

(No Model.)

B. F. THOMAS.
MOVABLE DAM.

No. 574,229.

Patented Dec. 29, 1896.

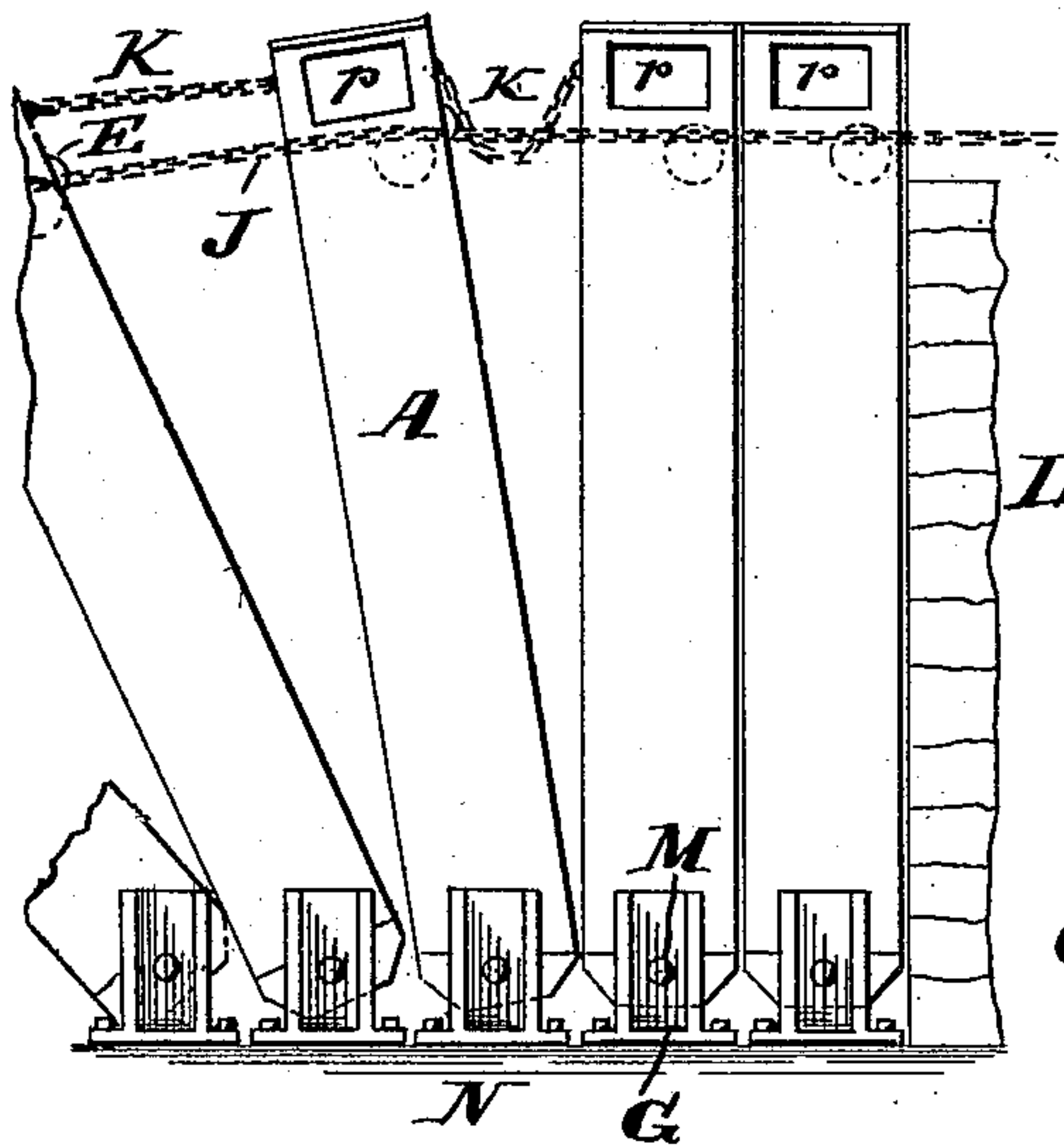


Fig. 1.

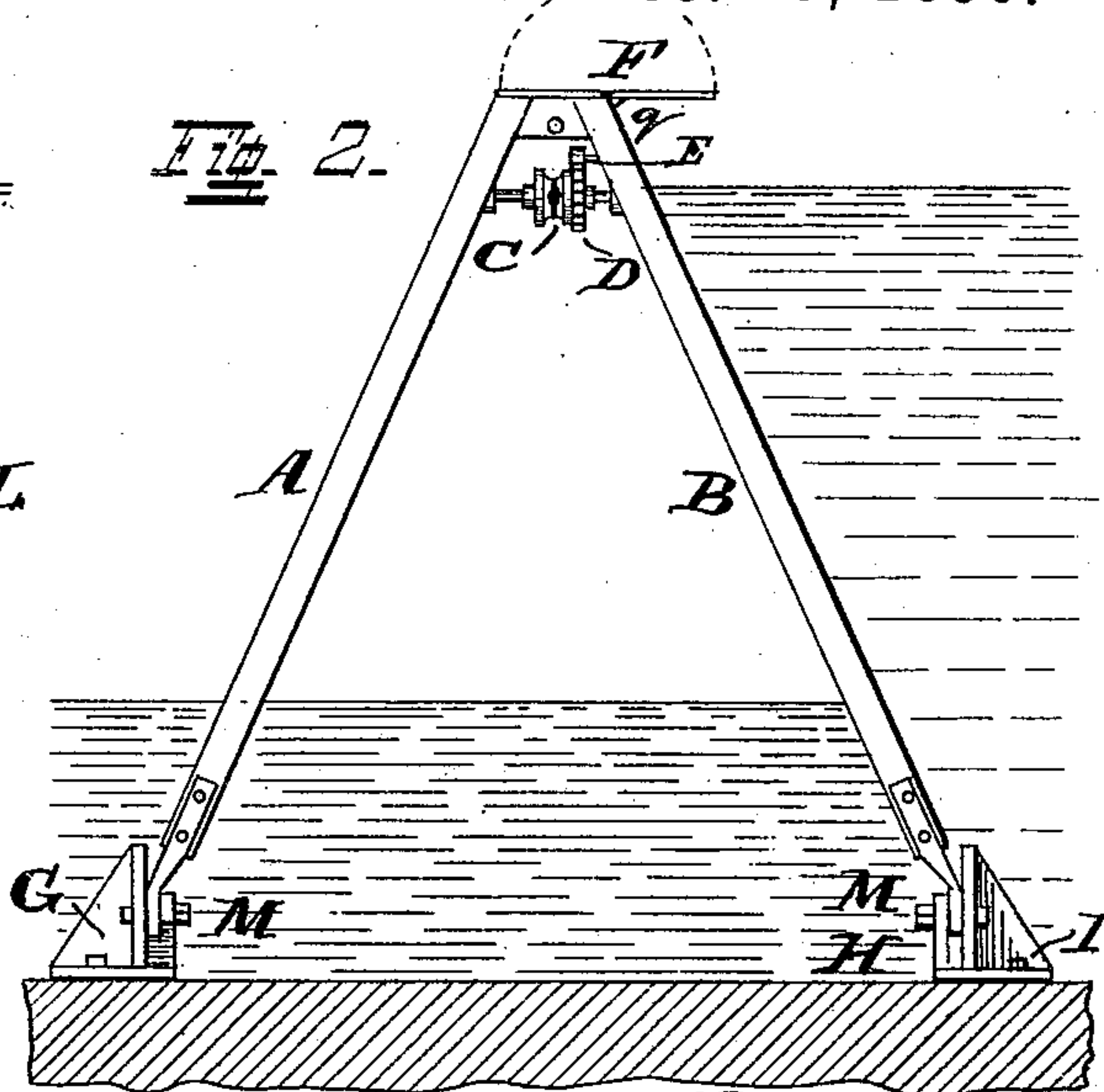


Fig. 2.

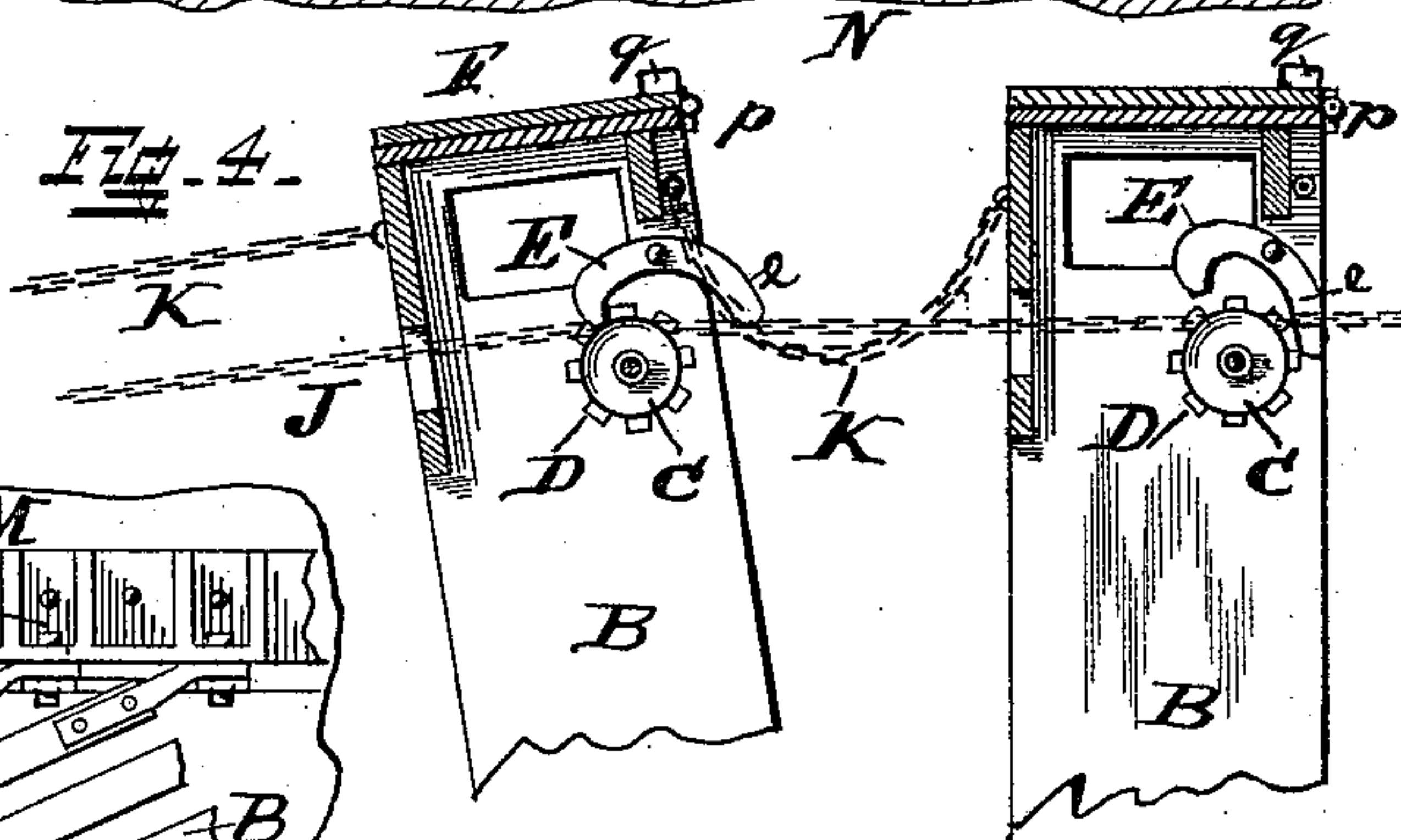


Fig. 4.

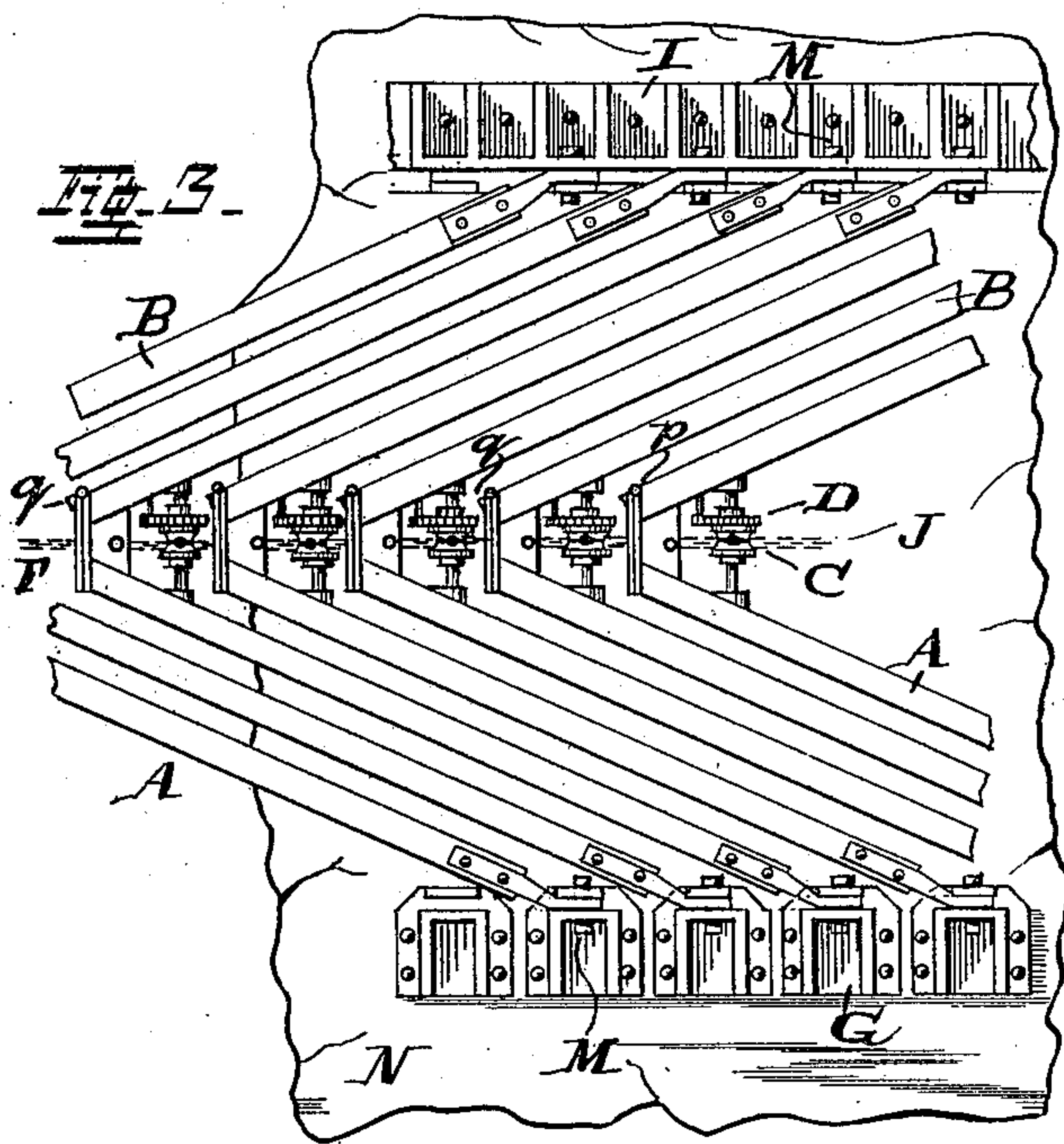


Fig. 3.

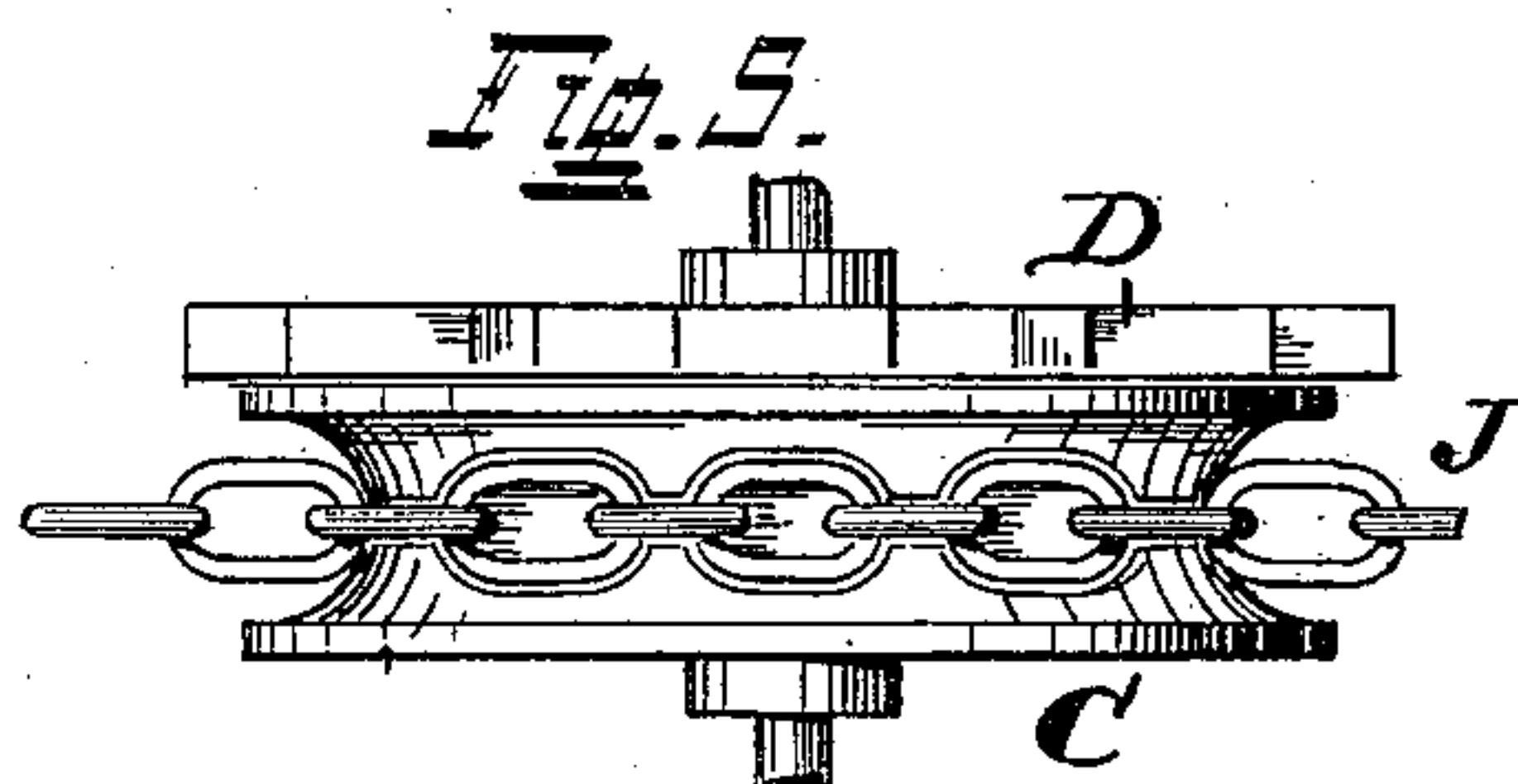


Fig. 5.

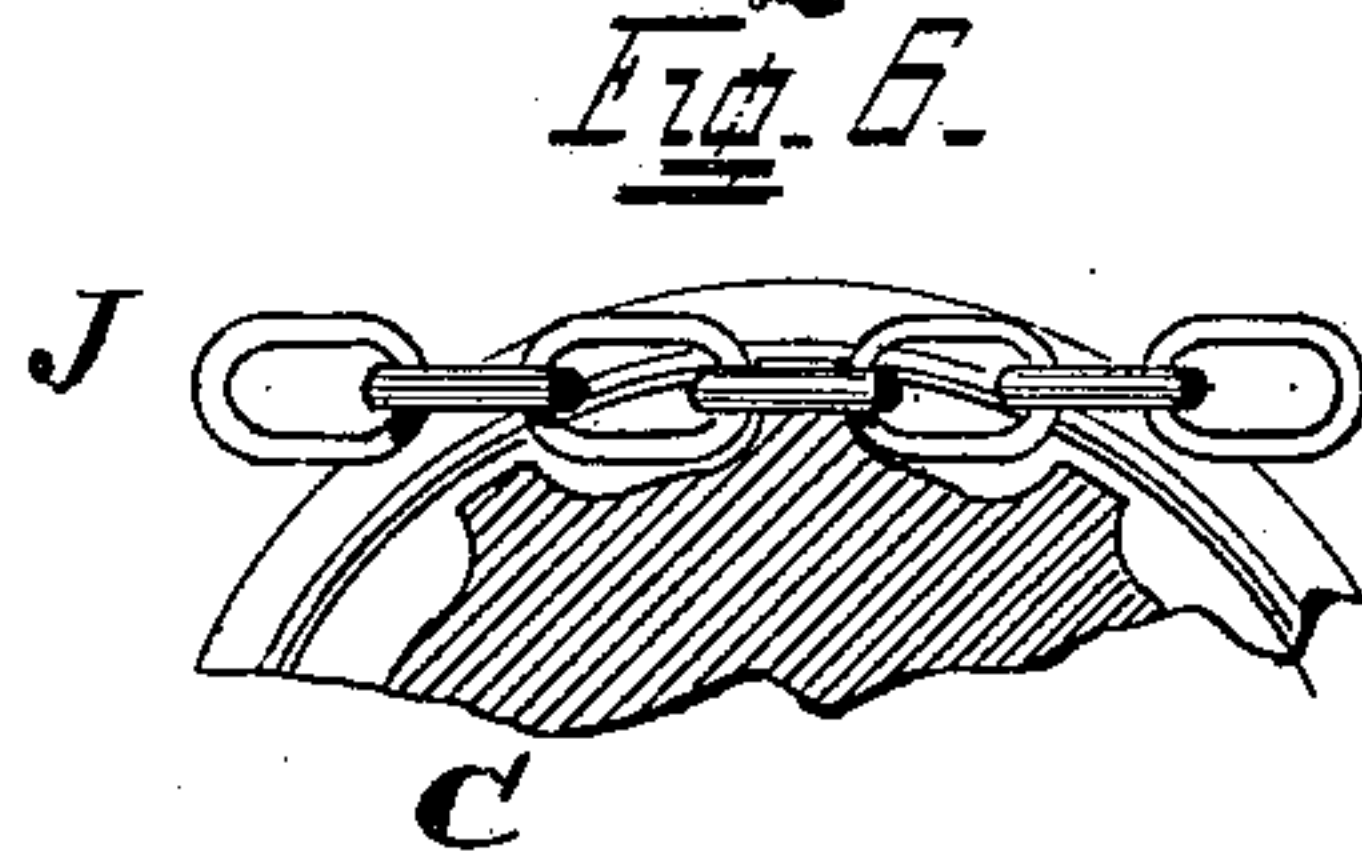


Fig. 6.

Attest,
C. Spengel
Arthur Klina

Inventor
Benjamin F. Thomas.

UNITED STATES PATENT OFFICE.

BENJAMIN F. THOMAS, OF LOUISA, KENTUCKY.

MOVABLE DAM.

SPECIFICATION forming part of Letters Patent No. 574,229, dated December 29, 1896.

Application filed June 9, 1896. Serial No. 594,877. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. THOMAS, of Louisa, county of Lawrence, and State of Kentucky, have invented a new and useful
5 Improvement in Movable Dams, of which the following is a specification.

The object of my invention is to form a dam or barrier across a stream or waterway which can be raised and lowered at will, as the conditions may require. I accomplish this result by means of a series of A-shaped trestles placed side by side upon a foundation suitably constructed in the river-bed and properly hinged to journal-boxes made fast to said
15 foundation. When standing, these trestles, or, rather, the upstream posts of these trestles, form the barrier which dams the water up and holds it back, and when down they lie one within another on the foundation and
20 offer no obstruction to navigation and are themselves protected by a sill standing on the foundation whose crest is as high as the depth of the trestles when lying down. The raising and lowering of these trestles are accomplished by means of a continuous chain
25 connecting with each trestle, hauled in by suitable machinery established upon the wall of the pass to be dammed or other accessible point in the manner described farther on. The upstream post of the trestle has a decided inclination downstream, while the downstream leg inclines upstream, so that at the top or head the two posts touch each other, while at bottom they are far apart. They
35 are suitably assembled and bound together at head, and at bottom they are formed into eyes or holes for connection with the journal-boxes. A walkway is placed on top slightly above proposed pool-level. This is so constructed that one half of it will fold over the top of the trestle when desired, the top of the trestle itself forming the other half. The tops of successive trestles are connected with short lengths of chain for assistance in lowering, as will be described, and also to have
45 some means at hand for raising them should the maneuvering-chain become disconnected from the trestles or otherwise fail. The upstream posts closely touch the sill to prevent
50 leakage.

In the accompanying drawings, in which

similar letters of reference indicate like parts, Figure 1 is a downstream elevation showing two trestles upright and others in the act of being raised or lowered. Fig. 2 is a side
55 view of a trestle standing, showing the water dammed up on its upstream side to nearly the level of the opening *r*, through which it flows when it rises above its normal height. Fig. 3 is a plan view of two whole trestles
60 and parts of others lying on the foundation, the floor *F* folded back on top. Fig. 4 is an enlarged section of the heads of two trestles, one standing and the other in the act of being raised or lowered, showing also the ratchet
65 and pawl. Fig. 5 is a top or plan view of the chain or pocket wheel and ratchet, and Fig. 6 is a part sectional elevation of the same thing.

In the drawings, *A* is the downstream and
70 *B* the upstream legs of trestle.

C is the pocket-wheel or chain-wheel on which the maneuvering-chain *J* travels.

D is the ratchet; *E*, the pawl; *F*, the walkway, which is hinged to the trestle-head at *p*
75 and when in position for use rests on a projection *q*, which is a part of *F* and which in turn rests against the trestle-frame. When not in use, *F* is folded back on the trestle-top, as
80 shown in Figs. 3 and 4.

G is the downstream journal-box; *H*, the upstream journal-box; *I*, the sill closing the spaces upstream of the trestles; *J*, the maneuvering-chain, which remains normally engaged with the series of wheels *C* by reason
85 of its own weight, its links fitting in corresponding recesses in the wheels, as shown in Figs. 5 and 6.

K is a chain connecting adjacent trestles; *L*, one wall of the pass in which the dam is
90 built; *M M*, pins connecting bottoms of trestles with journal-boxes; *N*, the foundation or floor on which the dam is built.

Some parts of the construction of the trestle-head which may vary with the ideas of
95 constructors, but which are not claimed as original, are, for the sake of clearness, omitted from the drawings.

The maneuvers of my dam consist in raising and lowering the same by machinery of
100 suitable construction. To raise it, attach the maneuvering-chain *J* to a suitably-con-

5 constructed winch, properly located, and wind
 in the chain. This will bring up the first
 trestle and also start several others, the num-
 ber depending upon the lengths of the con-
 10 necting-chains between successive trestles.
 When the first trestle becomes vertical and
 its head strikes the pass-wall L, the outwardly-
 projecting arm *e* of the pawl E will also strike
 the said wall and be forced inward, and the
 15 pawl thereby tilted on its pivot, as shown in
 right-hand portion of Fig. 4, so that its nose
 will be thrown up or lifted out of the ratchet D
 and will remain out as long as the pressure
 continues. This will permit the chain-wheel
 20 C, to which the chain being wound in is held, to
 turn, thus releasing the wheel, and in conse-
 quence the trestle in which it is fastened, so
 that the chain may pass on toward the winch.
 As the maneuvering-chain is held to the chain-
 25 wheel of each trestle to be raised at intervals
 equal to the lengths of connecting-chain K be-
 tween these trestles, it will only be necessary
 to wind in that amount of chain in order to
 bring each successive trestle to its upright po-
 30 sition. As soon as the trestle being raised
 strikes the last one put in position the pawl is
 released from the ratchet and the chain passes
 on toward the winch, allowing another trestle
 to come to an upright position. Thus the
 35 whole number constituting the dam will be
 raised, and the half of the floor F which lies
 folded on top of each trestle will remain to be
 revolved to its proper place, when the dam will
 be complete. To perform the opposite maneu-
 40 ver, that of lowering the trestles, it will first be
 necessary to slacken the chain J on the winch
 by unwinding a portion of it from the latter,
 and then to fold the floor or walkway sec-
 tions F upon top of each trestle, then pull or
 45 push the head of the last trestle raised away
 from the one adjacent to it, and said trestle
 falls into a recess in the wall (not shown)
 that is opposite L. By such movement of the
 first trestle the next one is also drawn down
 50 and separated from the one next to it through
 the medium of the connecting-chain K, and
 as soon as this separation takes place the
 pawl E falls into the ratchet D, and thus stops
 the wheel C from turning, and fastens the
 55 chain J upon it. Then by continuing to un-
 wind the chain J the next to the last trestle
 (as well as the last trestle) will be lowered
 until it stretches the chain K between it and
 its neighbor, when this trestle will in turn
 60 commence lowering. Thus the whole num-
 ber will be let down to the floor in the bed of
 the river, their chains resting upon and un-
 der their heads.

65 The space *r* in the trestles is left open to
 allow surplus water to pass and prevent the
 foot-bridge F from overflowing. Its floor
 reaches from the upper to the lower sides of
 the trestles and forms a connection between
 the two posts of each trestle.

65 I am aware that a continuous chain has
 been used for raising trestles forming part of

a movable dam, but not in connection with a
 chain-wheel or other device working auto-
 matically.

With this description of my invention, what 70
 I claim is—

1. A movable dam composed of a series of
 frames, or trestles, which are pivoted side by
 side, their pivots being arranged substan- 75
 tially in the direction of the flow of water, so
 that when said frames stand vertical they are
 parallel to the general direction of such flow,
 and when folded they move transversely, or
 at right angle, to the same, as shown and de-
 scribed. 80

2. A movable dam composed of a series of
 frames pivoted at the base, side by side and
 adapted, when placed in horizontal or reclin-
 ing position, to lie one within another, as
 shown and described. 85

3. A movable dam composed of a series of
 triangular trestles, each formed of two rigidly-
 connected beams arranged at an angle to each
 other and pivoted at their widely-separated
 bases, which are alined in the direction di- 90
 rectly opposing the pressure of water in the
 dam, a folding foot-bridge consisting of boards
 or flat sections hinged to the truncated tops
 of the respective trestles, and means for sup-
 porting the foot-bridge when thrown out and 95
 adjusted for use, as shown and described.

4. In a movable dam, the combination with
 the pivoted trestles having flat tops, of foot-
 bridge sections which are hinged to said tops,
 and adapted to fold outward as specified, and 100
 pieces *g* attached to such sections on the outer
 side, whereby they are adapted to support
 the same by contact with the side of the tres-
 tles, as shown and described.

5. A movable dam composed of a series of 105
 triangular frames or trestles which are piv-
 oted at their bases side by side, and whose
 faces, when erect, abut and form a practically
 continuous front or water-breast, as shown
 and described. 110

6. A movable dam composed of a series of
 frames which are pivoted and adapted to
 swing and fold laterally, means for loosely
 connecting them, and means for raising and 115
 automatically adjusting and holding them in
 close contact, substantially as shown and de-
 scribed.

7. In a movable dam, the combination with
 a series of pivoted and laterally-swinging
 frames, of a series of chain-wheels journaled 120
 in their upper portions, means for locking
 them against rotation, and consisting of a
 pawl, a chain resting free on said wheels and
 extending from one to another, substantially
 as shown and described, whereby when the 125
 chain is tightened or slackened, the wheels
 are held immovable, but may be released to
 allow the frames to swing downward, as shown
 and described.

8. In a movable dam, the combination with 130
 a series of pivoted frames adapted to be folded
 or laid down in the direction of the dam, chain-

rollers journaled in the heads of such frames,
a chain running on said wheels, for raising
and lowering the trestles, pawls pivoted ad-
5 jacently and their free ends projecting later-
ally, a fixed abutment against which and the
adjacent trestles such free ends of the pawls
strike when the trestles are raised to a verti-

cal position, thus tilting the pawls and unlock-
ing the chain-wheels, as shown and described.

BENJAMIN F. THOMAS.

Witnesses:

JOHN M. S. WATT,
D. A. WATT.