

No. 705,646.

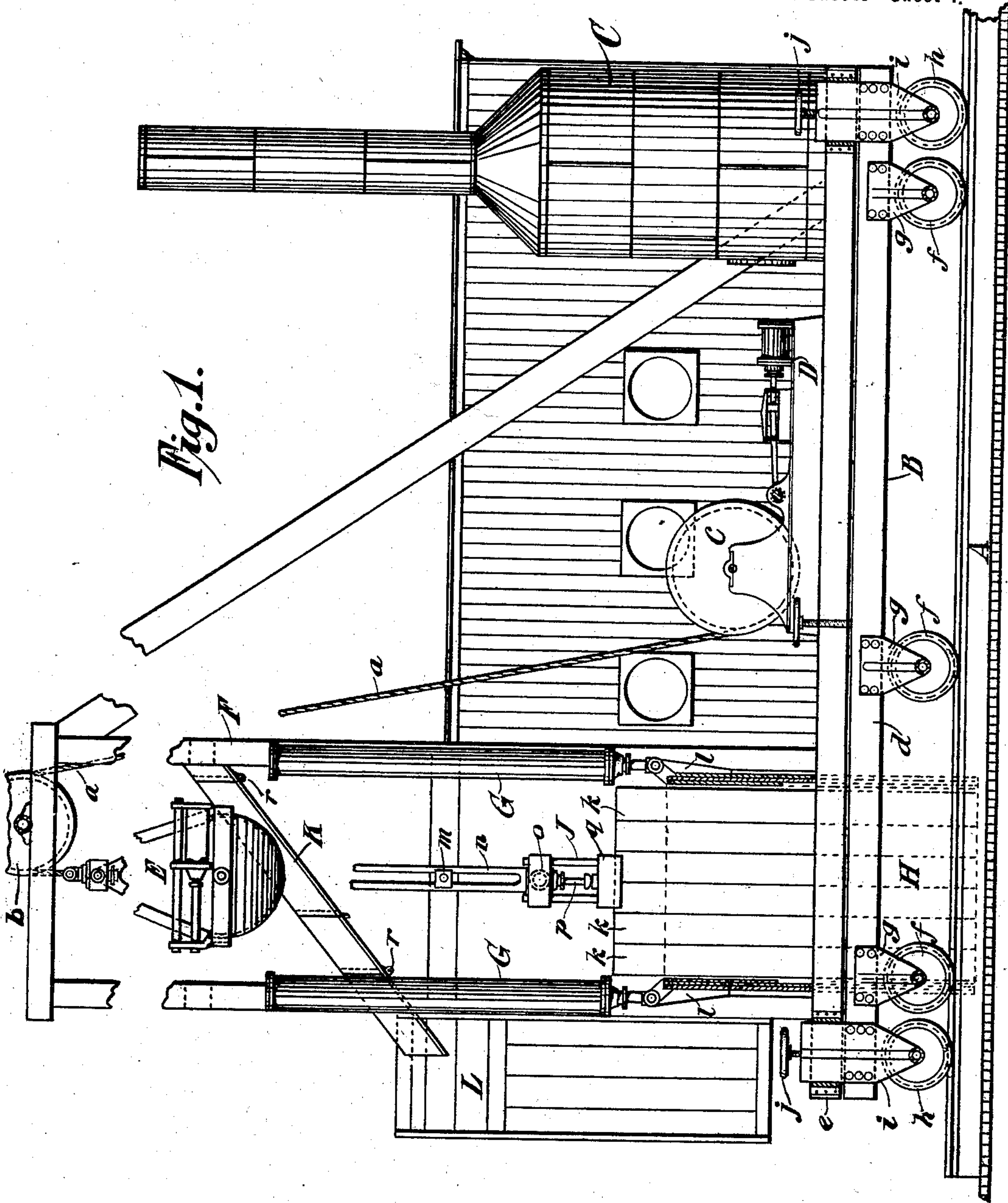
Patented July 29, 1902.

E. CHAQUETTE.  
SEWER DREDGE.

(Application filed Jan. 29, 1902.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:  
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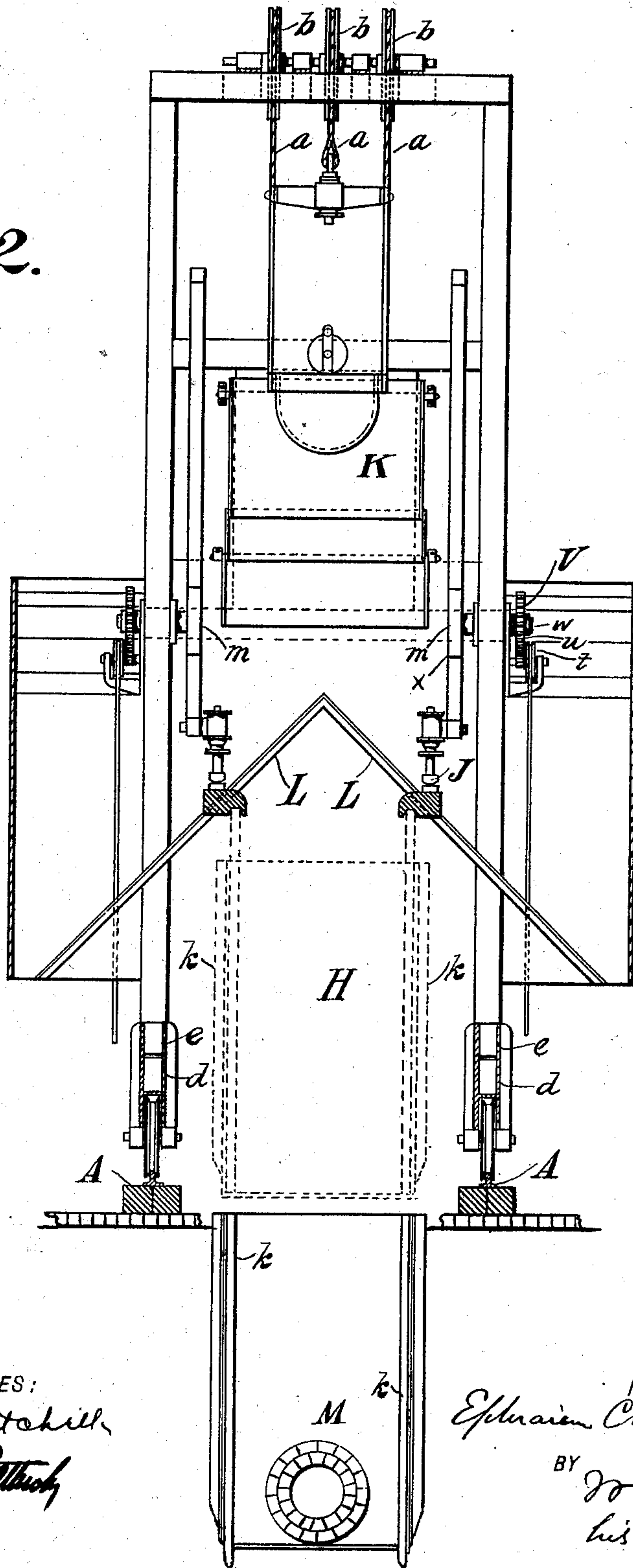
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Fig. 2.



WITNESSES:  
*Comitchill*  
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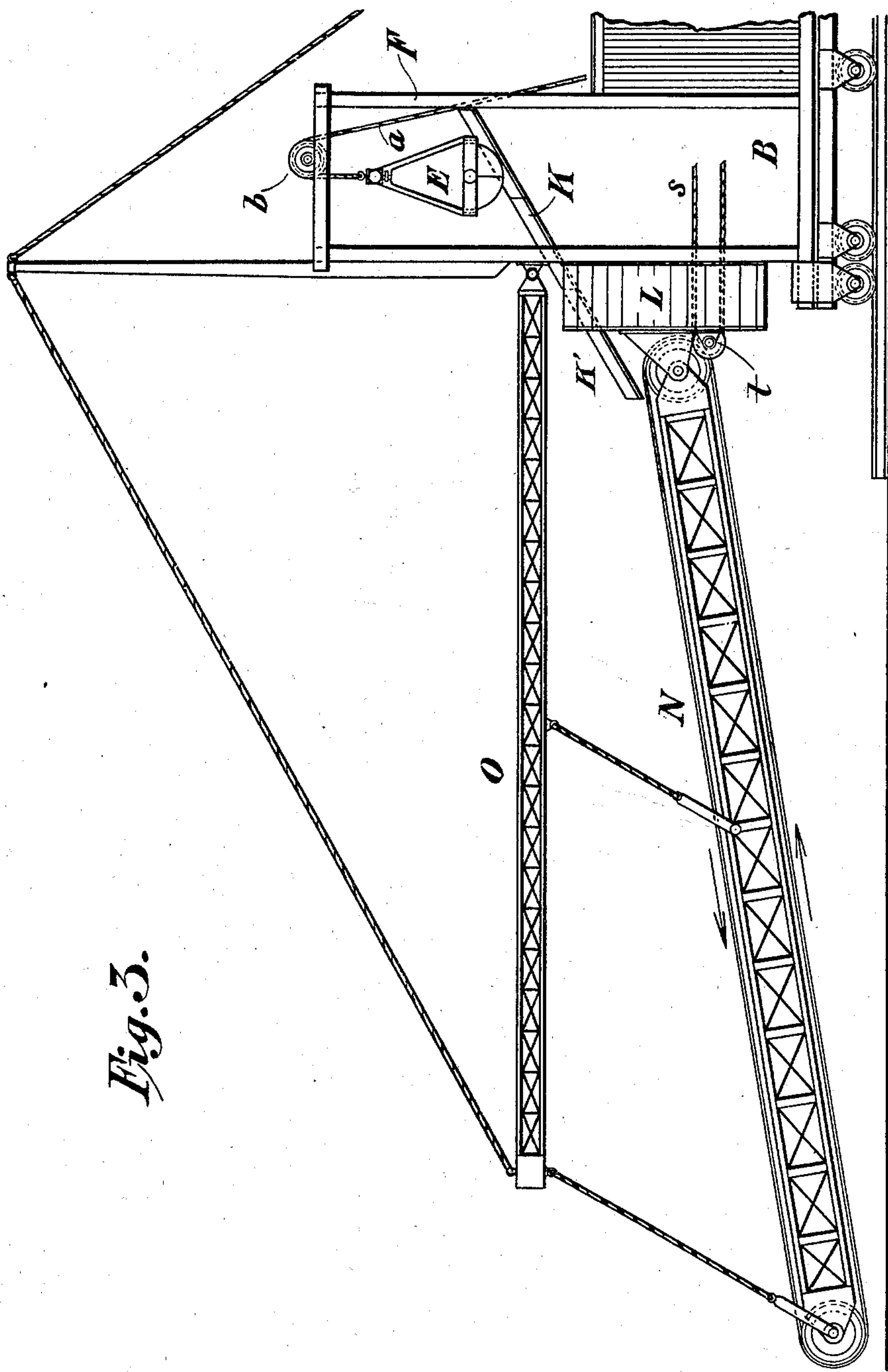
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**E. CHAQUETTE.**  
**SEWER DREDGE.**

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4 Sheets—Sheet 3.



*Fig. 3.*

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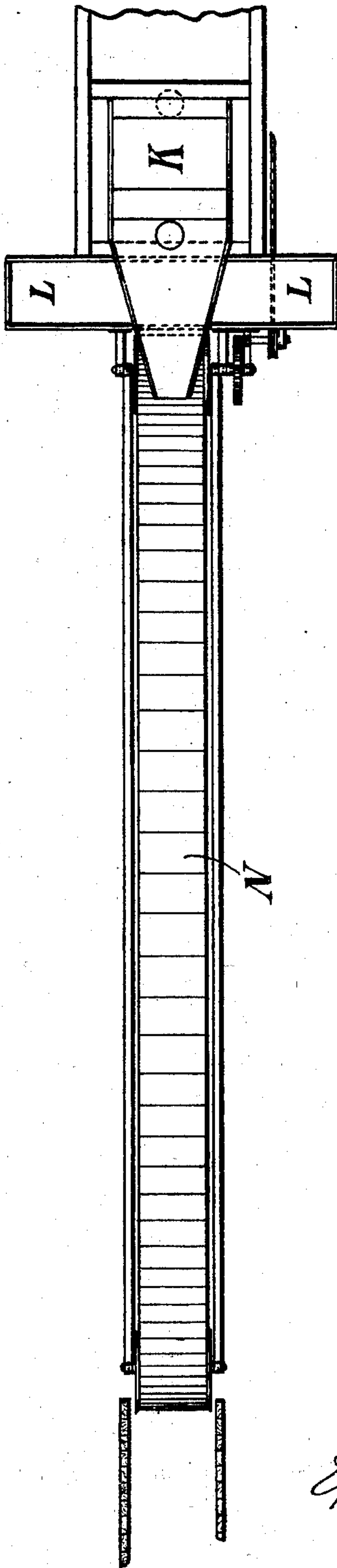


Fig. 4.

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# UNITED STATES PATENT OFFICE.

EPHRAIEM CHAQUETTE, OF NEW ROCHELLE, NEW YORK.

## SEWER-DREDGE.

SPECIFICATION forming part of Letters Patent No. 705,646, dated July 29, 1902.

Application filed January 29, 1902. Serial No. 91,761. (No model.)

*To all whom it may concern:*

Be it known that I, EPHRAIEM CHAQUETTE, a citizen of the United States, and a resident of New Rochelle, county of Westchester, State of New York, have invented certain new and useful Improvements in Sewer-Dredges, of which the following is a specification.

The object of my invention is to provide a new form of dredge by means of which a trench for laying sewers or water-pipes or for other purposes may be dug and refilled by a substantially continuous operation, enough of the excavated material to refill the trench after the sewer or other pipe has been laid being constantly used for that purpose and only the excess being carted away to the dump.

My improved dredge also involves a new way of preparing the trench to receive the pipe.

One form of my invention is shown in the accompanying drawings, in which—

Figure 1 is a side view. Fig. 2 is an end view. Fig. 3 is a side view showing the delivery-apron, and Fig. 4 is a top view of the delivery-apron.

Same letters indicate similar parts in the different figures.

A is a track laid in the direction in which the trench is to be dug and somewhat broader than the trench.

B is the dredge-car, which carries the boiler C and engine D for operating the dredge.

The dredge E is preferably of the clam type and of the pneumatic character described in my pending application, Serial No. 89,103, suspended from the frame F, mounted upon the dredge-car B, the hoisting and lowering rope *a a* passing over the pulleys *b b b* and winding upon the drum *c*. To insure a constantly vertical position for the frame F in spite of irregularities in the road-bed, the dredge-car B is preferably made with a double platform *d e*. The lower platform *d* is mounted upon the wheels *f f* by the fixed axle-boxes *g*. The upper platform *e* is suspended from the wheels *h* by the adjustable axle-boxes *i*, so that if one side or one end of the section of track occupied by the dredge-carriage at any given time is higher than the other the inequality is compensated by rais-

ing or lowering the upper platform by turning one of the jack-screws *j j*. The frame F also carries a pair of hydraulic rams G G, the function of which is to force a building-box H into the ground to support the side walls of the trench as fast as the material is excavated by the clam. This box H is preferably made of iron reinforced by the strengthening-ribs *l* and should be preferably about six feet in length and of a width slightly in excess of the working space required for the trench. After the shoring-planks *k* have been put into position and supported by cross-timbers, as usual, the iron box is withdrawn, being lifted into the position shown in dotted lines in Fig. 2. The planks are driven down two at a time on each side of the trench by the hammers J J, preferably driven by compressed air, and pivoted to the frame F at *m*, so that the hammer may swing far enough on each side to operate upon all the planks on that side of the box. The hammer-rod is slotted longitudinally, as shown at *n*, so that it may follow the planks as they are driven downward, and the hammer is swiveled on the end of said rod, as shown at *o*, to insure its hanging vertically, although its supporting-rod is at an incline. This hammer may be an ordinary hammer operated by compressed air and supported at any convenient part of the frame F, and therefore its connection with the compressed-air reservoir is not shown. It will be readily understood that the hammer is shown in its extended position, the piston *p* having made its outward stroke and the hammer-head *q* having come in contact with the top of the planks *k*. As soon as the hammer has spent its force the piston makes its upward stroke, after which it is again driven down by a fresh charge of air, and this process is repeated until the planks are driven home.

K is the main receiving-trough, hinged to the frame F and composed, preferably, of two parts hinged at *r r*, so that the trough may be opened to admit the passage of the clam E. When the excavated material is not needed for refilling, the trough K discharges upon the diverging apron L, by which it is conveyed to a cart or other receptacle standing on either side of the dredge-carriage. (Not shown.) This is the sewer or water pipe. When,



however, the excavated material is needed for refilling the trench, the trough K discharges upon the traveling apron, (see Fig. 3,) which is supported from the frame F by the arm O. This belt N has a constant motion in the direction of the arrow, being driven from the engine by means of the chain s, sprocket-wheel t, and gears u v, the latter being mounted upon the shaft w, journaled in the framework and carrying the drum x, upon which the belt N turns.

K' is an extension-piece inserted to bridge the aprons L L and cause the trough K to deliver the excavated material to the traveling belt N.

The operation of my improved dredge will be readily understood to be as follows: The track A having been laid along the line intended for the trench and the dredge-car B being placed thereon in such position that the dredge E and box H are directly over the part to be excavated, the engine D is started, whereby the box is lowered so that its lower edge rests upon the ground and the dredge descends open inside said box and begins the digging. When the dredge is full, it is raised into the position shown in Fig. 1 and discharges its contents upon the trough K and apron L. As the earth is dug away inside the box the box is driven downward, and this process keeps on until a space is cut of the required depth for the trench. The shoring-planks are then driven in place by the hammers J and properly shored in the usual way, after which the box H is withdrawn and the entire dredging apparatus is moved forward, so as to bring the rear edge of the box

H at the forward edge of the excavated space. This process is repeated until a sufficient length of trench has been dug to accommodate the workmen in laying a sewer or other pipes, after which the aprons L are bridged over by the extension-piece K' by means of which the excavated material received by the trough K is delivered to the traveling belt N, by which it is conveyed to and delivered upon the pipe already laid and set, thereby refilling the trench.

I claim—

1. The above-described dredge for laying sewers and other pipes which consists of a car, a dredge-frame mounted thereon, a dredge adapted to rise and fall through said frame, a main receiving-trough, a diverging trough whereby the excavated material is delivered at the sides of said car, and an apron whereby the excavated material may be delivered at a suitable distance behind said car for refilling the trench.

2. A dredge for laying sewers and other pipes which is provided with a building-box suspended from a suitable frame, mechanism whereby said box is driven into the ground surrounding the dredge as the same is cut away, mechanism whereby shoring-planks are driven into the ground to support the sides of the trench thus formed and means for lifting said box away from said trench for the next operation, substantially as shown and described.

EPHRAIEM CHAQUETTE.

Witnesses:

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