

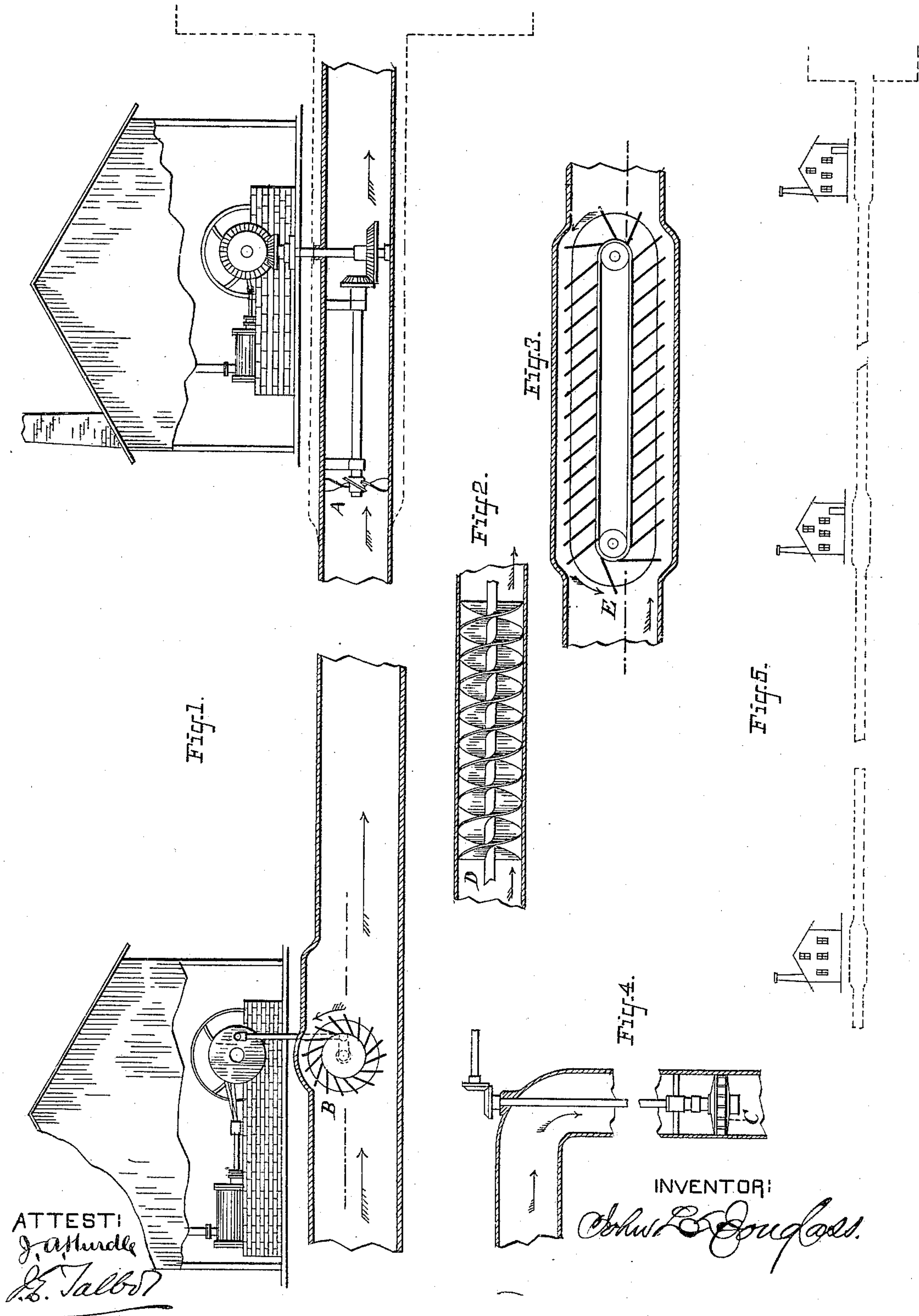
(No Model.)

J. L. DOUGLASS.

MEANS FOR INCREASING THE FLOW AND DELIVERY OF LIQUIDS.

No. 286,185.

Patented Oct. 9, 1883.



UNITED STATES PATENT OFFICE.

JOHN L. DOUGLASS, OF BELLEVILLE, NEW JERSEY.

MEANS FOR INCREASING THE FLOW AND DELIVERY OF LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 286,185, dated October 9, 1883.

Application filed April 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. DOUGLASS, of Belleville, in the county of Essex and State of New Jersey, have invented certain new and
5 useful Improvements in Means for Increasing the Flow and Delivery of Liquids, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which my invention appertains to construct and use the same, reference being had
10 to the accompanying drawings, forming part of this specification.

The object of my invention is to produce, by suitable means, in an aqueduct, conduit, sewer,
15 pipe, or course a flow of water or other liquid greater in rapidity, and consequently (within a given period) greater in bulk, than would be occasioned by the force of gravitation alone; and I accomplish this purpose by the use of
20 wheels, endless screws or worms, fans, chain-buckets, or other suitable mechanism arranged and operated as hereinafter described.

In the drawings, Figure 1 shows engines or other motive power, located at suitable distances apart along the course of an aqueduct
25 or other channel, for operating the wheels or other means employed for producing the increased flow of water or other liquid. Figs. 2, 3, and 4 and A B C D E show wheels, fans,
30 or other contrivances, which, by their revolution or movement in the liquid, accelerate and increase the flow of the same; and Fig. 5 represents the general course of an aqueduct or channel, with such engines and other mechanism located and operated as herein described. Enlargements, widenings, or additional means of communication in the course
35 of the aqueduct or channel, examples of which are shown in the drawings, for the purpose hereinafter named, may also be made with advantage. The lowest, or the one nearest the
40 outlet of the wheels or fans, being set in motion in the stream by means of any suitable power connected by bevel-gearing, cranks, or
45 otherwise, a more rapid and greater flow of liquid will thereby be caused therein, such increase of flow extending up or back from the exit or outfall until the suction and conse-

quent acceleration of the speed of the stream produced by the revolution of the wheel shall
50 have become exhausted or diminished. A second wheel or fan is inserted in the stream at the point found most effective or desirable, and operated by mechanism in like manner at a suitable velocity, thereby producing a
55 continued suction and increased flow operating in the direction of its outlet upon the column or stream of liquid above the wheel. Additional and further wheels or other mechanical appliances and the requisite machinery for
60 operating the same are or may also be used in continuation of the series, according to the length of the stream or liquid column, and as may be necessary to fully accomplish the purpose of increasing the flow so as to obtain the
65 required amount of water or other liquid within a given time. The wheels or appliances for moving the liquid more rapidly may be made to revolve or work at different rates of speed, according to the varying gravitation
70 of the liquid at different points, or in case a greater bulk of such liquid can be delivered by such variations in the motion of the wheels. There may also be enlargements of the channel, pipe, or conduit at or below the points
75 where the wheels or appliances act upon the liquid. Such enlargements will avoid any crowding or tendency of the liquid to flow in a backward direction.

I am aware that heretofore an improvement
80 in sewers has been made and patented in which a branch sewer is constructed for the purpose of carrying off the overflow occasioned by high water or other causes, and that, in connection with such construction, a paddle or fan
85 wheel was pivoted in an enlargement or chamber in the top of the sewer, at a certain distance above the said branch, by means of the revolution of which wheel an impulse is given the overflowing sewage, so as to assist it in
90 passing up and out through the branch sewer; but my invention is distinct therefrom, and consists of a series of wheels or other suitable appliances operating simultaneously and directly upon the body of the liquid, so as to
95 augment and accelerate an existing downward

flow. I do not therefore claim a device similar to the above-named improvement in sewers; but

What I do claim as new, and desire to secure by Letters Patent, is—

In combination with a channel, pipe, or course containing water or other liquid, a series of wheels, fans, or other suitable appli-

ances arranged and adapted to be operated by power, and to simultaneously act directly upon the body of the liquid, substantially as and for the purpose herein set forth.

JOHN L. DOUGLASS.

Witnesses:

HUBERT A. BANNING,
J. E. TALBOT.