

J. KOENIG.

STOP VALVE.

APPLICATION FILED OCT. 6, 1908.

932,028.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

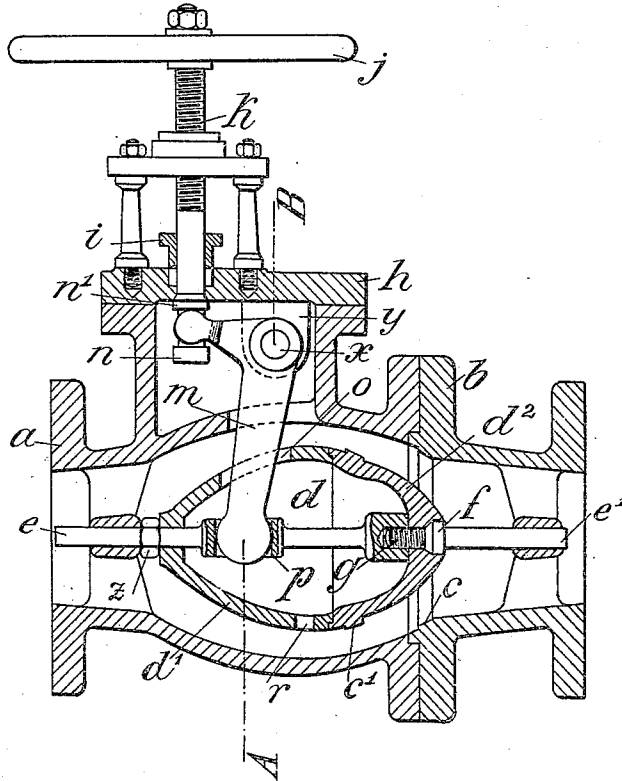
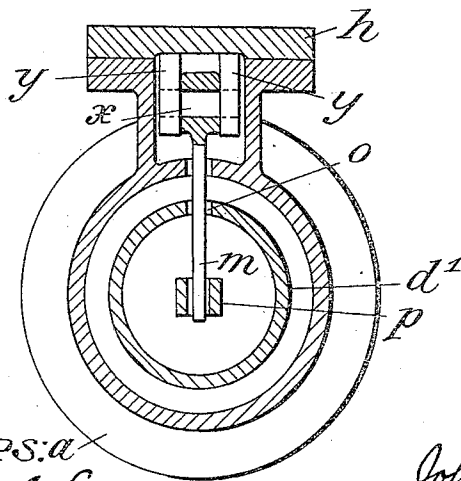


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

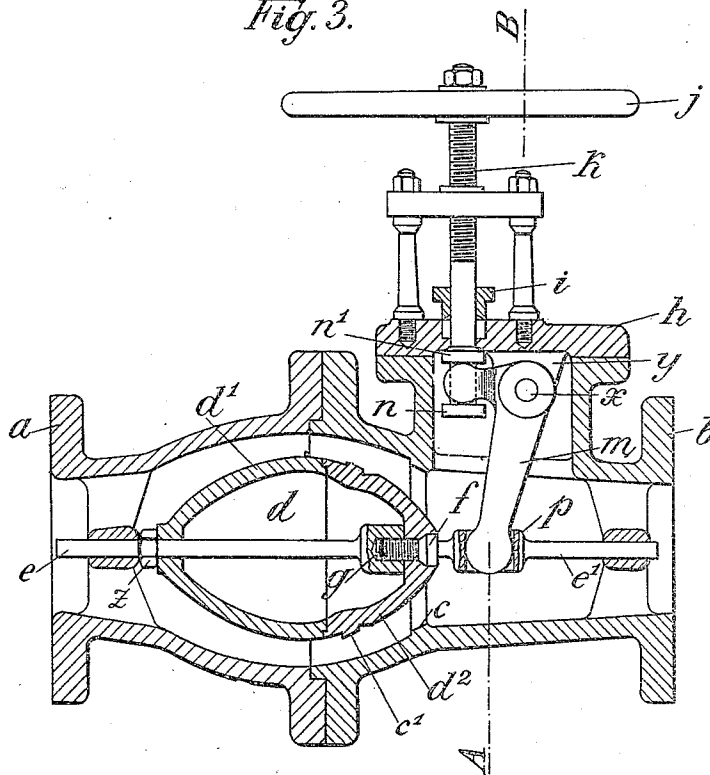
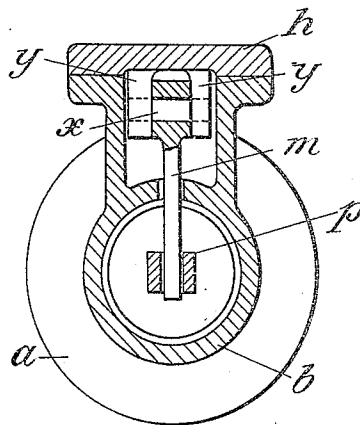


Fig. 4.



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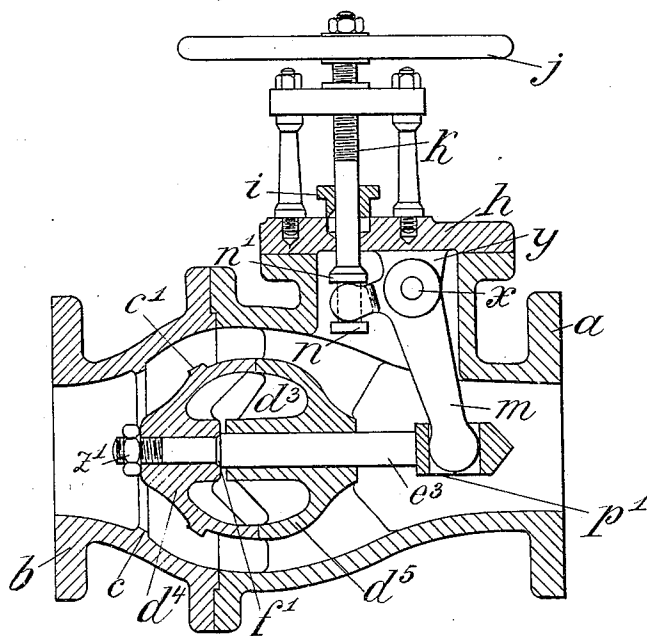
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3 SHEETS—SHEET 3.

Fig. 5.



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STOP-VALVE.

932,028.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHANN KOENIG, engineer, a subject of the King of Bavaria, residing at 97 Alexanderstrasse, Riga, Russia, have invented new and useful Improvements in Stop-Valves, of which the following is a specification.

The subject of my invention is an improved stop-valve for pipes.

The main feature of the new valve is the provision of a substantially ovate plug, which is guided axially of the pipe and is connected with a stem supported by the valve-casing, in such manner that by rotation of the stem the valve can be adjusted, or opened or closed. This construction of valve possesses divers advantages. The ovate plug and correspondingly shaped valve-casing afford the most favorable passage for the liquid or steam, since there is no change in direction during the flow of the fluid through the valve-casing. The fluid can thus enter or leave the valve-casing without detrimental obstruction. The new valve-construction also admits of the use of a plug actuating device which practically does not diminish the cross sectional area of the passage at all. For this purpose the plug may be connected to the stem by a bent lever, whose one end is jointed to the stem and its other end to the plug, while the fulcrum lies outside the actual passage of flow. The plug itself is hollow and may receive the arm of the bent lever, which is jointed to a guide-rod that carries the plug.

Certain forms of construction of the new valve are illustrated in the accompanying drawings.

Figure 1 is a longitudinal section through one form of the valve. Fig. 2 is a cross section on the line A—B of Fig. 1. Fig. 3 is a longitudinal section through a modification. Fig. 4 is a cross section on the line A—B of Fig. 3. Fig. 5 is a longitudinal section through a third modification.

Referring more particularly to Figs. 1 and 2, the valve consists of the main casing *a* and a tubular flange-piece *b*, whose inner end presents a valve-seat *c*.

Within the casing *a* there reciprocates the ovate plug *d*. As shown in Fig. 1, this plug consists of two cup-shaped parts *d'* *d''*, secured to a sliding guide-rod, itself comprising two sections *e* *e'*.

The cup *d'* of the plug is loosely pushed

onto the rod-section *e*, while the cup *d''* fits against a conical collar *f* on the rod-section *e'*. The inner extremity of the rod-section *e'* is threaded and passes through the wall of the cup *d''*, and is screwed into the end of the rod-section *e*, so that the cup *d''* is firmly held between the two sections *e* *e'*, which constitute, as it were, a single rod. The cup *d'* is pressed tightly against the cup *d''* by a nut *z*, so that the entire plug *d* is rigidly connected to the guide-rod *e* *e'*.

The cup *d''* is furnished with a seating-face *c'* adapted to fit the seat *c* of the part *b*. The faces *c* *c'* may be presented direct by the walls of the respective members, or by special rings let into the latter.

The mechanism for actuating the plug *d* consists of a stem *h* passing through the cover *h* of the casing *a*, a tight joint being made by a gland *i*. The stem *h* may be rotated by means of a hand-wheel *j* in the usual manner. The cover *h* presents two lugs *y* *y*, between which there is pivoted by the pin *x* a bent lever *m*. The upper, shorter arm of this lever is bifurcated to receive the stem *h*, the two disk-shaped fork-ends lying between two shoulders *n* *n'* on the stem. The lower, longer lever-arm extends through a slot *o* in the cup *d'*, in the interior of which it is jointed to the rod *e*, its rounded end being received by an eye *p* on the rod.

On rotation of the stem *h* the plug *d* will obviously be advanced toward or retracted from the part *b* (depending upon the direction of rotation), so that the extent of passage of flow can be adjusted or the valve entirely opened or closed, as may be necessary.

As will be seen from the drawing, it is only the longer arm of the lever *m* that lies in the passage of flow, so that there is practically no obstruction offered to the current of liquid or steam. Eddies and other impediments to a free flow of the fluid are thus obviated.

In order to prevent fluid collecting in the chamber of the plug *d*, an exit-aperture *r* is furnished in the part *d'*.

The modification shown in Figs. 3 and 4 differs from the construction just described only in so far that the arm of the lever *m* which is jointed to the guide-rod lies outside the plug *d*. For this purpose the tubular flanged part *b* is prolonged and adapted to accommodate the actuating mechanism of the plug *d*, while the eye *p* is provided in the

rod-section e' instead of in section e . This modified construction, likewise, possesses the advantages already mentioned both as respects the favorable nature of the passage presented to the fluid, and the absence of obstruction to free flow.

In Fig. 5 a modification is illustrated having a plug d^3 whose one part d^4 is movable while the other part d^5 is integral with the casing a . The movable part d^4 presents the seating-face c' , adapted to fit against the seat c of the part b . The movable part d^4 is mounted on the guide-rod e^3 , which passes through the part d^5 . e' is a nut, by tightening which the part d^4 is pressed against the conical collar f' on the rod e^3 . The mechanism for actuating the plug d is substantially the same as that already described with reference to Figs. 1 and 2. The bent lever m is pivoted by the pin x between the lugs y y' pendent from the cover h of the casing. The shorter lever-arm embraces the stem k between the shoulders n n' . The stem k is packed by means of the gland i and is provided with a hand-wheel j . The longer lever-arm takes into the eye p' of the guide-rod e^3 outside the plug d^3 . Ordinarily, that is to say, when the valve is open, the two parts d^4 d^5 constitute, as in the constructions above described, a substantially ovate body, so that in this modification also, no detrimental obstruction is offered to the inflowing or outflowing current of steam or liquid.

Having thus described my invention, what I claim as new is:—

1. A stop valve comprising a casing, a substantially ovate hollow plug located therein whose longitudinal axis lies in the direction of flow, a guide rod passing through the plug and secured to the same, a screw stem passing through the casing wall and a bent lever pivoted to the casing outside the fluid-passage and having one arm substantially parallel with the stem and having its end jointed to said guide rod and its other arm disposed substantially at a right angle to said stem and jointed thereto.

2. A stop-valve, comprising, a casing, a substantially ovate hollow, perforated plug located therein whose longitudinal axis lies in the direction of flow, a guide-rod passing through the plug and secured to the same, a screw stem passing through the casing-wall, and a bent lever pivoted to the casing outside the fluid-passage and having its one arm jointed to the stem, while its other arm enters the plug and is jointed within the same to the rod, substantially as described.

In witness whereof I have hereunto signed my name this 23rd day of September 1908, in the presence of two subscribing witnesses.

JOHANN KOENIG.

Witnesses:

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WOLDEMAR HAUPT.