

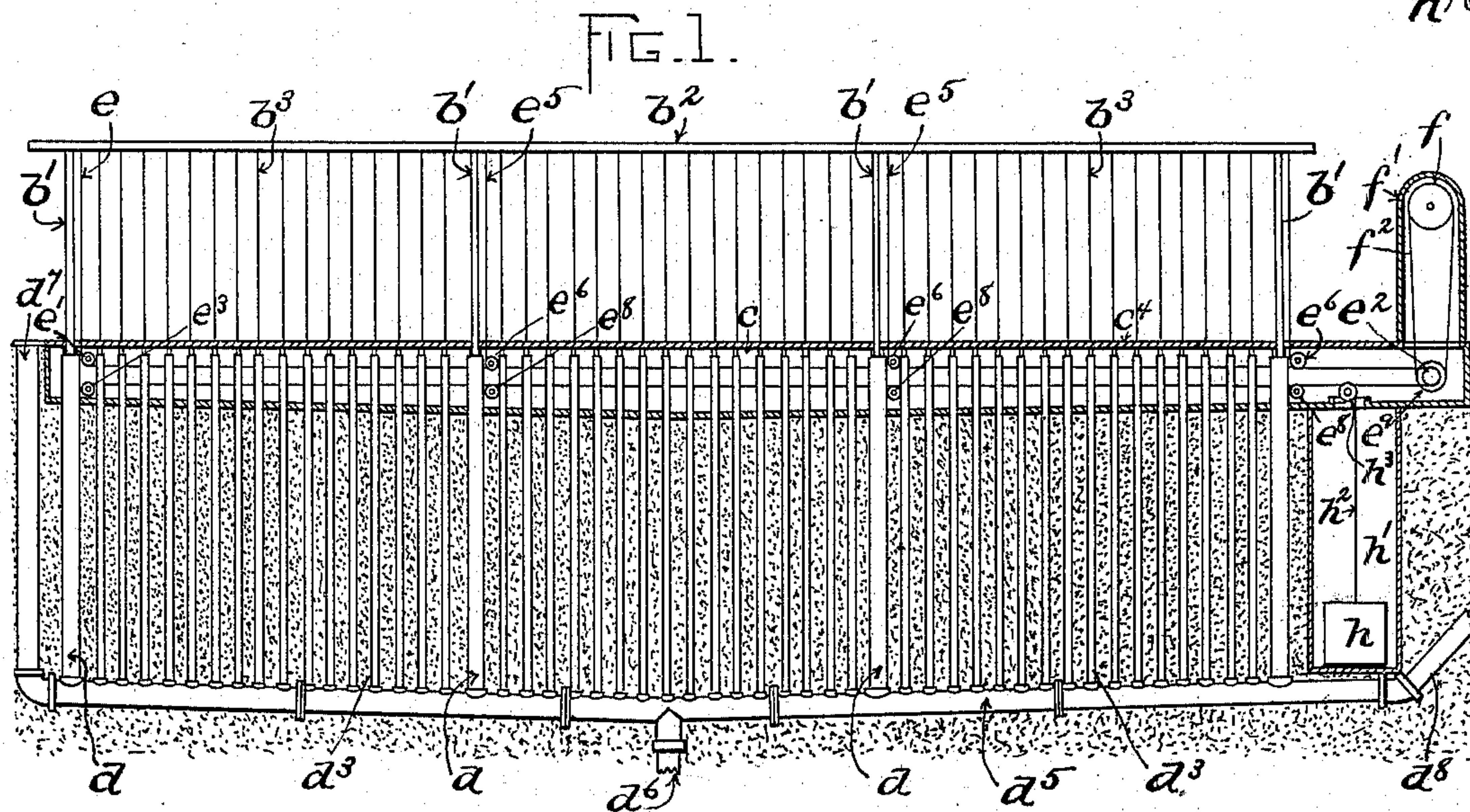
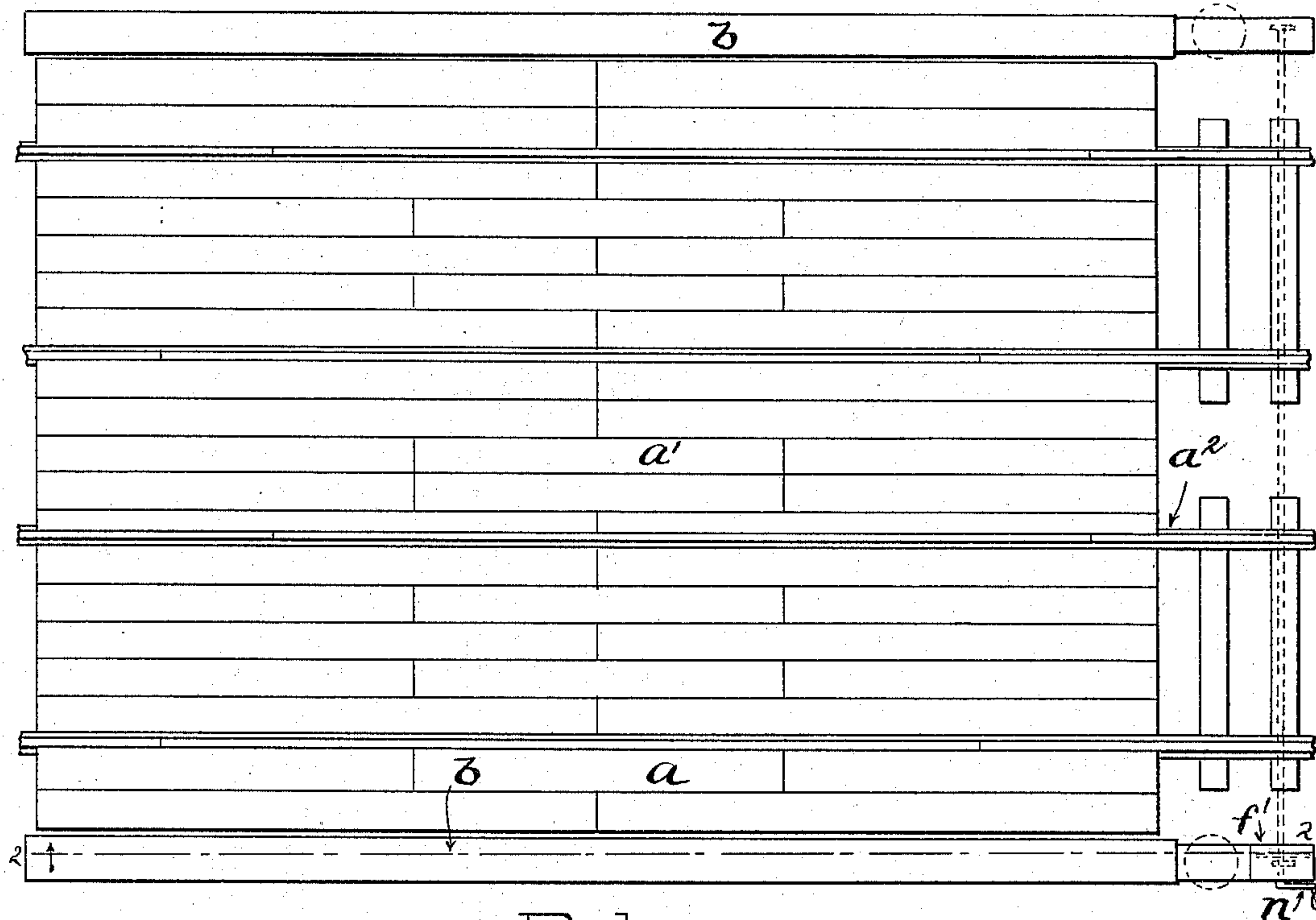
(No Model.)

2 Sheets—Sheet 1.

W. E. BATCHELDER.
SAFETY GATE.

No. 559,318.

Patented Apr. 28, 1896.



WITNESSES.

Fred V. Hart.
Leonard A. Merrill

INVENTOR:

William E. Batchelder
By his Attorney
Benjamin Phillips

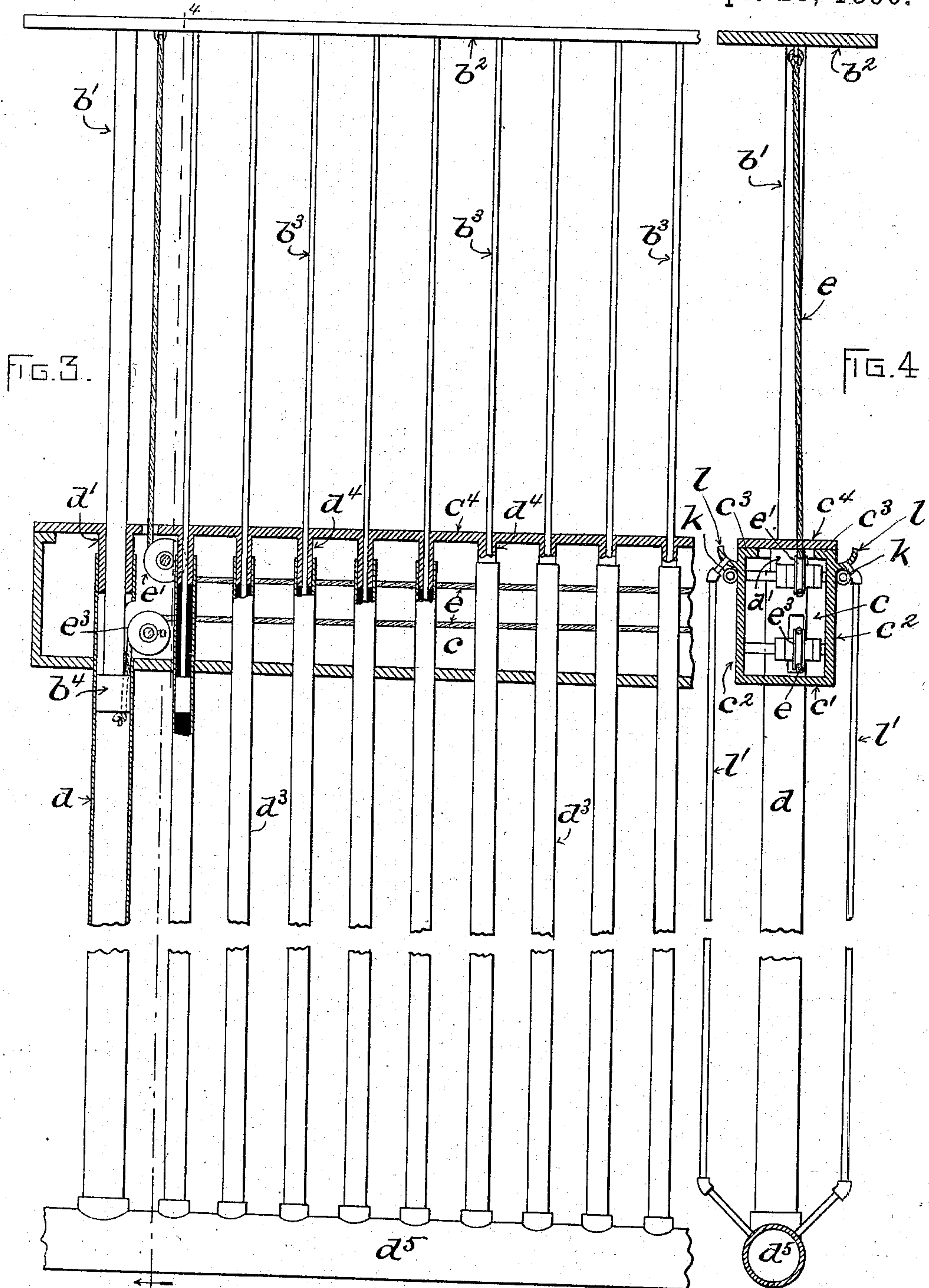
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UNITED STATES PATENT OFFICE.

WILLIAM E. BATCHELDER, OF LYNN, MASSACHUSETTS, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO ALBERT C. LITCHFIELD AND
ALICE M. BATCHELDER, OF SAME PLACE.

SAFETY-GATE.

SPECIFICATION forming part of Letters Patent No. 559,318, dated April 28, 1896.

Application filed November 25, 1895. Serial No. 570,011. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BATCHELDER, residing at Lynn, in the county of Essex and Commonwealth of Massachusetts, have
5 invented a new and useful Improvement in Safety-Gates, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to a new and improved safety-gate for railroads and other crossings; and it consists of the novel features of construction and relative arrangement of parts hereinafter fully described in the specification, clearly illustrated in the drawings,
15 and particularly pointed out in the claims.

The object of the present invention is to provide a device of the above class which shall be simple in construction, easy of operation, and the working parts of which are
20 protected as far as practicable from injury from dust or water.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a top plan view of a
25 portion of a railroad and my improved safety-gate. Fig. 2 is a longitudinal vertical section on line 2 2, Fig. 1, showing the gate in its raised position. Fig. 3 is an enlarged view, partially in section and partially in side elevation, also showing the gate in its raised position. Fig. 4 is a transverse vertical section
30 on line 4 4, Fig. 3. Fig. 5 is a detached view of a portion of mechanism for raising and lowering the gate.

Similar letters of reference indicate similar parts throughout the several views.

In the drawings, *a* represents a conventional track or railroad having the planks *a'* placed between the rails *a²* at the point used
40 as a crossing. All these parts are of the ordinary construction.

My improved safety-gate *b* may conveniently be arranged parallel with the track and in any desired proximity thereto.

45 My improved gate *b* is made up of a series of vertical supports *b' b' b' b'*, &c., which are connected by the rail *b²*.

In the form of my invention shown in the

drawings I have secured to the rail *b²*, between the supports *b'* and *b'*, a series of vertical rods
50 *b³ b³ b³*, &c., which may be rigidly secured to the rail *b²* or dependent loosely therefrom.

In connection with my improved gate I have provided an inclosed subway or conduit *c*, the upper covering of which is preferably flush,
55 or nearly so, with the surface of the street. The conduit *c* may be of any suitable form or construction for the purposes hereinafter set forth. In practice I prefer to construct the same of a bottom plate *c'* and side plates
60 *c² c²*, made integral or rigidly bolted together. (See Fig. 4.) The plates *c² c²* are conveniently provided along their upper edges with the flanges *c³ c³*, to which is secured by bolts
(not shown) or other suitable means a removable cover *c⁴*. Below the subway or conduit
65 *c* are located a series of tubular uprights *d d d*, &c., which project into the conduit *c* and are held in position below the same by being embedded in the ground or other suitable
70 means.

The aperture through which each of the tubular uprights enters the conduit *c* is preferably fitted to the upright and sealed around the same with solder, lead, or any suitable
75 sealing means, or a water-tight connection formed by any of the usual devices. The tubular uprights *d* may be of any form in section. In practice, however, for the sake of economy, I have used the commercial forms
80 of piping. The bore of each of the uprights *d* is of greater diameter than that of the support *b'*, which is received thereby, as hereinafter described. The portion of each of the uprights *d* which is projected into the con-
85 duit *c* receives a tubular lug *d'*, which is inserted therein and preferably fitted thereto, and which is made integral with or suitably secured to the removable cover *c⁴*. The support *b'* is fitted to the bore of the lug *d'*, through
90 which it is projected into the tubular upright *d*. The support *b'* is conveniently provided at or near its lower end with a collar or ferrule *b⁴*, which is fitted to the bore of the upright *d*. The above-described arrangement
95 is such that each of the supports *b'* is free to

reciprocate in the upright d , being guided and held in position by the collar b^4 and the lug d' . In the form of my invention shown in the drawings I have provided for each of the rods b^3 an upright d^3 , which is projected into the conduit c and receives a lug d^4 on the cover c^4 , the arrangement, as shown, being substantially the same as that of the uprights d d , &c., and supports b' b' , &c., heretofore described.

To prevent any possible accumulation of water in the uprights d d d , &c., and d^3 d^3 d^3 , &c., in the form of my invention shown in the drawings, I have connected each of the uprights d and d^3 with a pipe or line of pipes d^5 , which is inclined toward an outlet d^6 , which communicates with a sewer or other suitable place of emptying. The pipe d^5 may, if desired, be provided with a flushing-pipe d^7 and an inclined cleaning-pipe d^8 , through which a flexible cleaner may be inserted into the pipe d^5 .

My improved gate may be raised and lowered by any suitable mechanism. The device shown in the drawings for that purpose is described as follows:

The reference-letter e represents a cable secured at one end to the rail b^2 , adjacent to the support b' , nearest the end of the gate and extending over a suitable sheave e' into the conduit c and along said conduit c to a drum e^2 , adjacent to the opposite end of the conduit c . The cable e is wrapped around the drum e^2 in the usual manner and extends back along the conduit c , and thence over a suitable sheave e^3 into the tubular upright d , its free end being attached to the collar or ferrule b^4 . It may be said in this connection that the relative diameter of the support b' and the bore of the upright d is such that sufficient space is left for the cable e between the support b' and the walls of upright d . At each of the other supports b' b' b' , &c., the portion of cable e connecting the rail b^2 and the drum e^2 , as hereinbefore described, is provided with a shunt or branch e^5 , which extends upward over a suitable sheave e^6 and is secured to the rail b^2 , adjacent to the support b' . At each of the other supports b' b' b' , &c., that portion of the cable e connecting the collar b^4 with the drum e^2 is provided with a shunt or branch e^7 , which passes over a sheave e^8 into the upright d , in which it is secured to the collar or ferrule b^4 on said other support b' in a manner substantially as heretofore described in connection with the description of connections of the main cable.

The drum e^2 may be actuated by any suitable means, conveniently by a sprocket-wheel f , suitably mounted in a casing f' at a convenient height above the street to be actuated by a crank n or other suitable means and connected by a chain f^2 with a sprocket-wheel e^9 , rotating with the drum e^2 .

In practice I have provided a counterweight h , suspended in a suitable well h' , upon a shunt h^2 from that portion of cable e con-

necting the collars or ferrules b^4 with the drum e^2 . The shunt h^2 passes over a suitable sheave h^3 at or near the top of the well h' .

The above-described arrangement is such that a rotation of the drum e^2 in one direction takes up the portion of the cable e connecting it with the ferrules or collars b^4 and correspondingly lets out that portion of the cable connecting it with the rail b^2 , thereby raising the gate b . A reverse movement of the drum e^2 produces a reverse movement of the cable e and closes the gate b .

As shown in the drawings, the rail b^2 , when the gate b is down, rests upon the cover c^4 , and to prevent the accumulation of snow and ice on or about the rail b^2 , I have provided the steam-pipes k k , extending along the sides of the conduit c and shielded by the gutters l l , which drain through the pipes l' l' into the pipe d^5 .

It is to be noted in connection with the counterweight h that it is connected with the ferrules or collars b^4 upon the several supports b' by the cable and the shunt connections therefrom. In order that the weight may act simultaneously upon all the supports b' , I have provided in the shunts or branches from the cable a turnbuckle p , by means of which the length of the shunt or branch which connects the weight with the respective support may be adjusted so that the weight will act simultaneously upon the supports. I consider this a feature of importance in my present construction, as I secure thereby the simultaneous action of the weights upon all the supports and dispense with a plurality of weight-wells, utilizing the same counterweight for all the supports.

The operation of my invention has been sufficiently described in connection with the foregoing description of the form and arrangement of the several parts.

The advantages of my improved construction would seem to be self-evident to a person skilled in the art. I may, however, state in this connection that by dispensing with the open-gate well heretofore found in devices of this class I greatly lessen the cost of construction, besides removing numerous objections thereto. Attention is also called to the improved system of drainage and the protection of the working parts from dust and water as provided for in the devices hereinbefore described. I would further state that I do not consider my invention as limited to the specific construction hereinbefore described; but

I claim as novel and desire to secure by Letters Patent—

1. In a safety-gate the combination of a series of vertically-reciprocating supports, a rail connecting said supports, a series of tubular uprights adapted to receive said supports, a drainage-pipe and water-tight connections between the uprights and drainage-pipe, substantially as described.

2. In a safety-gate the combination of a series of vertically-reciprocating supports, suit-

able connections between said supports to form a gate, a closed conduit, and a series of tubular uprights the upper ends of which extend into the conduit and receive the supports, substantially as described.

3. In a safety-gate the combination with associated parts, of a series of vertical supports, a conduit closed by a removable cover, said cover, a series of tubular uprights extending into the conduit, and a series of tubular lugs secured to the cover, arranged to engage the uprights and through which the supports pass to enter the uprights, substantially as described.

4. In a safety-gate the combination of a series of vertically-reciprocating supports connected to form a gate, tubular uprights arranged to receive said supports and in which they are free to reciprocate, and means for raising and lowering the gate comprising a cable and shunt connections from the cable which are secured to the projecting ends of the supports, and which enter the tubular uprights, and are secured to the supports therein, substantially as described.

5. In a safety-gate the combination of a series of vertically-reciprocating supports, a rail connecting said supports, a series of vertical rods carried by the rail between the supports, a series of tubular uprights to receive the supports, and a series of tubular uprights to receive the rods, substantially as described.

6. In a safety-gate the combination of a series of vertically-reciprocating supports, a rail connecting said supports, a series of vertical rods carried by said rail between said sup-

ports, and a series of tubular uprights to receive said rods, substantially as described.

7. The combination with associated parts of a safety-gate of a series of vertically-reciprocating supports, a series of tubular uprights to receive the supports of greater diameter than the supports and closed at their upper ends to form apertures fitted to the supports, substantially as described.

8. In a safety-gate the combination of a series of vertically-reciprocating supports, a rail connecting the supports, vertical rods upon the rail between the supports, tubular uprights to receive the rods and supports, and a drain-pipe or line of pipes arranged to drain the tubular uprights, substantially as described.

9. In a safety-gate the combination with associated parts, of a series of vertically-reciprocating supports, tubular uprights arranged to receive said supports and in which they are free to reciprocate, a counterweight for said supports, a cable and shunt connections from the cable connecting the counterweight with the supports, the shunt connections being arranged to enter the tubular uprights and connected with the supports therein, substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two attesting witnesses, this 23d day of November, 1895.

WILLIAM E. BATCHELDER.

Witnesses:

BENJAMIN PHILLIPS,
A. E. WHYTE.