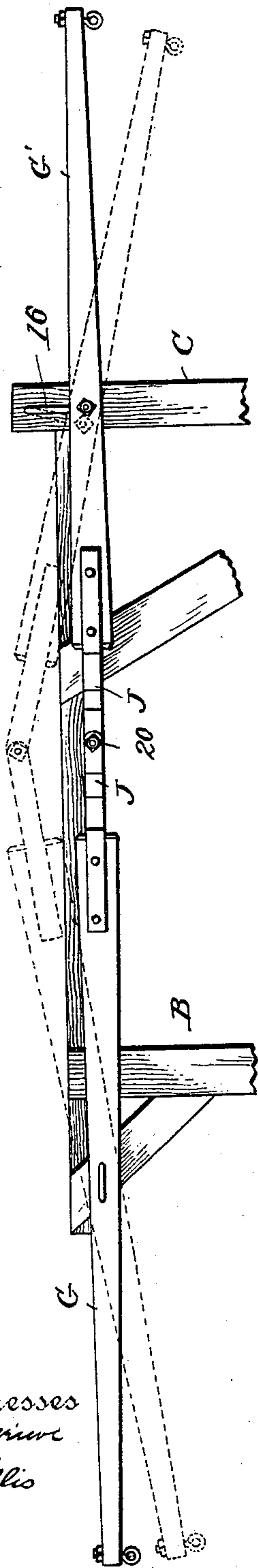


Fig. 11.

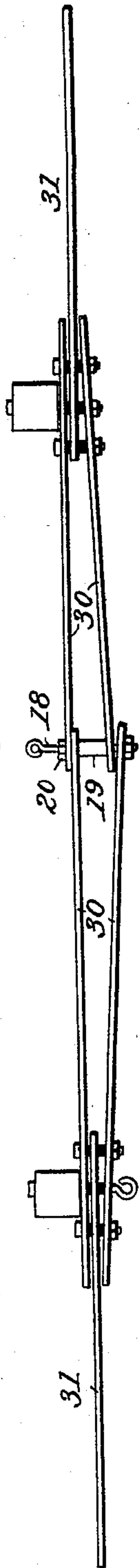


Fig. 12.

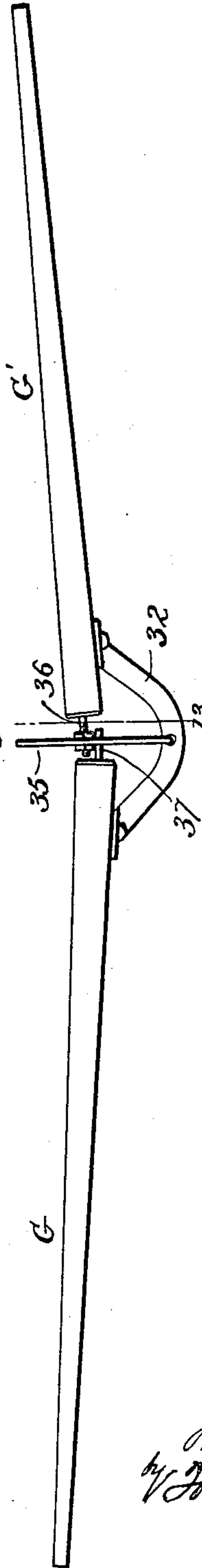
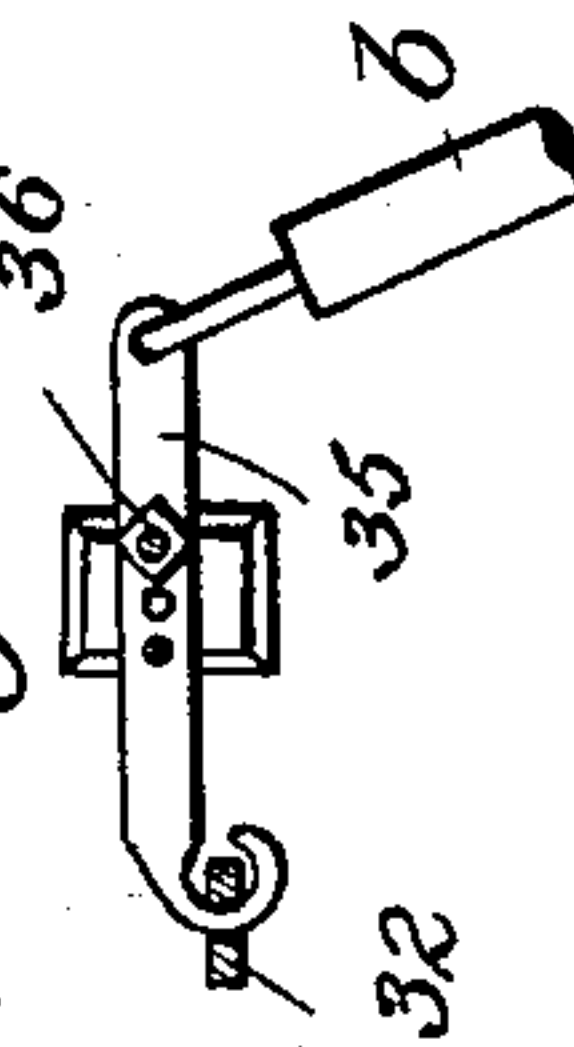


Fig. 13.



Witnesses
J. A. Fairbank
E. E. Ellis

Inventor
William R. White
by Foster & Freeman
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM RICHARD WHITE, OF BLOOMINGTON, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 583,558, dated June 1, 1897.

Application filed December 26, 1894. Serial No. 533,007. (No model.) Patented in England August 20, 1894, No. 15,845.

To all whom it may concern:

Be it known that I, WILLIAM RICHARD WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Gates, (Claim 1 of which is covered by my Letters Patent of Great Britain No. 15,845, August 20, 1894,) of which the following is a specification.

My invention relates to gates of the kind illustrated in my Patents No. 493,539, of March 14, 1893, and No. 503,887, of August 22, 1893; and it has for its object to improve such gates in several particulars to be hereinafter pointed out.

The invention consists in improvements in the several parts of the gate or of its accessory devices, as pointed out in this specification.

In the drawings, Figure 1 represents a perspective view of a metallic gate having my improvements applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is an elevation of a portion of the gate, showing the laterally-projecting frame folded. Fig. 4 is a perspective view of a part of the gate, showing a different form of the laterally-projecting frame from that shown in Fig. 3. Fig. 5 is an enlarged view illustrating the means for supporting the gate in different positions of vertical adjustment. Fig. 6 is a sectional view illustrating the catch for the bolt or latch of the gate. Fig. 7 is an enlarged detail view of the connecting-bar, partly in section. Figs. 8 and 9 are detail views illustrating certain features of construction of a metallic gate. Fig. 10 is an elevation of the operating-levers, showing their connection and supports. Figs. 11 and 12 are plan views of different forms of the operating-levers. Fig. 13 is a sectional view on the line 13 13 of Fig. 12. Fig. 14 is a detail view showing a form of the weighted connecting-bar different from that shown in the other figures.

In the said drawings, A represents the gate, which is shown as being hinged to a post B and arranged to swing toward and from the post D, placed in line with the post B, and to one or both of which a fence may be secured.

The gate is preferably adjustable vertically, to permit which the post members E of the hinges are of elongated staple form and are

encircled by the gate members *e* of the hinges, the latter being free to slide up and down on the staples E. In order to hold the gate in the positions to which it may be adjusted, I employ a supporting-bracket F, Fig. 5, the lower end of which is bent to form an arm *f*, which is adapted to enter the holes *b'* in the post B. The upper end of this bracket is formed into a bearing *f'*, which is preferably perforated and encircles the vertical rod of the post member of the hinge and forms a support upon which rests the hinge-plate *e*, carried by the gate.

The means for adjusting the gate vertically thus far described are old, but I have provided the supporting-bracket with a stop which serves to prevent the gate from being lifted unintentionally; and, as shown, such stop consists of a flange-like projection *f''*, carried by the bearing-plate *f'* and arranged to embrace or overlie the hinge-plate *e*. It will thus be seen that the gate member of the hinge is confined between the two parts *f'* *f''* of the supporting-bracket, so that the gate cannot slide up or down on its hinges, except as the supporting-bracket is adjusted.

C represents a post situated to one side of the gate and toward which the gate swings when it is opened. The gate is opened and closed by means of the operating-levers G G', which are supported, respectively, by the posts C and B and may be provided with the depending handles *a*. The inner ends of the operating-levers are connected with the gate through the connecting-bar *b*, the lower end of which has connection with a frame I, which projects laterally from the gate. When the gate is provided with a latch which is operated by or from the gate-operating levers, as in the forms of gates illustrated in the drawings, the latch-operating bar is supported in the said laterally-projecting frame I and the lower end of the connecting-bar *b* connects therewith. This frame I is of novel construction and serves to stiffen and strengthen the gate, as well as to support and guard the operating-bar for the latch. It consists of several parts—four, as shown in the drawings—the inner ends of which are separated quite widely, both vertically and laterally, and are firmly bolted or otherwise secured to the gate itself, while the outer ends of these parts are

connected together. A frame thus constructed and applied is rigid and adds to the stiffness and strength of the gate and prevents it from warping. The several parts of the frame may be formed of a single piece of material, as shown in Fig. 4, and this form of invention is especially adapted for wooden gates, to which it is shown applied. It has the bifurcated legs 2 2, arranged on either side of the latch-operating bar H and secured at their inner ends directly to the gate proper. This form of the frame, while possessing rigidity and strength, cannot be folded up, and hence gates provided therewith when packed or stored occupy an unnecessarily large amount of space. I have therefore devised the form of frame I, (shown in Figs. 1, 2, and 3,) which may be folded, and which at the same time serves as a bracing and strengthening adjunct to the gate. It is especially adapted for use in connection with iron gates, which require less bracing than do wooden gates. As shown, it consists of four parts or pieces of material 3 3 4 4, each separate from the other and each bolted to some suitable part of the gate proper, as to the vertical cross-pieces 5, the connecting-bolts being so arranged that they operate as pivotal supports for the pieces of the laterally-projecting frame, upon which the said pieces may turn, so as to be folded against the gate. The upper pieces 3 of this frame are bolted to the gate near its top rail and extend outward and downward, their outer ends converging and being connected at their meeting-points. The parts 4 of the frame serve as braces and are secured to the gate near its bottom rail and incline upward and outward, being connected at their outer ends to the upper parts 3 of the frame, as at the points 6. By disconnecting the inner lower ends of the brace-pieces from the gate they may be folded up parallel with the pieces 3, when the whole frame may be folded down parallel or substantially parallel with the gate. When the frame is thus folded, the latch-operating bar is of course disconnected.

The frame I is provided at its outer end with a depending bracket *i*, in the lower end of which the outer end of the latch-operating bar H is mounted. The opposite end of the bar is mounted in one of the rails of the gate, the bar being provided with the two short arms or journals *h h*, upon which the bar may rock. The outer end of the bar is provided with an arm *h'*, which extends upward and is connected with the connecting-bar *b*, and its inner end is provided with a crank-arm *h''*, which is connected with and operates the latch-rail *m* of the gate.

It will be observed that the frame I surrounds and thus serves as a guard for the latch-operating bar H, the outer upward-projecting arm *h'* of the bar lying in a sort of box formed by the outer connected ends of the pieces composing the frame I, which extend outward beyond and on either side of the said

arm. The latch-operating bar is thus protected from injury by stock or by other causes, as well as limited in the extent to which it may be rocked.

The post D is provided with a catch adapted to cooperate with the locking bolt or latch *m* to hold the gate closed. The form of catch illustrated in the drawings consists of a metallic plate 8, suitably supported by the brackets 7, adjacent to the post D, as indicated in Fig. 6, so that there is between it and the post a space 9, in which the end of the latch-rail rests when the gate is closed. The face of the plate 8 is so inclined that the latch will slide easily past it as the gate is being closed. Different forms of supporting-brackets 7 for the catch-plate 8 may be employed, but I do not deem it necessary to show more than one of such forms in the drawings.

11 indicates a catch or hook adapted to hold the gate locked in an open position, it being arranged so as to engage with the link 12, which supports the outer end of the latch-rail *m*.

As described in my aforesaid patents, the inertia of the gate-operating parts serves to throw the latch-rail and cause the gate to be locked when it comes either to its opened or closed position. I have found it desirable that there should be provision made for holding the latch-rail in its locked positions with some force, in order to prevent accidental unlatching of the gate by animals, the wind, or other causes. I have therefore weighted the connecting-bar *b*. The weight may be applied to the bar in any way, the form shown being the most desirable, as it is neat and tasty in appearance. It consists of a cylindrical bar, either of wood or metal, preferably the latter, and of a size to give the desired weight.

As the gate is adjusted up or down upon its hinges, it is desirable that the length of the connecting-bar *b* should be varied, in order to preserve the proper relations between the inner ends of the operating-levers *G G'* and the latch-operating bar at all times. I have thus made the connecting-bar adjustable as to its length. Various means may be devised for effecting this adjustment, that shown being the one preferred when the connecting-bar is of metal. It consists in providing the enlarged cylindrical portion 13 of the connecting-bar with a longitudinally-arranged screw-threaded aperture 14, into which may be screwed the rod 15. (See Fig. 7.) As shown, this rod 15 is at the upper end of the connecting-bar and has a loose connection with the operating-levers. When the connecting-bar is of wood, a nut may be set into the same near one end, and with this the screw-threaded rod 15 will engage, as shown in Fig. 14.

It has heretofore been considered necessary to support the inner ends of the operating-levers independently of each other, or when they have been connected together to allow them to

move toward and from each other as the levers are operated. I connect the inner ends of the operating-levers directly together, and to permit the necessary movements of the levers when thus connected I mount one of the levers upon a movable fulcrum. Thus the lever G' is shown as being fulcrumed upon a link 16, mounted at or near the upper end of the post C. It will be understood that the link vibrates at each reciprocation of the levers, as indicated in Fig. 10. I prefer that the other operating-lever G should be mounted upon a fixed pivot or fulcrum pin, as a better and more steady motion and greater durability are secured when but one of the gate-operating levers is provided with the movable fulcrum.

In gates provided with operating mechanism arranged as illustrated in the drawings there is a tendency on the part of the inner ends of the operating-levers to swing off to one side laterally, and this causes looseness of connections and lost motion. I have therefore devised a connection for the inner ends of these levers which will prevent any sideways movement of the levers, thus causing them to move with greater exactness and with more stability than has been heretofore attainable. To insure this, I brace the inner or contiguous ends of the levers and connect them directly together. Thus, as shown in Fig. 11, the levers are each composed of three parts, an outer piece 31, to which the handles *a* are secured, and the two pieces 30, which are spread or separated at their inner ends. In a construction such as this the pieces 31 and the pieces 30 most nearly in line therewith may be considered as constituting the operating-levers and the other pieces 30 the braces. The levers shown in this figure may be described as having their inner or contiguous ends bifurcated, the separated parts of the levers overlapping each other and being connected by a bolt 18, which passes through them and to which the bar *b* may be connected. This construction has the advantage that it may be made of comparatively short pieces of material, which may be easily obtained.

In Fig. 12 the contiguous ends of the operating-levers are shown as being connected by a bow-shaped bracing-piece 32. As shown in Fig. 13, the connecting-bar *b* is connected to one end of a lever 35, which is fulcrumed upon a pin 36, carried by one of the levers and which has its opposite end loosely connected with the bow-shaped bracing-piece 32. The operating-lever opposite the one carrying the fulcrum-pin 36 is provided with a pin 37, which extends through an aperture in the lever 35 and has free play therein as the levers move up and down. The form of this part of my invention, however, which I prefer is that shown in Figs. 2 and 10, wherein the inner end of each operating-lever is provided with or formed into a furcated or forked coupling-piece J. Each coupling-piece has at least two arms 17 17, these being perforated

and arranged to lie side by side, so that the connecting-bolt 18 may be passed through the holes in the several arms. The arms 17 are spread or separated to a considerable extent, and I mount a thimble or sleeve 19 upon the connecting-bolt 18 between the inner faces of the arms 17 to hold them apart and to stiffen the connection. The bolt 18 is preferably screw-threaded and provided with a nut 20.

The end of the bolt 18 toward the gate and post D is provided with an eye by which it is connected with the bar *b*. I am thus enabled by this construction, as well as by the two other forms described, to bring the upper end of the connecting-bar *b* almost directly over the gate when in its open and closed position, which is a desirable feature, causing the movements of the operating-levers to be the same in extent whether the gate be opened or closed.

When my invention is applied to a gate in which the rails are composed of rod-iron, as shown in Fig. 1, the bearings for the inner journal *h* of the latch-operating bar and for the end of the crank-arm *h'* may be formed by bending the rods which constitute, respectively, one of the rigid rails and the latch-rail so as to form the loops or eyes 25, as indicated in Figs. 1, 3, and 8. When the invention is to be applied to a gate of this kind which is already made, it may be necessary to cut the bars before these loops can be formed, in which case the adjacent ends of the cut bars may be screw-threaded and connected by a screw-threaded coupling 26, as indicated in Figs. 1, 3, and 9, or by other form of screw connection. This arrangement permits the latch-rail to be adjusted as to its length, so that should the post D be set a little too far away from the post B still the latch-rail may be lengthened so as to engage therewith, or should the position of the post be changed by frost or otherwise the latch-bar may be adjusted to engage properly therewith.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

1. The combination with a gate adjustable upon its hinges, of a supporting-bracket for holding the gate in the various positions to which it is adjusted, provided with a bearing-plate on which rests one of the gate members of the hinges, the bearing-plate having a flange arranged to embrace or overlie the said gate-hinge member and thus prevent the gate from being lifted, substantially as set forth.

2. The combination with a gate and the gate-operating devices, of a laterally-projecting frame to which the said devices are connected, the said frame being supported directly by the gate, and comprising separate pieces which are pivotally connected with the gate proper so as to be foldable against the gate, whereby when the gate is not in use the frame may be folded close to the gate, substantially as described.

3. The combination with a gate and the

opening and closing mechanism, of a laterally-projecting frame to which the said mechanism is connected, the said frame consisting of the pieces 3, 3 and 4, 4, all of the said pieces being bolted at their inner ends directly to the gate proper, and two of the pieces being connected to each other at their outer ends, and the other pieces pivotally connected to them at their outer ends, whereby there is formed a stiff yet foldable frame, substantially as set forth.

4. The combination of a gate, the gate opening and closing devices, a latch, a latch-operating bar having an arm with which the said opening and closing mechanism has connection, and a laterally-projecting frame surrounding the arm of the said latch-operating bar and serving to guard the same, substantially as set forth.

5. The combination of a gate, the opening and closing devices, a latch, a rocking latch-operating bar, and a laterally-projecting frame consisting of parts securely connected at their inner ends to the gate proper and at their outer ends secured together, the outer end of the latch-operating bar being mounted in a bearing carried by the said frame, and having the arm which is connected with the opening and closing mechanism surrounded by the same frame, substantially as set forth.

6. The combination with a gate, the operating-levers and the connecting-bar between them and the gate, of a movable fulcrum or support upon which one of the operating-levers is mounted, and a fixed fulcrum-pin upon which the other operating-lever is supported, substantially as set forth.

7. The combination of a swinging gate, the vibrating operating-levers having their inner ends arranged to one side of the gate, a laterally-projecting frame extending from one side of the gate, a connecting-bar between the inner ends of the said levers and the laterally-projecting frame, a movable fulcrum or support upon which one of the operating-levers is mounted, and a fixed support or fulcrum upon which the other operating-lever is mounted, substantially as set forth.

8. The combination of a swinging gate, the laterally-projecting frame extending from one side of the gate, the operating-levers having their inner ends at one side of the gate and connected with each other, a connecting-bar between the inner ends of the operating-levers and the laterally-projecting frame of the gate, a link 16 constituting a movable fulcrum upon which one of the operating-levers is mounted, and a fixed fulcrum for the other operating-lever, substantially as described.

9. The combination of a swinging gate, a laterally-projecting frame carried thereby,

the operating-levers, of which one is mounted upon a movable fulcrum and the other upon a fixed fulcrum the two having their inner ends directly connected by a bolt, and a connecting-bar between the said levers and the said laterally-projecting frame, substantially as described.

10. The combination with a gate, of the gate-operating levers, one mounted upon a movable fulcrum and the other upon a fixed fulcrum, the said levers having their inner or contiguous ends connected directly together and laterally braced, substantially as set forth.

11. The combination with a gate, of the vibrating gate-operating levers having the fulcrums upon which they vibrate arranged between their ends and one of the said fulcrums being movable and the other fixed, the said levers having their inner or contiguous ends furcated and spread, these ends lapping upon each other and being connected by a bolt passing through them, substantially as described.

12. The combination with a gate, the operating-levers, one mounted upon a movable fulcrum the inner ends of the levers being provided with the forked coupling-pieces J, a connecting-bolt passing through the said coupling-pieces, and a connecting-bar between the levers and the gate, substantially as set forth.

13. The combination of a gate, the operating-levers one mounted upon a movable fulcrum provided at their inner ends with the coupling-pieces J, the latter being provided with the separated arms 17 perforated near their ends, the connecting-bolt passing through the said perforations, and the connecting-bar, b, substantially as set forth.

14. The combination of a gate formed in part of rod-iron, a latch-bar for the gate and an operating-bar for the latch-bar, the said operating-bar being mounted in a bearing formed by bending or looping one of the rod-irons of the gate, substantially as set forth.

15. The combination of a gate having the rails formed of rod-iron, a latch for the gate, and an operating-bar for the latch, the said bar being mounted in an eye or loop formed by bending one of the iron rails of the gate, the adjacent ends of the said rail being connected by a coupling 26, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM RICHARD WHITE.

Witnesses:

LUELLA E. WHITE,
ISAAC SANDERS.