

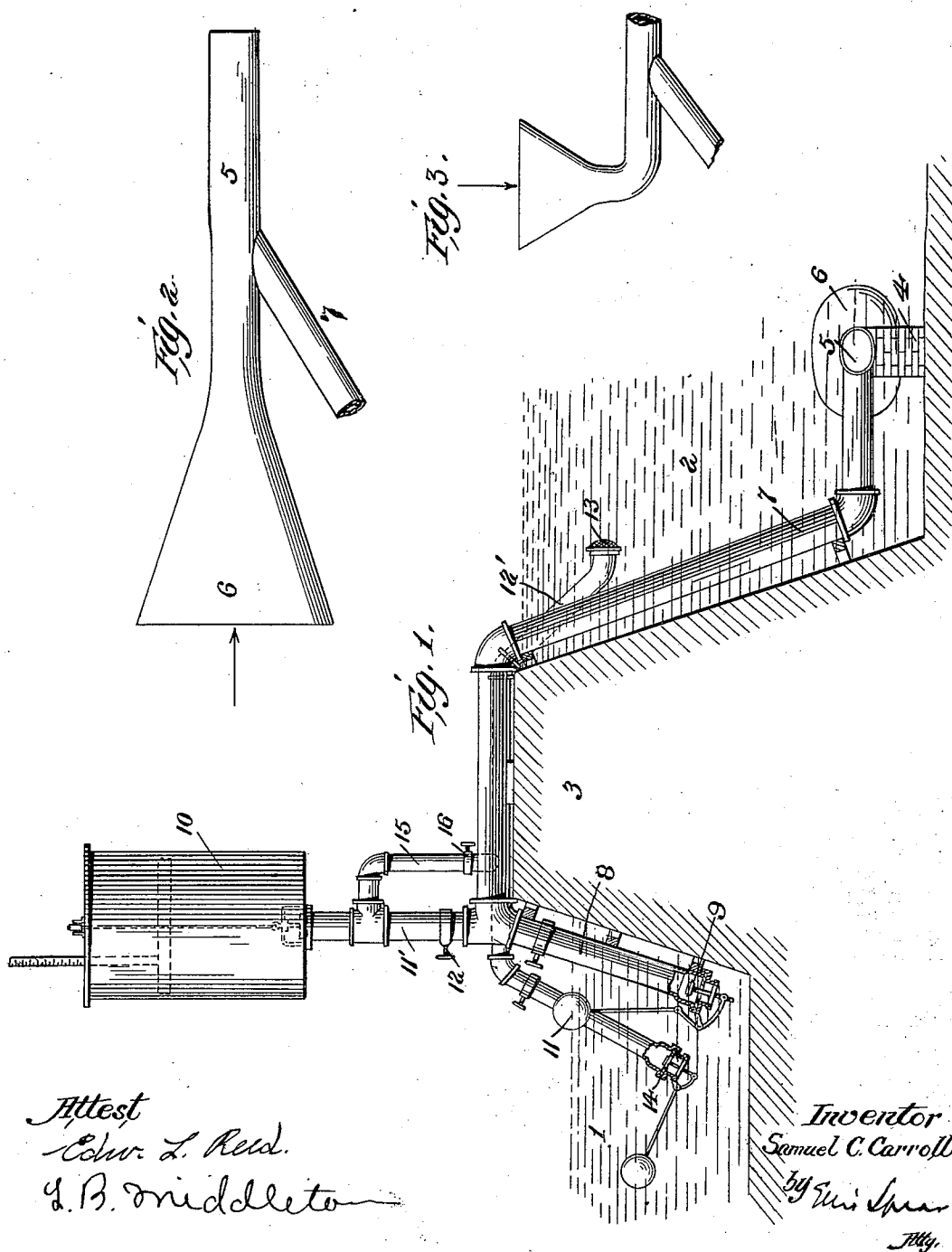
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S. C. CARROLL.
DRAINAGE APPARATUS.

(Application filed June 19, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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DRAINAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 665,826, dated January 8, 1901.

Application filed June 19, 1900. Serial No. 20,898. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. CARROLL, a citizen of the United States, residing at Dallas, county of Dallas, State of Texas, have invented certain new and useful Improvements in Drainage Apparatus, of which the following is a specification.

The object of my invention is to provide means for carrying off the drainage and sewage from cities situated upon rivers or the ocean the tide-waters of which are elevated above the same, which necessitates the provision of levees or dikes, and to discharge the sewage into said river or ocean. To accomplish this purpose, a basin is provided in the city into which the sewage and surface water, &c., drains, and means are employed for siphoning the water collecting therein over the levees into the river or ocean. The present invention relates more particularly to the arrangement of the siphoning apparatus and includes a main siphon-pipe, a device located at the discharge end thereof for starting the flow through said pipe and accelerating the same, and an auxiliary siphon to prevent the basin from being drained, which would interrupt the siphoning action.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 shows the general arrangement of the apparatus, and Fig. 2 is a detail view. Fig. 3 is a modification.

A basin 1, which receives the drainage from the city, is shown conventionally separated from the river 2 by a levee or embankment 3, and, as will be noted, the surface of the water representing the tide-level is higher than the water in the basin.

At a suitable point in the river-bed a masonry column 4, about six feet high, is built, which supports a pipe 5, placed parallel with the flow of the current, the pipe having an enlarged flaring mouth 6. Back of the mouth the long leg of the siphon-pipe 7 communicates therewith and extends therefrom at an acute angle up and over the levee, its opposite end 8 depending into the basin 1. A float-operated valve 9 controls the inlet into this end, and, as will be seen, this valve opens into the pipe and is held raised from its seat by the float 11 as long as the water in the basin maintains a predetermined level. If

the water drops below this level, the ball drops and the valve closes against back pressure of the water. On starting the apparatus, it being necessary that the pipe be full of water from end to end, I have provided a tank 10, having a connection 11 communicating with said pipe 7, so that by opening the valve 12 the portion of the pipe 7 above the water-level in the basin 1 and river 2 may be filled or primed with water. As soon as the valve 9 is opened the force of the water rushing through the contracted part of the pipe 5 will start the siphon, the water running from the basin into the river. To prevent the water in the basin dropping below the level where the siphon would be interrupted, an auxiliary siphon 12' is provided, one end of which, 13, is placed just below the low-tide level in the river, while the other end depends into the basin and is provided with a float-controlled valve 14, which normally holds this end closed. The end 13 is provided with a suitable strainer. A branch pipe 15 from the pipe 11 communicates with the auxiliary siphon, the communication being normally shut off by valve 16. If the water in the basin falls to the mean level necessary for the main siphon to operate, the auxiliary siphon will immediately operate, as the ball-valve 14 will automatically open, and thus water from the river will siphon into the basin until the ball-valve closes the auxiliary pipe again. In case of necessity the auxiliary siphon may be primed through the pipe 15, controlled by the valve 16.

A suitable float may be placed in the tank 10, provided with an indicator to show the depth of water therein.

In Fig. 3 I have shown a modification in which the funnel-shaped receiver is arranged at right angles to the line of the shore, so as to utilize the motion of the waves when it is desired to use the apparatus along the line of the ocean or sea or anywhere that the motion of the waves can be utilized instead of the current, as in the case of a river.

I claim as my invention—

1. An apparatus for siphoning water from the basin of a city into a body of water, the tide-waters of which are on a higher level than the same, over an interposed levee, comprising a siphon-pipe having one end depending

in said basin and the other extending into the body of water, and a pipe arranged parallel with the current or motion of the body of water communicating with the end of the siphon-pipe, substantially as described.

5 2. An apparatus for siphoning water from the basin of a city into a body of water, the tide-waters of which are on a higher level than the same, over an interposed levee, comprising a siphon-pipe having one end depending
10 in said basin and the other extending into the body of water, and a pipe arranged parallel with the current or motion of the water communicating with the end of the siphon-pipe,
15 said pipe having an enlarged flaring mouth, substantially as described.

3. An apparatus for siphoning water from the basin of a city into a body of water, the tide-waters of which are on a higher level than
20 the same, over an interposed levee, comprising a siphon-pipe having one end depending in said basin, and the other extending into the body of water, and a pipe arranged parallel with the current or motion of the water
25 communicating with the end of the siphon-pipe, and a float-valve controlling the end of the siphon depending into said basin, substantially as described.

4. An apparatus for siphoning water from
30 the basin of a city into a body of water, the tide-waters of which are on a higher level than the same, over an interposed levee, comprising a siphon-pipe having one end depending in said basin and the other extending into the
35 body of water, and a pipe arranged parallel with the current or motion of the body of water communicating with the end of the siphon-pipe and an auxiliary siphon to prevent the

interruption of the action of the main siphon, substantially as described.

40 5. An apparatus for siphoning water from the basin of a city into a body of water, the tide-waters of which are on a higher level than the same, over an interposed levee comprising a main siphon-pipe for conveying the water
45 from the basin into said body of water, a back-pressure valve in said basin, an auxiliary siphon-pipe interposed between the body of water and the basin and means for automatically starting the flow of water through
50 the same from the body of water into the basin when the water in the latter drops to a predetermined level, substantially as described.

6. An apparatus for siphoning water from
55 the basin of a city into a body of water such as a river or ocean, the tide-waters of which are on a higher level than the same, over an interposed levee, comprising a main siphon-pipe for conveying the water from the basin
60 into said body of water, a back-pressure valve in said basin, an auxiliary siphon-pipe interposed between the body of water and the basin, means for automatically starting the
65 flow of water through the same from the body of water into the basin when the water in the latter drops to a predetermined level and means for priming said main and auxiliary
siphon-pipes, substantially as described.

In testimony whereof I affix my signature
70 in presence of two witnesses.

SAMUEL C. CARROLL.

Witnesses:

HENRY E. COOPER,
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