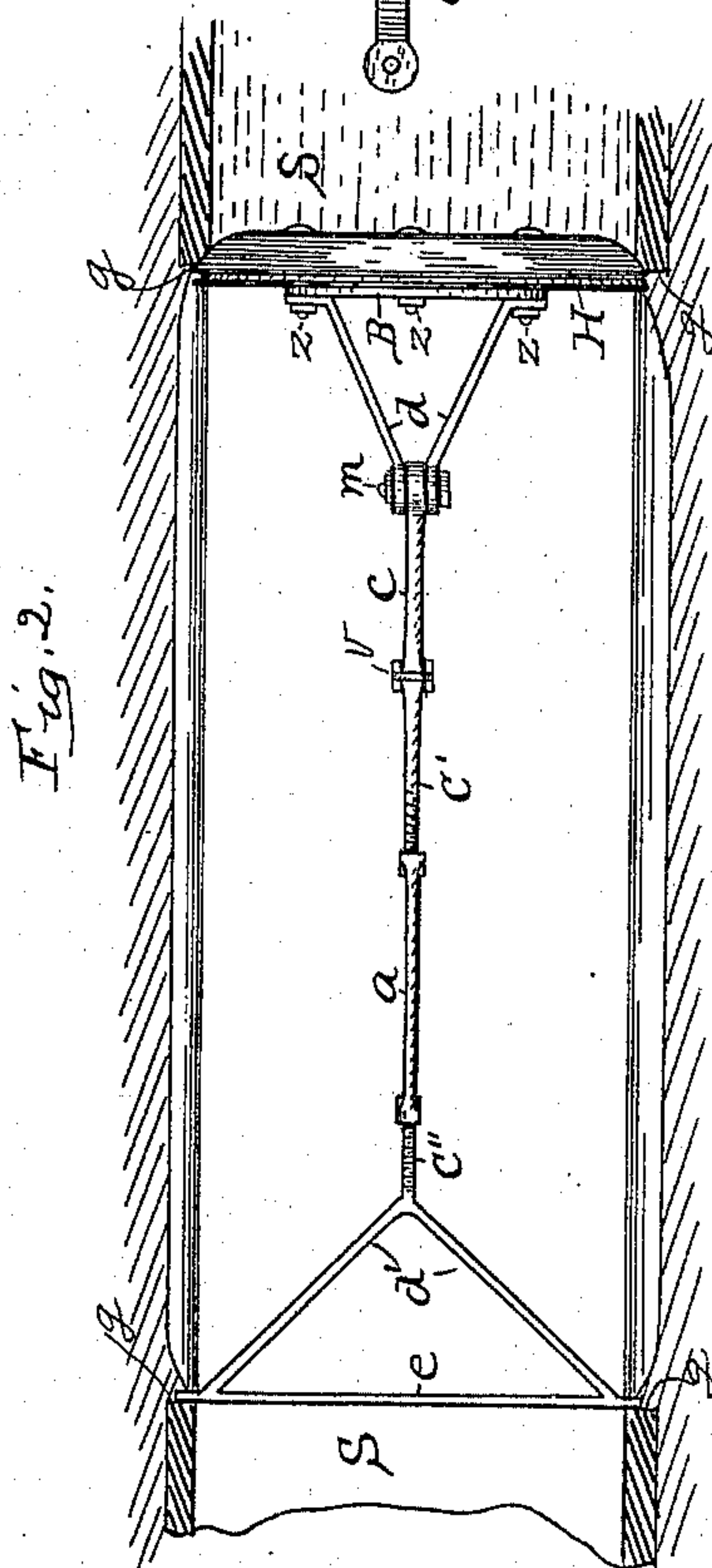
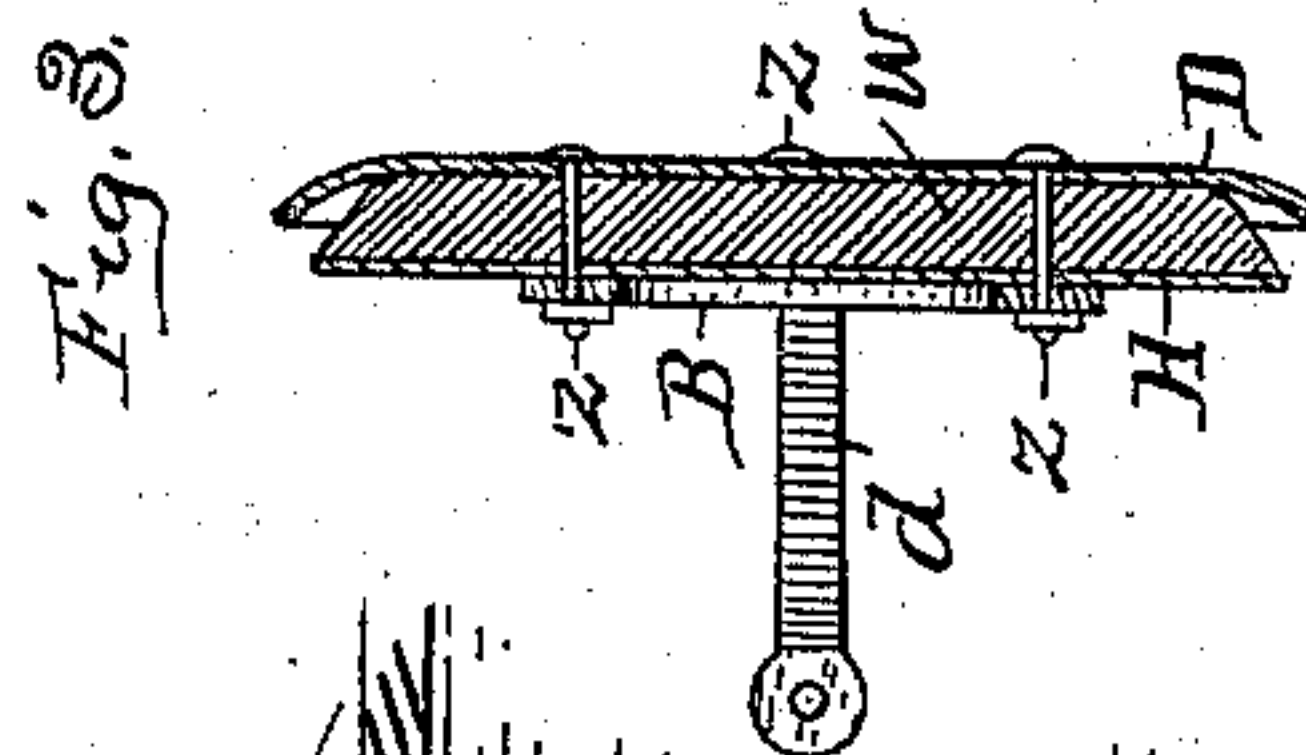
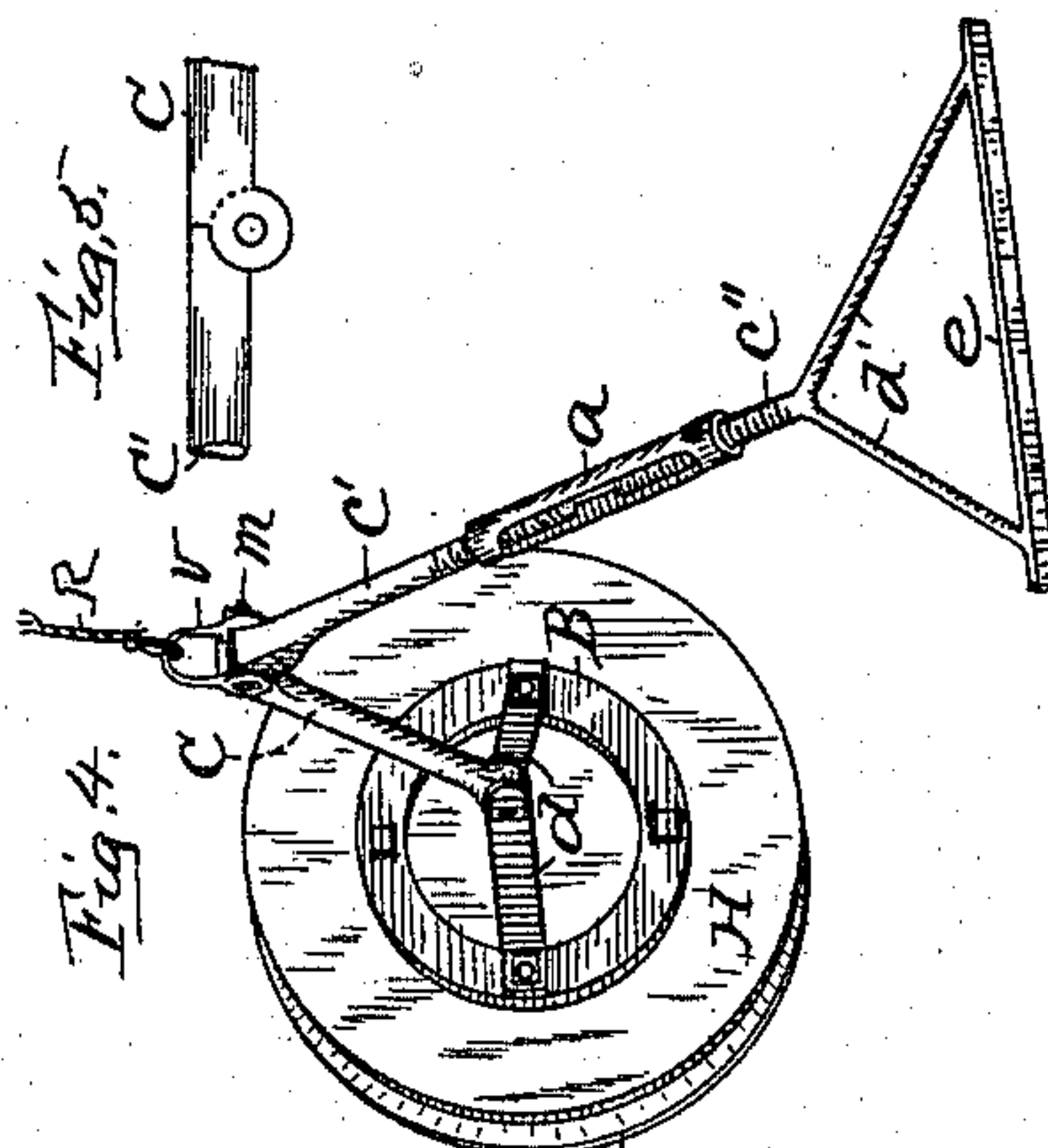
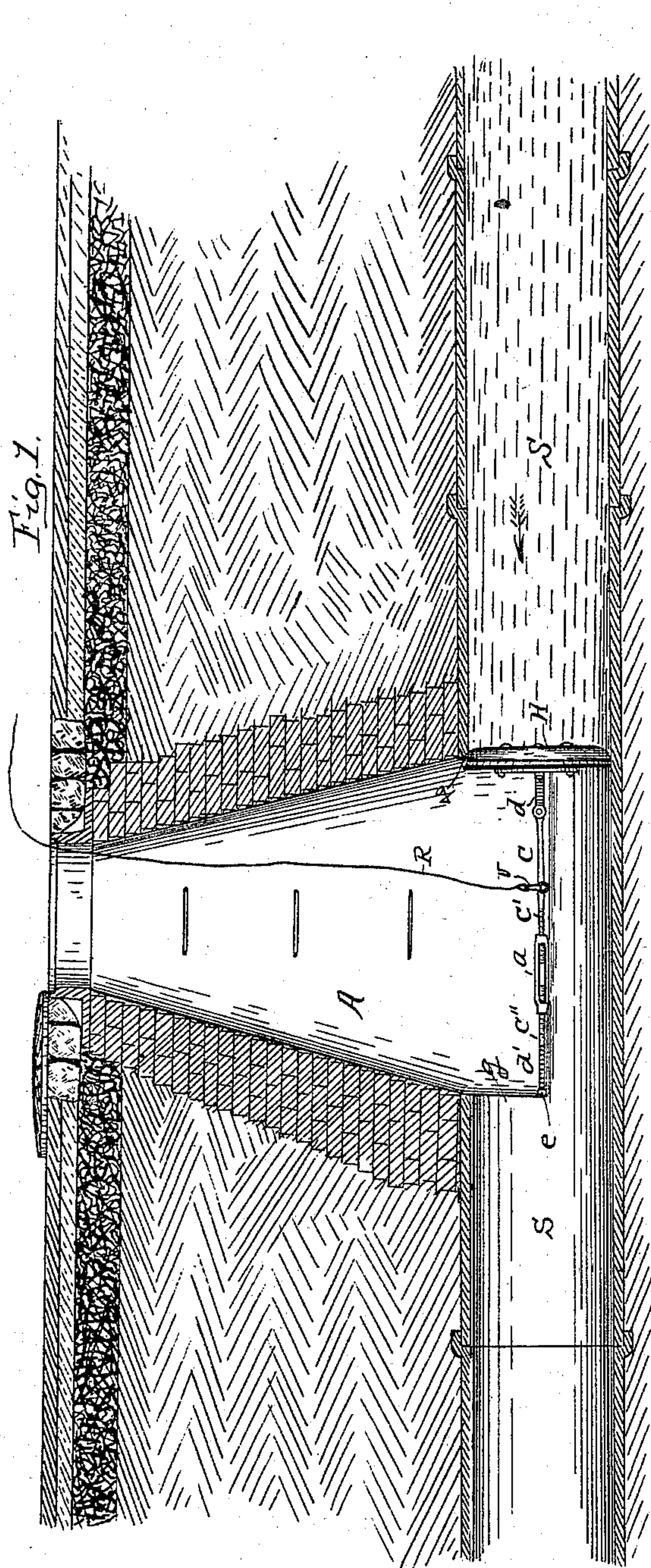


(No Model.)

E. E. FITZPATRICK.
FLOOD GATE FOR SEWERS.

No. 470,669.

Patented Mar. 15, 1892.



Witnesses.
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FLOOD-GATE FOR SEWERS.

SPECIFICATION forming part of Letters Patent No. 470,669, dated March 15, 1892.

Application filed September 21, 1891. Serial No. 406,302. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. FITZPATRICK, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Flood-Gates for Sewers, of which the following is a specification, reference being had therein to the accompanying drawings, and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a longitudinal sectional view of a sewer man-hole and the adjacent sewer-piping and also of the surrounding ground and a side plan of the flood-gate set in the sewer at the man-hole. Fig. 2 is a horizontal section through said man-hole and sewer-piping, showing a top plan of the flood-gate as it would appear when set into position for service. Fig. 3 is a vertical cross-sectional view of the head of the flood-gate. Fig. 4 is a perspective view of the flood-gate, represented with its toggle-joint thrown, as it would appear when being removed from the sewer; and Fig. 5 is a detailed side plan of the joint of the toggle of the flood-gate.

This invention relates to certain improvements in a portable flood-gate for entering into the man-holes of a sewer, wherein it is adapted to be set into position in the sewer to dam the water in the sewer, causing the water to accumulate in the sewer above the said flood-gate in such quantity as to fill the sewer-main and laterals thereof and when a sufficient quantity of water has been accumulated to be removed, and thereby liberate such accumulated water, permitting it to flow on with increased force, and by means of such force wash the sewer-main, and by the suction resulting from the completely-filled main draw the water from the laterals with such power as to convey therewith such accumulated matter as may chance to be in said laterals; and it consists of the construction and arrangement of parts and the manner of placing and removing the flood-gate, which improvements are fully set forth and explained in the following specification, and pointed out in the claims.

Referring to the drawings, S represents a sewer, consisting of sectional piping, which may be of any construction, and A represents

a man-hole leading from the ground surface into the sewer. In the construction of such man-holes it becomes necessary to make them wider than the usual width of sewer in order that sufficient room may be made for inspectors when entering into them, and therefore in all modern sewers, within the man-holes, shoulders are formed at the intersecting of the man-hole and sewer-piping at the upper half portion of said piping, as represented in Figs 1 and 2 at *g*, thus making it possible for the introduction of the flood-gate in the sewer at the foot of such man-holes, as hereinafter described.

H represents the head of the flood-gate, made to a form corresponding with that of the sewer-piping, and is preferably of plate iron, having a bevel-edged wooden facing W, made bevel-edged for the purpose of adapting itself to slight differences in the diameter of sewer-pipes and faced with a sheet-rubber D, which extends beyond the wood facing W and serves as a rubber gasket when the head is adjusted in a sewer, as shown in Figs. 1 and 2.

B is a metal ring arranged at the back of head H, and stepped upon said ring is a pair of converging arms *d*, and Z are bolts for securing said arms and ring and the several parts of the head together, as shown.

C is a cross-bar adapted to bear at each end against the shoulders within the man-hole at the intersecting of the sewer-pipe and opposite the head H, and is provided with the converging brace-arms *d'*, as shown, which arms *d* and *d'* are connected together through the agency of a toggle-joint comprising the part C, jointed to the extending end of arm *d*, as shown at *m*, and the parts C' C'', the latter of which are made integral with the arms *d'*, said parts C' C'' being respectively provided with right and left screw-threads and united by means of a turn-buckle *a*, thus adapting said parts or section of the toggle-joint to be lengthened or shortened within the limit of the screw-threads by operating the turn-buckle, and thus adapt the flood-gate to man-holes of different sizes in the direction of the sewer-piping. The joint of the toggle is made with its center or pivot to one side from the center line of parts C and C', as shown in Fig. 5, which form of construction adapts the joint

to be thrown only in one direction and to lock into position when the gate is set into position, as shown in Fig. 1. Said joint is provided with a clevis attachment V, arranged
 5 extending upward and serves as a means for attaching a rope R for the purpose of throwing the toggle and removing the flood-gate from the sewer.

In use the flood-gate is entered into a man-
 10 hole and placed in the foot thereof into the sewer, with its head in the sewer-pipe at the upper side or end of the man-hole, and with the cross-bar C resting across the pipe end and bearing at its ends against the shoulders
 15 at the sides of said piping. By assuming such position the toggle-joint is brought into a straight position. When such placement is made, the turn-buckle is turned to lengthen the toggle-section C' C'', which forces head
 20 H closely into the upper half portion of the sewer-pipe end at the upper side or end of the man-hole, and by means of the bevel-edged wood facing W of said head it is likewise forced down into the hollow of the sewer, and
 25 in all instances makes a practically water-tight dam to hold the water back into the sewer-main, and therefore into all laterals above such dam.

In all serviceable sewers water is constantly
 30 flowing through the mains and frequently through all laterals into the main; but in most instances sewers are not provided with sufficient fall to cause the water to flow through them rapidly enough to perfectly
 35 carry off all matter emptied into the sewer, and therefore in times such sewers become foul, and it is the purpose of this invention to dam such flowing water by the use of the flood-gate, thereby causing it to back up and fill
 40 the main and laterals a considerable distance from the dam, and when the main and laterals are sufficiently filled the flood-gate is removed from the sewer by pulling upon rope R, which is arranged extending up and from
 45 the man-hole, and which throws the toggle-joint and raises the head H, so that it may not be caught by the released water. It is evident that when such accumulated water is liberated it will flow with increased force and wash
 50 the main as it advances, and it is also evident that the main being filled a suction will be formed at the junction of the laterals by the passing water, tending to siphon or draw the water from the laterals with renewed force, and

thereby carry off all accumulated matter into 55 the main and wash it from the main and discharge it at the main exit.

This improved flood-gate is adapted to all ordinary construction of sewers, and is also adapted to be set at various localities through- 60 out a sewer system.

When the flood-gate is set in a sewer and the water dammed by it, it is evident that all water below the dam will flow on and from the sewer, and at such times it is beneficial 65 to the sewer to introduce a hose, and by forcing a stream of water into the empty or waterless sewer portion to loosen sediment and substances that may have lodged in the sewer bottom, which could not as well be done were 70 it not for the dam to prevent the usual flow of water, and also the flood-gate is of practical use as a dam to prevent the temporary flow of water in a sewer where a break has been made in the sewer to hold the water 75 above the break until it can be repaired; also, the flood-gate is of practical use as a dam to stop the flow of water in a sewer during the time of making house connections with the main sewer. 80

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is as follows:

1. A flood-gate for sewers, comprising a dam-head, a cross brace-bar or foot, an inter- 85 mediate connecting-toggle, and a turn-buckle incorporated in the toggle construction, substantially as and for the purpose set forth.

2. A flood-gate for sewers, comprising a dam-head provided with a beveled edge for- 90 ward projection and a gasket of rubber or like material, a foot-piece for engaging a barrier to hold the head into position, a toggle-joint connection connecting the head with the foot, a turn-buckle incorporated in the 95 toggle construction, and a pull-rope or equivalent device for removing the gate from a sewer, substantially as set forth.

3. The combination, with the dam-head provided with the rear extending arms and 100 the cross-bar or foot-piece of the gate, of the adjustable toggle-joint connection, the clevis thereof, and the pull-rope for throwing the toggle, substantially as set forth.

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Witnesses:

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