

(No Model.)

C. A. E. MEINICKE.
FEEDING DEVICE FOR ORE WASHING MACHINES.

No. 482,582.

Patented Sept. 13, 1892.

Fig. 1.

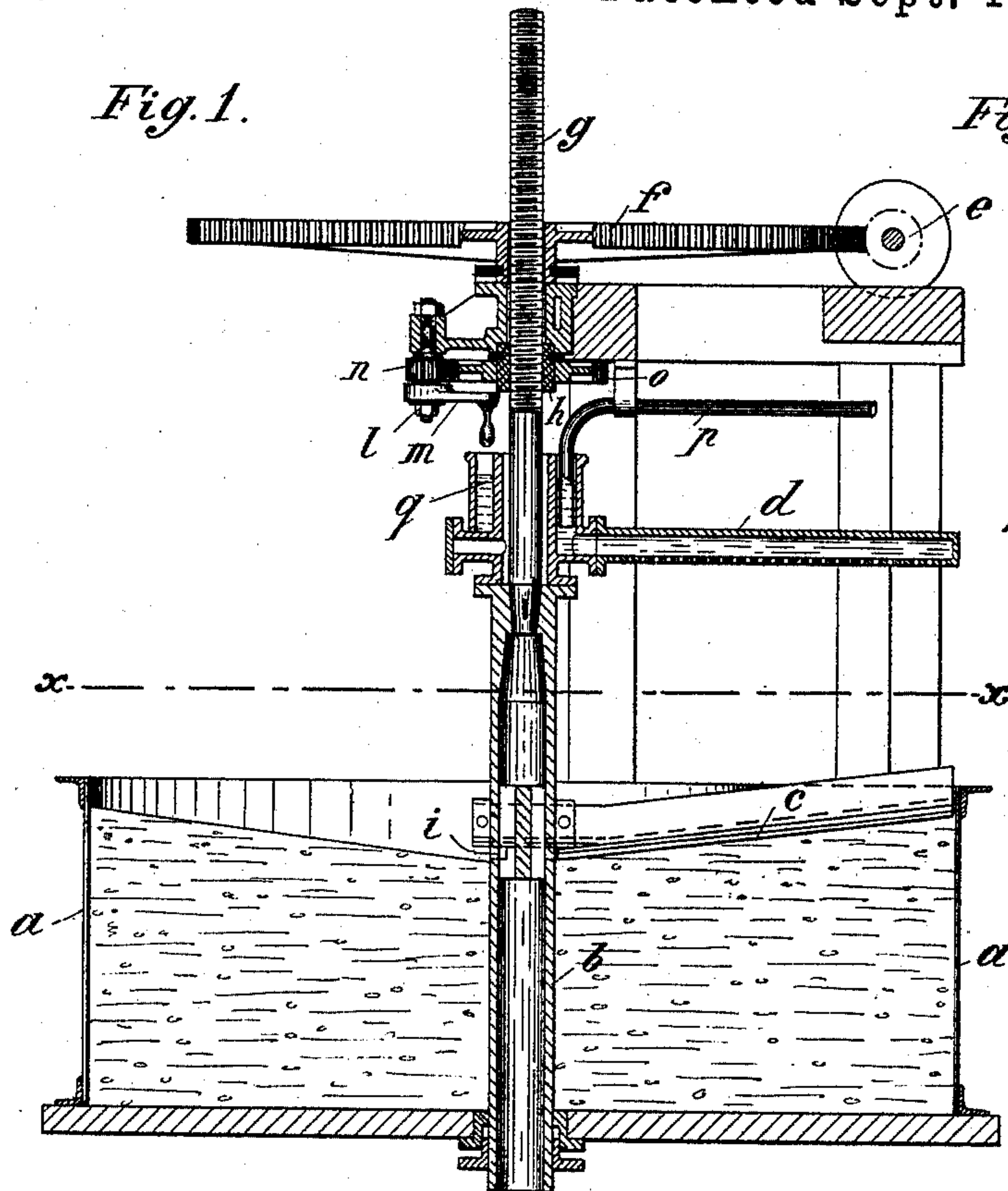


Fig. 2.

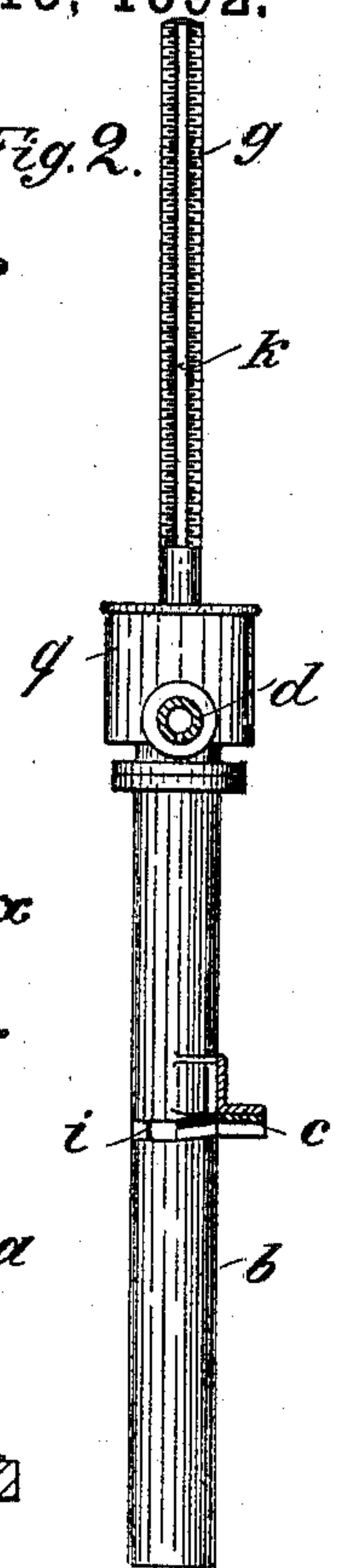


Fig. 3.

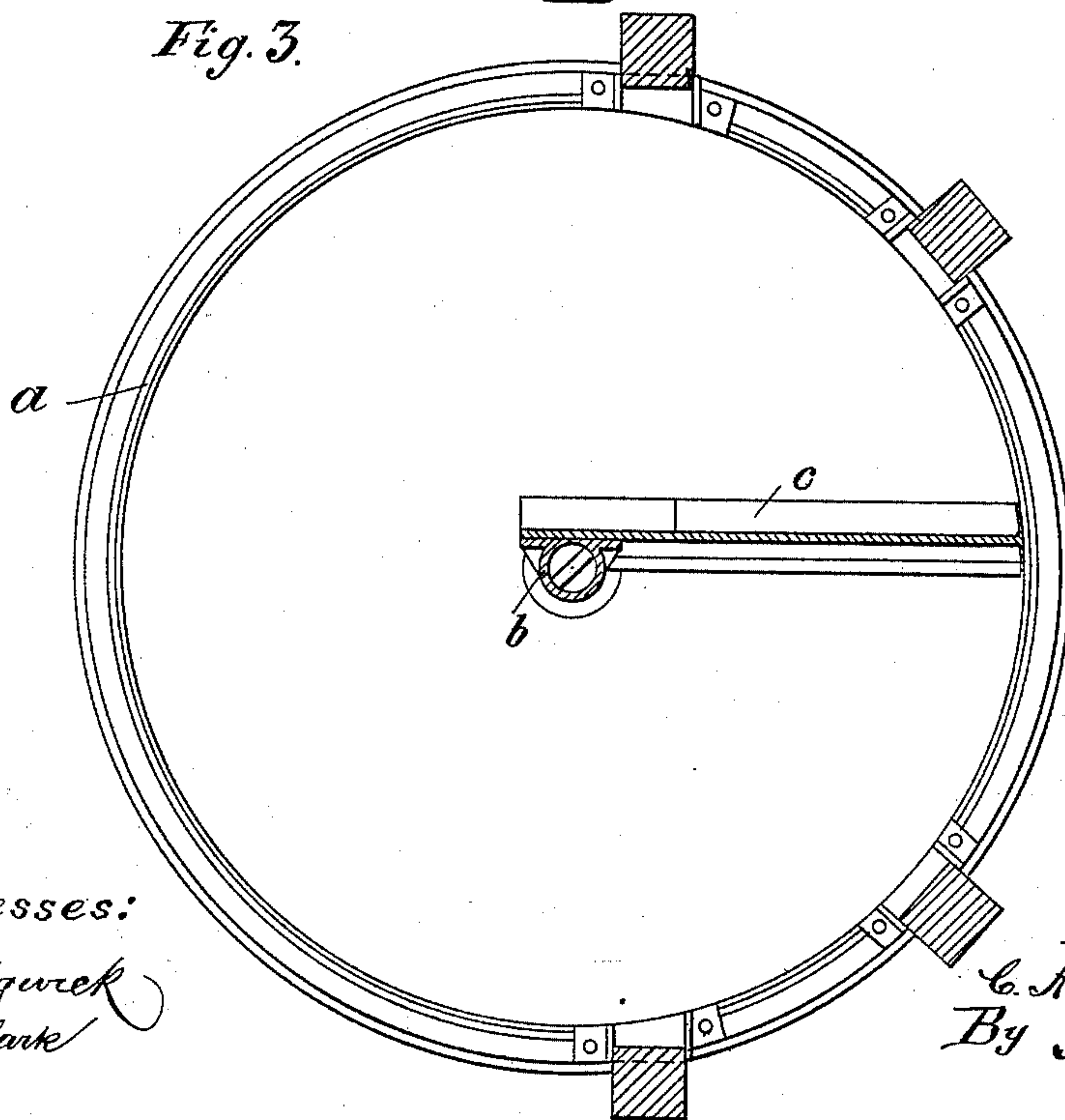
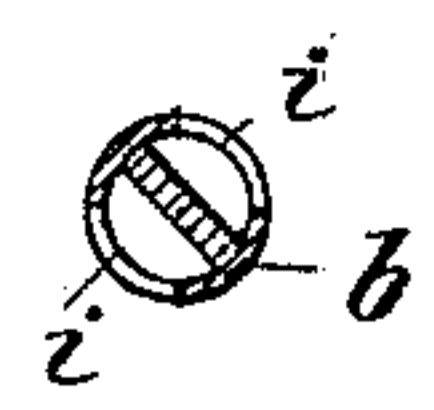


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

CARL AUGUST EMIL MEINICKE, OF CLAUSTHAL, GERMANY.

FEEDING DEVICE FOR ORE-WASHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 482,582, dated September 13, 1892.

Application filed October 27, 1890. Serial No. 369,470. (No model.) Patented in Germany August 4, 1886, No. 38,887, and in Austria-Hungary November 15, 1886, No. 45,267 and No. 14,176.

To all whom it may concern:

Be it known that I, CARL AUGUST EMIL MEINICKE, a subject of the King of Prussia, residing at Clausthal, in the Kingdom of Prussia, German Empire, have invented a new and Improved Feeding Device for Ore-Washing Machines, (for which I have obtained Letters Patent in Germany, No. 38,887, dated August 4, 1886, and in Austria-Hungary, No. 45,267 and No. 14,176, dated November 15, 1886,) of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved feeding device more especially designed for use in connection with ore-washing and other machines for regularly feeding a quantity of pulp to the machine.

The invention consists principally of a knife adapted to cut on the surface of the material held in a vessel or a tank and a watering device arranged in conjunction with the said knife to dissolve the material cut by the knife and to wash it away.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a side elevation of the shaft carrying the knife, parts being in section. Fig. 3 is a sectional plan view of the improvement on the line $x x$ in Fig. 1, and Fig. 4 is a transverse section of the central shaft.

The improved feeding device is provided with a suitably-constructed vessel or tank a , in which the material to be charged is equally distributed. In the tank or vessel a is arranged centrally a hollow shaft b , mounted to turn and to slide vertically in suitable bearings arranged in the bottom of the said vessel. On the shaft b is secured a knife c , adapted to cut with its cutting-edge on the surface of the material held in the tank or vessel a , the said knife being either set horizontally or slightly inclined, as is plainly illustrated in Fig. 1.

Above the knife c is arranged a perforated pipe d , through which water can pass upon the material cut by the knife c , so that the said cut material is dissolved and washed to the center of the tank to flow through the openings i , formed in the wall of the hollow shaft b into the latter. The lower end of the shaft b opens upon the machine or other device to be charged with the dissolved material.

A rotary motion is given to the shaft b from a worm-wheel e , driven by suitable means and held in mesh with a worm-wheel f , carrying in its hub a key fitting a vertical slot k , formed in the screw-shaft g , secured to the upper end of the hollow shaft b . A nut h engages the threaded shaft g and is mounted to turn in suitable bearings held on the framework supported from the vessel or tank a . When the nut h is held in a fixed position and the worm e is rotated, then the worm-wheel f turns the screw-shaft g , and consequently the shaft b , and at the same time the screw-shaft and the shaft b are moved downward by the screw-shaft turning in the fixed nut h . On the nut h is secured a gear-wheel o in mesh with a pinion n , mounted to turn loosely on a stud held in the framework previously mentioned.

A handle m is held on the stud and is secured to the pinion n . On the stud screws a nut l against the handle m , so as to prevent the latter and the pinion n from turning, consequently locking the gear-wheel o in place to prevent turning of the nut h in order to feed the shaft b downward, as previously described. After the material has been cut and it is desired to return the shaft b with the knife c to its former position, the operator loosens the nut l and turns the handle m so as to rotate the pinion n , whereby the gear-wheel o is rotated, thus revolving the nut h , and thereby screwing the shaft g upward until it, with the shaft b , assumes its former position.

The water-discharge pipe d , previously mentioned, connects with a vessel q , secured on the upper end of the shaft b and receives its supply of water from a pipe p , extending into the said vessel.

The operation is as follows: When the several parts are in the position shown in Fig. 1 and a rotary motion is imparted to the worm

e, then the shaft *b* is revolved and at the same time is caused to slide downward by the screw-shaft *g*, screwing in the fixed nut *h*. The cutting edge of the knife *c* now cuts a thin layer
 5 from the top surface of the material held in the vessel *a*, and at the same time a stream of water is discharged upon the cut material from the pipe *d*. The cut material is thus dissolved and washed toward the shaft *b* into
 10 which it passes through the openings *i*, arranged at or below the cutting-edge of the knife *c*. When the material has all been cut, the worm *e* is stopped by automatically shifting the driving-belt and then the nut *l* is
 15 loosened, so as to permit the operator to turn the handle *m*, thereby revolving the nut *h*, as previously described, so as to move the shaft *b* into an uppermost position to permit of again filling the tank or vessel *a*. It is to be
 20 understood that previous to this last-mentioned operation the water supply to the pipe *p* has been stopped. Instead of introducing the water through the vessel *q* into the pipe *d*, it may be passed through the screw-shaft
 25 *g*, which is then made hollow for this purpose. The pipe *d* may also be arranged in such a manner that it revolves with the shaft *b*, but does not partake of the downward movement of the latter. The device may also be ar-
 30 ranged so that the shaft *b*, the knife *c*, and the pipe *d* are stationary, while the vessel *a*, containing the material, is made to revolve and move upward.

Having thus described my invention, I
 35 claim as new and desire to secure by Letters Patent—

1. In a feeding device, the combination, with a knife adapted to cut a thin layer of material under treatment, of a watering device
 40 moving with the said knife and adapted to dissolve and wash off the cut material, substantially as shown and described.

2. In a feeding device, the combination, with a hollow shaft mounted to turn and to slide
 45 and provided with inlet-openings, of a knife secured on the said hollow shaft and adapted to cut a thin layer from the surface of the material, the cut material being free to pass through the said openings into the hollow
 50 shaft, substantially as shown and described.

3. In a feeding device, the combination, with a hollow shaft mounted to turn and to slide
 55 and provided with inlet-openings, of a knife secured on the said hollow shaft and adapted to cut a thin layer from the surface of the ma-

terial, the cut material being free to pass through the said openings into the hollow shaft, and a perforated water-pipe arranged above the said knife and mounted to turn with
 same, substantially as shown and described. 60

4. In a feeding device, the combination, with a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the ma- 65
 terial, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, and a worm-wheel feathered on the said screw-shaft and adapted to be rotated, substantially 70
 as shown and described.

5. In a feeding device, the combination, with a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the ma- 75
 terial, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, a worm-wheel feathered on the said screw-shaft and adapted to be rotated, and means, 80
 substantially as described, for locking the said nut in a fixed position and for rotating the same, substantially as shown and described.

6. In a feeding device, the combination, with 85
 a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the ma- 90
 terial, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, a worm-wheel feathered on the said screw-shaft and adapted to be rotated, a water-re- 95
 ceptacle held on the upper end of the said hollow shaft and connected with the water-supply, and a perforated pipe extending from the said receptacle and arranged in line with and above the said knife, so as to discharge 100
 water upon the cut material to dissolve the same and wash it to the openings in the hollow shaft, substantially as shown and described.

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

CARL AUGUST EMIL MEINICKE.

Witnesses:

FRIEDRICH CARL GLASER,
 G. HEILSMANN.