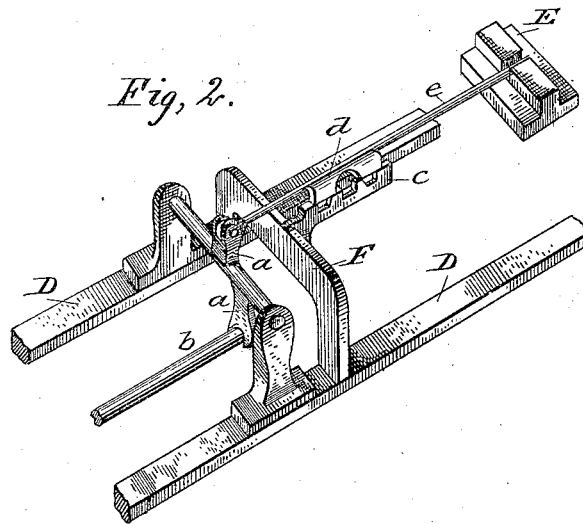
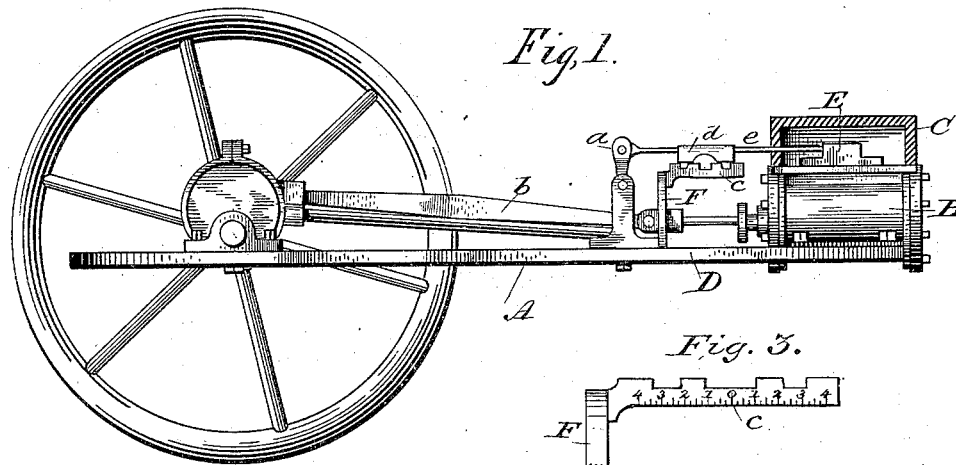


(No Model.)

T. E. GLEASON.  
SLIDE VALVE INDICATOR.

No. 307,538.

Patented Nov. 4, 1884.



WITNESSES:

*Guy L. DeMotte,*  
*J. M. Izrago.*

INVENTOR

*Thos. E. Gleason,*

BY

*By J. C. Brecht,*

ATTORNEY

# UNITED STATES PATENT OFFICE.

THOMAS E. GLEASON, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SLIDE-VALVE INDICATOR.

SPECIFICATION forming part of Letters Patent No. 307,538, dated November 4, 1884.

Application filed June 2, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. GLEASON, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Slide-Valve Indicators; 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 improvements in attachments for slide-valves; and the object is to produce a device by which the exact position of the valve and ports of the cylinder are plainly indicated without the necessity of removing the cover of the steam-chest, so that the valve can be set and altered as required.

To attain this object my invention consists in producing a skeleton valve and ports arranged on the outside of the steam-chest at any suitable place, and connecting the valve with the valve-stem in any suitable manner, so that the valve in the steam-chest and the skeleton valve shall always move in unison, and the relative position of the valve and steam-ports is always indicated and in view. It also consists in certain details of construction and arrangements of parts, as will be more fully described hereinafter, and more specifically pointed out in the claims, reference being had to the accompanying drawings, and the letters of reference marked thereon.

Like letters indicate similar parts in the different figures of the drawings, in which—

Figure 1 is a side elevation, partly in section, of an engine showing my attachment in position. Fig. 2 is a detail perspective view of the attachment and valve. Fig. 3 is a detail of the seat, showing a scale for setting the valve.

In the accompanying drawings, A represents an engine of any construction, having the cylinder B and steam-chest C, and connected to the bed-plate D. Within the steam-chest is placed a slide-valve, E, of any ordinary construction, to which the valve-stem *e* is attached, and it is connected to a rock-shaft and arm, *a*, operated in the usual manner by the eccentric and rod *b*. To the bed-plate is secured an arm, F, to which the bracket *c*, forming a skeleton

valve seat, is cast or otherwise firmly secured. In the upper side of the skeleton valve seat is cut or otherwise arranged the exact width of the steam inlet and exhaust ports, which are a counterpart of those within the steam-cylinder forming the valve-seat. To the valve-stem is attached, in any suitable manner, the skeleton valve *d*, which is a counterpart on its face of the valve E. The face of the skeleton valve fits and slides on the face of the valve-seat, and, as it moves backward and forward with and at the same time as the valve E moves, it always indicates the relative position of the valve and steam-ports, thus affording a ready means to set the valve in the steam-chest without the necessity of removing the cover of the steam-chest.

The skeleton seat may be attached to the boiler, especially in portable engines.

It will be readily seen by those skilled in the art that this device is equally adapted to long and short D-valves, to piston-valves, and to the main and cut-off valves of engines. It can be also readily applied to the oscillating or rotary valves by slight changes of operating mechanism, which will readily suggest themselves to the skilled mechanic. It can be easily applied to engines now in use as well as to new ones without in any way marring the beauty and symmetry of the engine.

The skeleton valve can be made of any shape or size, and the face or seat with the steam-ports can also be changed to suit circumstances. It can be made in any other suitable manner and of any other shape than that shown in the drawings without departing from the spirit of my invention. For instance, the bracket may be attached to the cylinder instead of the bed-plate, and the skeleton valve may be made as a part of the valve-stem instead of being attached to it. In portable engines the seat with its ports may be attached to the boiler, if desired.

A scale indicating the inches and fractions may be applied to the skeleton seat for adjusting the valve.

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

1. The combination of an incased valve and

cylinder steam-ports with an exterior skeleton valve and skeleton seat for indicating the relative position of the incased valve to the steam-ports, substantially as and for the purpose set forth.

2. The combination of the steam-ports of an engine and a valve for controlling its fluid-supply with a skeleton valve connected to the valve-rod, and a skeleton seat having ports, substantially as and for the purpose described.

3. The combination of a valve with a skeleton valve attached to the valve-rod, and a skeleton-valve seat secured to the engine-frame or other suitable place on the engine or boiler,

substantially as and for the purpose specified. 15

4. The combination of an incased valve for controlling the fluid-supply to an engine with a skeleton valve attached to the valve-rod, rocker-arm, eccentric-rod, a skeleton seat indicating the steam-ports in the incased valve-seat, and an eccentric for operating the valve, substantially as specified. 20

In testimony whereof I hereby affix my signature in presence of two witnesses.

THOMAS E. GLEASON.

Witnesses:

J. M. YZNAGA,

GUY L. DE MOTTE.