

**No. 656,766.**

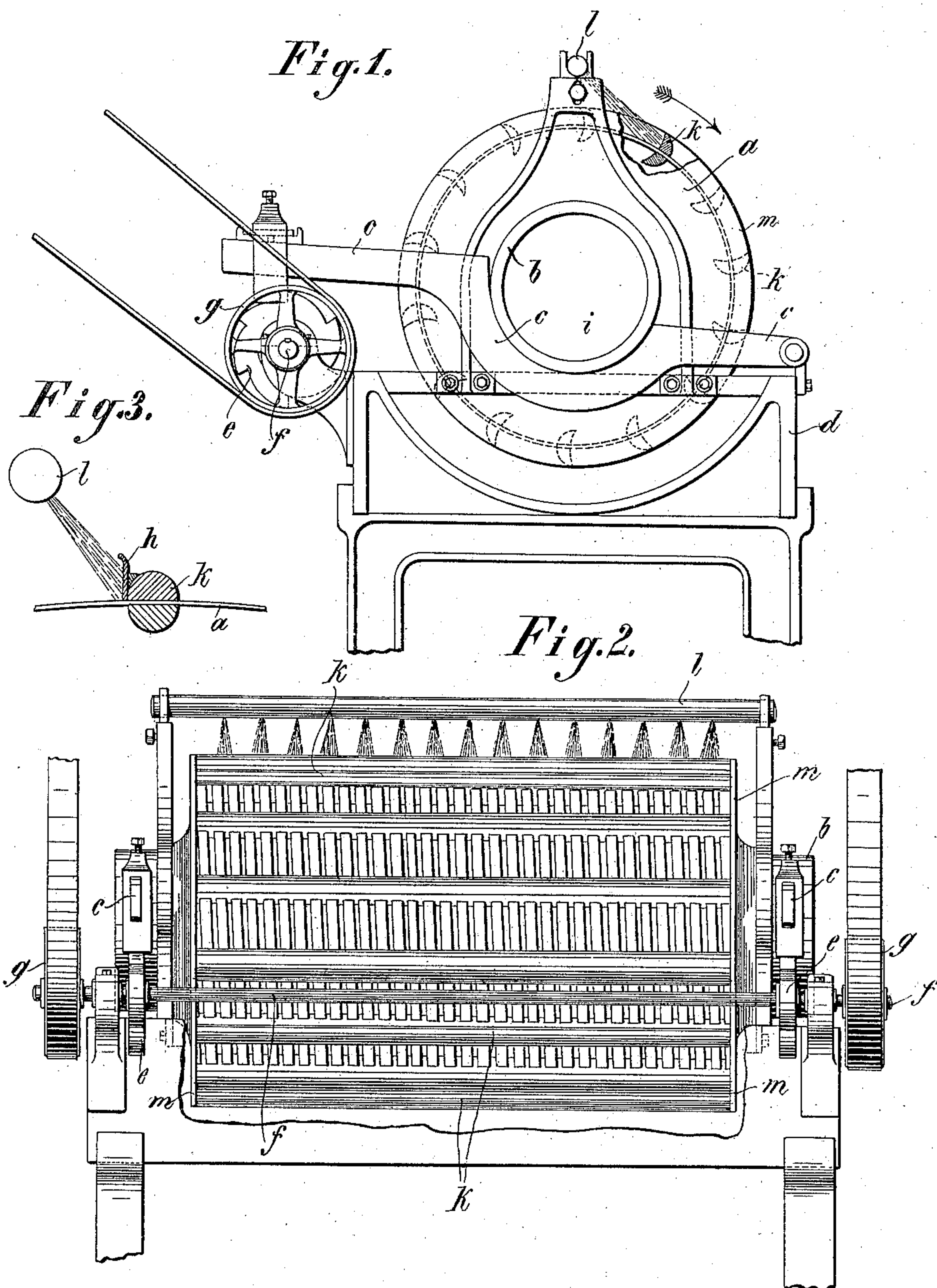
**Patented Aug. 28, 1900.**

**R. DIETRICH.**

**PULP STRAINER.**

(Application filed Nov. 29, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

ROBERT DIETRICH, OF MERSEBURG, GERMANY.

## PULP-STRAINER.

SPECIFICATION forming part of Letters Patent No. 656,766, dated August 28, 1900.

Application filed November 29, 1899. Serial No. 738,688. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT DIETRICH, a subject of the King of Prussia, German Emperor, residing at Merseburg, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Pulp-Strainers, of which the following is a specification.

The present invention relates to a pulp-strainer that is driven without the agency of spur-wheels and assisted in its rotation by the cleansing water-jets. All known apparatus of this kind are driven without the assistance of spur-wheels by arranging the levers supporting the drum at an angle to the horizontal, or they are provided with cones or worm and worm-wheel gearing requiring considerable expenditure of power and subject to great wear.

One object of this invention is to keep the sieve-cylinder in continuous motion without spur-wheel gearing and by arranging the axle of the tappet-wheel contrary to known arrangements in about the same horizontal plane as the fulcrum of the levers carrying the sieve-cylinder, the motion being especially assisted and assured by utilizing the power of the water-jets required for cleansing the sieve.

In Figures 1 and 2 of the accompanying drawings a pulp-strainer constructed in accordance with this invention is represented in front and side elevation, and in Fig. 3 a modified construction of the rods supporting the spiral is shown in section.

The sieve-cylinder *a* is provided with trunnions *b*, which are hollow, serving for the passage of the material, and are supported by levers *c*. Said levers *c* are each fulcrumed at one end to the drum-box *d* or frame of the machine and the other ends rest on so-called "tappet-wheels." Said tappet-wheels *e* are mounted on a shaft *f*, having its bearings in the frame of the machine and rotated by the pulley *g*. The shaft *f* is, contrary to existing pulp-strainers, situated in approximately the same horizontal plane as the fulcrum of the levers. By this arrangement the drum of the pulp-strainer will be rotated by the movement of the tappet-wheels *e*.

The sieve-cylinder of the strainer consists of a spiral metal strip, between each round

of which the necessary space is left. Transverse bars *k* support the spiral on both the outside and inside, being soldered to the same. The form of these transverse bars *k* is shown in Fig. 1 as approximately semicircular, one-half being outside of the cylinder and the other inside. Above the sieve-cylinder the ejection-pipe *l* is arranged, and the slots of the sieve are kept clear by the powerful jets of water. The ejection-pipe is so arranged that the jets do not issue perpendicularly downward but at an angle and in the direction of rotation of the cylinder. Said jets strike against the transverse bars *k*, and the power of the water is consequently utilized for increasing the rotation of the cylinder. The transverse bars *k* are formed as shown in Fig. 1—that is, slightly curved on one side—so that a suitable surface of action is offered to the water. They may be substantially straight on this side; but it is preferable to form them with a slight concave curvature to enable them to act as blades to receive the impact of the water. The interior transverse bars are preferably formed in the same manner, because the water-passing through the spiral is then thrown back into the gutter *i*.

To the semicircular transverse bars of existing pulp-strainers copper or brass strips *h*, Fig. 3, formed with a flat body and curved outer edge, can be soldered in order to afford the greatest possible resistance to the water-jets, and thus utilize the power of the water to the utmost. In either case the bars *k* alone or in conjunction with the strips *h* form transverse devices so shaped as to be adapted to receive the water issuing from the ejection-pipe and cause it to propel the cylinder. The coarse pieces, which have a tendency to settle at the ends of the slots, are easily washed away from the blades of the wheel—that is, from the flattened side of the transverse bars or pieces *k* by the action of the water. A great advantage of this invention is therefore the fact that the water-jets are caused to act at the ends of the slots, where the water has a tendency to gather and where the coarse particles, &c., usually become fixed. The water-jets are not only used for assisting the motion of the cylinder, but also for the purpose of more effectively cleansing the strainer.



This pulp-strainer acts like an overshot water-wheel; but the impulsive action of the water is more effectively utilized. By this latter arrangement the motion of the sieve-cylinder is assured. In order, moreover, to utilize the weight of the water-jets at the moment of impingement, the drum is closed at both ends by a disk *m*, so that the water cannot escape at the ends, but is forced to remain within the angle formed by the transverse bars and the spiral until it passes through the slots into the cylinder. The profile of the outer and inner transverse bars is of course so chosen that the most favorable action of the water-jets is obtained. An angle of about forty-five degrees is the best. Protection, however, is not desired for the special form of the transverse bars, (blades.) Furthermore, the end disks shown in the drawings may be replaced by small angle-pieces arranged at the ends of each transverse bar for the purpose of retaining the water.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A pulp-strainer comprising, in combination with the strainer-cylinder, an ejection-pipe having its opening extending at an angle to the cylinder and in the direction of rotation thereof, and transverse devices arranged on the surface of the cylinder and suitably shaped to receive the impact of the water from the ejection-pipe on their sides presented toward the ejection-opening, in order to cause rotation of the strainer-cylinder without the use of gearing.

2. A pulp-strainer comprising, in combination with the strainer-cylinder, an ejection-pipe having its opening extending at an angle to the cylinder and in the direction of rotation thereof, and transverse devices ar-

ranged on the surface of the cylinder and formed as blades to receive the impact of the water from the ejection-opening.

3. A pulp-strainer comprising, in combination with the strainer-cylinder an ejection-pipe having its opening extending at an angle to the cylinder and in the direction of rotation thereof, and transverse devices arranged on the surface of the cylinder and adapted to receive the impact of the water from the ejection-opening, said devices consisting of half-round bars with blade-strips fastened to them on the impact-receiving side.

4. A pulp-strainer comprising, in combination with the strainer-cylinder, an ejection-pipe having its opening extending at an angle to the cylinder and in the direction of rotation thereof, and transverse devices arranged on the surface of the cylinder and adapted to receive the impact of water from the ejection-opening, said devices consisting of half-round bars with blade-strips fastened to them on the impact-receiving side and said blade-strips being partly straight and partly curved, substantially as set forth.

5. A pulp-strainer comprising, in combination with the ejection-pipe, a strainer-cylinder having transverse strips arranged to receive the impact of water from such pipe, and end disks on said cylinder, forming in conjunction with said transverse strips, buckets to hold the water and cause the weight of the latter to aid the rotation of the cylinder.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

ROBERT DIETRICH.

Witnesses:

RUDOLPH FRICKE,  
A. KRAUSS.