

No. 662,524.

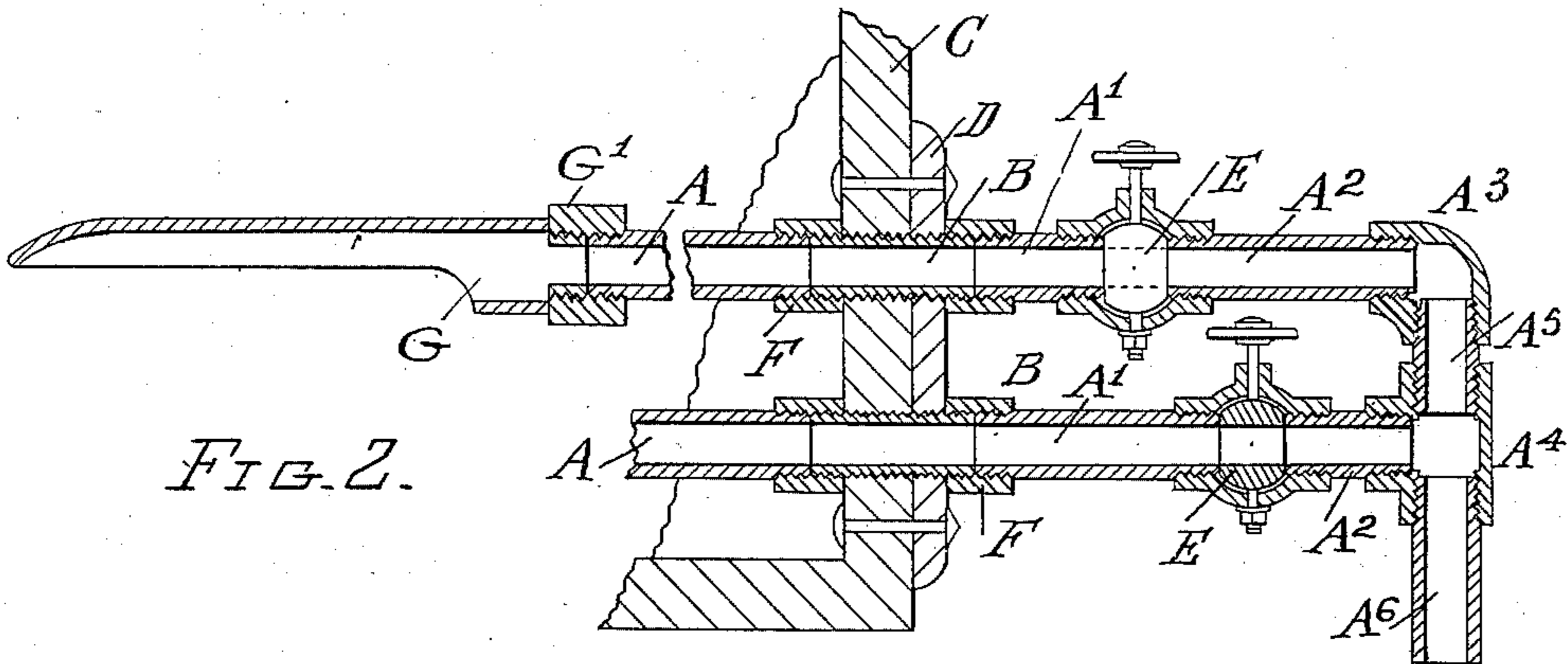
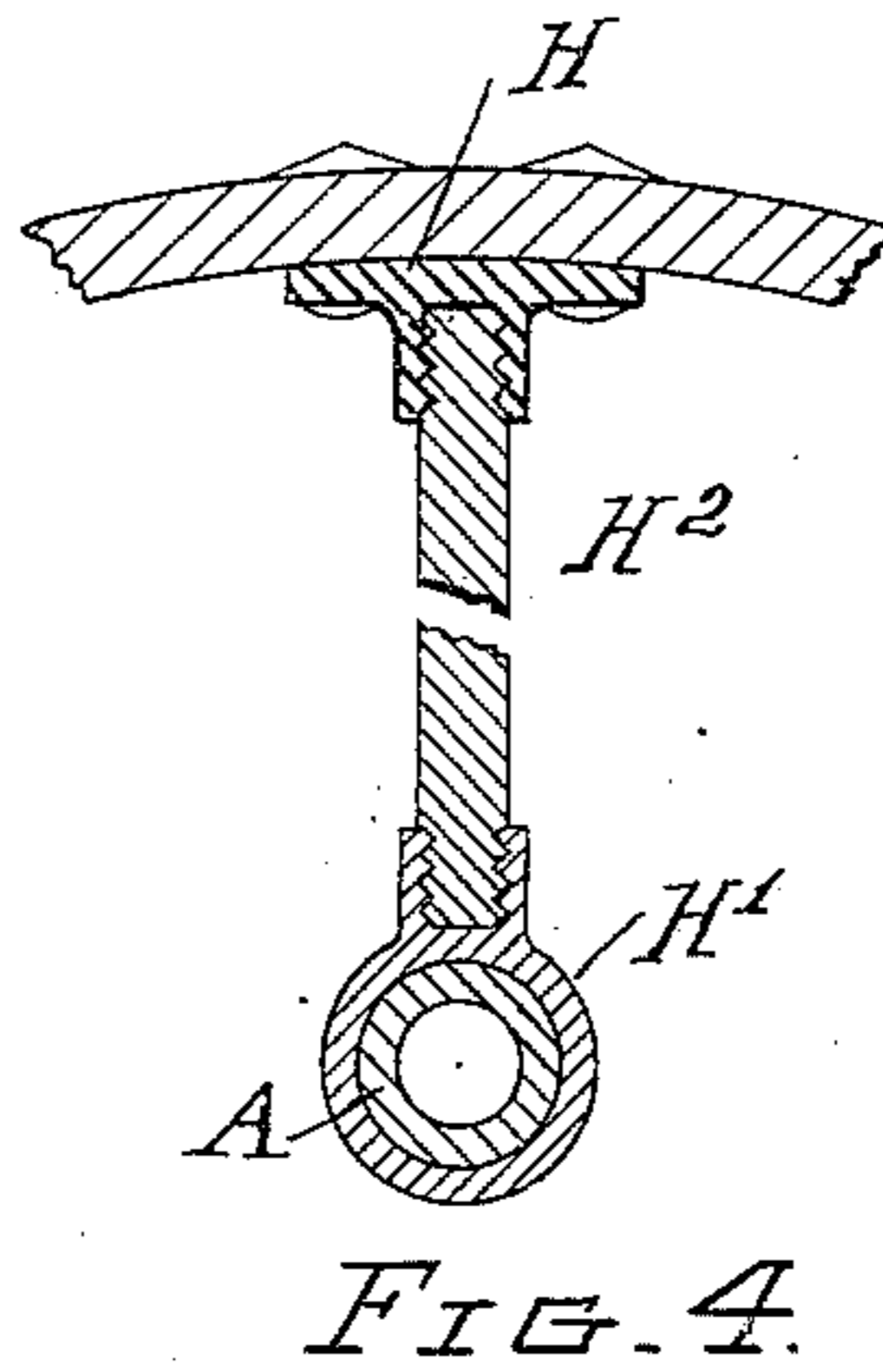
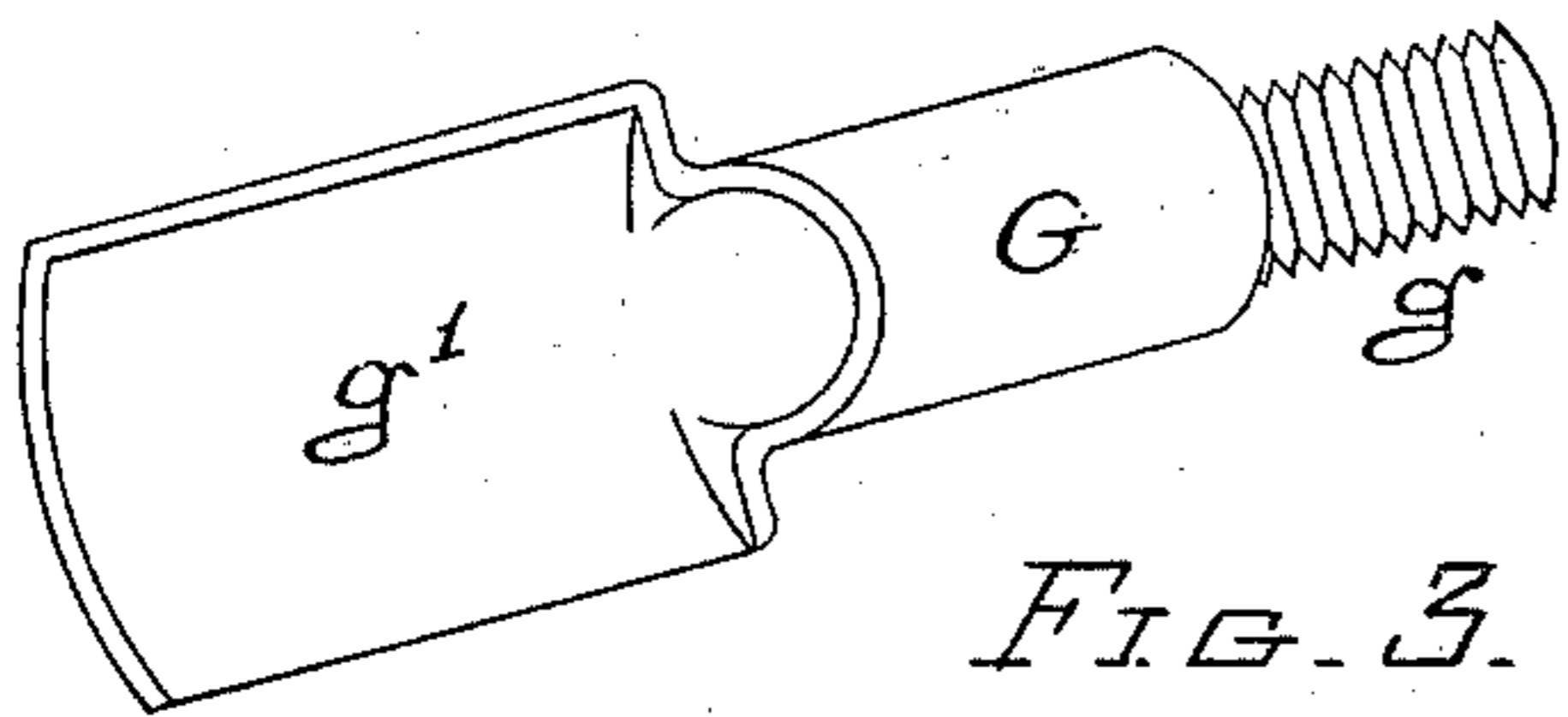
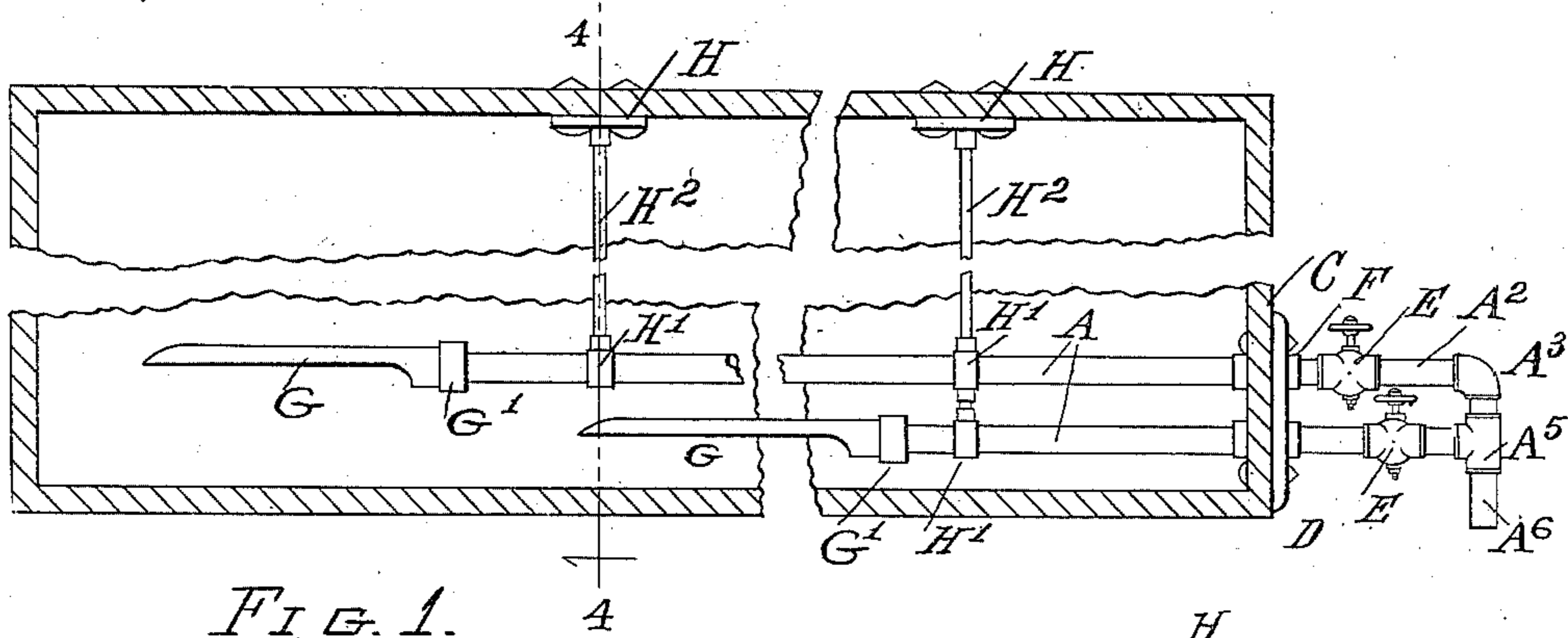
Patented Nov. 27, 1900.

G. W. DAMMANN.

BOILER CLEANER.

(Application filed Feb. 6, 1900.)

(No Model.)



WITNESSES.
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UNITED STATES PATENT OFFICE.

GEORGE W. DAMMANN, OF ATHENS, ILLINOIS.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 662,524, dated November 27, 1900.

Application filed February 6, 1900. Serial No. 4,261. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DAMMANN, a citizen of the United States, residing at Athens, in the county of Menard and State of Illinois, have invented certain new and useful Improvements in Boiler-Cleaners, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to boiler-cleaners of that class in which the steam-pressure within the boiler is utilized to remove from the boiler the sediment accumulated therein by blowing out the same through a suitable blow-off pipe.

The purposes of my invention are to provide a boiler-cleaner so constructed and arranged as to remove simultaneously from different parts of the boiler-surface the sediment accumulated thereon, to provide simple and effective means to guide the sediment into the blow-off pipe, to provide means of improved construction for supporting the boiler-cleaner within the boiler, to provide a boiler-cleaner having a multiplicity of branches, and to provide means whereby one branch or member of the boiler-cleaner may be operated independently of the other branch or branches thereof.

With these ends in view my invention consists of the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made.

Referring to the drawings, Figure 1 is a side elevation of the complete boiler-cleaner in position in a boiler, only so much of the boiler being shown in sectional view as is necessary to illustrate the connection of the boiler-cleaner therewith. Fig. 2 is a vertical longitudinal section through the boiler-cleaner. Fig. 3 is an enlarged detached perspective view of one of the induction-plates. Fig. 4 is an enlarged vertical longitudinal section through one of the supports on the line 4 4 of Fig 1.

Similar letters of reference designate like parts in all of the views.

The boiler-cleaner may be applied to and used with any of the types of boilers in common use.

In the drawings I have illustrated a boiler-

cleaner having two branches parallel to the lower surface of the boiler and having two induction-plates; but the boiler-cleaner may be constructed with a single outlet-pipe and a single induction-plate or three or more pipes having corresponding induction-plates may be used without departing from my invention or sacrificing any of the advantages thereof.

The boiler-cleaner in its preferable form consists of two parallel outlet-pipes A, one above the other, as shown. Nipples B extend through the boiler-head C and through a reinforcing-plate D, which is suitably secured to the boiler-head. Pipes A' and A² screw into the body of globe-valves E. Couplings F connect the pipes A and A' with the nipples B, and one of the couplings binds on the inner surface of the boiler-head and the other coupling binds on the outer surface of the reinforcing-plate D, so as to form a steam-tight connection of the pipes with the boiler. The induction-plates G are cylindrical for a part of their length and have a reduced screw-threaded part g and a broadened and slightly-concaved forward part g' integral with the body of the induction-plate. Screw-couplings G' connect the induction-plates G with the pipes A. An elbow A³ screws onto the outer extremity of the upper pipe A². A T-coupling A⁴ screws onto the outer end of the lower pipe. A pipe A⁵ screws into the lower end of the elbow A³ and into the upper end of the T-coupling A⁴. A blow-off pipe A⁶ screws into the lower end of the T-coupling A⁴.

Rectangular plates H, having their upper surfaces shaped to conform to the inner surface of the boiler-shell, are suitably secured to the boiler-shell. Rings H' fit loosely around the pipe A, and rods H² screw into the plates H and into the rings H' and serve to support the pipes A within the boiler, so as to prevent accidental displacement thereof, but so as to permit longitudinal movement of the pipes due to the contraction or expansion of the pipes.

It will be observed that the supports described support the pipe from the upper part of the boiler-shell. There is practical advantage in thus supporting the pipes, because if the supports were placed on the lower surface of the boiler-shell contiguous to the fire-surface they would interfere with water circula-

tion in the boiler and would form obstacles around which sediment would accumulate, with the result that there would be great danger of burning the boiler-plates with which the supporting-plates were connected. This difficulty is completely obviated by connecting the supporting-plates with the upper part of the boiler and within the steam-space.

There is practical advantage in induction-plates of the form shown and described in that when the water below the pipes is agitated by the rush of steam and water through the pipes A when the valves E are opened the induction-plates arrest the upward movement of the sediment and guide the sediment into the pipes A.

There is practical advantage in employing a multiplicity of pipes and induction-plates in that the operation of the boiler-cleaner may by this means be localized and made more effective and also in that those parts of the boiler which are most subject to fouling—for example, the sheets which are directly over the fire-box—may be cleaned expeditiously and with the least waste of steam and water.

In case a boiler-cleaner having two induction-plates, as shown, is used one of the induction-plates is preferably placed directly over the fire-box and the other over that part of the boiler immediately behind the fire-wall.

By employing two valves E either one of the pipes A may be used independently of the other, or both may be used together, as occasion may require.

In practical operation the valve or valves E are opened, permitting the escape of steam through the pipes A and A⁶ to the atmosphere, thus agitating the water in the boiler

and stirring up the sediment under the induction-plates and causing it to rise into contact with the plates, by which it is guided into the pipes A and is thence blown out through the pipe A⁶. After cleansing the boiler, as described, the valves E are again closed.

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

1. In a boiler-cleaner, the combination of a reinforcing-plate secured to the boiler-head, nipples passing through the boiler-head and through said plate, couplings at the ends of said nipples abutting against the boiler-head and said reinforcing-plate, pipes screwing into the couplings inside of the boiler, curved induction-plates, and screw-couplings connecting said induction-plates with said pipes, as set forth.

2. In a boiler-cleaner, the combination of nipples passing through the boiler-head and through a reinforcing-plate secured thereon, couplings screwing onto said nipples and abutting against the boiler-head and against said reinforcing-plates, pipes screwing into the couplings within the boiler, induction-plates connected with said pipes, pipes screwing into the couplings external to the boiler and having a common outlet, and valves controlling the opening and closing of said pipes, as set forth.

In witness whereof I have hereunto subscribed my name at Athens, Illinois, this 23d day of December, 1899.

GEORGE W. DAMMANN.

Witnesses:

DAVID BEAVER,
EZERA BEAVER.