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T. FOLKS.
AMUSEMENT APPARATUS.
APPLICATION FILED MAR. 6, 1902.

2 SHEETS—SHEET 1.

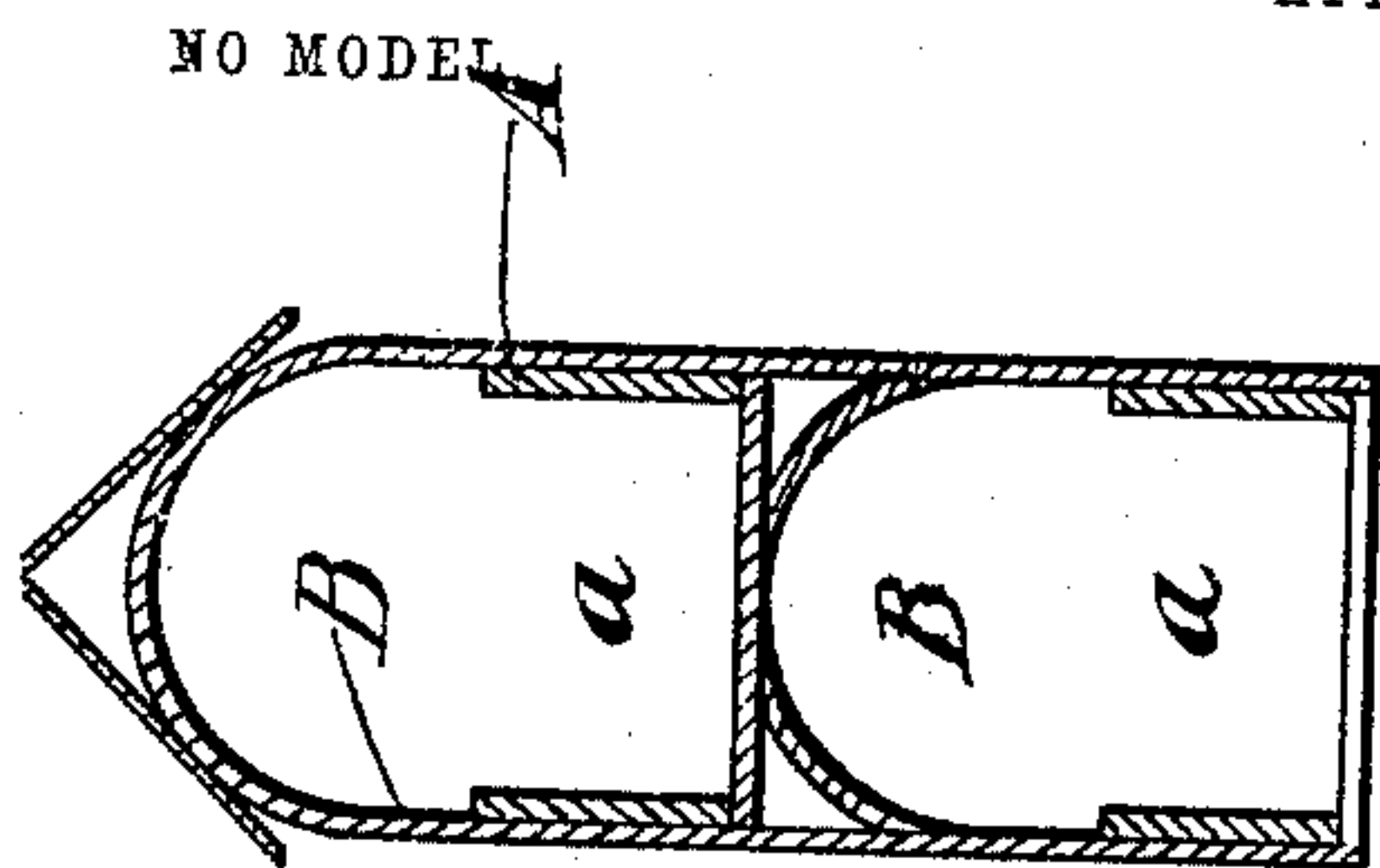


Fig. 2.

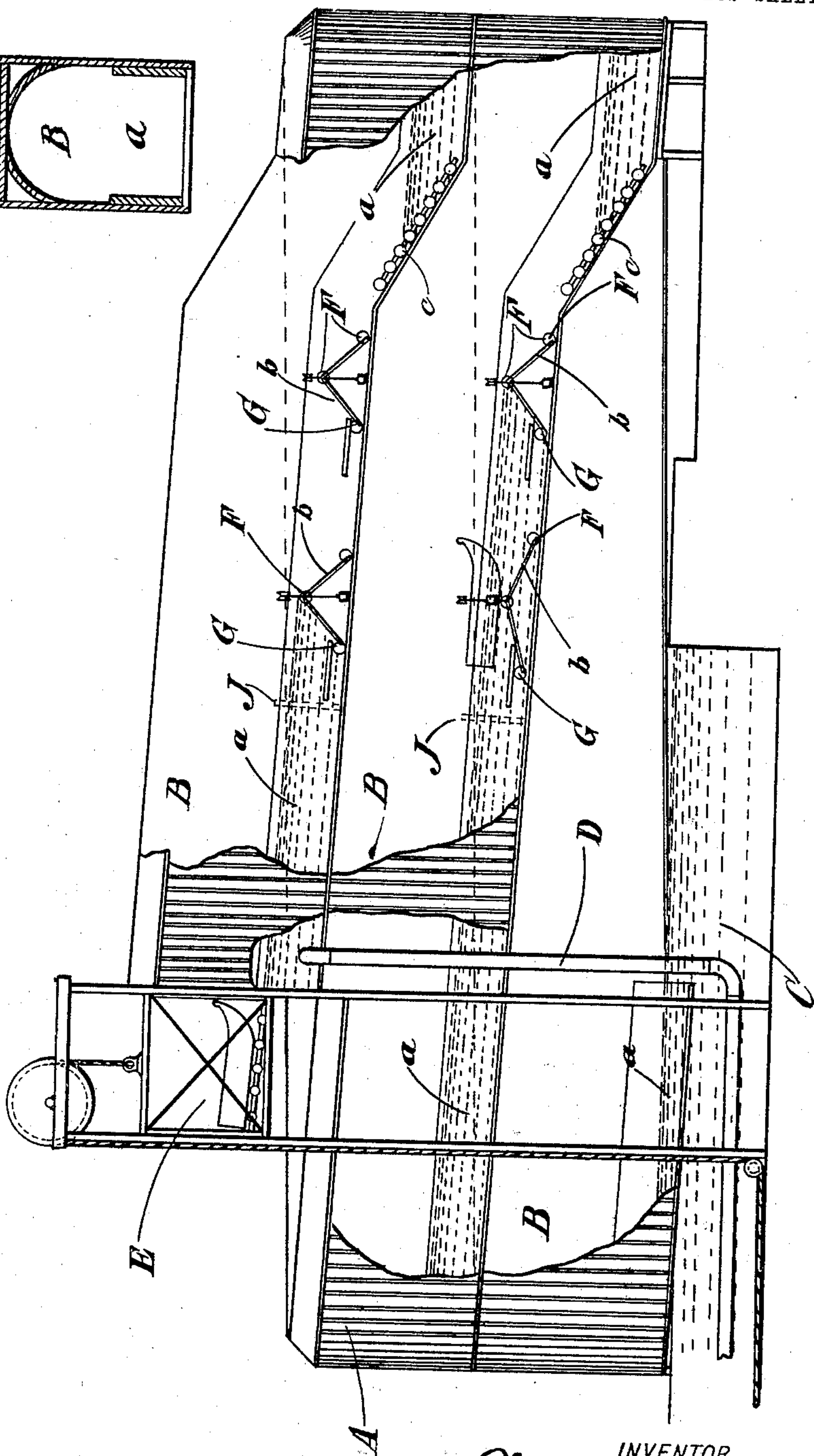


Fig. 1.

WITNESSES:

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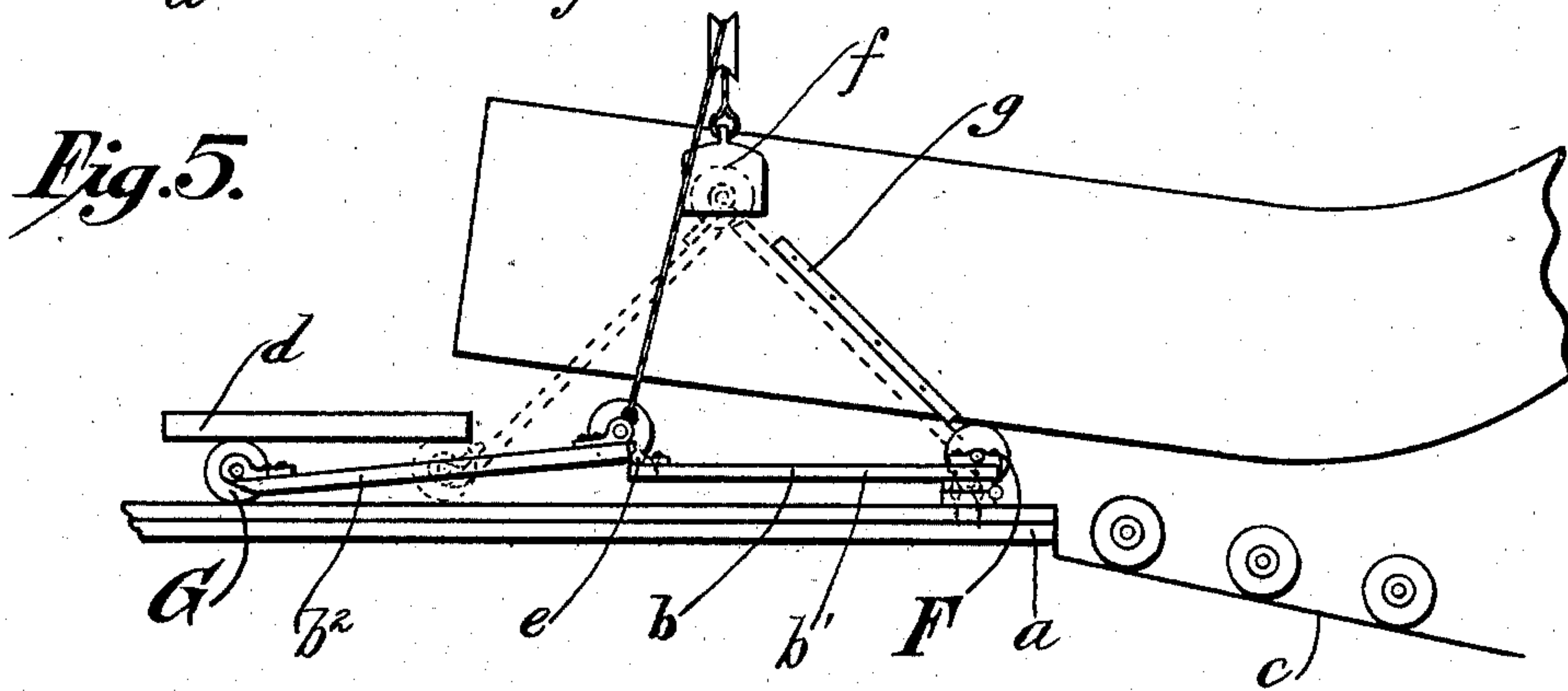
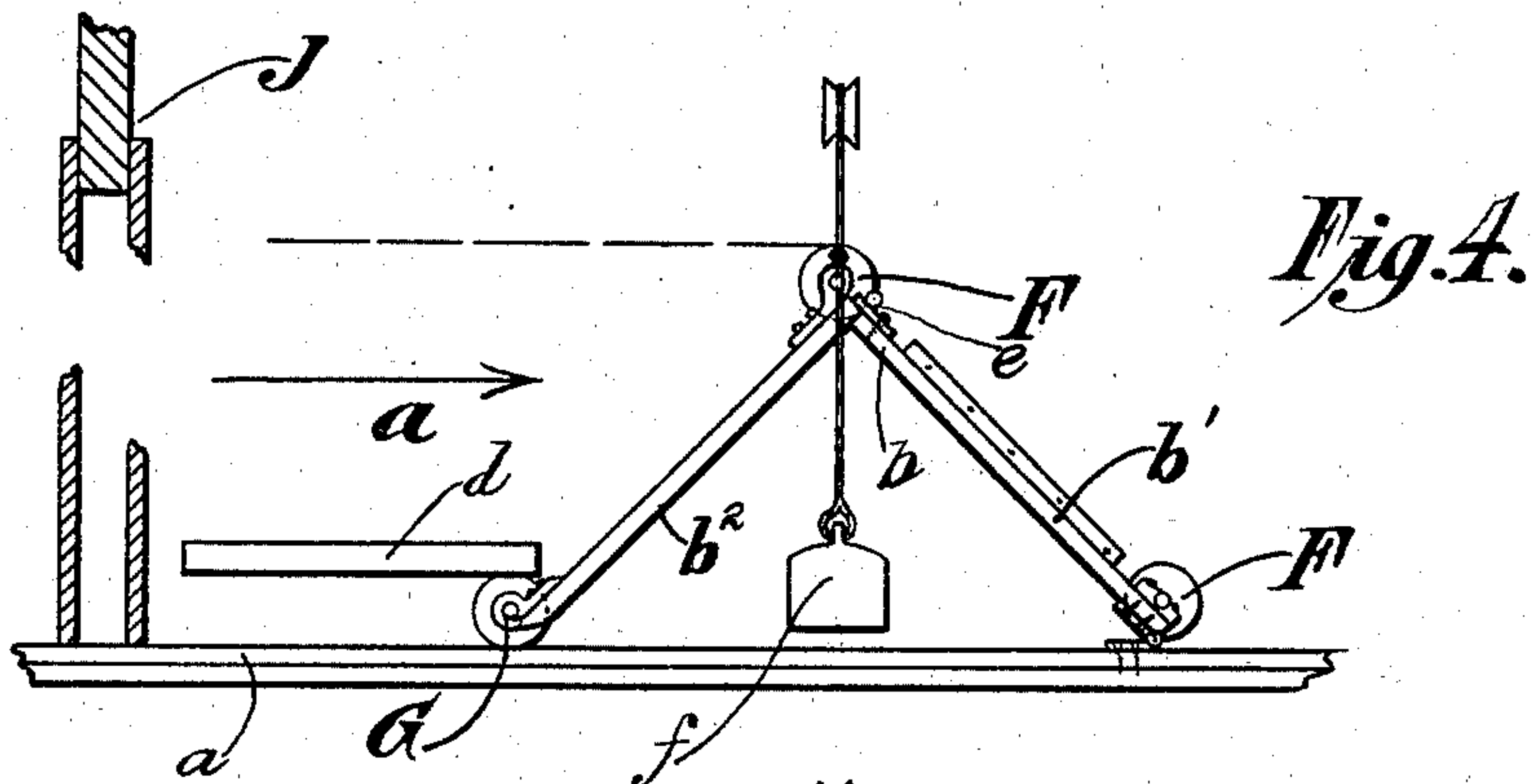
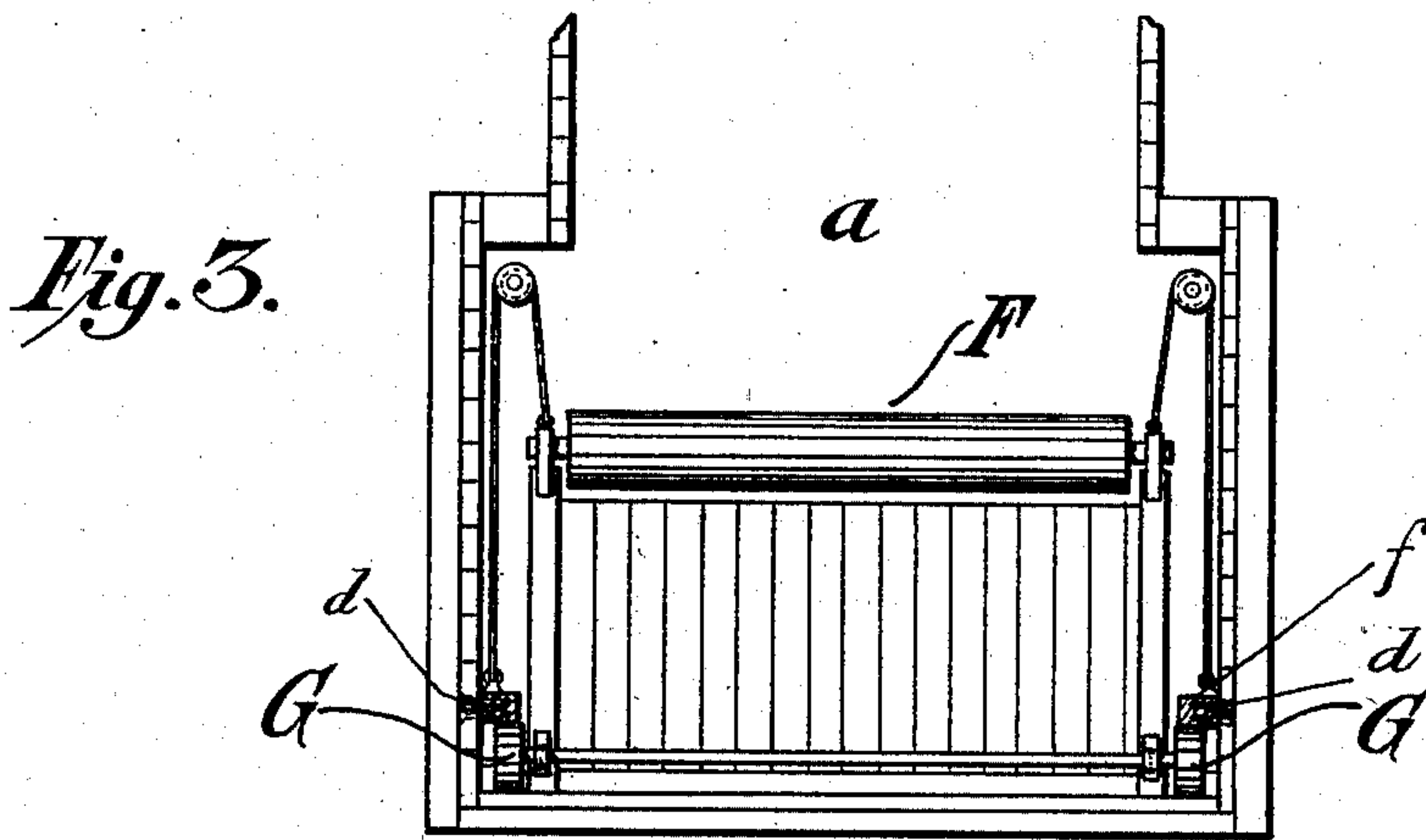
BY

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NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

THOMAS FOLKS, OF BROOKLYN, NEW YORK.

AMUSEMENT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 720,014, dated February 10, 1903.

Application filed March 6, 1902. Serial No. 96,892. (No model.)

To all whom it may concern:

Be it known that I, THOMAS FOLKS, a citizen of the United States, residing at Coney Island, in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Amusement Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to amusement apparatus wherein persons seeking recreation and entertainment are transported in boats under the influence of an induced current over a course of water flowing in an artificial channel or flume amidst a diversity of novel and pleasing scenic effects.

The object of the invention is to provide an apparatus of this character wherein the channel or flume will present in its course portions of varying pitch to accelerate the speed of the boat at predetermined points, wherein the level of the bulk of the flowing water will be maintained irrespective of the natural tendency to accumulate at the lowest point of the course, and wherein the means for so maintaining it is capable of automatic action to permit the unobstructed passage of the boat over the entire course.

A further object is to provide an apparatus which will be so compact in its arrangement as to admit of the use of an extended course on a comparatively small ground-space and which can be operated economically.

The invention consists in the novel features of construction hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings, Figure 1 is a side elevation of an amusement apparatus embodying my invention, portions of the housing therefor being broken away. Fig. 2 is a sectional elevation showing the relation of the different sections of the same continuous channel or flume. Fig. 3 is a front elevation of one of the automatic lock-gates. Fig. 4 is a side elevation of the upper lock-gate; and Fig. 5 is a similar view of the lower lock-gate, showing the position assumed by the various

parts thereof during the passage of a boat thereover.

Like letters refer to like parts throughout the several views.

In the practice of my invention I provide an outer housing A, inclosing the galleries B, wherein is an artificial channel or flume *a*. The inner walls of said galleries on each side of the said flume are equipped with such scenery or decorations as may be desired. A continuous current of flowing water is maintained in said flume by means of the feed-pipe D, discharging into the section of the flume occupying the highest elevation, the necessary water being drawn from any suitable source of supply, as the basin or tank C, into which the channel or flume empties, and being forced through said pipe by any well-known means, as a force-pump. (Not shown.)

The flume *a* is comprised of sections occupying planes of relatively different elevations, which from their highest points descend gradually, the pitch preferably being from one-half to one inch to the hundred feet. The water discharged thereinto will therefore flow in a moderately-swift current only. These sections are connected by intermediate sections, as *c c*, the pitch of inclination of which is relatively greater than that of the adjoining sections to vary the speed of the boats at these points. To maintain the head of water above these intermediate sections *c c*, I provide the gates *b b*, to be more fully described in detail hereinafter, which gates are spaced apart to form a lock between them. To prevent the backing up of water above said gates and the consequent interference with the current, these gates are so arranged (preferably by submerging to a limited extent) as to permit the continuous discharge of a portion of water therethrough or thereover. By this arrangement of gates the pitch of the intermediate sections *c c* may be any desired degree, and thus enable the different sections of the flume *a* to occupy planes of different elevation, the galleries when so desired being arranged one above the other to any desired number.

Each of the intermediate sections *c* is provided with rollers or ways *d*, upon which the boat may glide, as it is apparent that a volume of water sufficient to float the boat cannot be economically maintained, although enough will pass continuously thereover, and particularly so with the passage of the boat from the lock, to create the effect of rapids and conceal the said ways or rollers *d*.

The gates *b* each comprise a frame *b'*, hinged to the bed of the flume *a*, and a similar frame *b''*, hinged to said first-mentioned frame or united therewith by means of a toggle-joint *e*. The frame *b''* is provided with a suitable facing. Mounted in bearings on the upper side of these frames, respectively, are rollers *F F*, which are adapted to facilitate the passage of a boat thereover. To control more perfectly the movement of the said gates, I provide each with rollers *G G*, carried by the frame *b''*, which move in ways formed by the bed of the flume *a* and the guide *f*, suitable play being provided for to permit the free longitudinal movement of said frame. A cleat, as *g*, is secured to each side of the flume *a*, which presents an extended contact-surface to engage the frame *b'* and reinforce it, thus relieving the various hinges from undue strain when the gate is closed. A counterbalance, as *h*, serves in conjunction with the force exerted by the current of water against the facing of the frame *b''* to normally close said gate.

To prevent the continuous flow of water from one inclined section to another occupying a lower plane when the apparatus is closed down, I provide a supplemental gate *J*, adjoining the lock formed between the gates *b b*, respectively.

Any desired means of transporting the boats and their loads from the lower sections to the starting-point or source of the flume *a* in the upper section may be used. In the drawings I have shown an ordinary lift *E*, although an inclined plane may be substituted therefor when the space to be occupied will admit of such a construction.

The galleries *B* and their contained flume may take any desired course—direct and return, circular, or tortuous—to conform to the limitations imposed by the space to be occupied or other arbitrary requirements.

The operation of my amusement apparatus, in so far as it has not already been described, is as follows: The flume *a* is filled with water by means of the feed-pipe *D* and pump, (not shown,) which discharges into the section thereof occupying the highest plane and contiguous to the point of greatest elevation of said section. As this section of the flume fills a portion of the water passes over or through the gates *b b*, over the intermediate sections *c c* to the section occupying the next lower plane, thus inducing a continuous current of water, which action is repeated until the water traverses the entire length of the flume and empties into the basin or tank

C. The arrangement of the said tank relative to the lower section being such as to prevent the complete discharge of said section thereinto, this current is maintained throughout the entire flume solely by the continued discharge of water from said feed-pipe and the withdrawal of a corresponding volume of water from said tank. A suitable current having been set up, a boat and its occupants are elevated by means of the lift *E* or its equivalent—an inclined plane—to the section of the flume occupying the highest plane and introduced thereinto. As the boat enters the flume it descends with the current in the direction indicated by the arrow in Fig. 4 until it contacts with the roller *F* on the upper folding gate *b*. The acquired momentum of the boat augmented by the force of the current thereon tends to force the boat upon said roller and over the crest of the said gate. The vertical pressure occasioned by the weight of the boat and the contour of its stem or bow, however, depresses said gate, the rollers *G G* moving longitudinally in their ways to permit said depression. As the boat passes over the upper gate, as shown in Fig. 1, which movement is facilitated by the rollers *F F*, with which it contacts, sufficient water enters the lock with the boat to fill it. As the boat passes from said gate and prior to the actuation of the lower gate in a similar manner the upper gate is automatically closed by the action of the current on the facing of the frame *b''*, the counterbalance *f* serving to start and aid in the return of the parts to their normal position. As the boat leaves the lock after actuating the lower gate it descends the intermediate section *c* with the whole volume of water contained in the lock and continues its course through the flume from section to section in this manner until the main basin *C* is reached.

It will be observed that by the construction hereinbefore described any number of inclined sections occupying planes of relatively different elevation may be utilized and that said sections may be disposed one directly above the other, if desired, care being taken to render the flume water-tight. The volume of water to maintain the necessary level throughout these sections and induce a continuous current, by reason of the gates *b b* or either of them, is reduced to a minimum and the maintenance of the apparatus thus made economical. The vertically-depressible gates not only serve to prevent waste of water, but also increase the capacity of a plant and prevent the necessity of obstructing the upper portion of the galleries *B*. Furthermore, the said construction renders practicable the use of sections on different elevations and of variable pitch.

It is apparent that there may be many deviations from the construction herein shown and described without departing from the spirit of my invention, both as to the exact

arrangement of the gates and their number and in the minor details of their construction. It is not my intention, therefore, to limit the invention to the precise construction herein shown and described.

The course of the flume is immaterial, and no claim is made as to such.

Having described my invention, what I claim as new, and desire to have protected by Letters Patent, is—

1. In an amusement apparatus, a continuous channel or flume comprised of a plurality of sections disposed in planes of relatively different elevation and intermediate sections connecting said first-mentioned sections respectively, means for feeding water to said flume and means whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to another over said intermediate sections, in combination with means for transporting a boat to the starting-point of said flume, substantially as described.

2. In an amusement apparatus, a continuous channel or flume comprised of a plurality of inclined sections occupying planes of relatively different elevation and inclined intermediate sections of relatively greater pitch connecting said first-mentioned sections respectively, means for feeding water to said flume and means whereby the water-level is maintained in the various sections and a boat is permitted to pass successively from one section to another over said intermediate section, in combination with means for transporting a boat to the starting-point of said flume, substantially as described.

3. In an amusement apparatus, a continuous channel or flume comprised of a plurality of inclined sections disposed in planes of relatively different elevation and inclined intermediate sections of relatively greater pitch connecting said first-mentioned sections respectively, means for feeding water to said flume and a depressible gate above said intermediate sections respectively whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to another over said intermediate sections, in combination with means for transporting a boat to the starting-point of the flume, substantially as described.

4. In an amusement apparatus, a continuous channel or flume comprised of a plurality of sections disposed in planes of relatively different elevation and intermediate sections connecting said first-mentioned sections respectively, means for feeding water to said flume, an upper depressible gate and a lower depressible gate above said intermediate sections respectively and spaced apart to form an intermediate lock, whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to another over said intermediate sections, in combination with means

for transporting a boat to the starting-point of the flume, substantially as described.

5. In an amusement apparatus, a continuous channel or flume comprised of a plurality of inclined sections disposed in planes of relatively different elevation and intermediate inclined sections of relatively greater pitch connecting said first-mentioned sections respectively, means for feeding water to said flume, an upper depressible gate and a lower depressible gate above said intermediate sections respectively and spaced apart to form an intermediate lock, whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to the other over said intermediate sections, in combination with means for transporting a boat to the starting-point of the flume, substantially as described.

6. In an amusement apparatus, a continuous channel or flume comprised of a plurality of inclined sections disposed in planes of relatively different elevation and inclined intermediate sections of relatively greater pitch connecting said first-mentioned sections respectively, means for feeding water to said flume and a pair of gates above said intermediate sections respectively, said gates being spaced apart to form an intermediate lock and adapted to be automatically and successively actuated by a passing boat, whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to another over said intermediate sections, in combination with means for transporting a boat to the starting-point of the flume, substantially as described.

7. In an amusement apparatus, a continuous channel or flume comprised of a plurality of inclined sections disposed in planes of relatively different elevation and inclined intermediate sections of relatively greater pitch connecting said first-mentioned sections respectively, means for feeding water to said flume, a pair of gates above said intermediate sections respectively, said gates being spaced apart to form an intermediate lock and adapted to be automatically and successively actuated by a passing boat, whereby the water-level in the various sections is maintained and a boat is permitted to pass successively from one section to another over said intermediate sections, and rollers or ways on said intermediate sections, in combination with means for transporting a boat to the starting-point of said flume, substantially as described.

8. In an amusement apparatus, a continuous channel or flume in combination with an automatic gate comprised of two frames united by a toggle-joint, a pivotal connection between one of said frames and said channel or flume, a facing on the other of said frames, the said last-mentioned frame being capable of longitudinal movement to permit said gate

to be depressed by a passing boat and guides or ways whereby said longitudinal movement is controlled, substantially as described.

9. In an amusement apparatus, a continuous channel or flume, in combination with an automatic gate comprised of two frames united by a toggle-joint, a pivotal connection between one of said frames and said channel or flume, a facing on the other of said frames, the said last-mentioned frame being capable of longitudinal movement to permit said gate to be depressed by a passing boat, substantially as described.

10. In an amusement apparatus, a continuous channel or flume in combination with an automatic gate comprising two frames united by a toggle-joint, a pivotal connection between one of said frames and said channel or flume, a facing on the other of said frames, the said last-mentioned frame being capable of longitudinal movement to permit said gate to be depressed by a passing boat, guides or ways whereby said longitudinal movement is controlled and side braces adapted to engage said first-mentioned frame and reinforce said gate when closed, substantially as described.

11. In an amusement apparatus, a continuous channel or flume in combination with an automatic gate comprising two frames united by a toggle-joint, a pivotal connection between one of said frames and said channel or flume, a facing on the other of said frames, the said last-mentioned frame being capable

of longitudinal movement to permit said gate to be depressed by a passing boat, side braces adapted to engage said first-mentioned frame and reinforce said gate when closed, guides or ways whereby the longitudinal movement of said frame is controlled and rollers carried by said gate whereby the passage of a boat thereover is facilitated, substantially as described.

12. In an amusement apparatus, a continuous channel or flume in combination with an automatic gate comprising two frames united by a toggle-joint, a pivotal connection between one of said frames and said channel or flume, a facing for the other of said frames, the said last-mentioned frame being capable of longitudinal movement to permit said gate to be depressed by a passing boat, guides or ways whereby said longitudinal movement is controlled, side braces adapted to engage said first-mentioned frame and reinforce said gate when closed, rollers carried by said gate whereby the passage of a boat thereover is facilitated, and a counterweight to aid in starting and returning said gate to the closed position, substantially as described.

In witness whereof I have hereunto affixed my signature, this 4th day of March, 1902, in the presence of two witnesses.

THOMAS FOLKS.

Witnesses:

F. T. WENTWORTH,
M. O'BRIEN.