

No. 663,497.

Patented Dec. 11, 1900.

F. HOFFMANN.

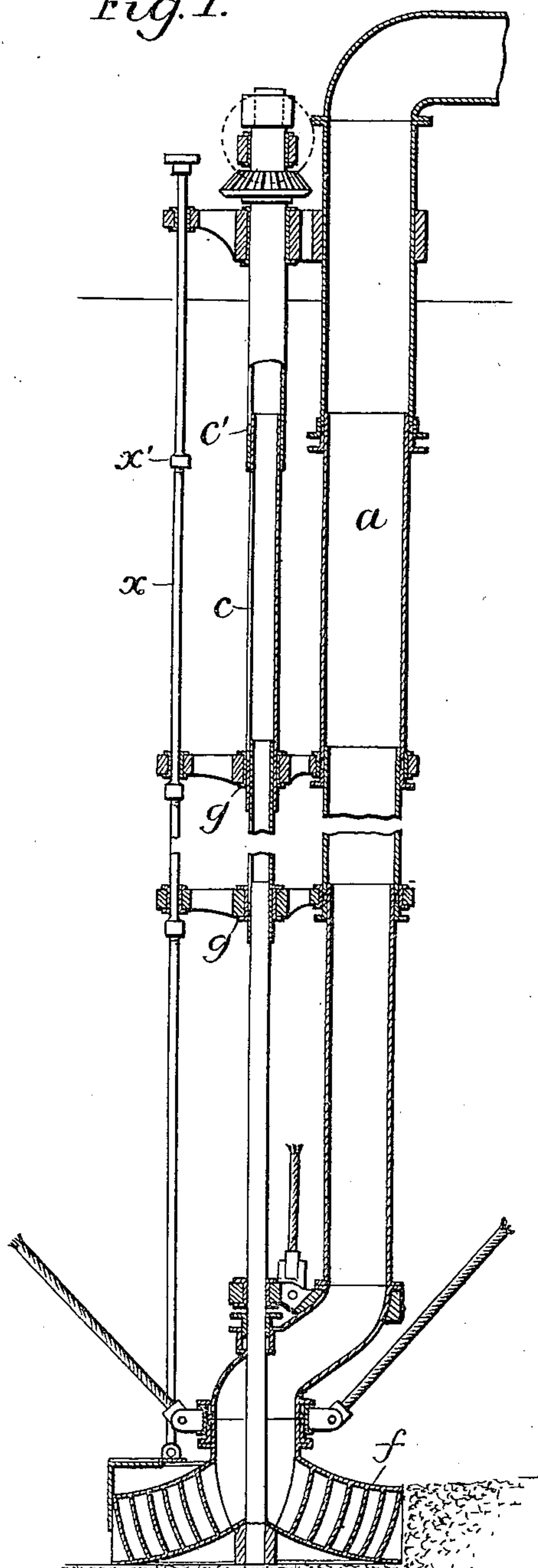
HYDRAULIC PRESSURE DREDGING MACHINE.

(Application filed Apr. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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Fig. 2.

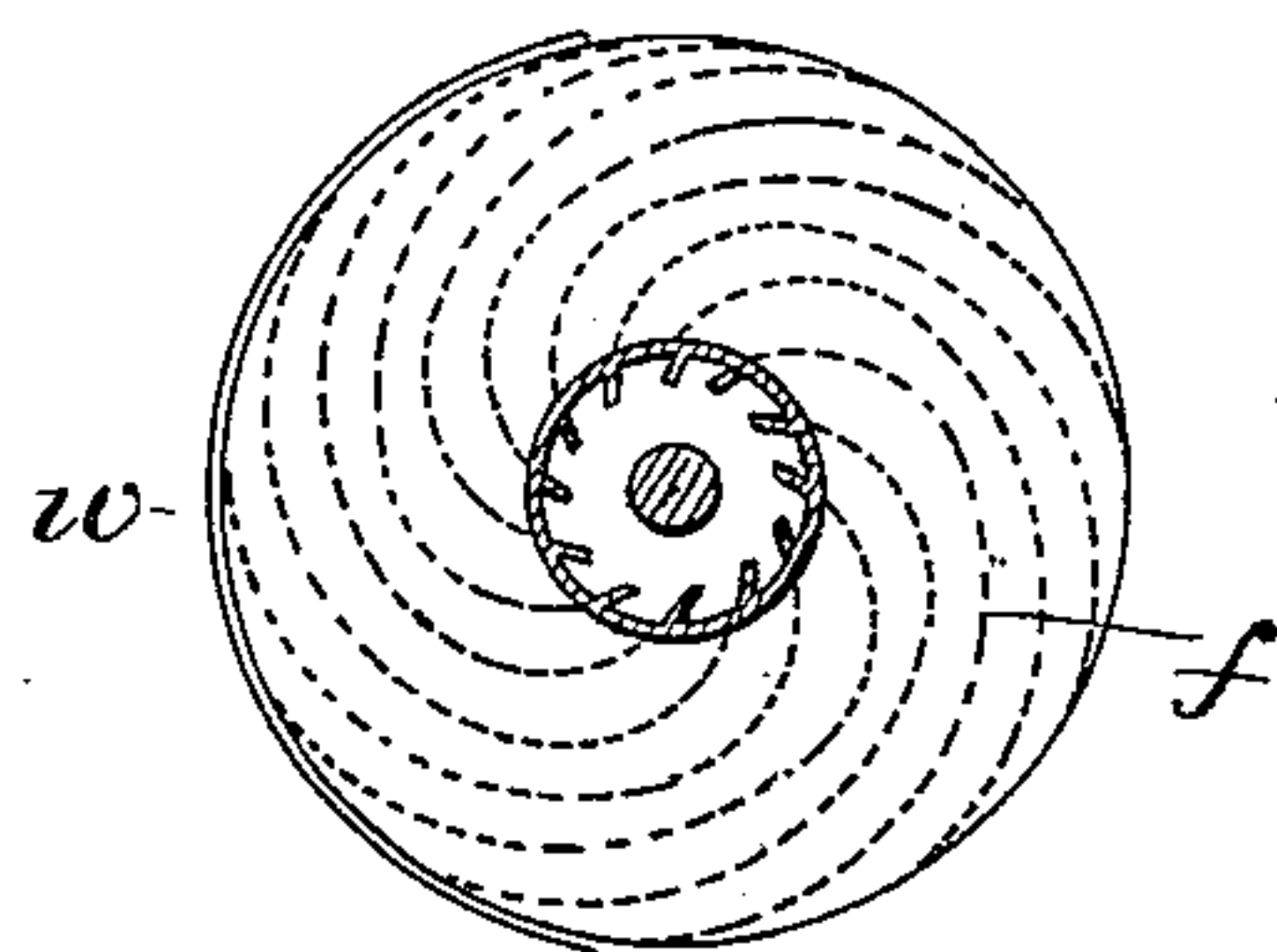
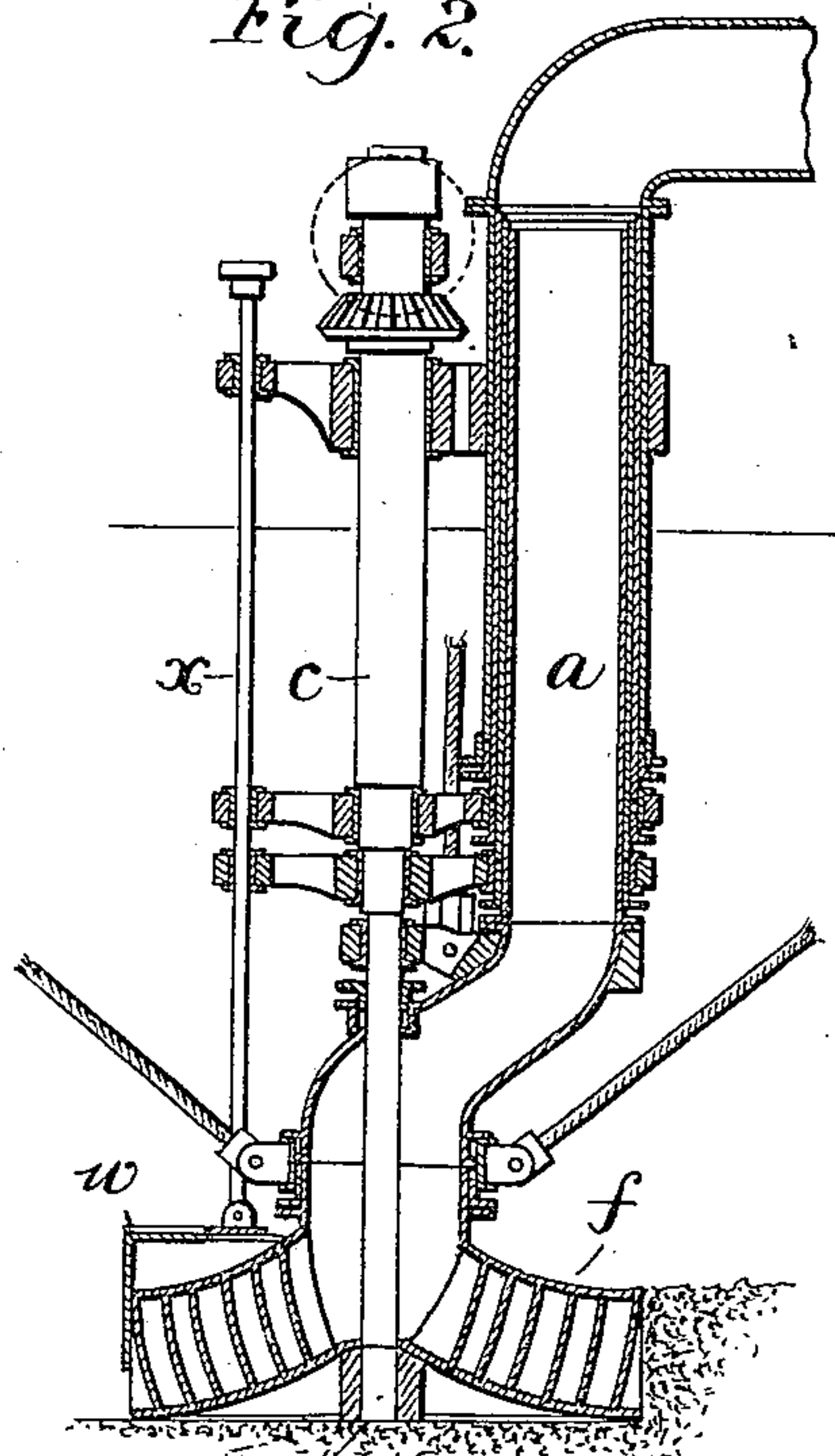


Fig. 3.

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Fig. 4.

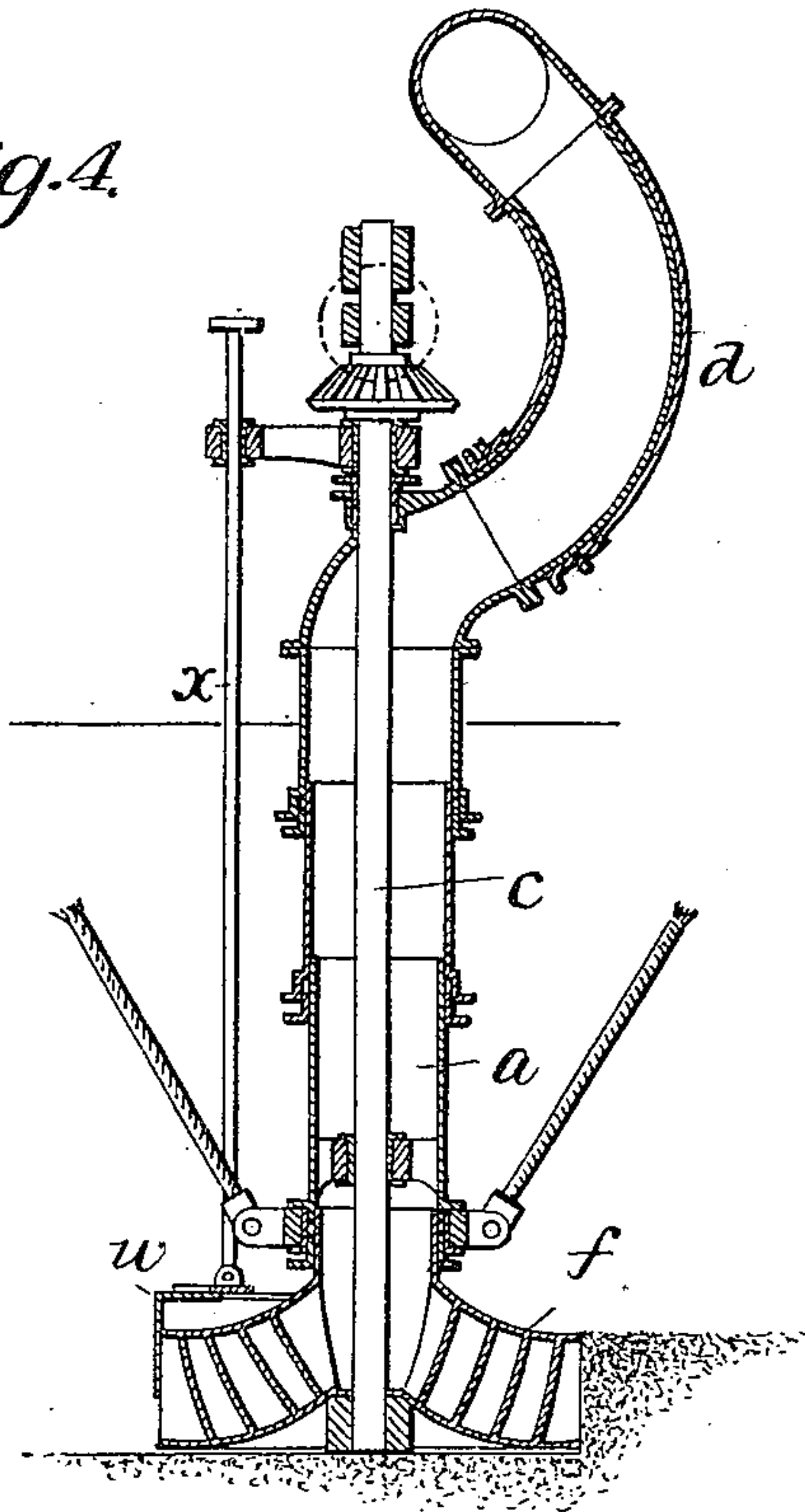


Fig. 5.

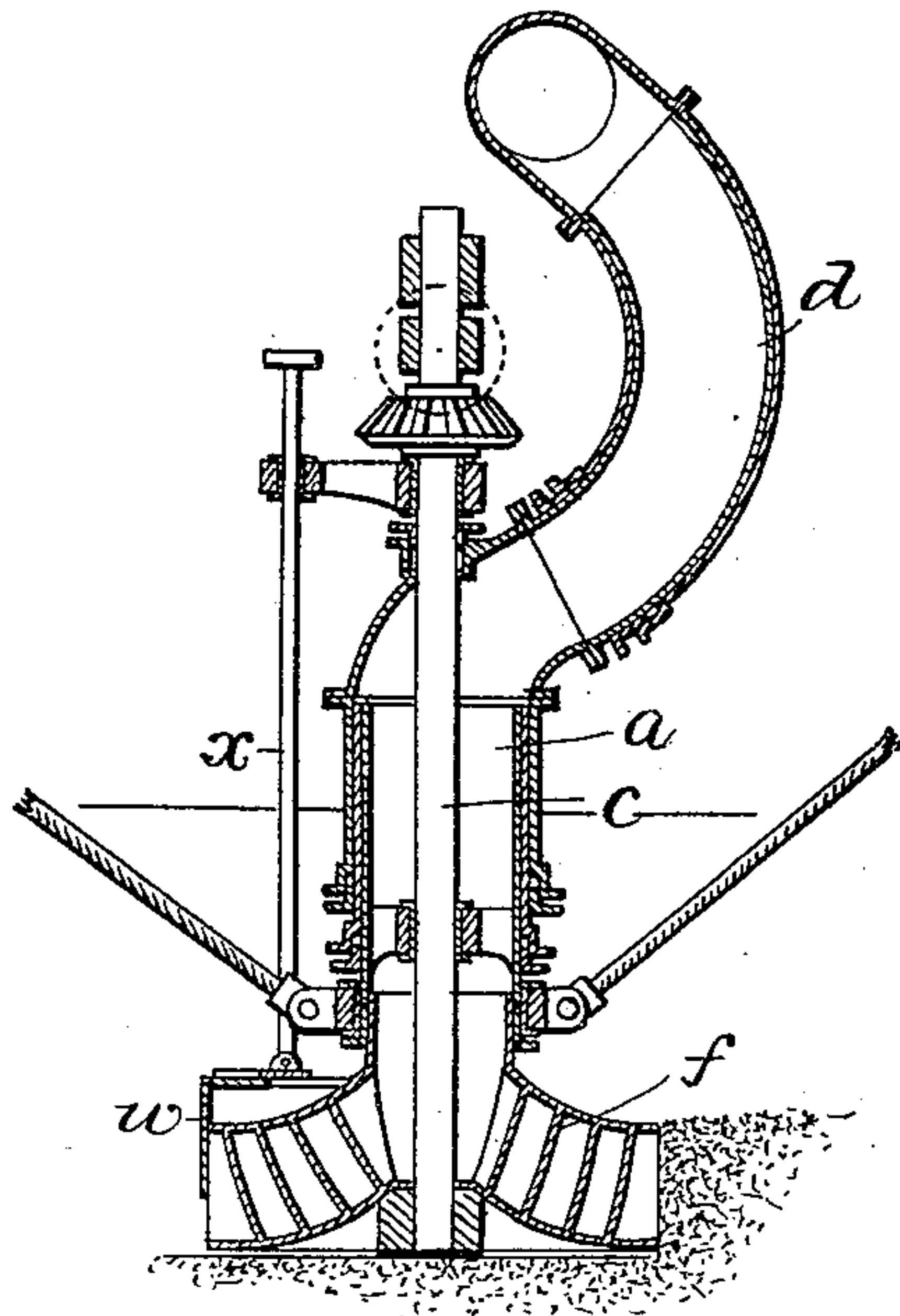


Fig. 6.

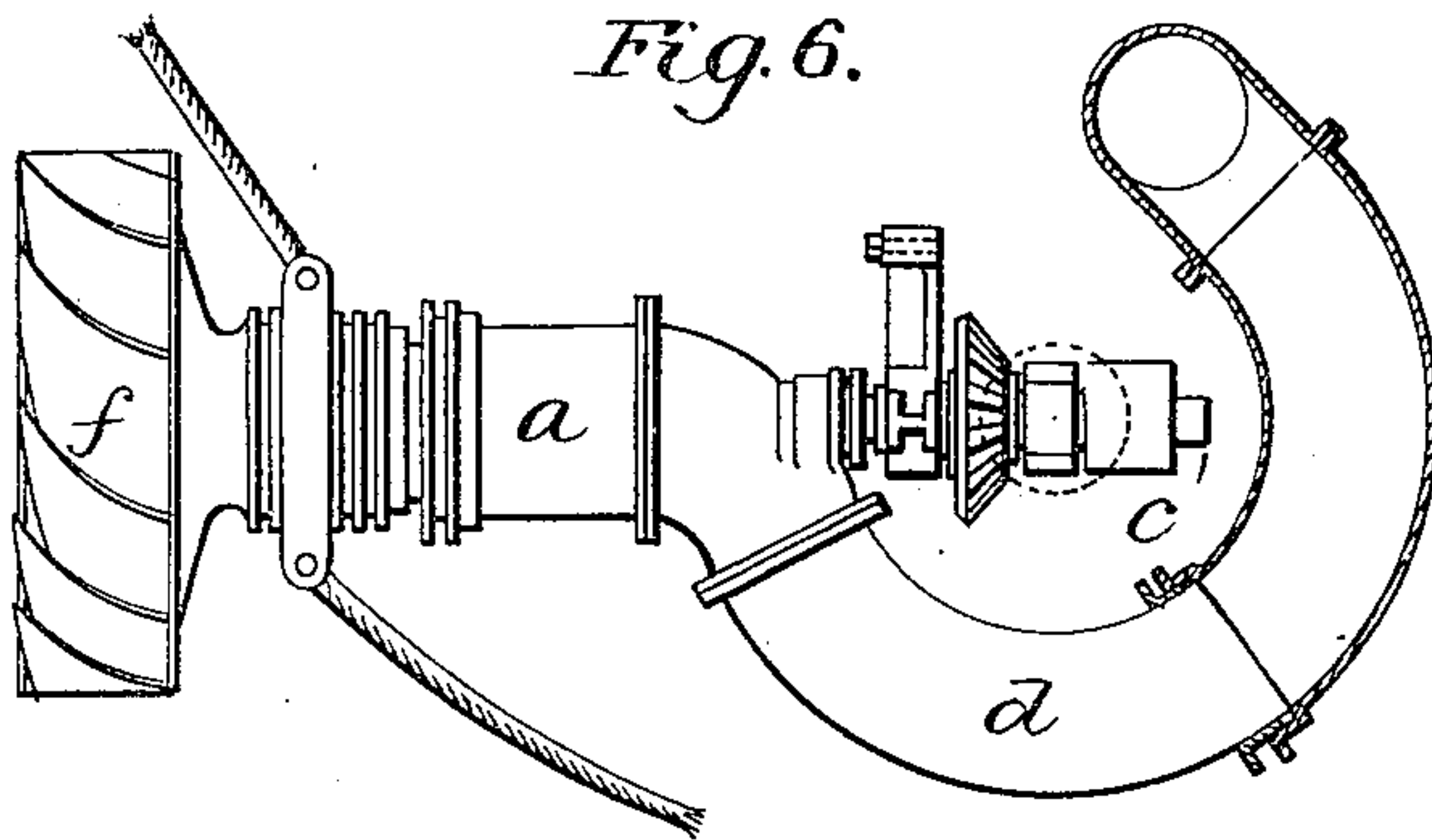
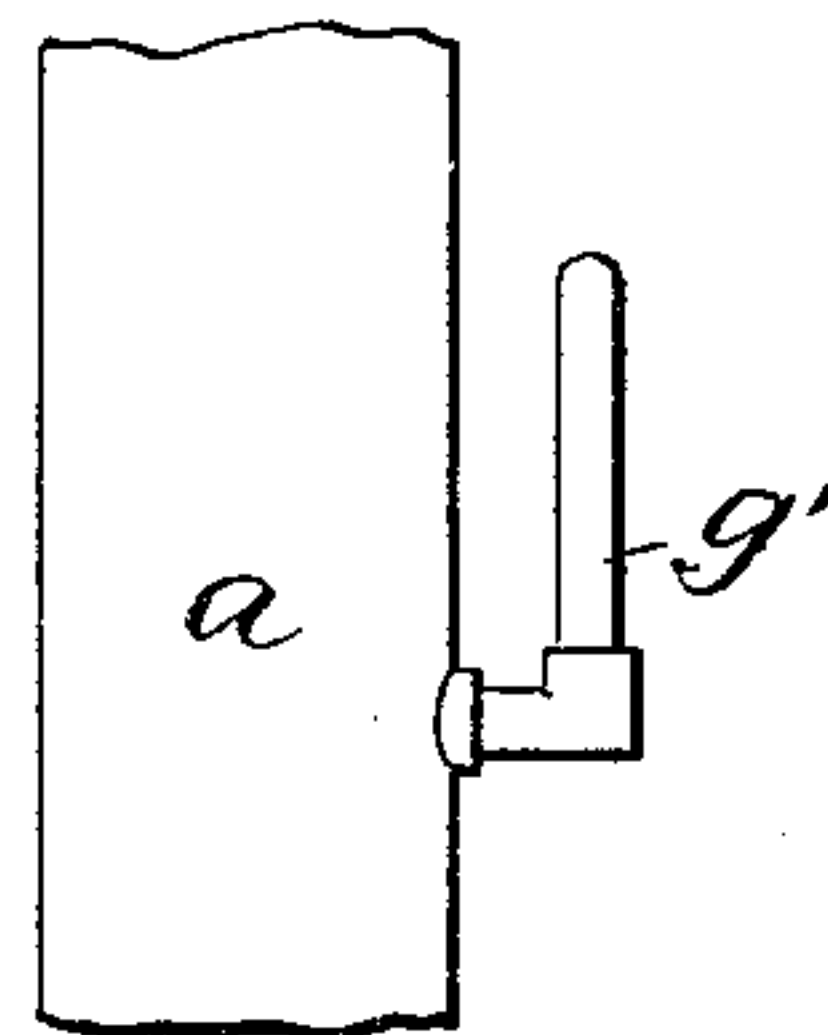


Fig. 7.



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FRIEDRICH HOFFMANN, OF SIEGERSDORF, GERMANY.

HYDRAULIC-PRESSURE DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 663,497, dated December 11, 1900.

Application filed April 30, 1900. Serial No. 14,920. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH HOFFMANN, government surveyor of buildings, a subject of the King of Prussia, German Emperor, residing at Siegersdorf, Silesia, Prussia, Germany, have invented certain new and useful Improvements in Hydraulic-Pressure Dredging-Machines, of which the following is a specification.

The object of the invention is to simplify and otherwise improve the structure of dredging-machines of this character and to render them more efficient in operation.

In the drawings, Figure 1 is a sectional elevation showing an elevating device for a dredging-machine embodying my invention. Fig. 2 is a similar view showing the apparatus in its telescoped position. Fig. 3 is a horizontal section of the turbine shown in Figs. 1 and 2. Fig. 4 is a sectional elevation showing a modified form of construction. Fig. 5 is a similar view showing the same apparatus in its telescoped position. Fig. 6 is a view showing the lower part of the dredging apparatus swung up at a right angle from the position shown in Fig. 4, and Fig. 7 is an elevation of a manometer used in connection with the apparatus.

In Fig. 1 the lower section of the telescopic tube *a* is bent to bring its lower end outside the plane of its upper end, and the vertical shaft *c* extends through the stuffing-box *c'* formed in it. A turbine *f* is secured to the lower end of the shaft *c* and communicates with the interior of the telescopic tube *a*. In order to regulate the quantity of water to be carried by the turbine into the tube *a*, I provide a semicircular shield *w*, which extends around the rear portion of the turbine when the latter is in operative position, and this shield is connected to a rod *x*, which extends upwardly to be within reach of an attendant on the scow. By means of this rod the shield *w* can be raised or lowered, thereby increasing or diminishing the area through which the water can enter the turbine. The rod *x* and the shaft *c* are supported by a series of brackets *g*, which are secured to the several sections of the telescopic tube *a*. The apparatus shown in Fig. 1 in its extended position is shown in Fig. 6 in its telescoped position.

In Fig. 4 the sections of the pipe *a* extend

upwardly from the turbine *f* in a straight line until they are above the level of the water, a curved section being provided at the upper end, through the side of which the shaft *c* extends. This structure is advantageous, as it is not necessary to provide a stuffing-box under the water, as is the case in the structure shown in Figs. 1 and 2.

Obviously some means must be provided to shorten the shaft *c* and rod *x* when the telescopic tube *a* is shortened, and one way to permit the shaft *c* to shorten is to make it also in telescopic section, as indicated in the drawings. To insure positive rotation of the several sections, there may be a pin-and-slot connection between them, as indicated at *c'*; but other means may be employed. The rod *x* may be made of sections substantially equal in length to the section of the tube *a*, and such rod-sections may be screwed together, as indicated at *x'*. I do not, however, restrict myself to such means for joining the sections of the rod together, the means shown being merely illustrative of one way in which it may be accomplished.

The manometer (shown in Fig. 7) consists of a glass tube *g'*, vertically arranged and connected to the tube *a* at any convenient point. This tube is closed at its upper end and communicates with the interior of the tube *a*. At the commencement of the dredging operation there is drawn out only water, which in passing up the tube *a* will also enter the manometer *g'* and compress the air contained therein, and as the solid matter mixed with the water also begins to rise the air within the tube *g'* will become still more compressed. When the mixture of water and solid matter is of about the right consistency for the best operation of the apparatus, the height or level of the mixture in the glass tube can be marked. After this by watching the manometer the supply of water to the turbine or elevating device can be regulated.

Having thus described the invention, I claim—

1. In a pressure dredging-machine, the combination with an elevating-tube, of a turbine at the lower end of the tube to loosen and force upward through the tube solid matter, a curved shield partly surrounding the turbine and vertically adjustable independently

of the turbine to regulate the inflow of water to the turbine, and means to rotate the turbine, substantially as set forth.

2. In a pressure dredging-machine, the combination of an elevating-tube formed of
5 straight telescopic sections to a height above the level of the water, a curved section connected to the upper straight section, a rotary shaft extending within the straight sections
10 and through the side of the curved section,

and an elevating device carried by the lower end of said shaft, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRIEDRICH HOFFMANN.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.