

No. 692,856.

Patented Feb. 11, 1902.

W. J. JACKMAN.  
SELF CLEANING NEEDLE VALVE.

(Application filed May 22, 1901.)

(No Model.)

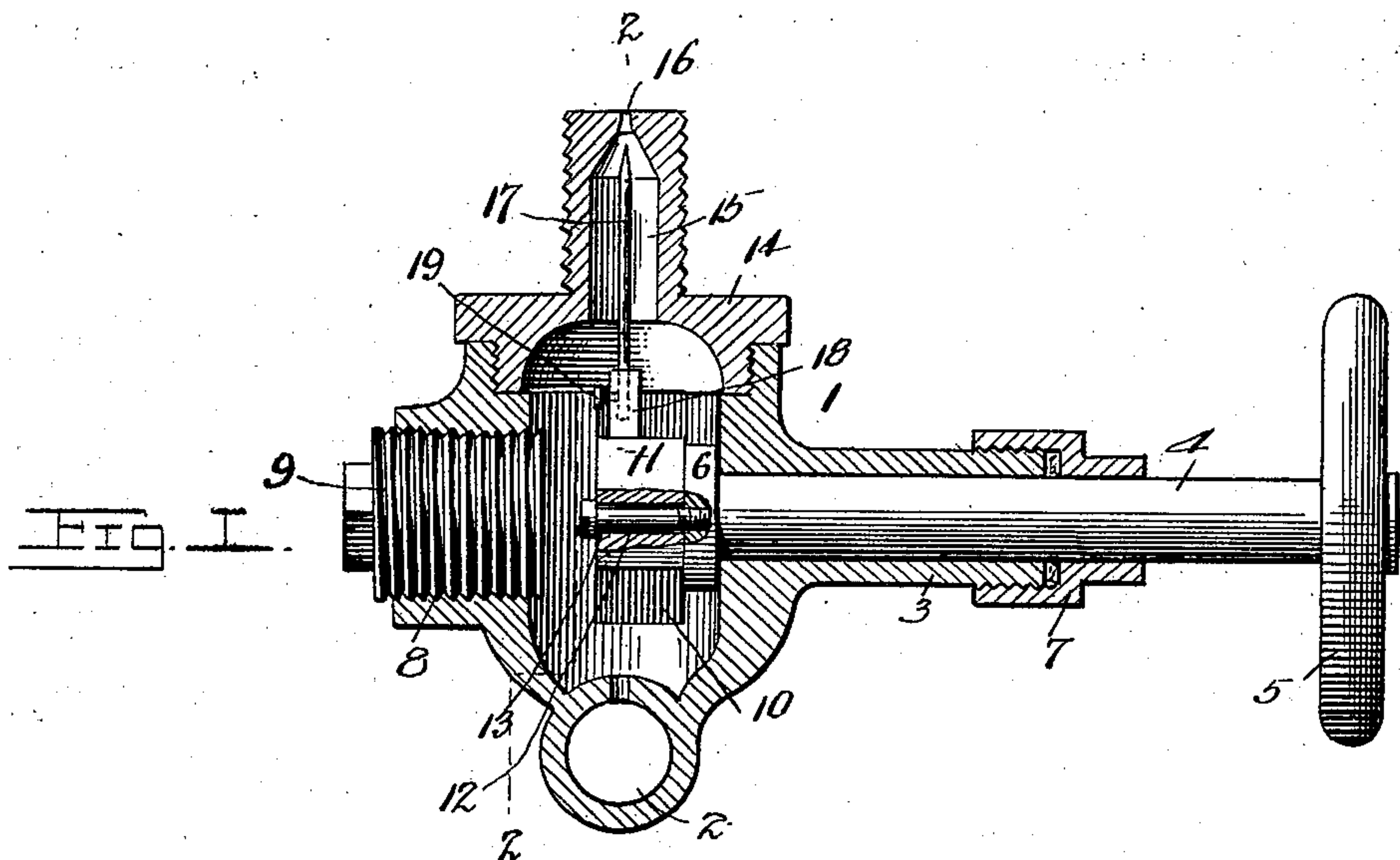


FIG. II.

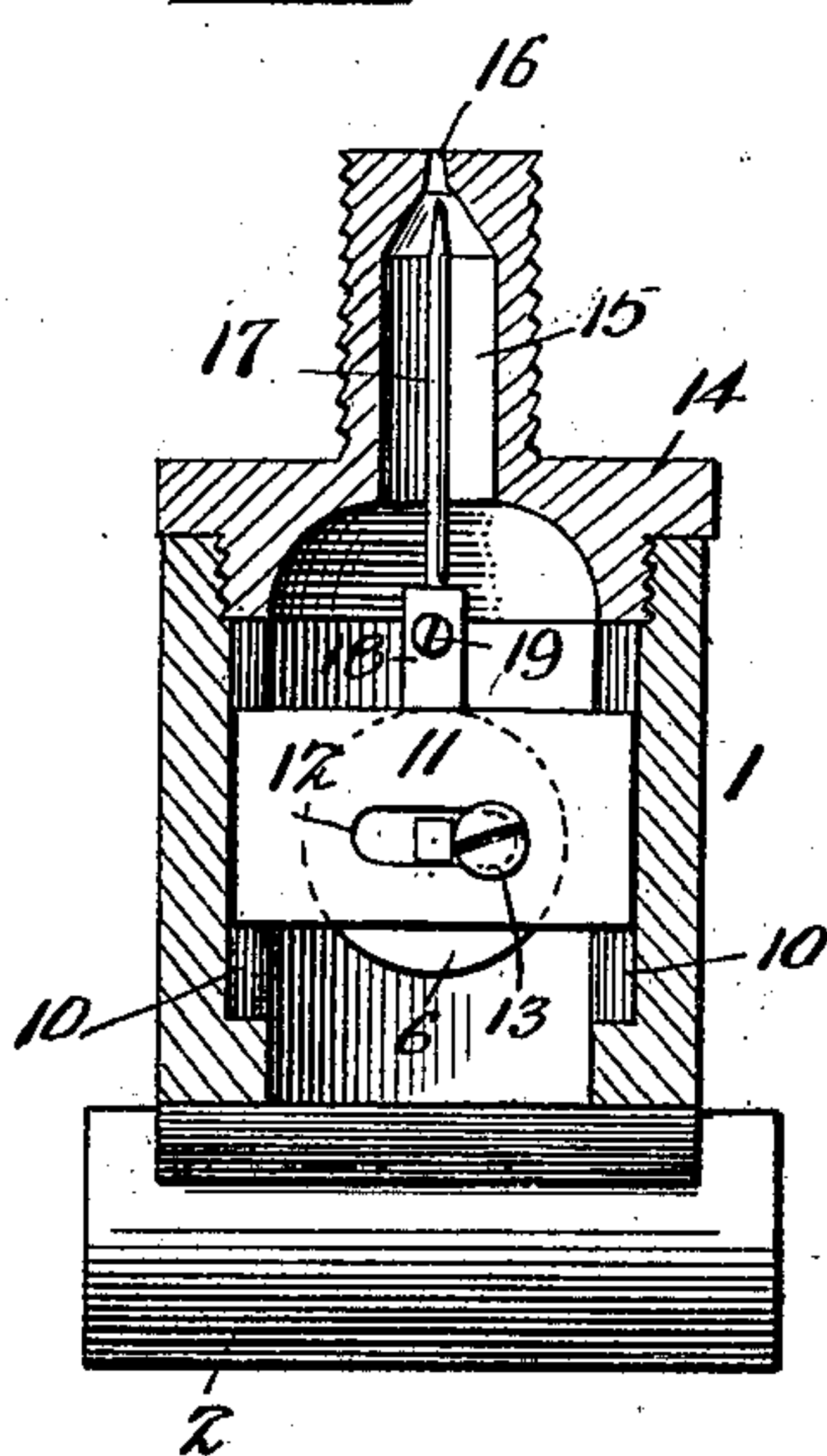


FIG. 3.

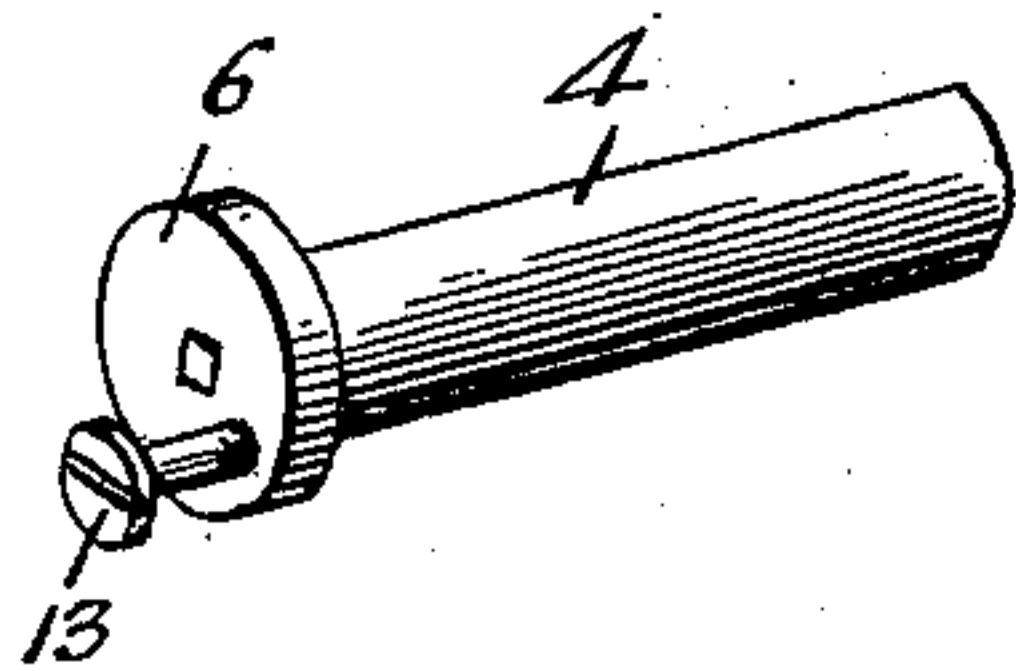
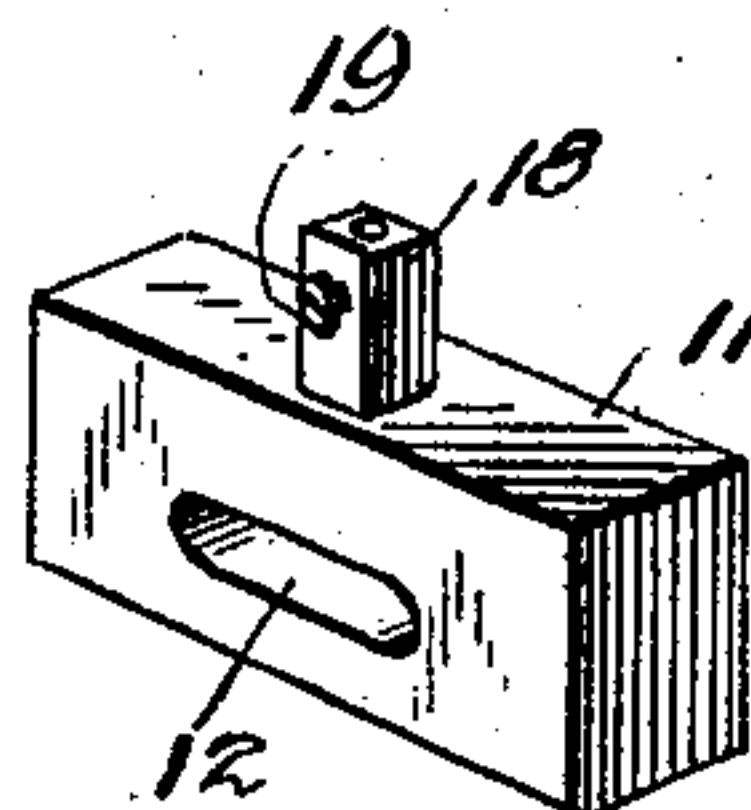


FIG. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILBERT J. JACKMAN, OF LIMA, OHIO.

## SELF-CLEANING NEEDLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 692,856, dated February 11, 1902

Application filed May 22, 1901. Serial No. 61,435. (No model.)

*To all whom it may concern:*

Be it known that I, WILBERT J. JACKMAN, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have  
5 invented a new and useful Self-Cleaning Needle-Valve, of which the following is a specification.

My invention is an improved self-cleaning needle-valve; and it consists in the peculiar  
10 construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view of a portion of a burner provided with my improved self-cleaning  
15 needle-valve. Fig. 2 is a similar view of the same, taken on a plane at right angles to that of Fig. 1. Figs. 3 and 4 are detail perspective views.

The body 1, which forms the casing of the  
20 valve, is hollow and of vertical cylindrical form. At the lower side thereof is the duct or connection 2 for a pipe through which the vapor is conveyed to the base of the cylindrical body of the valve. On one side of the  
25 body 1 is a sleeve 3, which forms a bearing for the operating shaft or spindle 4, the latter being provided at its outer end with a suitable hand wheel or key 5 and being provided at its inner end with a wheel 6. The  
30 said sleeve 3 has at its outer end a packing-gland 7, through which the shaft or spindle 4 extends. In the side of the body 1 opposite the wheel 6 is a threaded opening 8, in which is a screw-plug 9 of suitable diameter;  
35 said screw-plug being readily removable. The body 1 is provided in opposite sides with vertical guide-rabbets 10, in which operate the ends of a cross-head 11. The latter is by the said guide-rabbets permitted to move vertically, but is prevented from moving laterally. Said cross-head has a slot 12, in which  
40 operates a stud or pin 13, that is secured to the wheel 6 either by being screwed thereto, as here shown, or in any other suitable manner. It will be understood that by turning  
45 the shaft or spindle 4 the cross-head may be caused to move upward or downward in the body of the burner. A plug 14 is screwed in the upper end of the body 1 and is provided  
50 with a vertical channel 15, which communicates with the bore of the body 1 and terminates in a jet-orifice 6. A needle-valve 17 is

attached to the central portion of the cross-head 11 on the upper side thereof and is carried thereby. Said needle-valve when said  
55 cross-head is operated in the manner and by the means hereinbefore described is adapted to open the jet-orifice to any desired extent and to entirely close the same, as may be required. The cross-head 11 is formed with a  
60 boss 18 on its upper side, having a vertical opening in which the lower end of the needle-valve is socketed. A set-screw 19 secures the needle-valve in the socket in the said boss. The action of the needle-valve in the jet-orifice  
65 keeps the latter clear and prevents it from becoming closed by carbon deposits. Hence my improved needle-valve is self-cleaning, cannot become obstructed by carbon deposits, and requires little or no attention.  
70

The plugs 14 and 9 being removable from the body 1 of my improved burner, access may be readily attained to the valve-operating mechanism to assist in the ready assembling  
75 and disassembling of the parts and enabling repairs when the same become necessary to be readily made.

Having thus described my invention, I claim—

1. In a self-cleaning needle-valve of the  
80 class described, the combination of a casing having means at its base to supply the same with vapor, guideways in opposite sides, a bearing-sleeve on one side, and a vapor-outlet,  
85 a valve-stem in said sleeve and having a wheel at its inner end forming a collar that bears against the inner end of said sleeve, a cross-head guided in said guideways and spaced from the walls of the casing to allow  
90 the passage of vapor from the supply to the outlet, said cross-head having a needle to enter said outlet, said cross-head bearing against the inner side of said collar-wheel, coacting therewith to prevent longitudinal movement  
95 of the valve-stem, and having a slot, and a crank-pin secured to said collar-wheel and operating in said slot, substantially as described.

2. In a self-cleaning needle-valve of the  
100 class described, the combination of a casing having a vapor-supply and a vapor-outlet, disposed opposite each other, guideways formed in opposite side walls and a bearing in an intermediate wall, a cross-head guided in said

guideways, spaced from the walls of the casing  
to allow the passage of vapor from the supply  
to the outlet, and having a needle to operate  
in said outlet, a valve-stem in said bearing,  
5 a collar-wheel on said stem, and disposed be-  
tween said bearing and said cross-head, to  
prevent longitudinal movement of said stem,  
and a connection between said collar-wheel  
and said cross-head, to operate the latter

when said valve-stem is turned, substantially 10  
as described.

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature in  
the presence of two witnesses.

WILBERT J. JACKMAN.

Witnesses:

R. C. EASTMAN,  
E. L. SMITH.