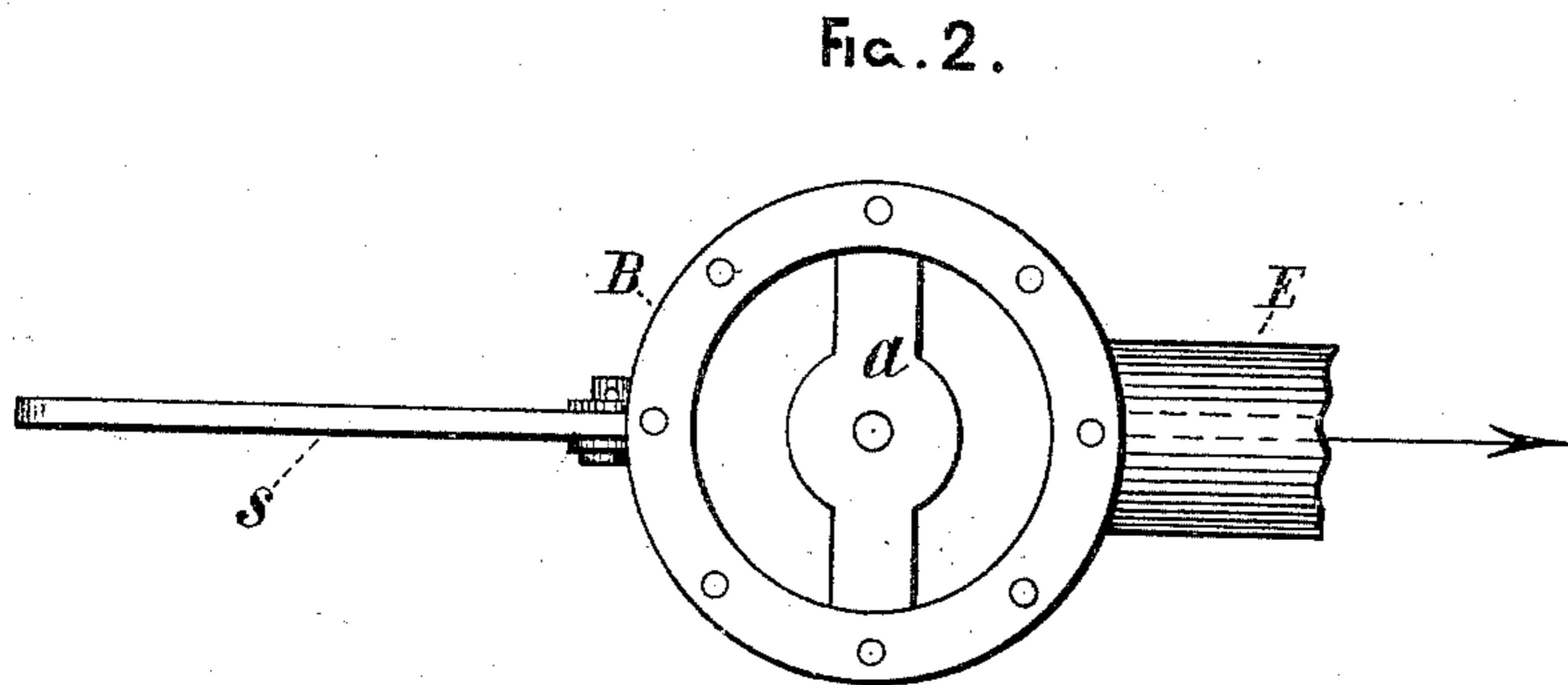
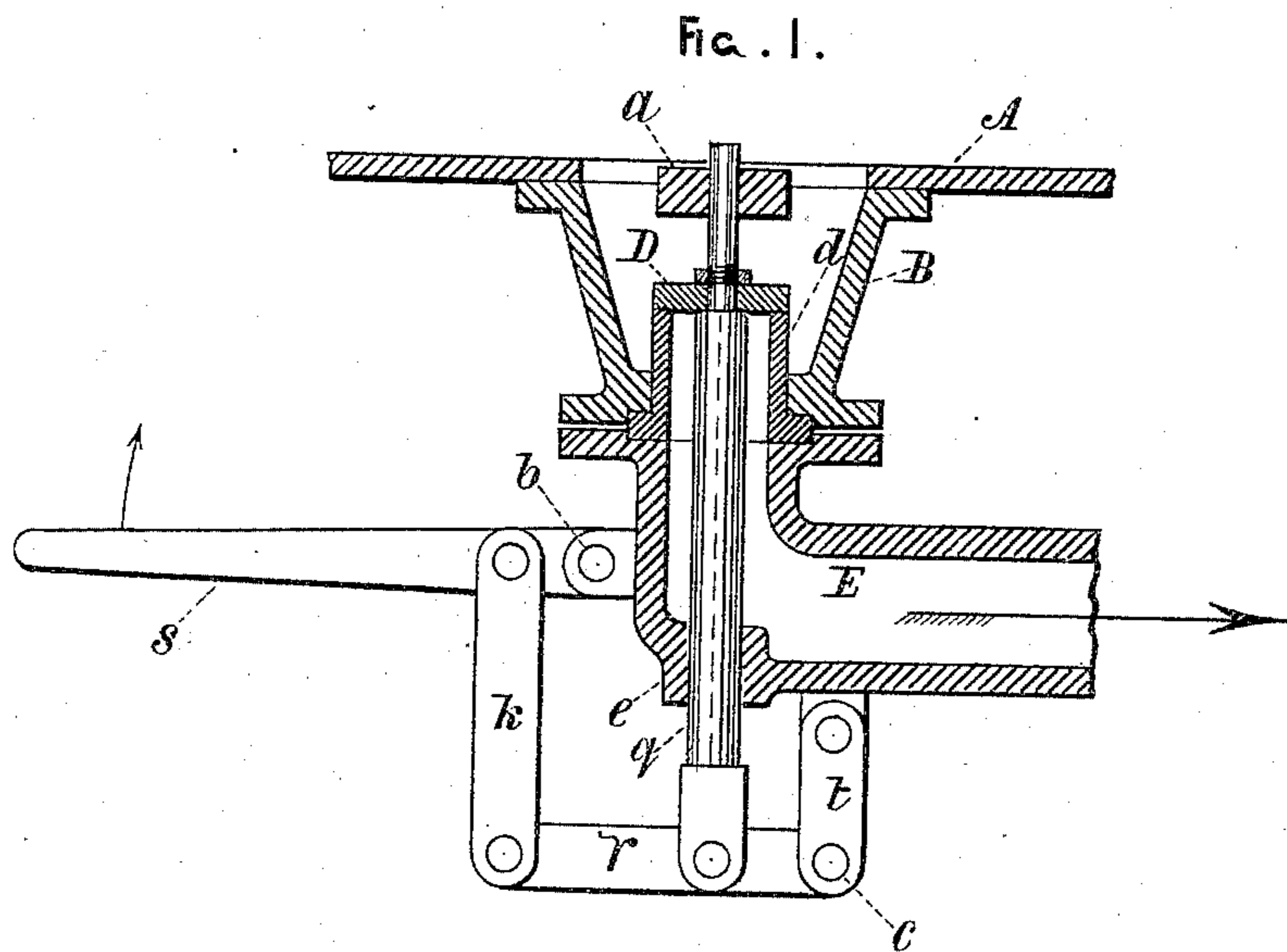


(No Model.)

J. B. BARNES.
MUD VALVE FOR STEAM BOILERS.

No. 436,491

Patented Sept. 16, 1890.



Witnesses
W. H. Miller,
G. R. Smith.

Inventor
Joshua B. Barnes.
By his Attorney J. S. Davenport.

UNITED STATES PATENT OFFICE.

JOSHUA B. BARNES, OF SPRINGFIELD, ILLINOIS.

MUD-VALVE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 436,491, dated September 16, 1890.

Application filed July 25, 1890. Serial No. 359,947. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA B. BARNES, of Springfield, in the county of Sangamon and State of Illinois, have invented a new and Improved Mud-Valve for Steam-Boilers; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in mud-valves for steam-boilers of that class subjected to a very considerable amount of wear, owing to the abrading action of the gritty sedimentary matter which passes through them.

The object of my invention is to provide a valve of very simple construction, adapted to keep the water and mud, as they gather about the valve and valve-seat, in such commotion that the mud cannot become so indurated as to cause the valve to stick.

A further object is to provide a valve and valve-seat that can be more readily and cheaply removed and replaced with a new one than heretofore.

In the drawings, Figure 1 is a side sectional view taken through the axis of the valve, and Fig. 2 a plan or top view of the same.

A represents a section of the bottom of the boiler; B, a mud-chamber; *d*, a removable valve-seat; D, a flat-faced valve; *g*, a valve-rod; *a*, an upper guide for valve-rod; *e*, a lower guide for valve-rod, and E an outlet-pipe.

r represents a short lever for actuating the valve-rod to which it is jointed, as shown. One end of said lever is fulcrumed at *c* to the lower end of a link *t*, which is at its upper end jointed to the lower part of the outlet-pipe E, and the opposite end is connected by a link *k* with a long hand-lever S, fulcrumed at *b*.

It will be noticed that the valve-seat is purposely located a considerable distance above the bottom of the chamber B, and that the latter is of such capacity as to keep the valve encircled by a volume of water, the agitation of which, by boiling or the motion of the engine, tends very effectively to keep the valve clean, while whatever sedimentary matter the water contains, if deposited in the chamber,

falls to the bottom thereof, and consequently below the valve-seat, where it cannot impede the action of the valve or cause it to stick. It will be further noticed that the valve-seat is secured in position by clamping the flange round its lower part between the lower flange of the chamber B and the top flange of the outlet-pipe E. Consequently to remove the valve-seat it is only necessary to take away the outlet-pipe and withdraw the valve and its seat together, the cylindrical part of the latter being made to slide freely through the opening in the bottom of the chamber in which it is secured, the joint being made in the recess turned out in the flange of the chamber B and also in that of the outlet-pipe E, into both of which the flange of the valve-seat snugly fits, as shown in Fig. 1. By these details the valve is not only made more durable by being less exposed to the abrading action of the sediment in the boiler, but may be very readily and cheaply replaced by a new one when required.

To open the valve, it is only necessary to raise the hand-lever S, as indicated by the arrow, an operation which, owing to the leverage afforded by the mechanism above described, may be easily performed even against a very heavy pressure of steam.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A mud-valve comprising a chamber B, an outlet-pipe E, a removable valve-seat secured in position between the flanges of said chamber and outlet-pipe and projecting upward to near the middle of the chamber B, a valve D, mounted upon a rod *g*, the lower end of which is adapted to slide in a guide *e* in the outlet-pipe, and the upper end in a guide *a* in the chamber B, all constructed, combined, and adapted to operate as and for the purpose herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of June, 1890.

JOSHUA B. BARNES.

Witnesses:

S. W. JEFFERY,
A. B. MARS.