2 Sheets. Sheet 1.

G. & G. W. Davis,

Steam Slide Valve.

No. 2,602. Patented May 4, 1842.

Fig. 1.

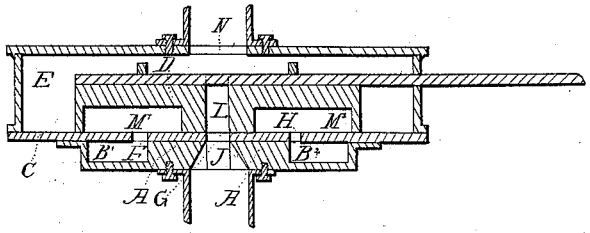


Fig. 5.

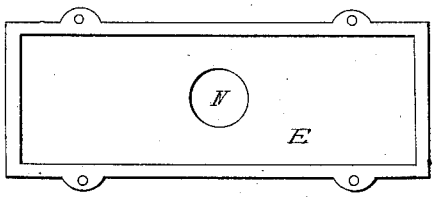


Fig. 4.

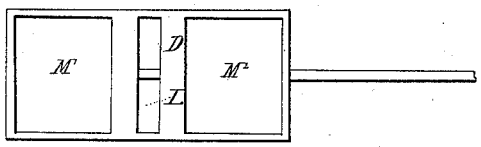


Fig. 3.

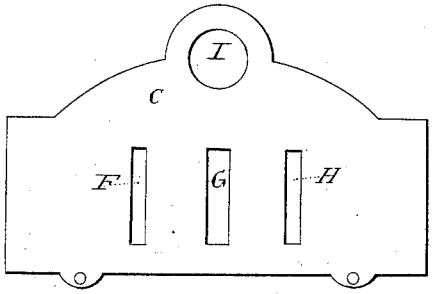
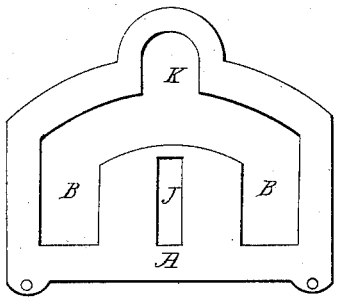


Fig. 2.



2 Sheets-Sheet 2.

G. & G. W. Davis,

Steam Slide Valve.

No. 2,602. Patented May 4, 1842.

Fig. 6.

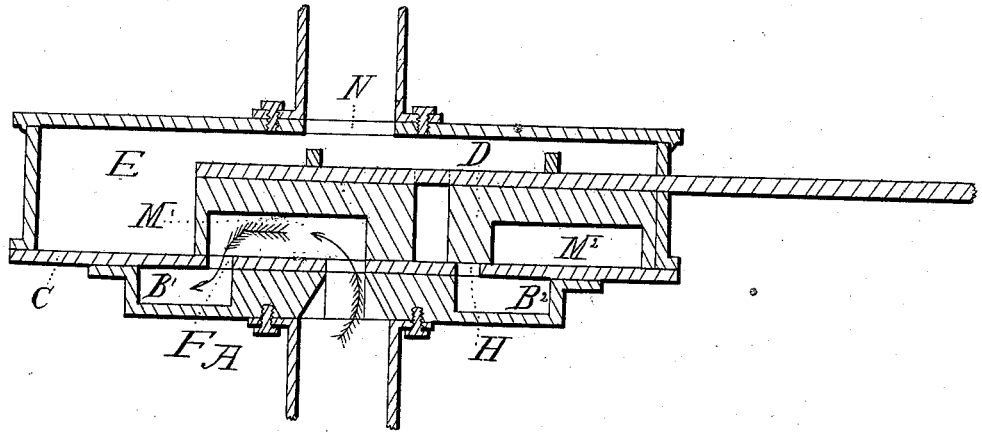
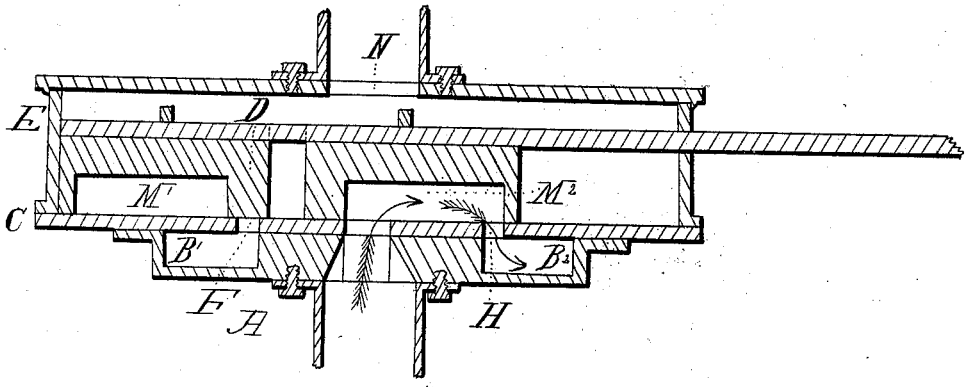


Fig. 7.



UNITED STATES PATENT OFFICE.

G. W. DAVIS AND G. DAVIS, OF CANAL FULTON, OHIO.

MODE OF CONDUCTING OFF THE STEAM FROM THE CYLINDER OF STEAM-ENGINES TO BE EMPLOYED FOR DISTILLING AND OTHER PURPOSES.

Specification of Letters Patent No. 2,602, dated May 4, 1842.

To all whom it may concern:

Be it known that we, GEORGE W. DAVIS and GEORGE DAVIS, of Canal Fulton, Stark county, State of Ohio, have invented a new and useful improvement in the mode of applying the escape-steam of engines for distilleries, propelling machinery, and for other purposes, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a vertical section through the center of the machine. Fig. 2 is a plan of the lower plate containing the branched steam ways, &c. Fig. 3 is a plan of the valve seat. Fig. 4 is a plan of the valve; Fig. 5, cap or steam box. Fig. 6 is a vertical section showing the position of the valve changed so as to close the center opening from the steam box E and open one of the branched steam ways, namely that marked B′. Fig. 7, ditto closing center aperture and opening branched way B^2.

Similar letters refer to corresponding parts.

The nature of this invention and improvement consists in combining and arranging certain plates, valve seat, valves and valve box in such a manner as to produce an apparatus to be applied to the steam cylinder of an engine instead of the usual escape pipe by which the main body of the steam may be applied to various useful purposes without producing any reaction or resistance on the piston by the steam which remains in the cylinder after the main body of the steam has been let off and applied to the above mentioned purposes.

To enable others to make and use our apparatus we will give a description of its construction and operation.

This apparatus consists of a casting A in which the steam ways B^1 B^2 are formed, a perforated plate or valve seat C placed upon this casting, a sliding box valve D placed upon the valve seat, and a cap E put over the valve and in which it moves back and forth, the casting or lower plate having a branch steam way, the two branches uniting near the outer edge of said plate at the escape tube. In the center of said casting and between the branches of the steam way is an aperture for the admission of the steam to the interior of the apparatus. The branched steam way B^1 B^2 is for the passage and escape of the steam which remains in the cylinder after the main body of the steam has been let off through the center aperture G and conveyed to the place where it is to be used to prevent any resistance to the piston, which remaining steam is conducted to a condenser or into the atmosphere.

Upon the aforesaid bottom plate A or hollow casting containing the branched steam ways B^1 B^2 is secured a plate C of corresponding size and shape and in which are four openings, three of which F G H being near the middle of the plate and parallel, the center opening G being over the aperture J in the bottom or base, through which the steam enters, the apparatus and each of the other parallel apertures F H being over each branch of the steam way. The round aperture I is over the part of the steam way where the two branches unite, as at K. This plate C is called the valve seat, the sliding valve D moving back and forth over the same. The valve D is a rectangular piece of metal having an opening L in the middle of its length for the passage of the steam to the valve box or cap E. A chamber M is made in the under side of said valve on either side of the aforesaid opening L to allow the steam to pass to the branches of the steam ways B^1 B^2 alternately as the valve is moved to the right or left, the center opening L being designed to permit the steam to pass through the valve to the steam box E, said valve being moved by a cam and rock shaft in the usual manner. Over the valve is placed a cap or box E of sufficient size to allow the valve to play back and forth freely therein. This cap forming the valve chamber and steam box is perforated at top in the center at N for a steam pipe which conveys the escape steam to the distillery or whatever place it is desired to use it. The round aperture I before described in the valve seat is provided with a pipe for conducting the remaining escape steam to the condenser or into the atmosphere.

The joints are all packed in the usual manner and the parts are bolted together by suitable bolts and secured by screws.

When the valve is in the position represented in Fig. 1 the steam will pass through the center opening J in the bottom plate and through the valve and top plate to the conducting pipe and thence to the distillery or other place. When the valve is in the posi-

tion represented by Fig. 6 the remaining steam in the cylinder will pass into the left chamber M^1 of the valve and down through the left aperture F in the valve seat plate into the left branch B^1 of the steam way B′ and pass off through the escape pipe I to the condenser or into the atmosphere. When the valve is in the position represented by Fig. 7 the steam will pass into the right chamber M^2 of the valve and down through the right parallel aperture H in the valve seat and into the right branch B^2 of the steam ways and out at the escape pipe I, the valve being made to receive its required pauses in its movement to effect these objects by the usual means. One of the advantages which we propose to derive from the above described arrangement and operation is that while the main body of steam is passing to the distillery or other place the portion remaining in the cylinder will be allowed to escape or pass off to the condenser or atmosphere without producing the resistance to the movement of the piston which would otherwise take place if the remaining portion of steam in the cylinder were prevented from passing off in the manner described.

It will be evident to the intelligent engineer that the above described principle may be applied to almost all the varieties of valves by slight modifications of the apparatus.

We do not claim applying the escape steam of the steam engine to any particular purpose; but

That which we do claim is—

The before described method of applying the main body of the escape steam of the engine to useful purposes and then conducting the remaining portion of said escape steam to the condenser or into the air to prevent resistance to the piston in the cylinder which is thus rendered entirely clear of all obstruction in the manner herein set forth or in any other mode substantially the same.

GEORGE W. DAVIS.
GEORGE DAVIS.

Witnesses to the signing of George W. Davis:

A. M. Russel,
Jno. Black.

Witnesses to the signing of George Davis:

Wm. P. Elliot,
E. Maler.