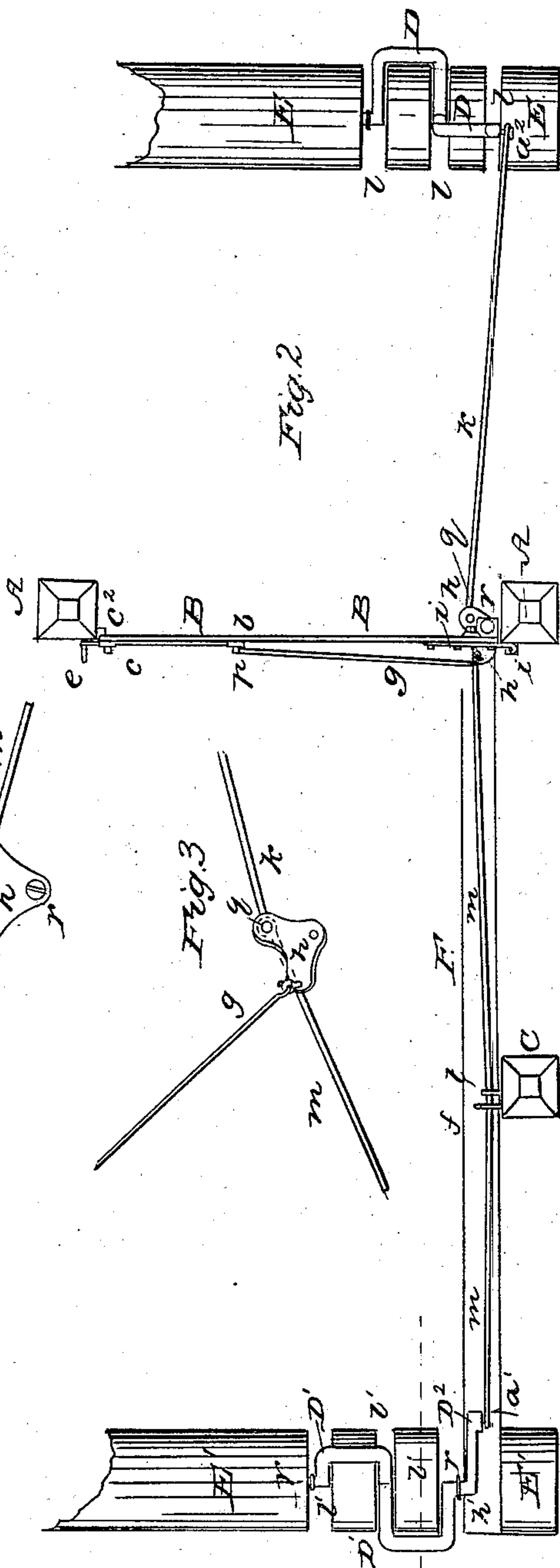
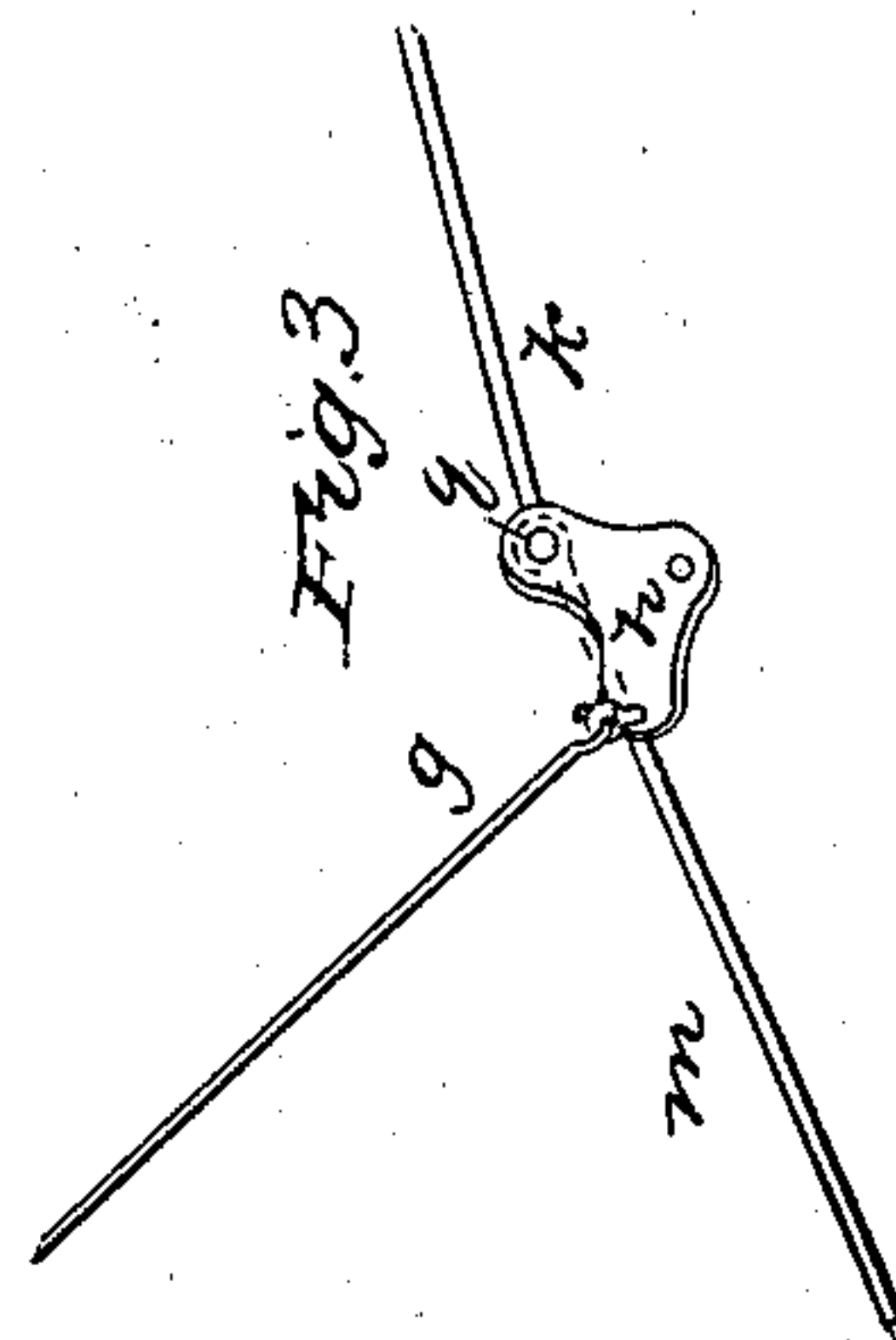
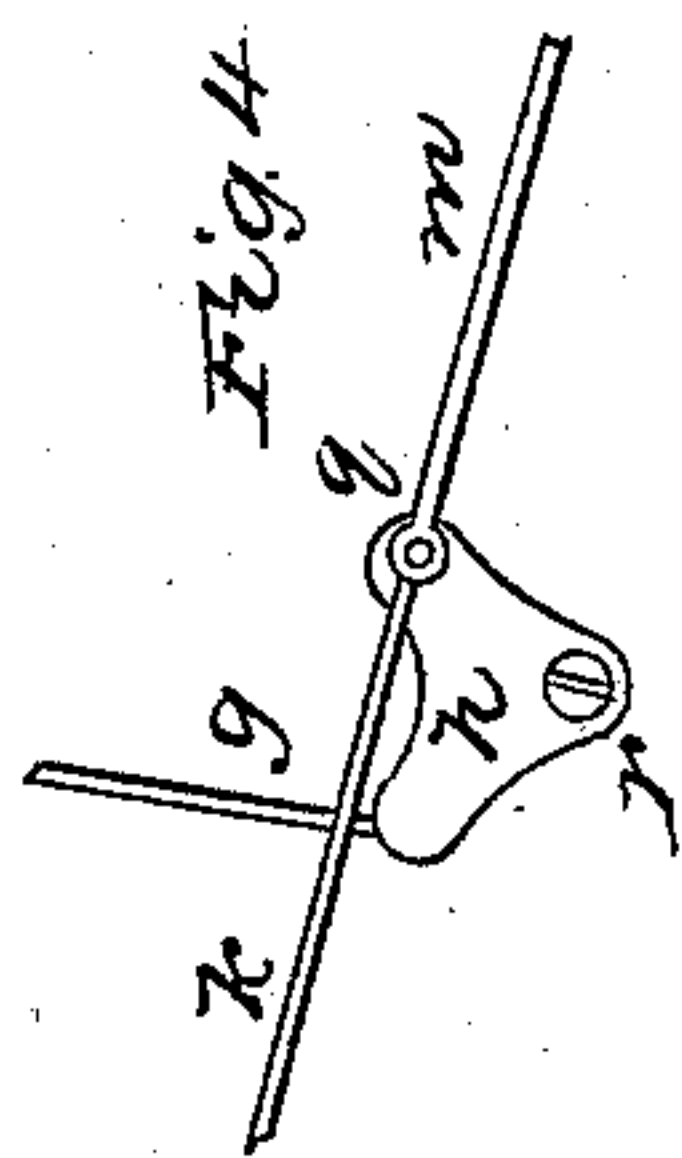
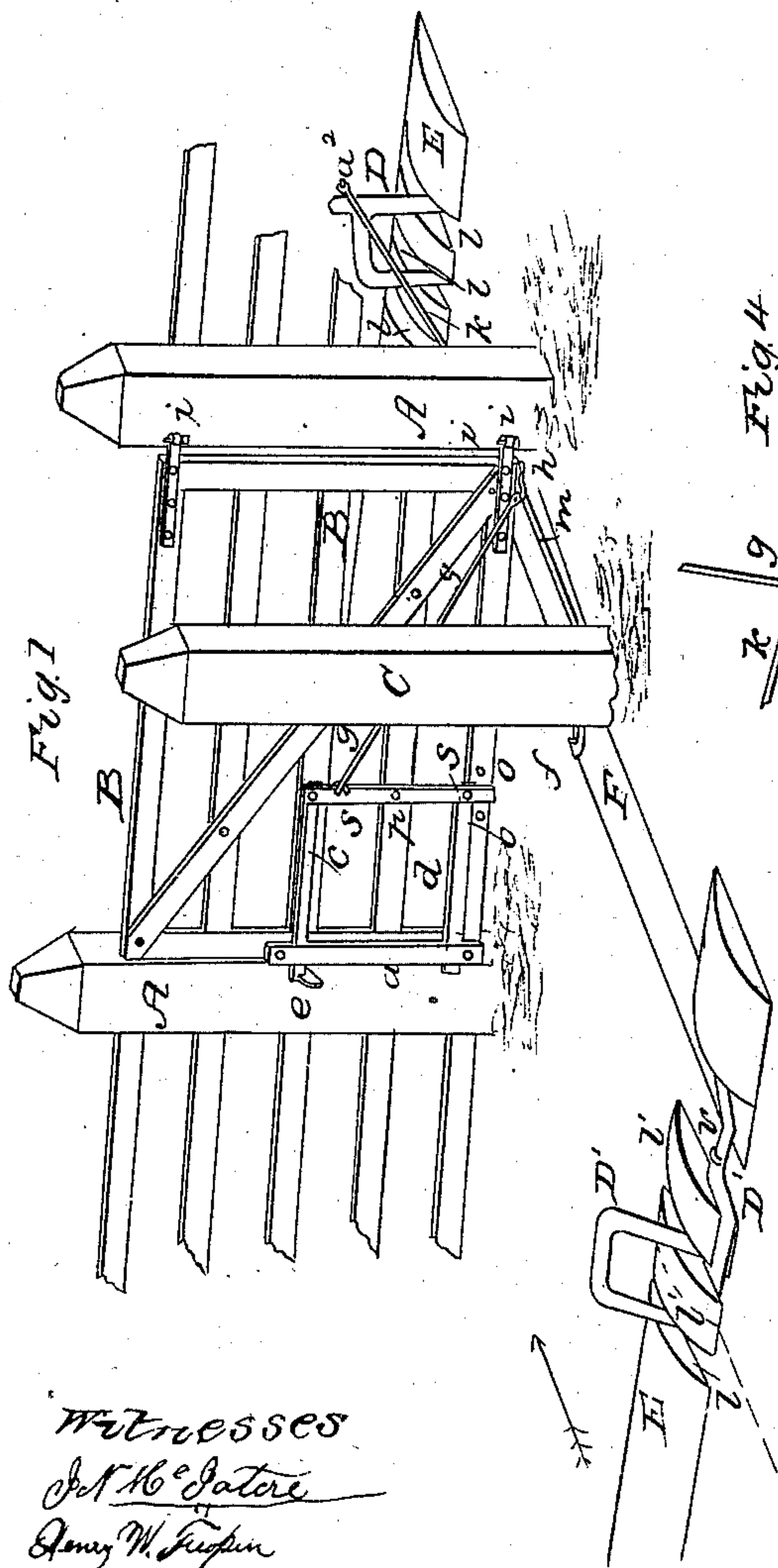


A. J. HAMILTON.

Automatic Gate.

No. 23,169.

Patented March 8, 1859.



Witnesses
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UNITED STATES PATENT OFFICE.

A. J. HAMILTON, OF KEWANEE, ILLINOIS.

METHOD OF OPERATING FARM-GATES BY APPROACHING VEHICLES.

Specification of Letters Patent No. 23,169, dated March 8, 1859.

To all whom it may concern:

Be it known that I, A. J. HAMILTON, of Kewanee, county of Henry, in the State of Illinois, have invented certain new and useful Improvements in Automatic Farm-Gates; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to the construction of automatic gates for farm or other fences, and to that end consists in certain improvements in the mechanism for operating the gate automatically (or by the passage of a vehicle.)

To enable those skilled in the art to make and use my improved automatic gate, I will proceed to describe its construction and operation referring by letters to the accompanying drawings forming part of my specification and in which,

Figure 1, represents a perspective view of my improvement, Fig. 2, represents a top view or plan of the same, Fig. 3, represents a perspective detail view of the actuating crank lever, Fig. 4, represents a bottom view of the same.

Similar letters denote the same parts in the different views.

A, A, represent the gate posts, between which swings the gate B, which is hinged in the usual manner to one of said posts by hinges *i, i*.

C, is an auxiliary or stop post against which the gate swings and is retained (as will be hereinafter explained) when open.

Upon the gate B, (which may be constructed as illustrated, or in any other desirable manner) is fastened near its opening edge a bar *a*, extending in length little more than half the height of the gate, said bar *a*, has formed in its side adjacent to the gate two slots to accommodate the latch bars *c*, and *d*, the front ends of which latch bars slide freely through the slots in said bar *a*, while their rear ends are respectively pivoted at *s, s*, to the upper and lower ends of a swinging or rocking bar *b*, which is pivoted at *p*, to the face of the gate.

e, is a lip into which drops the catch bar *c*, to fasten the gate when closed.

f, is a lip on the stop post C, for holding

the latch bar *d*, and retaining the gate in an open position.

The bars, *c*, and, *d*, ride over and catch into the lips, *e*, and, *f*, as an ordinary latch, but are released alternately as the gate is opened and closed by being withdrawn longitudinally by the swinging or vibration of the bar, *b*, upon its pivot, *p*, which vibration is caused by the alternate pulling and pushing upon its upper end of the rod, *g*, the lower end of which is coupled to the rocking crank lever (as will be presently explained).

J, is a metallic stand which is bolted or otherwise secured, to the lower hinge corner of the gate (see Fig. 2) and on the lower side of which is pivoted by a stud pin, *r*, an angular lever or actuating rock crank which is partially rotated on its pivot, *r*, first in one direction and then in another alternately as the gate is opened and closed; by means of the actuating rods, *k*, and, *m*, and which by such partial rotation operates upon the latches, *c*, and, *d*, as well as upon the gate itself; alternately releasing the former from their respective latches and opening and closing the latter; as will be directly more particularly described.

D, and, D', are the road-levers to one of which D is connected the rod, *k*, to the other, D', the rod, *m*. The peculiar construction of the road levers will be perfectly understood by reference to the drawings (Figs. 1 and 2) where it will be seen that the one marked, D, is a double bell crank bent in such manner as to make the plane in which each portion lies, run at right angles to that of the other; and the one marked, D', is the same with the addition of the extended portion, D², to the end of which extension is pivoted by the pin *a'*, one end of the rod, *m*,—one end of the rod, *k*, is pivoted by a pin, *a''*, to the projecting end of, D, and one end of each of the rods, *m*, and, *k*, (as before mentioned) is pivoted by the pin, *q*, to the actuating crank lever, *h*.

F, is a slot or box which is formed in the road extending from the rear D', nearly to the hinge side of the gate; this slot or elongated cavity is deep enough at that end which is near the road lever, D', to accommodate the arm, D², of said lever; that is to allow said arm to vibrate within it, while at the other end said slot, F, has no depth; it

running from such depth at one end as is determined by the length of arm, D^2 , to no depth at the other end.

t , is a simple staple or steadying ring through which passes the rod, m .

The road levers are each hung by two staples or their equivalents v, v , (see D'), to a suitable basis; in such manner as to freely vibrate or oscillate around said staples; and are caused to oscillate by being struck and pressed over by the contact of the wheel of the approaching and receding wagon or other vehicle.

E , and, E' , are two convex cross bridges or elevations extending across the road at those points where the road levers are attached; in which bridges, or elevations; or embankments are formed slots or cuts l, l' , to accommodate the said road levers.

The object of the raised cross bridges or elevations E, E' , is to enable the wheel of the vehicle to ride perfectly over and effectually press down the levers; which without such elevations being necessarily long to effect sufficient motion in the gate, might extend over the top of the wheel or so far above its center as to render clogging probable or at least possible.

The operation of my improved automatic gate is as follows, suppose the gate closed, as seen in the drawings and a carriage or other vehicle to be approaching in the direction indicated by the arrow in Figs. 1 and 2 then—as the wheels of the vehicle advance the forward right hand wheel is driven upon the elevation, E' , on the line represented in blue; the wheel striking against the elevated or nearly perpendicular portion of the road lever, D' , presses said portion of the lever forward and down upon the surface of the road passing entirely over it; this oscillation of the road lever, D' , causes its extended arm, D^2 , to vibrate downward and backward which pulls on the rod m ; said rod pulling upon the pin q , of the angular lever, h , causes said lever, h , to turn on its pivot, r , and pull upon the rod, g , causing said rod to swivel or swing the bar, b , on its pivot, p , and withdraw the latch, c , longitudinally from its catch or lip, e , thus the gate, B , is liberated from the post to which it was latched; and the bar, b , at this juncture having its lower end come in contact with the stop pin, o' , is locked with the gate (so long as the rod, m , continues to pull on the crank lever, h), and the rod, m , continuing to pull the gate, itself is caused to vibrate or turn upon its hinges i, i , and is thrown open coming back against the stop post, C , and the latch bar, d , which was thrown forward as the bar, c , was pulled backward and which has been necessarily retained in such position, rides over and drops into the lip f , locking the gate, B , to the post, C , until the vehicle shall have passed

through the gate; when the forward right hand wheel strikes against the most elevated part of the lever, D , depressing and riding over it; whereby the rod, K , is pulled upon actuating the crank lever, h , in a manner just opposite to that just described causing the gate to be first unlatched from the post, C , and then closed and latched to the post A , when the vehicle approaches from and passes through the gate in a direction just opposite to that just supposed: the gate is opened and closed (being retained under each condition until the vehicle shall have passed) as already explained: the other halves of the road levers D, D' , coming into play and the rods, k , and m , pushing each time instead of pulling.

It will be understood that my invention may be carried out without being confined to the exact mechanical construction, illustrated and described—for instance the bar, a , may be substituted two short metallic straps one for each of the bars c , and, d ; the design of the gate, B , may be varied and the post, C , if deemed expedient may be cut off just above the catch, f .

It will be observed that in my improved construction of gate mechanism the rigid bars, k , and, m , are made to both pull and push, one set operating the gate directly in either direction and without intervening mechanism to effect the directions of their motions; it will also be seen that by the combination of the rods, k , and, m , with the lever, h , pivoted near the lower hinge corner of the gate, and the connection with said lever, h , of the latch rod, g ,—the latches are first operated upon and then (by a continuation of the same motive rod) the gate itself; and that while the gate is opened and closed directly by a positive motion not dependent at all upon springs or other unreliable mechanism and locked alternately in each position, the whole operative mechanism is simple and economical.

By making the road levers D, D' , double and formed as shown only one and consequently one set of fastenings v, v , or couplings is required, on each side of the gate way.

As before remarked the elevations E, E' , are adopted in order that the road levers (which are simple rods of iron bent into the proper shape) may be made sufficiently long to give the requisite throw to the gate while at the same time the tendency to ride over the wheel existent in a long lever of such construction, is avoided or prevented, by causing the wheel to mount over it. The gate, B , is illustrated as shutting in between the posts, A , against pins, C^2 , but it may be made to shut against a strip or against the post itself.

A great advantage which my improved automatic gate possesses over all those with

which I am acquainted is that the operating mechanism may be so readily and easily applied, to an ordinary gate of most any construction; by simply attaching the latch bars and bar, *b*, and bolting on the stand, *J*; the remaining parts having no direct connection with the gate itself.

Having fully described the construction and operation of my improved automatic gate, what I claim therein as new and desire to secure by Letters Patent is—

1. In combination with the two road levers *D*, *D'*, constructed as described, the rigid actuating rods *k* and *m*, crank lever

h, latch rod *g*, swival bar *b* and latches *e* and *d*, substantially as described for the purposes set forth.

2. In combination with the road levers *D*, *D'*, the elevations or hedges, *E*, and, *E*, as described for the purposes set forth.

In testimony whereof I have hereunto set my hand this second day of February 1859.

A. J. HAMILTON.

Witnesses:

J. N. McINTIRE,
HENRY W. TURPIN.