

(No Model.)

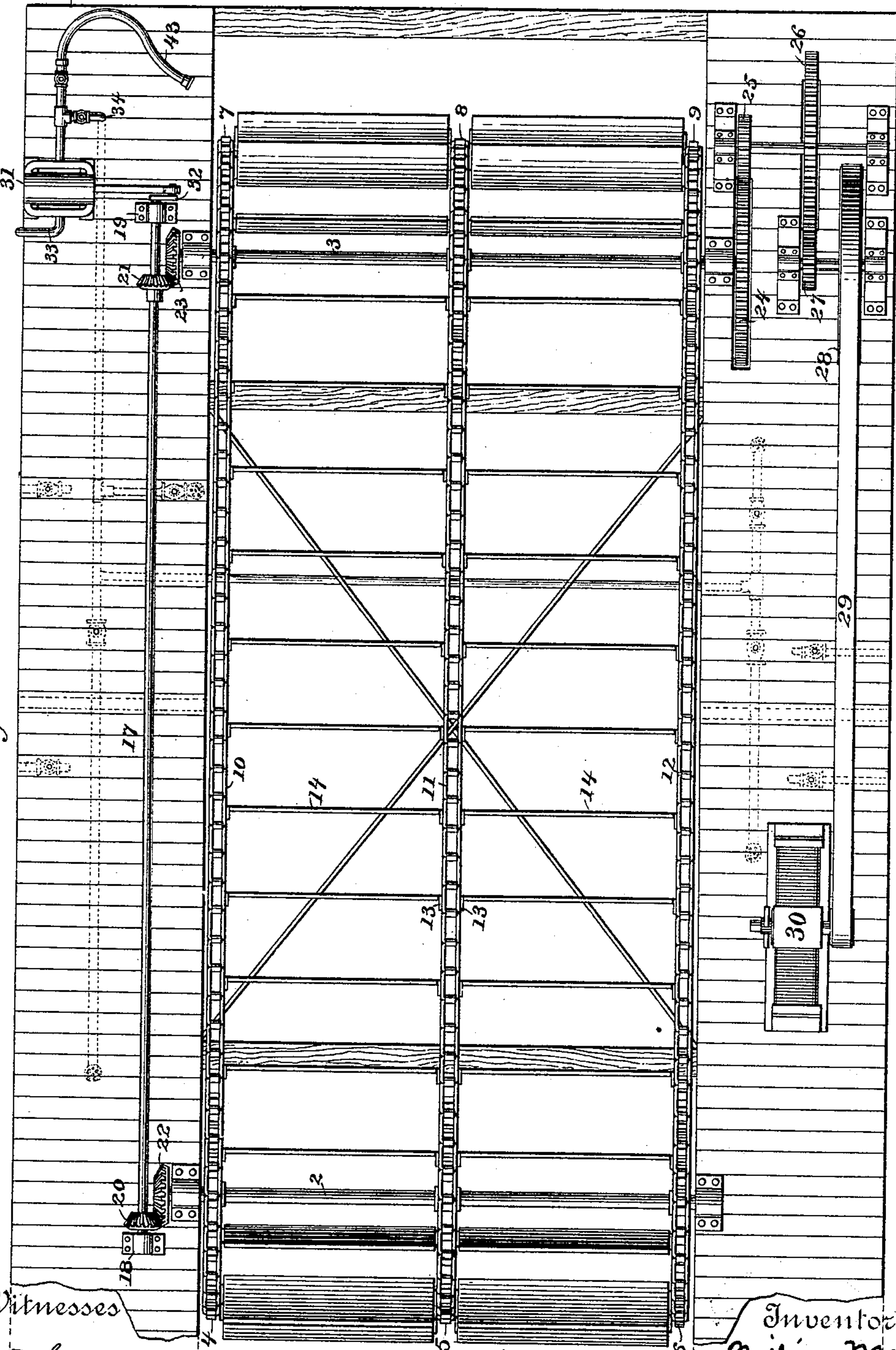
4 Sheets—Sheet 1.

W. MAIN.  
FLOATING CURRENT MOTOR.

No. 328,496.

Patented Oct. 20, 1885.

Fig. 1.



Witnesses

Geo. T. Smallwood  
Jm. C. Linn

By his Attorneys

Inventor

William Main  
Officer Love & Phelps

(No Model.)

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Fig. 2.

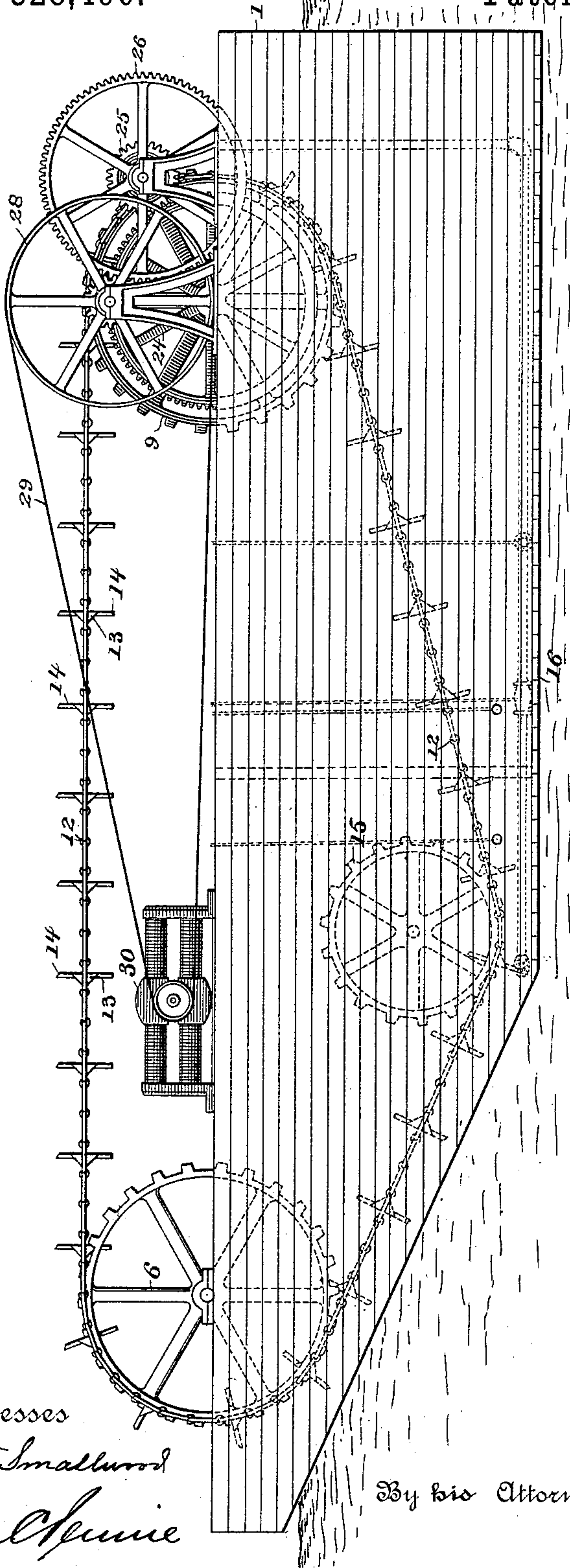
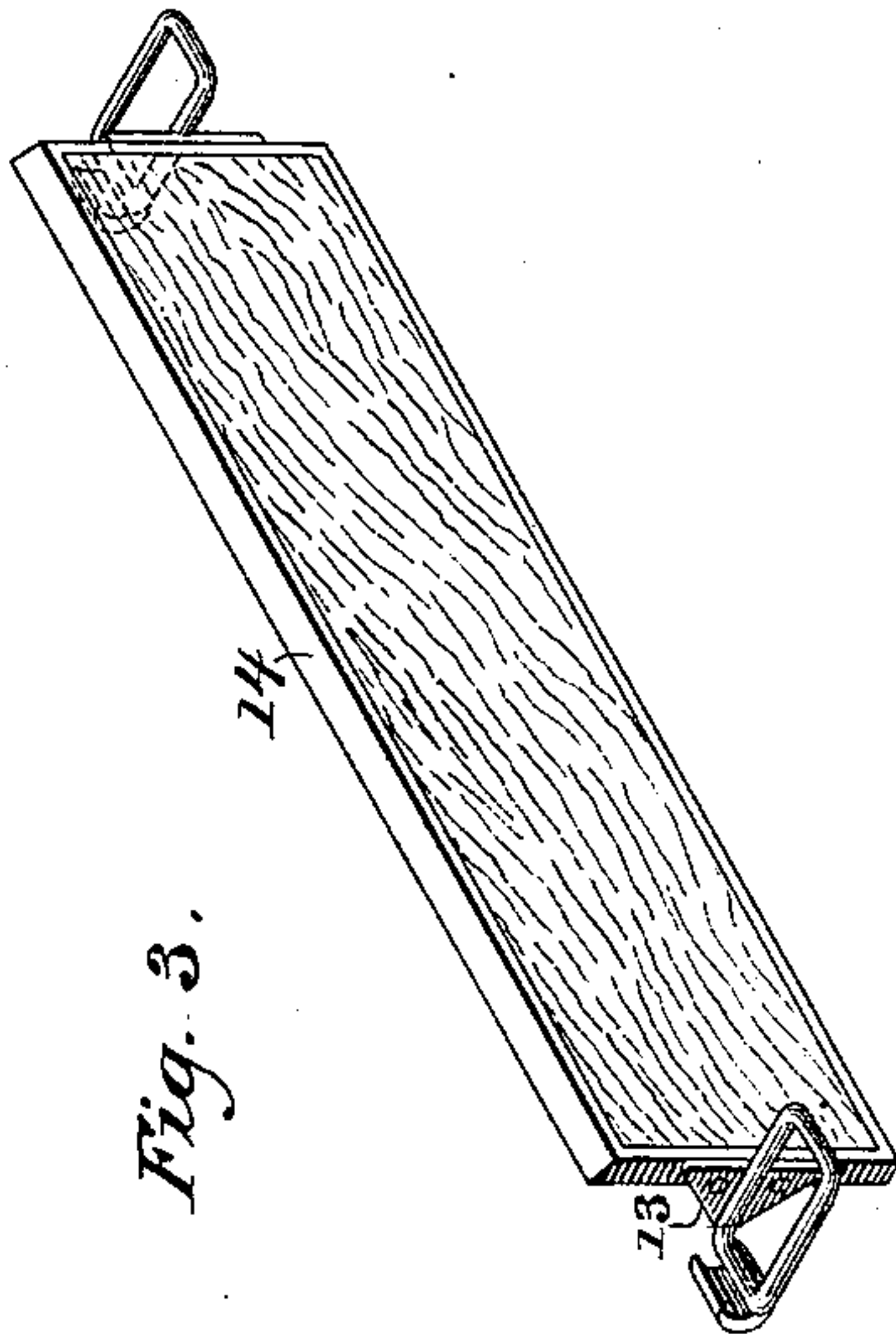


Fig. 3.



Witnesses  
Geo. T. Smallwood  
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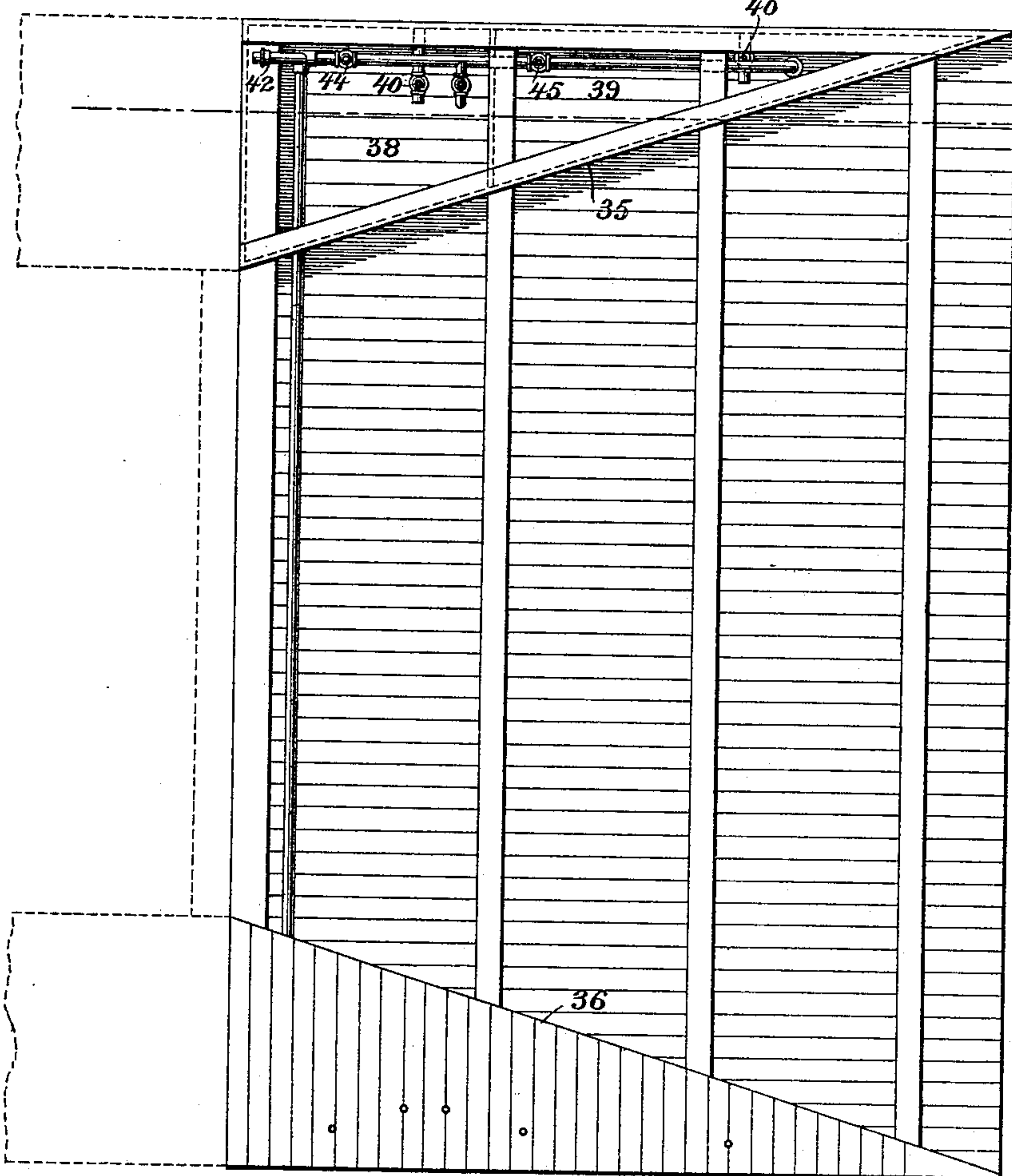


Fig. 4.

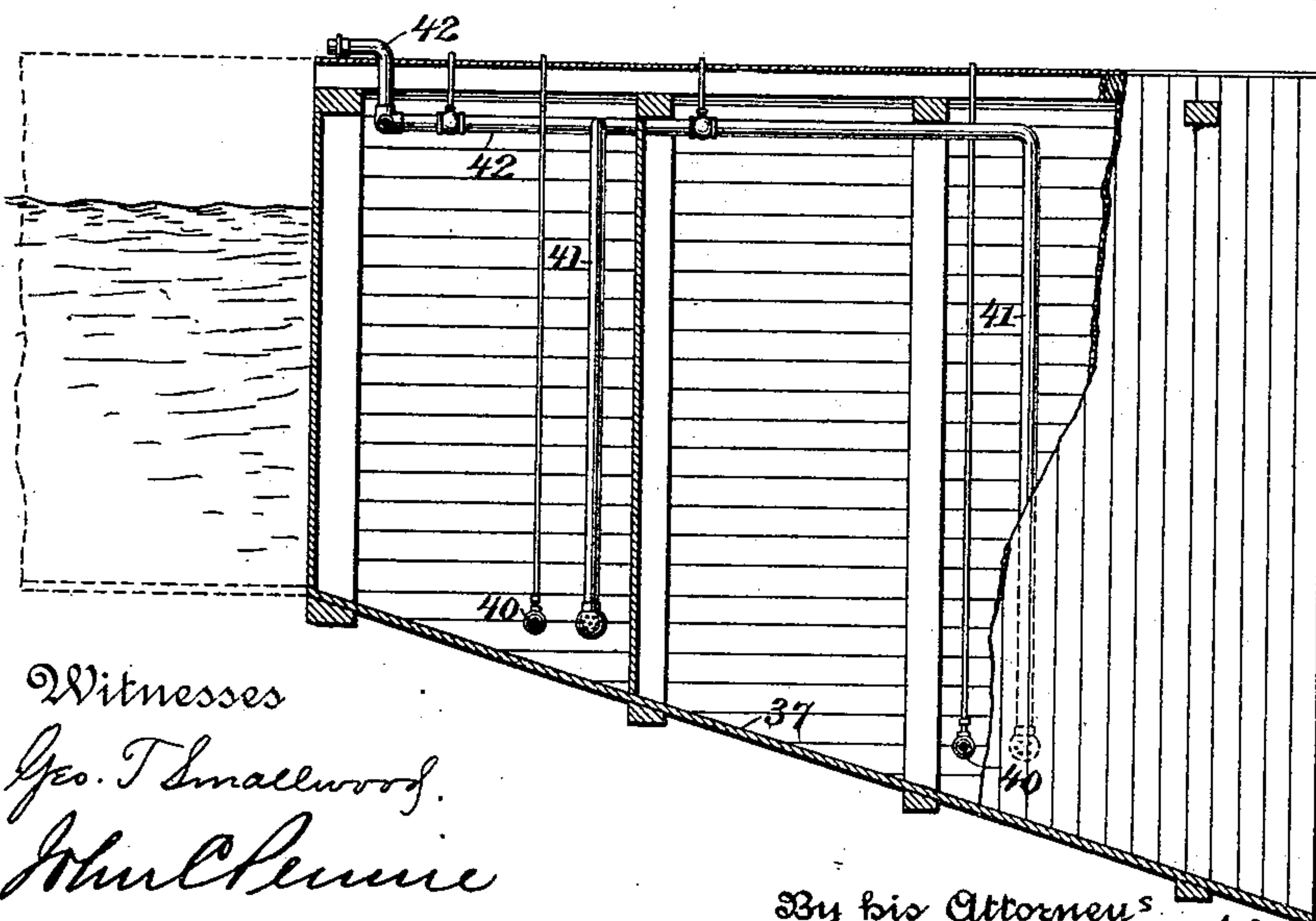


Fig. 5.

Witnesses  
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(No Model.)

4 Sheets—Sheet 4.

W. MAIN.  
FLOATING CURRENT MOTOR.

No. 328,496.

Patented Oct. 20, 1885.

Fig. 6.

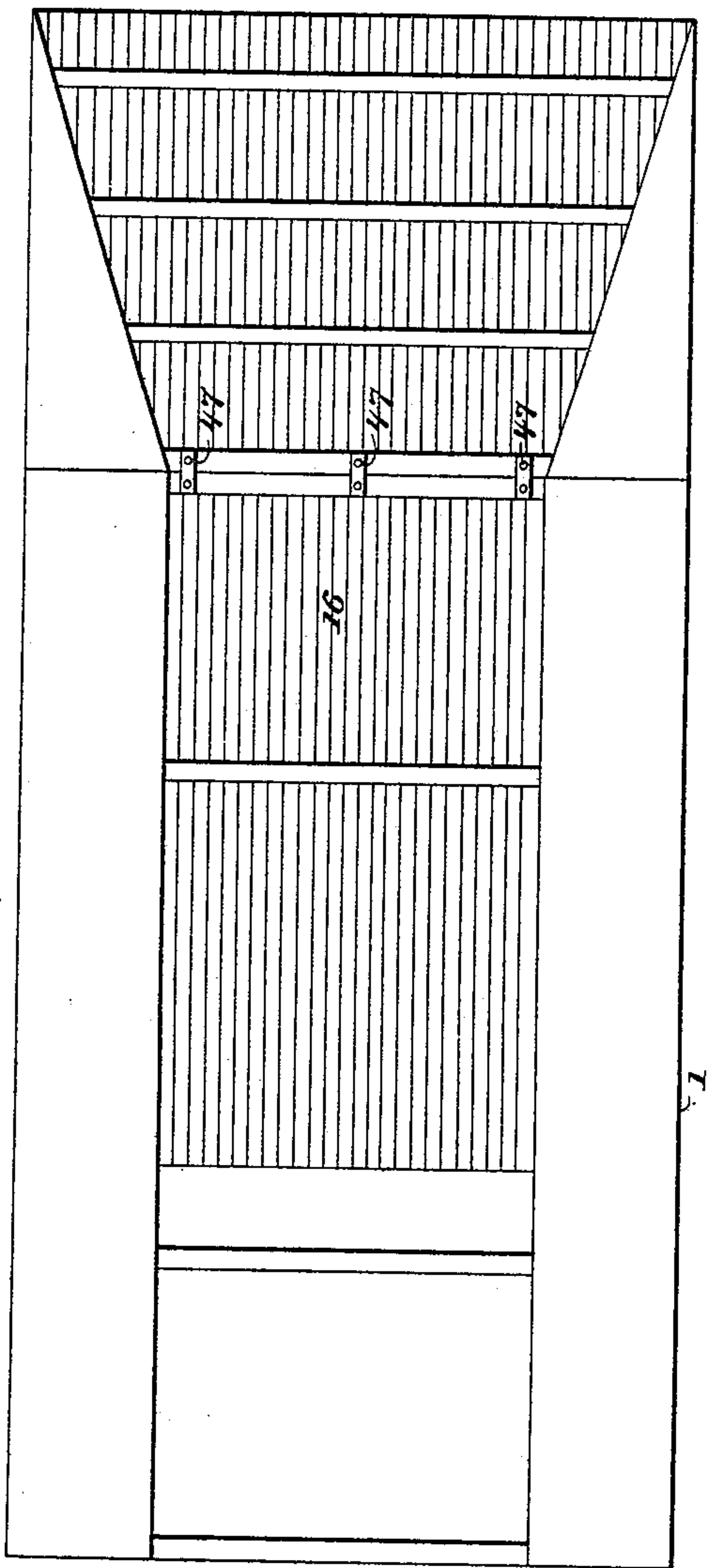
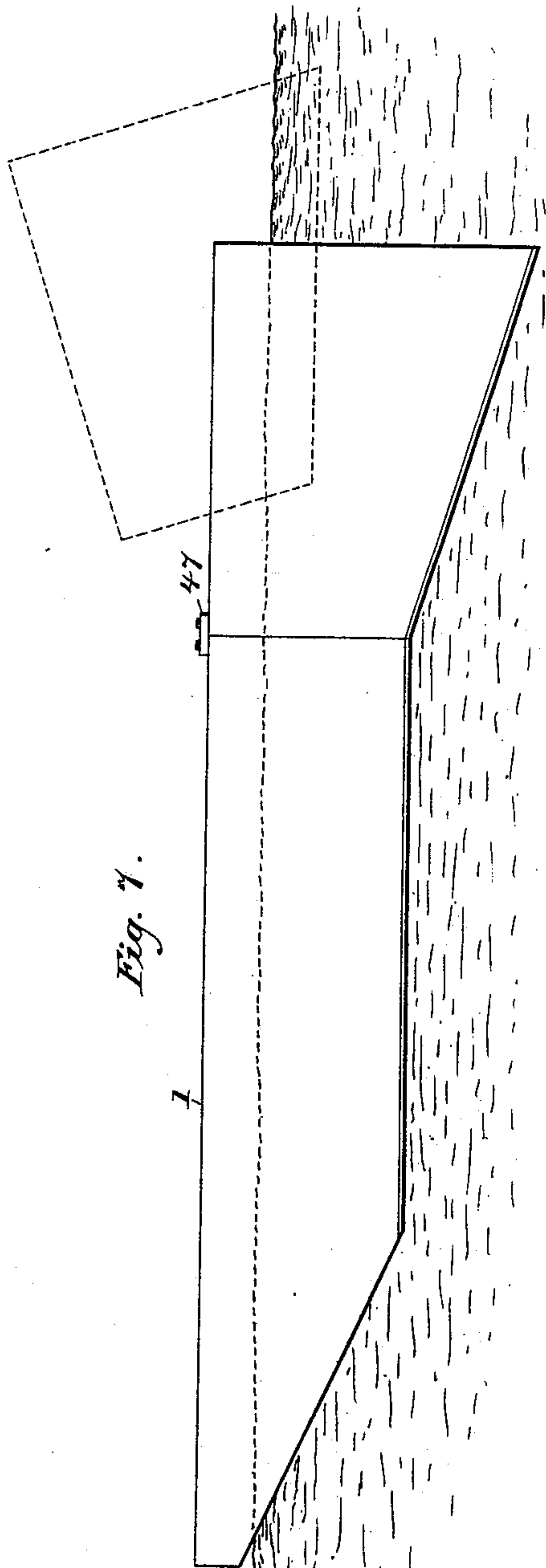


Fig. 7.



Witnesses  
Geo. T. Smallwood  
John Chance

By his Attorneys

Inventor  
William Main  
offield Jove Phelps



# UNITED STATES PATENT OFFICE.

WILLIAM MAIN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE RIVER AND RAIL ELECTRIC LIGHT COMPANY, OF OHIO COUNTY, WEST VIRGINIA.

## FLOATING CURRENT-MOTOR.

SPECIFICATION forming part of Letters Patent No. 328,496, dated October 20, 1885.

Application filed July 25, 1885. Serial No. 172,662. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MAIN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Floating Current-Motors, of which the following is a specification, and which I designate as "Case C."

The object of my invention is to provide a floating water-power mechanism, which shall be cheap of construction, have a high degree of efficiency, present little surface to the action of the wind, and be adapted for use both in deep and shallow waters.

In the drawings annexed, which form part of this specification, Figure 1 represents a plan view of my power mechanism and its support. Fig. 2 is a side elevation of the same. Fig. 3 is a detail of one of the floats. Fig. 4 is a plan view of the converging approach to the water-way in which the power mechanism is mounted. Fig. 5 is a side elevation, partly in section, of the same. Fig. 6 is a plan view in diagram of the float with the converging approach to the water-way shown in position. Fig. 7 is a side elevation of the same.

The floating support 1, upon which my mechanism is mounted, and which is to be anchored in the stream, is formed in two parts securely fastened together by posts and tie-rods, as shown, and connected at the bottom by a flooring, 16, over which the water passes to propel the power mechanism hung in the water-way left between the two parts. This mechanism consists, essentially, of blades or floats mounted upon endless chains, the latter passing over sprocket-wheels, the power being taken from the shafts of these wheels. Two shafts, 2 and 3, are shown in the drawings, each carrying three sprocket-wheels, 4 5 6 7 8 9. The chains passing over these wheels 10, 11, and 12 are of any desired construction of drive-chain. Flanges 13 are made upon some of the links of these chains, and to these flanges floats 14 are fastened, as illustrated in detail in Fig. 3.

In order to give an inclination to the path of the floats as they pass through the water, and thus utilize a stratum of water of consid-

erably greater depth than the width of the floats, I locate a third set of idle sprocket-wheels, 15, near the bottom of the floats, which serve as guides to the chain. The bottom of the floats is cut away on a bevel just back of the idle-wheels in order to facilitate the discharge of the water.

It will be observed that owing to the inclined paths taken by the floats through the water, my apparatus can be used with advantage in shallow water as well as in water deep enough to immerse all the lower floats.

That there may be no failure of unison in the rotation of the shafts 2 and 3, a connecting-shaft, 17, turning in bearings 18 19, attached to the float, and having beveled gears 20 21, is provided, the said beveled gears 20 21 engaging with gear-wheels 22 23, mounted upon the main shaft. Upon the shaft 3 is mounted gear-wheel 24, from which, through motion-multiplying gears 25 26 27, pulley 28, and belt 29, the shaft of the dynamo 30 is driven.

The two parts of my floating support are provided with any number of water-tight compartments thought desirable, as shown and described in an application for Letters Patent filed by me July 21, 1885, Serial No. 172,239; and the amount of water in said compartments is governed by means of pump 31, operated from crank 32, attached to shaft 17, and communicating with the water-tight compartments through pipe 34, pipe 33 being a discharge.

As floating supports for power mechanisms of this character will frequently be made of great size, it will be difficult to throw out from them deflecting surfaces attached thereto by hinges or other permanent connection, and; as a convenient and inexpensive form of converging approach, I have devised a separate independent float provided with the proper converging surfaces arranged to fit one end of the water-way and having also water-tight compartments, by filling or emptying which the degree of immersion of the deflecting surfaces may be regulated. An independent float of this kind can be detached from the floating support carrying the power mechanism when it is desired to move the latter. Its compart-



ments can be emptied so that it will be capable of easy movement, and it can be towed into its proper position after the floating support for the power mechanism has been anchored, and there filled with water to such an extent as to sink it to the level of the water-way. In Figs. 4 and 5 I have shown an independent float of this sort having the three converging walls 35 36 37, and provided with four water-tight compartments, of which two, 38 39, are shown exposed. Each of these compartments is provided with a valve, 40, by means of which water may be admitted thereto, and also with an exhaust-pipe, 41, connecting with the main pipe 42. To permit the exhaust-pipe to be operated by means of the pump upon the main float, I have provided a piece of flexible tubing, 43, connected with the pump, the free end of which can be attached to the pipe 42 when desired.

It will be noticed that the use of fore and aft water-tight compartments for the floating approach is of consequence, since it enables the proper adjustment of the inclination of the structure to the surface of the stream, so as to secure close connection between the main water-way and the approach thereto.

Valves 44 45 are provided, whereby the suction of the pump may be directed to either of the fore or aft compartments, or to both. After the approach is properly adjusted to the water-way it is secured thereto in any appropriate manner, as by cleats 47 properly bolted to the timbers of the floats.

In Fig. 7 the broken outline to the right indicates the position of the floating approach when its compartments have been nearly or quite emptied preparatory to moving the apparatus.

While I have shown but a single set of guide-wheels, 15, it would be within my invention to use a greater number, the gist of this feature of my invention consisting in giving an oblique path to the floats through the water, permitting a stratum of considerable depth to be utilized.

I claim—

1. The combination, in a water-power mechanism, of endless chains carrying floats with three sets of sprocket-wheels for said chains, the middle set being placed out of alignment with and on the opposite side of the operating current from the other two, whereby the floats are made to take oblique paths through the water, substantially as described and shown.

2. The combination, in a water-power mechanism, of endless chains carrying floats, two main sets of sprocket-wheels receiving motion from the chains, and guide-wheels placed out of alignment with and on the opposite side of the operating current from the sprocket-wheels for giving the chains an oblique path of motion through the water.

3. The combination, with a floating support provided with a water-way, of two sets of wheels arbored near the top of the water-

way, a third set arbored near its bottom, and endless chains carrying floats supported by said wheels, substantially as described and shown.

4. The combination, with a floating support provided with a water-way, of endless chains carrying floats and three sets of wheels arbored in the water-way for supporting the chains, one of said sets of wheels being placed out of alignment with the other two and near the bottom of the water-way, whereby an oblique path of motion is given the floats through the water, substantially as described and shown.

5. The combination, with a chain water-power mechanism, in which the floats move through the water on lines oblique to the surface thereof, of a floating support therefor, water-tight compartments in said support, and valves and a pump for controlling the amount of water in said compartments, substantially as described, and for the purposes set forth.

6. The combination, with a floating water-power mechanism provided with a water-way, of an independent float provided with an approach capable of being adjusted to said water-way, said approach having two converging surfaces rigidly connected to each other, substantially as described and shown.

7. The combination, with a water-power mechanism mounted in a water-way, of a floating support, an independent float provided with water-tight holds, and a funnel-shaped passage-way through it from end to end planked over on three sides, the smaller end of said passage-way being adapted to fit the end of the water-way, substantially as described and shown.

8. The combination of a floating water-power mechanism, an independent float carrying an approach therefor having converging surfaces rigidly connected to each other, and means whereby the second float may be readily coupled to and uncoupled from the float carrying the power mechanism for securing proper attachment between the two while in their working position, substantially as described and shown.

9. The combination of a floating water-power mechanism, an independent float carrying the converging approach therefor, said approach having converging surfaces rigidly connected to each other, and coupling-bars with bolts and nuts for the same, attached to the two structures for holding the floats together in their working position, substantially as described and shown.

10. The combination, with a floating water-power mechanism, of a floating approach therefor provided with water-tight compartments and means for admitting water into and exhausting water from said compartments, whereby the position of said approach may be adjusted to said water-power mechanism.

11. The combination of a floating water-power mechanism, a floating approach therefor provided with water-tight compartments,



a system of inlet valves and exhaust-pipes for said compartments, a pump operated by said water-power mechanism, and a flexible hose for connecting said pump with the system of 5 pipes on said approach, substantially as shown and described.

12. An independent float carrying a converging water-way of approach for concentrating the flow of water upon a water-motor

provided with fore and aft water-tight compartments and means for filling and emptying the same. 10

In testimony whereof I subscribe my name in the presence of two witnesses.

WILLIAM MAIN.

Witnesses:

WILLIAM H. DE LANCEY,  
EDW. E. GAFFNEY.