

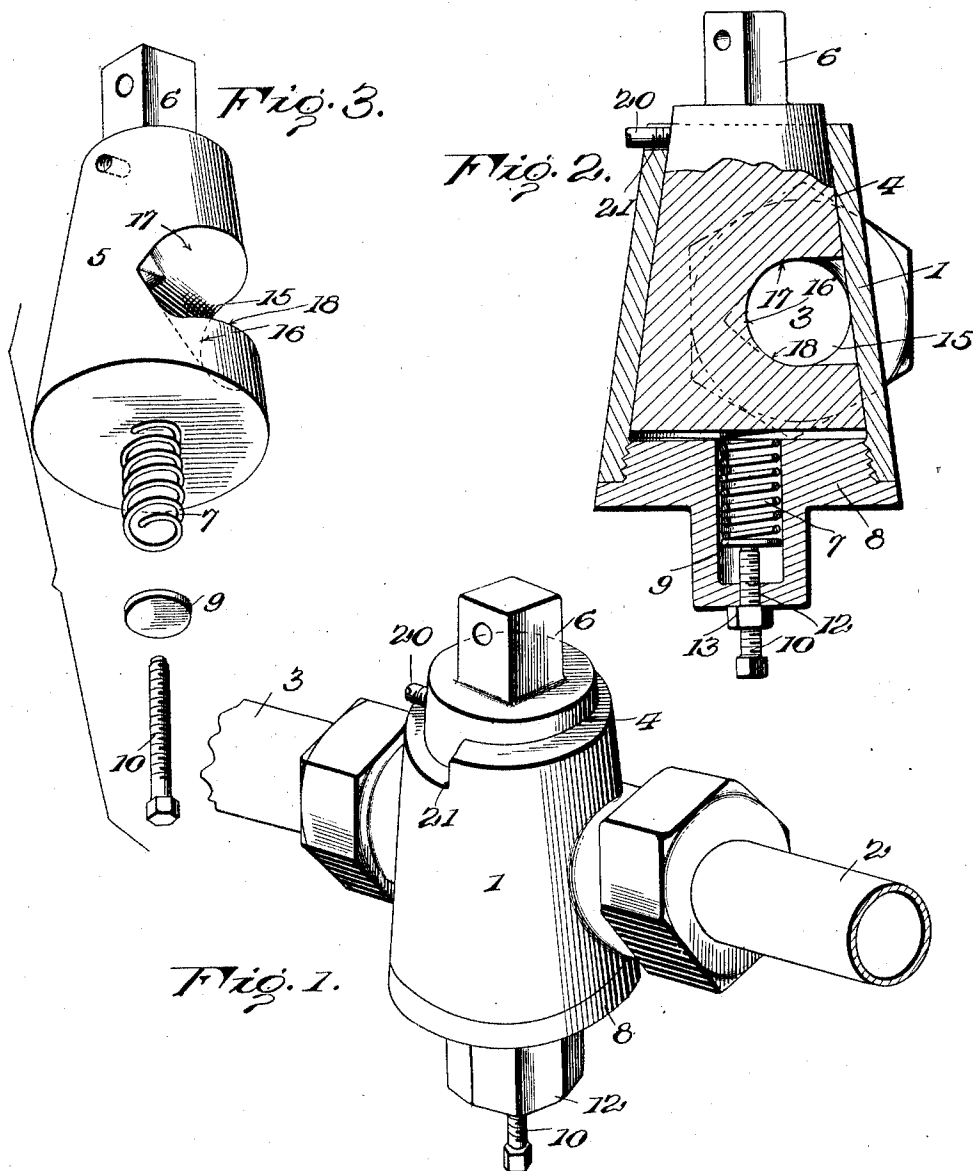
T. E. TRAINER.

VALVE.

APPLICATION FILED DEC. 3, 1919.

1,388,673.

Patented Aug. 23, 1921.



Inventor.
T. E. Trainer.

by *W. E. Maguire*
his Atty's

UNITED STATES PATENT OFFICE.

THOMAS EDGAR TRAINER, OF SAN ANTONIO, TEXAS.

VALVE.

1,388,673.

Specification of Letters Patent. Patented Aug. 23, 1921.

Application filed December 3, 1919. Serial No. 342,150.

To all whom it may concern:

Be it known that I, THOMAS EDGAR TRAINER, of San Antonio, in the county of Bexar and State of Texas, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to valves and particularly to such as are primarily designed for use in controlling the supply of fuel to oil burning locomotives.

The primary object of my invention is to provide an improved valve of this character by which the supply of oil to the engine can be quickly regulated to "split the hair," and a further object is to provide a valve structure for oil burning locomotives which may be effectively controlled under all conditions of travel and which will not be detrimentally affected by the pounding and knocking of the engine transmitted through the operating reach rod. A still further object is to provide a valve of the character stated embodying but few parts which will permit it to be cheaply manufactured and one wherein provision is made for automatically compensating for wear.

In the drawings, Figure 1 is a view in perspective of my improved valve. Fig. 2 is a vertical sectional view, Fig. 3 is a perspective of the valve plug removed from the casing.

As shown, 1 designates a valve casing, preferably made of bronze, having an inlet 2 and an outlet 3, the axial center of these ports being offset from the vertical center line of the casing. A tapered valve seat 4 extends from top to bottom of the valve casing. The solid valve plug 5 is inserted in the casing from the bottom and is of a taper corresponding to that of the seat with its extreme top portion reduced to provide a square or other angular shaped head 6 to which the end of a reach rod (not shown) may be attached in any well known manner. A spring 7 fits in a recess in a cap nut 8 and bears against the bottom of the plug, the spring being tensioned through the intermediary of a follower plate 9 and set screw 10, the latter working in the head 12 of the cap nut which closes the bottom of the valve casing. A lock nut 13 is employed for the set screw 10. The solid plug has its passage-

way 15 cut into one side face and not through its center as is the usual form. The advantage is that the passageway may be relatively large and still provide sufficient surface in the plug to fully close the valve inlet and outlet. It is desirable to have a passageway of ample size without unduly increasing the size of the valve. When a passageway of two inches, for instance, is centrally formed the valve and plug must be very large to close the ports unless a long slot is used. This I wish to avoid.

The passageway 15 of the plug is of peculiar formation. As shown in Fig. 3, the passageway is cut through one entire side of the plug body, and is concaved or circular throughout the greater portion, as at 16. What I term the upper and lower walls 17 and 18, respectively, of the passageway, at the inlet side, are brought together at the periphery of the valve and slightly inward therefrom, in a right angle, thus differing from the outlet side which is of the concaved form of the major portion of the valve plug passageway. This formation of the passageway permits a very fine adjustment at the point of inlet of the oil. It is my object to create a very small stream at the start which will be gradually increased. The first slight turn of the plug creates a small angular passage between the inlet 2 and the walls 17, 18. The further turn enlarges this passage until the circular portion 16 comes into register with ports 2 and 3, creating the full supply. It will here be noted that in the full open position a direct and unvarying line is established through the plug, due to the fact that the plug is solid and has no hollow portion tending to vary or retard the continuity of the flow. The only opening in the plug is the one defined by the surfaces 16, 17, 18. Any preferred means may be employed to limit the turning movement of the valve. I have shown a stop pin 20 for that purpose, the abutments therefor on the valve casing being indicated at 21.

By the arrangement of valve and casing heretofore described it will be seen that the flow of oil may be adjusted to what in the art is known as the splitting of a hair. In oil burning locomotives it is essential that the most minute adjustment be possible.

I claim as my invention:

1. Valve mechanism including a casing having an inlet and an outlet, and a valve

110

seat, said inlet and said outlet being in a direct line which is offset from the center line of said valve seat, and a solid plug having a passageway in one side adapted to communicate with said inlet and outlet, the walls of the passageway being substantially right angular at the inlet side of the plug and substantially circular throughout the main portion of its length and at the outlet side, said circular portion providing, in the full open position of the plug, a direct and unvarying line between the inlet and outlet of the valve casing.

2. The combination with a tapered valve casing having a spring at its wider end and means for controlling the tension of said spring, said casing having a passage offset from its center, of a tapered solid plug in said casing against which said spring is adapted to bear, said plug having a passage cut in its side the walls of which are angular in part and circular in part.

In testimony whereof I have signed this specification.

THOMAS EDGAR TRAINER.