G. W. KIMBALL.

VALVE FOR PAPER PULP CONDUITS.

APPLICATION FILED JUNE 13, 1908.

913,400. Patented Feb. 23, 1909.

Fig. 1.

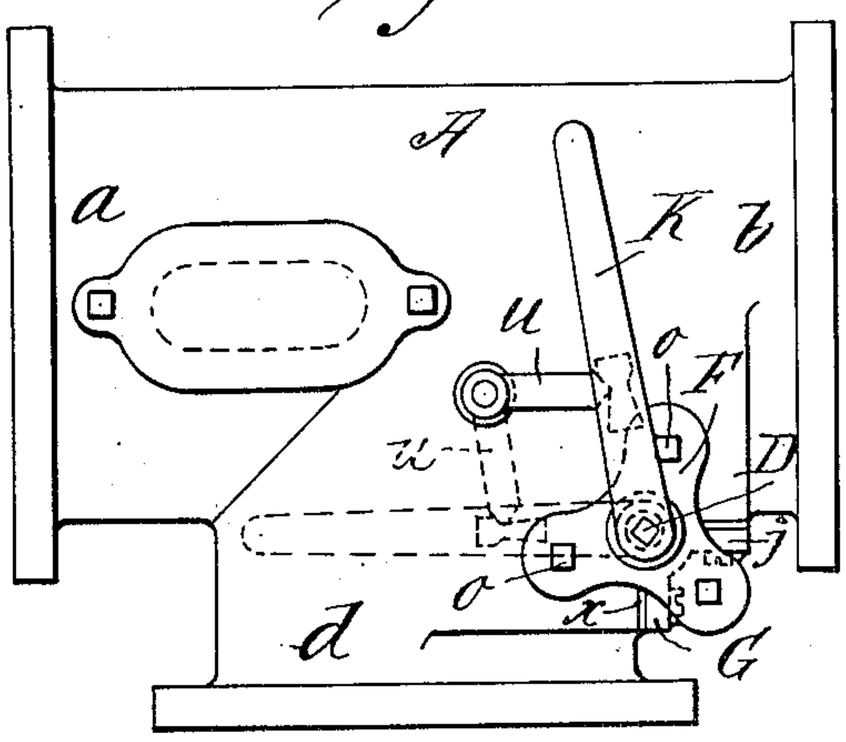


Fig. 2.

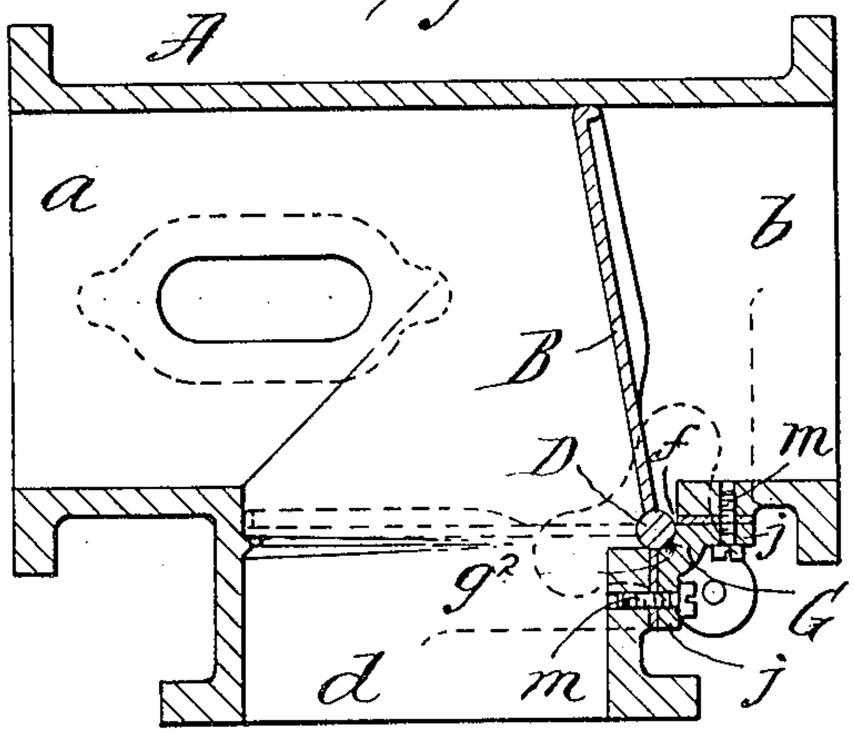


Fig. 3.

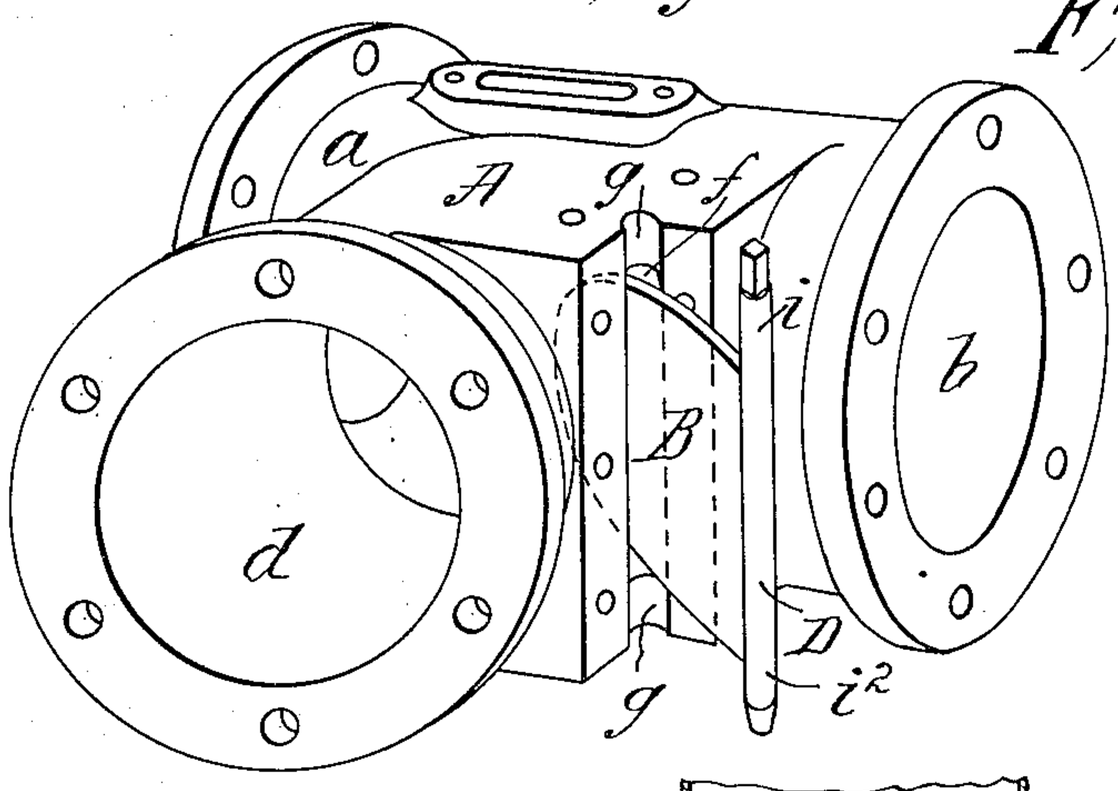


Fig. 4.

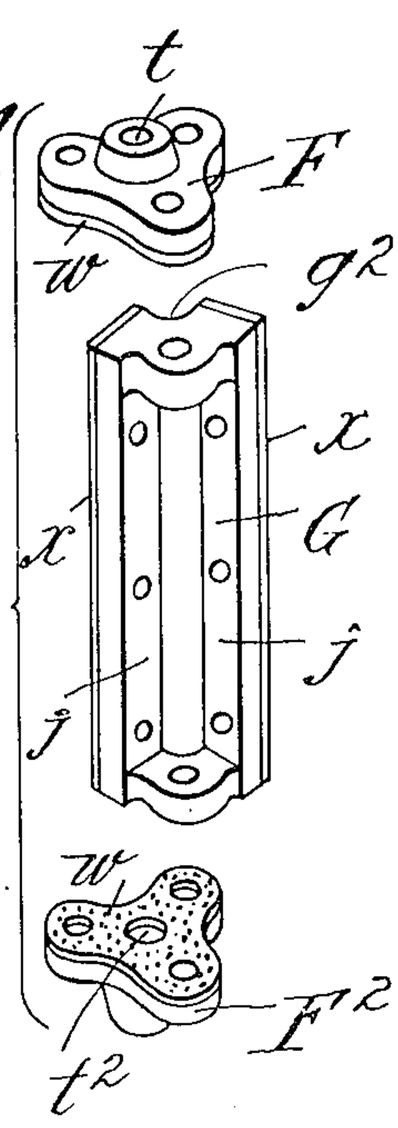


Fig. 5.

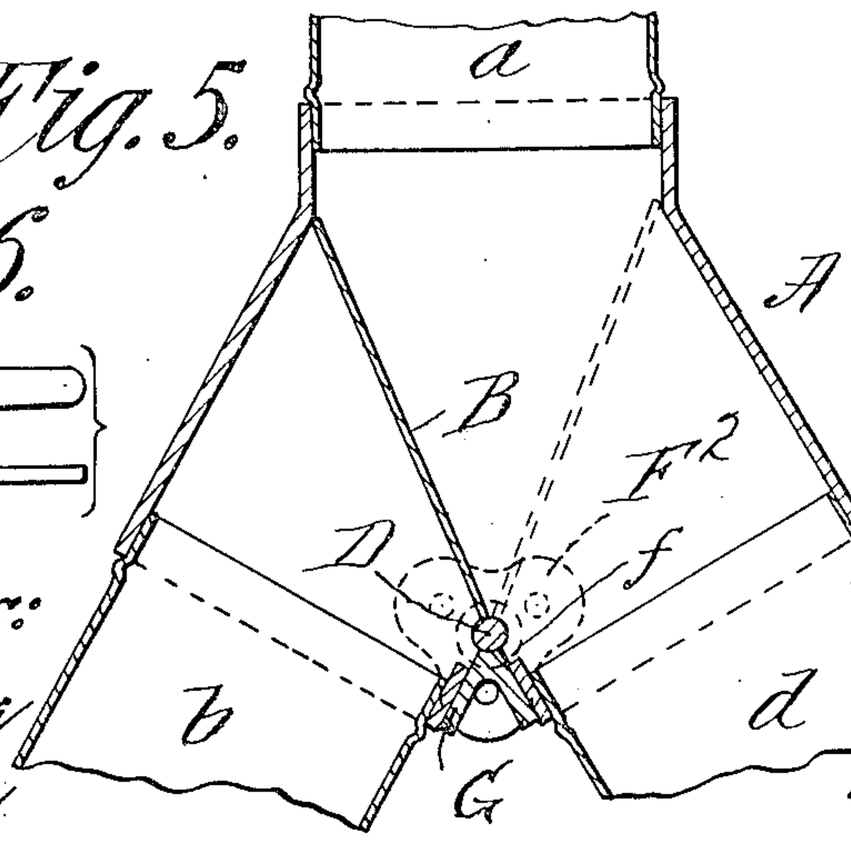
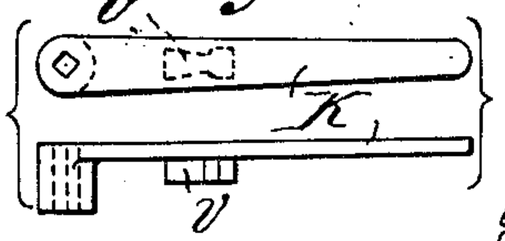


Fig. 6.



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VALVE FOR PAPER-PULP CONDUITS.

No. 913,400. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed June 13, 1908. Serial No. 438,262.

To all whom it may concern:

Be it known that I, GEORGE W. KIMBALL, a citizen of the United States of America, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Valves for Paper-Pulp Conduits, of which the following is a full, clear, and exact description.

This invention relates to an improved valve and valve casing comprised in a three way coupling section for connection with a paper pulp supplying conduit and branch conduits for conveying the stock, according as its course is controlled by the positioning of the valve gate, through either of the branch conduits for delivery for use in paper machinery in different parts of the mill.

In the form of valve bodies heretofore used in the situation here contemplated the valve was so journaled within the casing therefor that a part of the casing carrying one of the branch ways required to be bodily disconnected and removed in order to get the valve out for the purpose of replacing it with a new gate, as necessitated by the pulp and foreign matter cutting out and wearing the valve especially at its journaled edge, and as otherwise necessitated, as, for instance, by the lodging within the valve of hard obstructing substances not always accessible through the hand hole.

The object of this invention is to provide a construction of gate valve and a valve casing therefor comprising branch ways whereby by the removal of only a comparatively small wall constituting section of the casing the valve may be directly bodily removed to permit the removal of obstructions or the renewal of the valve.

The invention consists in the combination and arrangement of parts and the constructions of parts substantially as hereinafter described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a plan view of the coupling section to be comprised in its connection between a pulp supplying conduit and two differently directed pulp delivery conduits; Fig. 2 is a sectional view as taken on the plane of the axes of the branched ways. Fig. 3 is a perspective view of the coupling section and valve casing with appurtenances thereof removed and indicating the convenient removability of the valve gate; Fig. 4 is a perspective view representing the removable appurtenances of the valve casing; Fig. 5 is a view in substance like Fig. 2, but showing branched ways arranged at an acute, instead of a right, angle; Fig. 6 is a plan view and projected side view of the valve operating handle lever.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A represents the valve casing comprising a coupling section having three ways therethrough, the one *a* being, for instance, understood as to have coupling connection with a pulp supplying pipe of large diameter, while the ways *b* and *d* are for coupling connections with differently directed pulp delivery pipes of large diameter. The casing A is constructed with an aperture *f* through the crotch at the junction of two of the angularly arranged ways, said aperture being arranged at right angles to the axial lines of the ways, and it has a length approximately that of the diameter of the opening within or through the valve casing. The wall of casing A, is provided at said crotch with a cut-away part forming two walls arranged at right angles to one another in the form of an L. The casing has in its walls adjacent the ends of said apertures alined partially cylindrical recesses *g g*, best shown in Fig. 3. B represents the valve gate carried by and extended radially beyond the side of the shaft D which is integral or unitary therewith, and the valve may be removably positioned in the valve casing through said narrow crotch aperture *f* to bring it to its operative position and to have the portions *i*, i^2 of the shaft, which are oppositely endwise beyond the valve gate, fitting in the said partially cylindrical recesses *g*. G represents a casing section or segment for removably closing the said crotch aperture, the same having a partially cylindrical recess g^2 along its inner side for the accommodation of the gate valve shaft, and said section comprises angularly extended cheeks or flanges *j j* to closely fit against the finished faces of the valve casing adjacent and outside of the crotch aperture and to be confined in place as a part of the casing by the screws or bolts *m*.

F and F^2 represent caps removably secured on opposite sides of the valve casing near its crotch, being secured by the screws or bolts *o*, and portions of these caps extend, shelf-like, across the space within the crotch in contact with and covering opposite ends

of the removable ca[illegible]ction G, and have alined journal openings t and t^2 for the extremities i and i^2 of the valve shaft, one of said extremities i^2 extending through and beyond the cap and having rigidly connected therewith the operating handle lever K.

Manifestly, by positioning the valve as shown in Fig. 2, the course of the pulp will be diverted from the main supply conduit to and through the delivery conduit connected with the branch way d, and by changing the position of the valve from that shown in full lines to the one shown in dotted lines, the course of the pulp will only be for delivery through the conduit connected with the way b. The valve may be held locked in either of its extreme positions by engagement of the swinging dog u, pivotally mounted on the side of the valve casing, with the abutment v angularly extended from an intermediate portion of the handle lever K.

The removability and replacement of the valve is apparent from the drawings and the description in conjunction therewith already given.

The caps F and F^2 in addition to constituting bearings for the journals of the gate valve shaft also form closures against leakage of pulp along the journals,—w representing compressible packings for the caps, while packings x are provided between the approximate faces of the flanges of section G and the valve casing proper.

I claim:—

1. A valve casing, comprising a coupling-section, having three ways therethrough, and constructed with an aperture through the crotch at the junction of two of the angularly arranged ways, having approximately the length of the diameter of said ways, a shaft, and a valve-gate, carried by and extended beyond the side of the shaft, and removably positioned within the valve casing through said narrow crotch aperture, a detachable section, closing the said crotch aperture, and caps, removably secured on crotch and having alined journal openings opposite sides of the valve-casing near its for extremities of the shaft which are extended beyond the opposite edges of the valve gate.

2. A valve casing, comprising a coupling-section, having three ways therethrough, and constructed with a straight narrow aperture through the crotch at the junction of two of the angularly arranged ways, having approximately the length of the diameter of said ways, and said casing having in its walls, adjacent the ends of said aperture, alined partially cylindrical recesses, a shaft, and a valve gate, carried by, and extending beyond the side of the shaft, and removably positioned within the valve casing through said narrow crotch aperture, the portions of the shaft oppositely endwise beyond the gate valve fitting in said partially cylindrical recesses, a casing section removably closing the said crotch aperture, and having a partially cylindrical recess along its inner side for the accommodation of the gate valve shaft, detachable means for the confinement of the said casing section on the main body of the valve casing, caps removably secured on opposite sides of the valve casing near its crotch extending across the opposite ends of said removable casing section and having alined journal openings for the extremities of the valve shaft, one of which extremities extends through and beyond the cap and has an operating handle lever.

3. A valve casing having three ways, a valve gate operating in the space at the juncture of said ways, an operating lever for said valve gate, and a swinging dog on the casing having its free end adapted to abut said lever on either of its opposite sides to sustain the same in different positions.

4. A valve casing having three ways, a valve gate operating in the space at the juncture of said ways, an operating lever for said valve gate, an abutment carried by said lever at a point intermediate of its length, and a dog pivoted at one end to said casing, and having its opposite end free and adapted to engage the opposite sides of said abutment to hold said lever in different positions.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

GEO. W. KIMBALL.

Witnesses:
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