

(No Model.)

D. N. LONG.
MEANS FOR OBTAINING WATER POWER.

No. 404,851.

Patented June 11, 1889.

Fig.1.

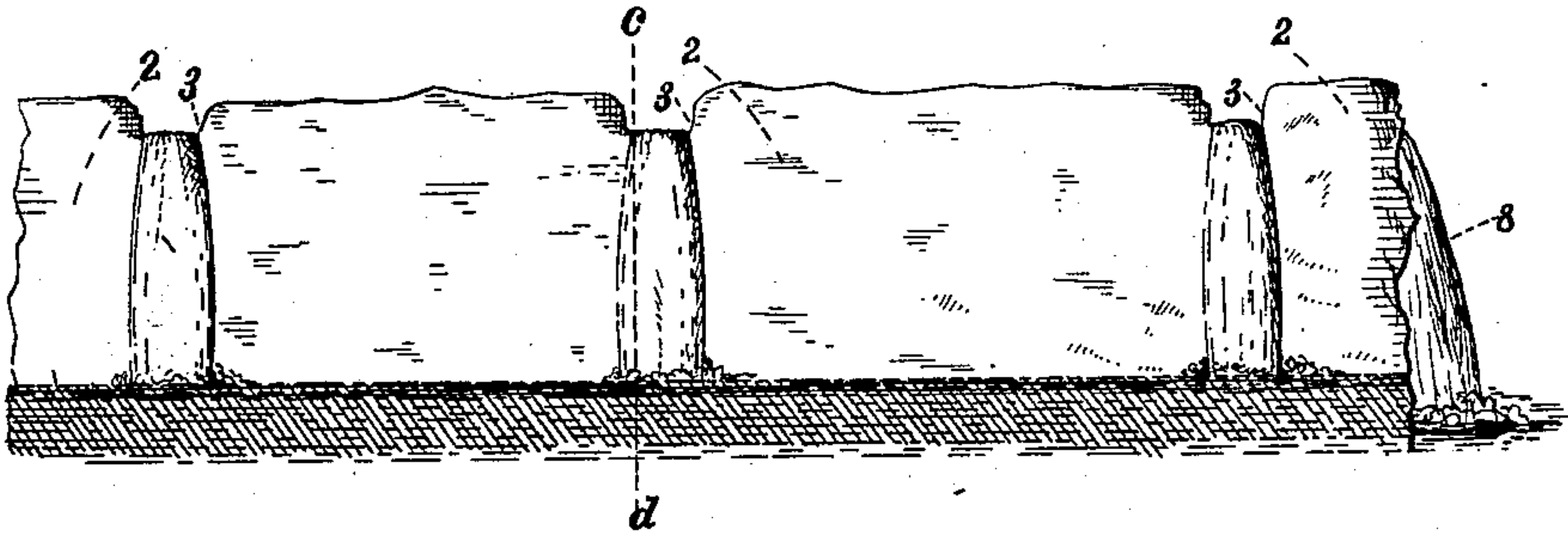


Fig.2.

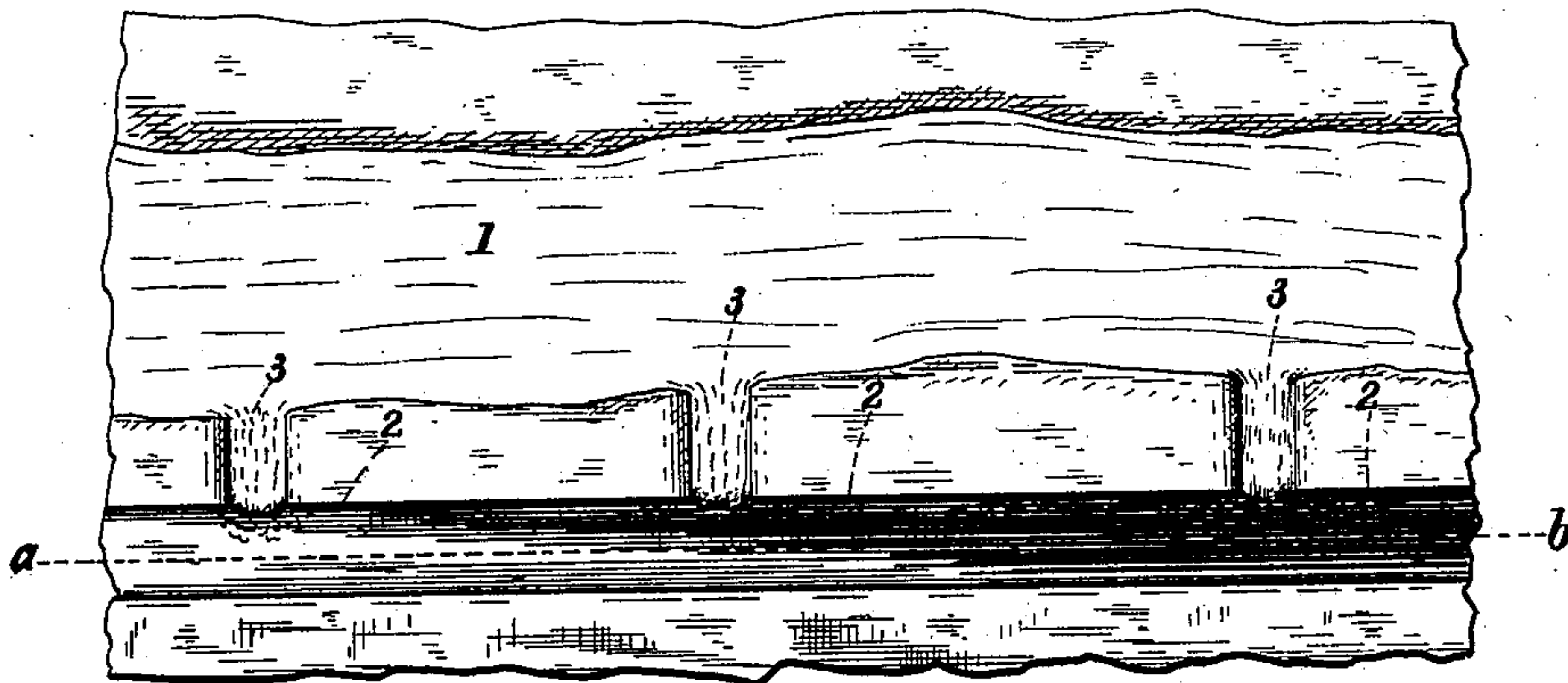
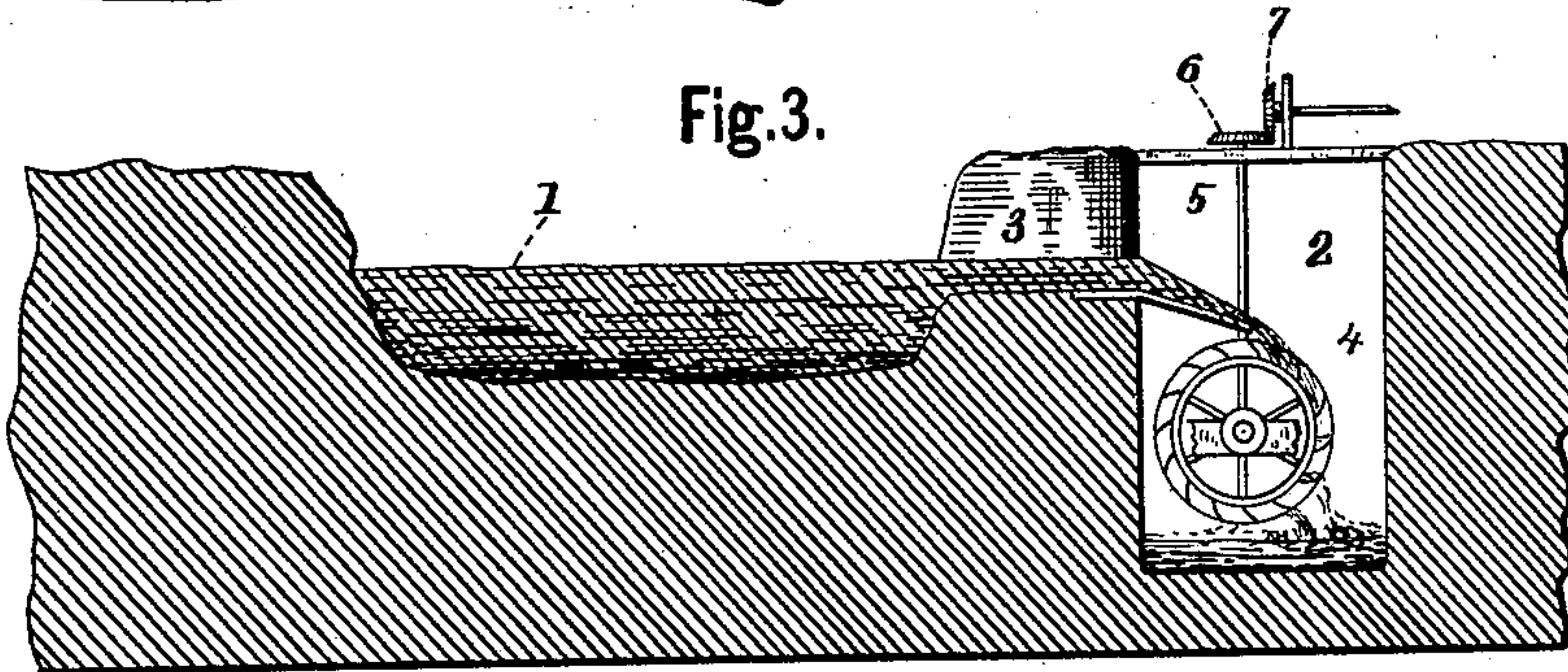


Fig.3.



Witnesses.

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MEANS FOR OBTAINING WATER-POWER.

SPECIFICATION forming part of Letters Patent No. 404,851, dated June 11, 1889.

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To all whom it may concern:

Be it known that I, DAVID N. LONG, a citizen of the United States, residing in Williams-ville, in the county of Erie and State of New York, have invented certain new and useful Improvements in Water-Power, of which the following is a specification.

My invention relates to a certain means for obtaining water-power from one or more points along a river having a sufficiently high fall of water, the object being to obtain the power at any point or points along the river above the river-falls, as will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings; and the invention consists in combining with the river above the river-falls an open canal of sufficient depth below the river-bed to insure the required fall or power, said canal to run along the river, or run as the character of the land will permit, and to have its head closed, so that no water can get in except through a cut from the river to the canal, and having its outlet at a convenient point in the river below the river-falls, or at any suitable point below said river-falls, and one or more cross cuts or slips for conducting the water from the river to the canal, thereby giving a fall of water corresponding in height to the difference between the bed of the river and the depth of the canal, which may be from five to ten, twenty, fifty, or more feet lower than the bed of the river, according to the height of the river-falls.

Figure 1 is a sectional elevation through line *a b*, Fig. 2. Fig. 2 is a plan view, and Fig. 3 is a cross-section through line *c d*, Fig. 1.

In said drawings, 1 represents the main channel or river, along the shore of which is a deep cut or canal 2, running parallel with the surface of the river, or substantially so, and as far below the bed of the river as it is practicable to make it consistent with a sufficient and free outlet for the water.

At any point along the shore of the river above the river-falls I cut a series of slips 3, through which the water flows and from thence over the bank and down into the auxiliary canal, for the purpose of operating a turbine water-wheel or other water-motor 4, and thereby

insure a sufficient and reliable water-power at any desired point substantially along or near the river. The water-motor of any kind may be located at any suitable point or points either in the cross-cuts or in the canal. By this construction it will be seen that the water-motor 4 is located as far down below the bed of the river as the relative height of the water in the canal will permit, and from which the power may be transmitted to any suitable point for use, either by the usual vertical shaft 5 and bevel-gearing 6 7 or in any well-known way. It will be further seen that the water-motor receives the full force of the fall, due to the difference between the height of the river and the auxiliary canal, and may be utilized in the same manner as any ordinary water-power by using any motor capable of receiving and transmitting the power.

By means of my invention I obtain power at any point on or near the river above the river-falls, which is a great advantage over any means heretofore used for that purpose. For instance, when a large city (like Buffalo, New York) is located on a river having a high fall of water some twenty or more miles below or away from the city, and the power is required in or near the city, it would be impossible to get it there by the old method of utilizing the water-power at or below the falls; but by means of my invention power can be developed at Buffalo on lake navigation twenty miles above the falls.

I am aware that power has been obtained by running a canal along the bank of a river below the river-falls, and thereby taking the water from the river, and by cross cuts or slips from the canal conducting the water over the bank into the river below. By this means considerable power may be obtained when the banks below the river-falls are sufficiently high for the purpose; but this mode is useless where the river-banks below the falls are not high enough to insure a sufficient fall of water, or where such banks are of such a nature that it would be impracticable to cut a canal through. I therefore do not claim such means; but

What I do claim is—

The herein-described mode of obtaining

water-power along the river above the river-falls, consisting in combining therewith an auxiliary canal located along the river above the river-falls, having its bed below the bed of the main stream or river and having its head or upper end closed and the foot or lower end open at some point near the surface of the river below the river-falls, in combination

with a series of cross-cuts from said upper river to the canal, and a means located at suitable points for receiving and transmitting the power, substantially as described.

DAVID N. LONG.

Witnesses:

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JAMES SANGSTER.