

(No Model.)

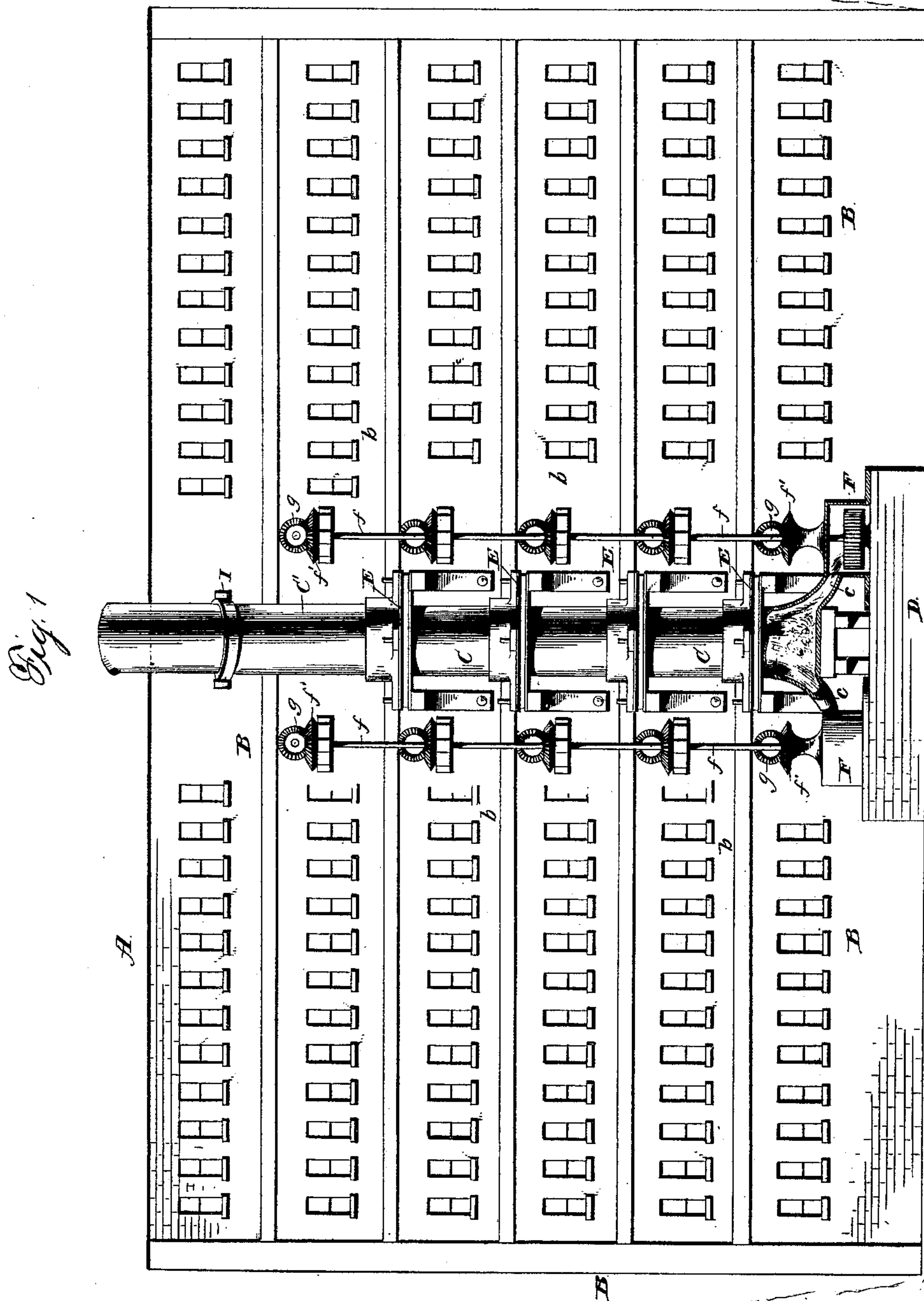
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S. H. HAMILTON.

APPARATUS FOR UTILIZING THE FORCE OF WATER FALLS.

No. 407,007.

Patented July 16, 1889.



Witnesses
Chas. Williamson
Henry C. Hazard

Inventor
S. H. Hamilton, by
C. C. Russell, his Attys

(No Model.)

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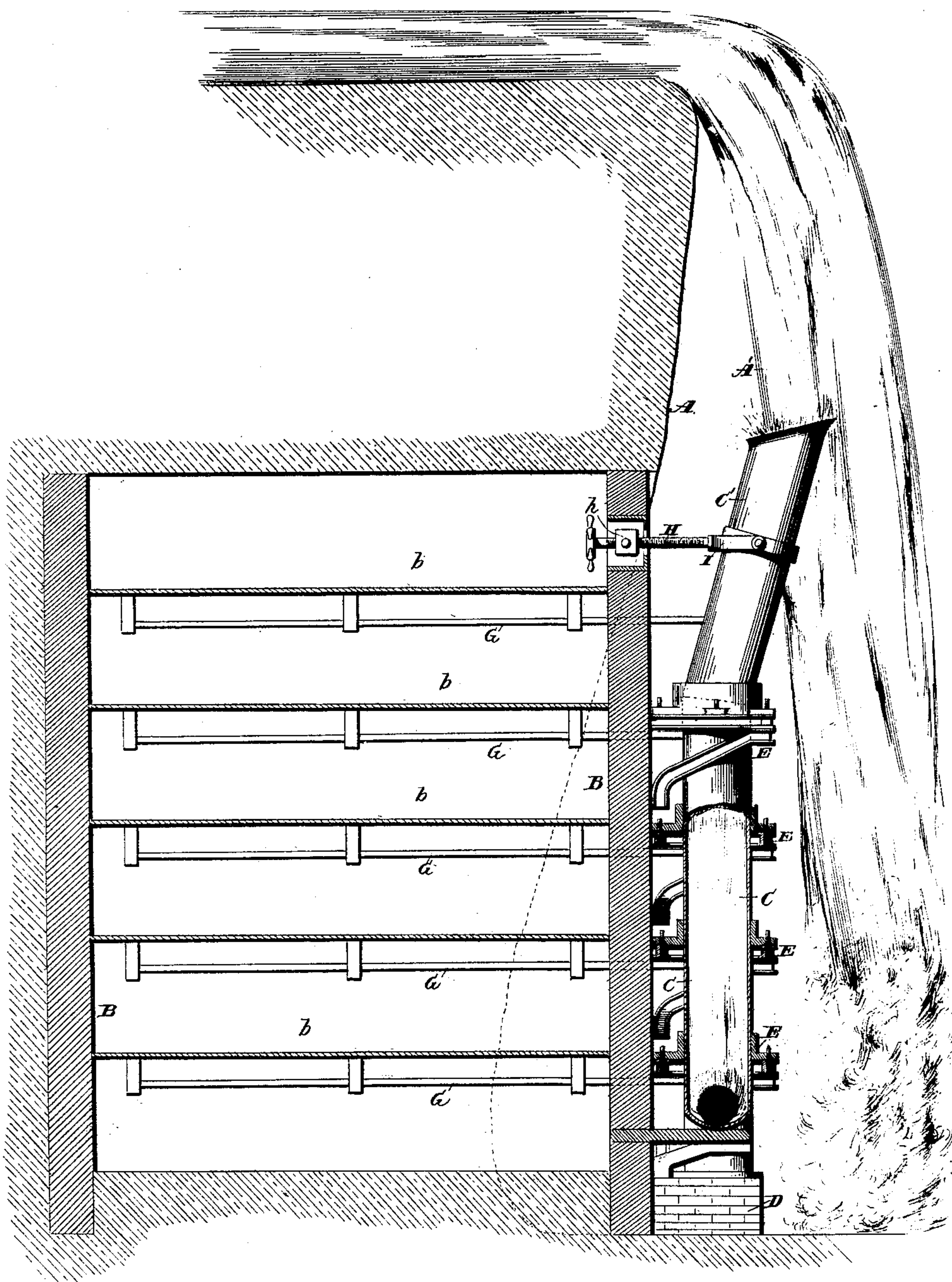
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Fig. 2



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(No Model.)

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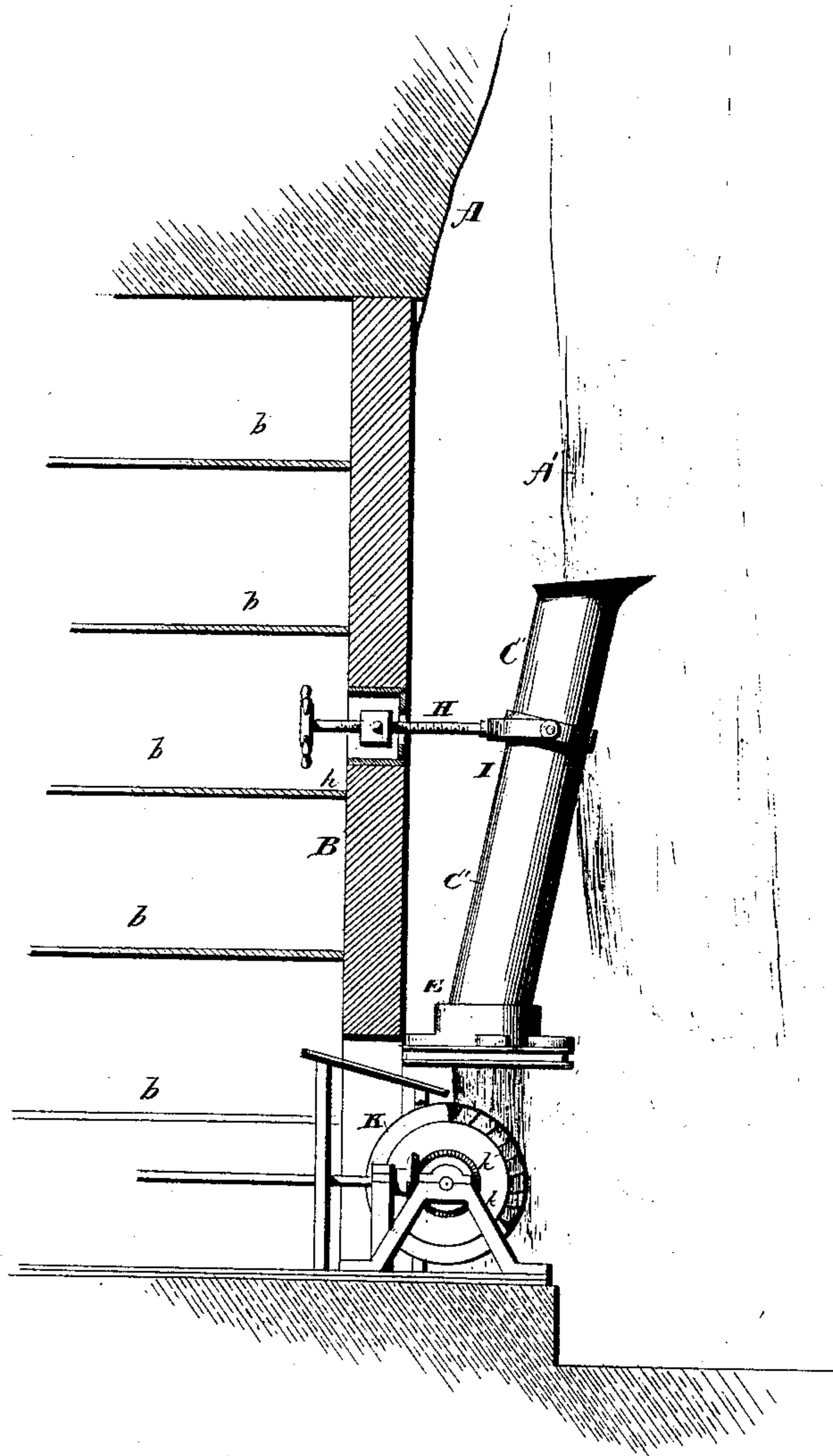
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Fig. 3.



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UNITED STATES PATENT OFFICE.

SILAS HANES HAMILTON, OF NEW YORK, N. Y., ASSIGNOR TO THE NIAGARA
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APPARATUS FOR UTILIZING THE FORCE OF WATER-FALLS.

SPECIFICATION forming part of Letters Patent No. 407,007, dated July 16, 1889.

Application filed September 1, 1888. Serial No. 284,337. (No model.)

To all whom it may concern:

Be it known that I, SILAS HANES HAMILTON, of New York city, in the county of New York, and in the State of New York, a citizen of the United States, have invented certain new and useful Improvements in Apparatus for Utilizing the Force of Water-Falls; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being
10 had to the accompanying drawings, in which—

Figure 1 is a front elevation of my apparatus as preferably arranged. Fig. 2 is a side elevation, partly in section, of the same; and Fig. 3 is a similar view of my apparatus
15 with a different style of motor.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable a portion of the effective power of a water-fall to be utilized for the driving of machinery without disfiguring the fall or detracting from the beauty of the scenery; to which end my said invention consists in the mechanism used, substantially as and for the purpose
20 hereinafter shown.

In the carrying of my invention into practice I excavate within the breast A of a water-fall a space having such size as to adapt it to the special purpose intended, and within such
30 space erect a building B, that has any desired number of stories *b* and *b*. Upon the front of the building B is placed a vertical pipe C, which at its lower end is supported by a suitable foundation D, and at points between the same and its upper end is securely fastened to the wall of said building by means of
35 straps E and E, that pass around said pipe and have their ends anchored within or bolted to said wall. At the lower end of the pipe C are laterally-extending branches *c* and *c*, that
40 each communicate with a water-motor F, preferably a turbine wheel, which motor is suitably supported in place, and by means of a vertical shaft *f* and gearing *f'* and *g* is connected with a horizontally-arranged line-shaft
45 G within either or each of the stories *b* and *b*. To the upper end of the stationary pipe C is pivoted one end of a second pipe C', which from thence extends upward and is adapted
50 to have its upper open end moved from or to-

ward the building B, preferably by means of a screw H, that passes through a nut *h* anchored in the front wall of the latter, and has its outer end swiveled within a U-shaped strap I, which has its ends pivoted upon the
55 sides of said pipe, the arrangement being such as to enable the upper end of said pipe C' to be moved outward until it is partly or entirely within the body of falling water A', and the latter is directed into and caused to
60 fill said pipe C.

The pipe C is preferably located so that when the pipe C' occupies a vertical position its upper end will be just out of contact with the falling water. Said pipes are preferably
65 connected by means of a ball-and-socket joint, but any other desired form of flexible connection may be used for such purpose.

When the pipe C' is thrown outward so as to receive water, such water will pass into
70 and fill the pipe C, and through the same will pass to the motors F and F and cause the same to operate. In addition to the pressure produced by the head of the column of water, the momentum with which it enters the pipe
75 C' will give a large increase, so that by the use of a comparatively short water-trunk a large effective power may be obtained and such power utilized for the operation of dynamos or any desired form of power convert-
80 ing or transmitting mechanism.

In Fig. 3 is shown an ordinary breast-wheel arranged so as to have its buckets *k k* impinged upon by the water from the deflecting-chute. Such chute is, as in the mechanism
85 illustrated in the other figures of the drawings, made adjustable toward and from the fall of water. The upper and rear sides of the wheel can be protected so as to prevent the water from impinging upon the same.
90

Obviously the deflector used for deflecting a portion of the fall so that it will impinge upon the wheel can be of any desired shape or construction without departure from my invention, as claimed by me in this present
95 case. I do not limit myself to the pipe form. Any form of device which will divide the main stream and deflect a portion thereof so that it can be brought into engagement with the wheel or motor can be used. Such de-
100

flector may then be of the tubular kind, which I prefer, or a trough or even piece, with an inclined plane surface to be brought into the path of a portion of the fall.

5 As my mechanism is entirely behind the sheet of water, it renders practicable the utilization of the power of a water-fall without in any manner disfiguring or lessening the natural beauties of the same. Where electric
10 mechanism is driven by the motors, the employment at night of electric lights behind the sheet of water would materially enhance the beauty of the same and produce startling effects.

15 Having thus described my invention, what I claim is—

As an improvement in mechanism for utilizing the force of falling water, a motor which

is located within the breast of a water-fall in rear of the sheet of water, in combination with 20 a chute that has one end connected with the casing of such motor, and its opposite end made adjustable by mechanism, substantially as shown, toward and from the falling water, whereby a portion of such water may be 25 caused to pass into or impinge upon such motor, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of 30 July, A. D. 1888.

SILAS HANES HAMILTON.

Witnesses:

HENRY C. HAZARD,
JAS. E. HUTCHINSON.