

No. 668,342.

Patented Feb. 19, 1901.

E. RISLEY.  
HYDRAULIC DREDGING APPLIANCE.

(Application filed Jan. 22, 1900.)

(No Model.)

FIG. 1.

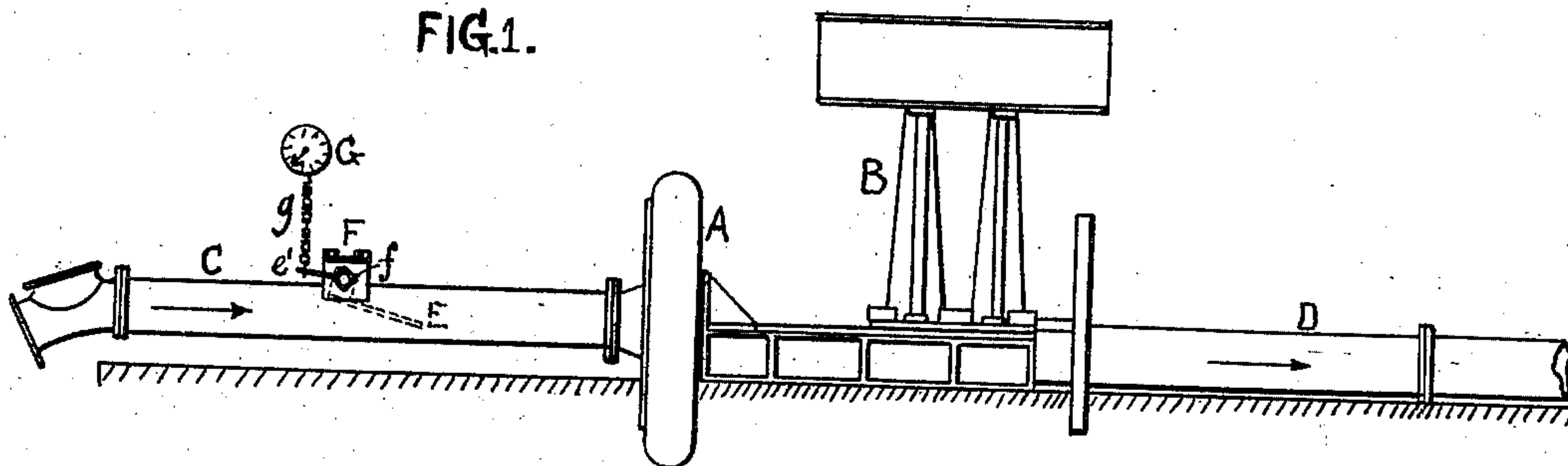


FIG. 2.

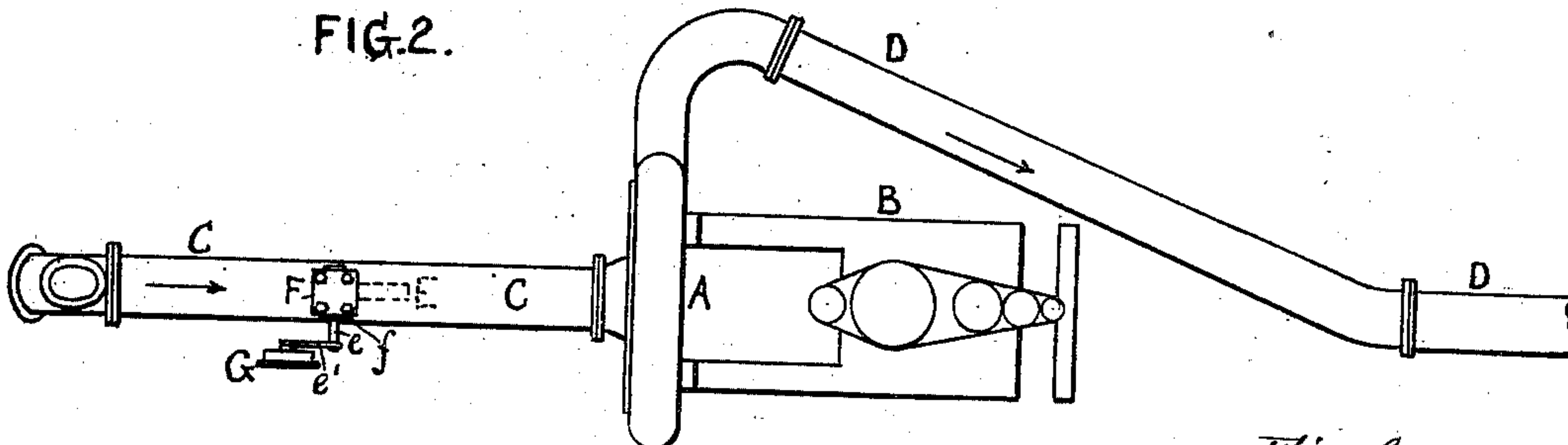
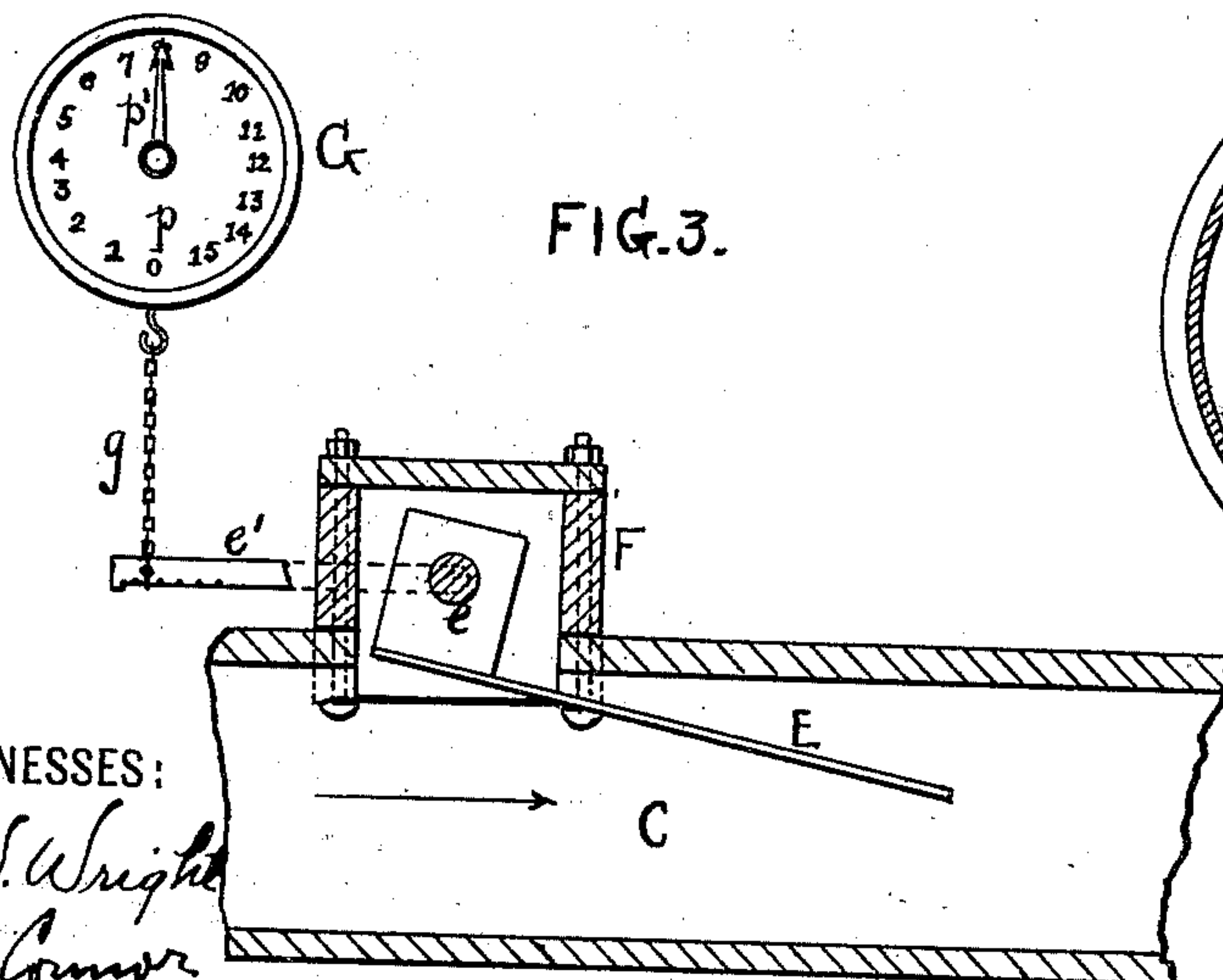


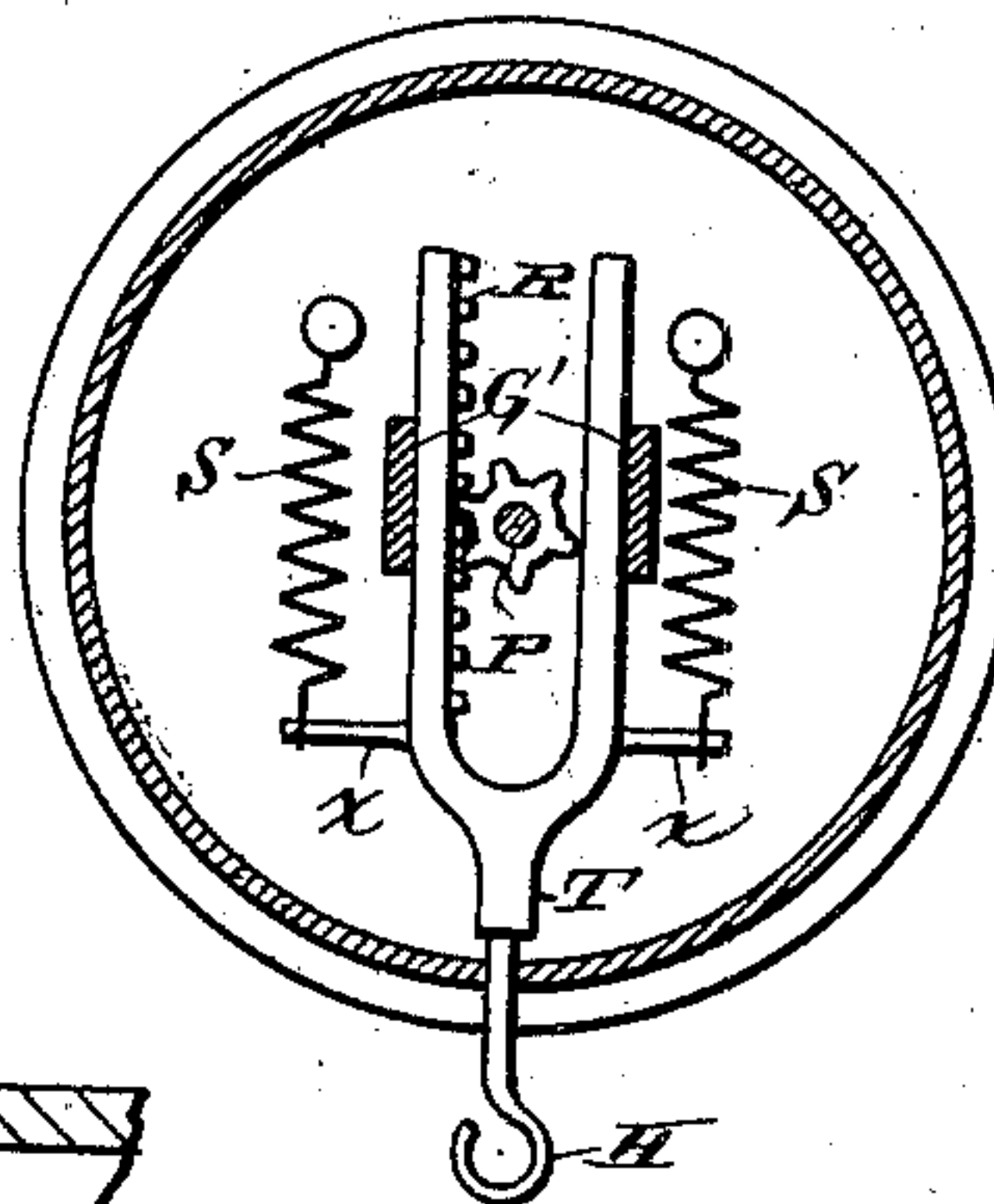
Fig. 4.

FIG. 3.



WITNESSES:

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BY

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# UNITED STATES PATENT OFFICE.

ELTON RISLEY, OF PLEASANTVILLE, NEW JERSEY.

## HYDRAULIC DREDGING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 668,342, dated February 19, 1901.

Application filed January 22, 1900. Serial No. 2,373. (No model.)

*To all whom it may concern:*

Be it known that I, ELTON RISLEY, a citizen of the United States of America, residing in Pleasantville, in the county of Atlantic, State of New Jersey, have invented Improvements in Hydraulic Dredging Appliances, of which the following is a specification.

In hydraulic dredging apparatus it often happens that the discharge-pipe gets choked by sand or other heavy material settling in the pipe or by sticks catching in the pipe, and the pump, which is usually a centrifugal pump, will keep on running and appear to be working all right while pumping little or no material until a break down occurs. It is not an uncommon thing for the pipes, particularly the discharge-pipe of the dredging apparatus, to get completely filled with sand for some distance, necessitating the taking apart of the pipe to clean it out. Because of this liability or danger of choking up of the pipe the percentage of sand which can be pumped with the water through a dredging apparatus is necessarily limited.

The object of my invention is to provide means whereby the choking or partial choking of the pipe and consequent stoppage or diminution of the flow of liquid through the pipe may be indicated and quickly detected whenever it happens, and that consequently a larger percentage of sand than heretofore can be pumped through the apparatus. This object I attain by means of a device which I will now describe.

In the accompanying drawings, Figure 1 is a side elevation of sufficient of a dredging apparatus to show the application of my invention thereto. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged sectional view of a detail of the indicator, and Fig. 4 is a view of the indicator details.

In Fig. 1, A is the centrifugal pump to be driven by an engine which is indicated in outline at B. The inlet-pipe to the pump is indicated at C, while the discharge-pipe is indicated at D. I place in the inlet-pipe (where there is the least likelihood of choking) a pivoted blade E of a suitable length and width and lying with its free end projecting in the direction of the flow of material through the pipe, so that the blade will be turned more or less on its pivot by the flow of material according to the greater or less speed of that flow. One end of the axis *e* of this blade passes through a stuffing-box *f* in a closed

cap F, which is bolted over and closes an opening in the top of the discharge-pipe. On one end of this axis, outside the closed cap, is fixed an arm *e'*, connected by a chain, wire, or cord *g* to a suitable indicating device G, which may conveniently comprise a dial *p* and pointer *p'* and spring mechanism, the same as an ordinary spring-balance or weighing-scale. In Fig. 4 I have shown indicator details which may be employed; but I do not wish to confine myself thereto. The chain *g* is to be connected to the projecting lower end H of the slide T, sliding in fixed guides G on the casing of the indicator and having a rack R, gearing with a pinion P on the axis of the pointer *p'*. A pair of pull-springs S S, connected to arms *x* on the sliding rack to fixed pins on the casing, tend to pull the slide T upward to keep the pointer *p'* at zero. The connections are such that when the blade E by an increased speed of flow of material through the pipe rises the pointer *p'* will be turned to a higher number on the dial *p* against the pull of the usual spring mechanism of the scale, and correspondingly when the flow diminishes by choking in the discharge-pipe, for instance, the pointer will be moved over to a lower number. The dial may be marked to indicate the speed in feet per second.

By an occasional glance at the dial the operator can quickly see whether or not the dredging apparatus is working satisfactorily.

I claim as my invention—

1. A hydraulic dredging apparatus provided with means for indicating the choking or partial choking of its pipes.

2. A hydraulic dredging apparatus provided with means for indicating the speed of flow of material through its pipes.

3. A hydraulic dredging apparatus provided with means for indicating the choking or partial choking of the pipes, said means consisting of a pivoted blade within the piping of the dredging apparatus, and a dial and pointer indicating device outside the piping and connected to said pivoted blade, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELTON RISLEY.

Witnesses:

LEWIS H. BARRETT,  
ISAAC RISLEY.