(No Model.) 2 Sheets—Sheet 1.

W. R. STIRLING.

LOCOMOTIVE SMOKE BOX FRONT PLATE.

No. 440,929. Patented Nov. 18, 1890.

Fig. 1.

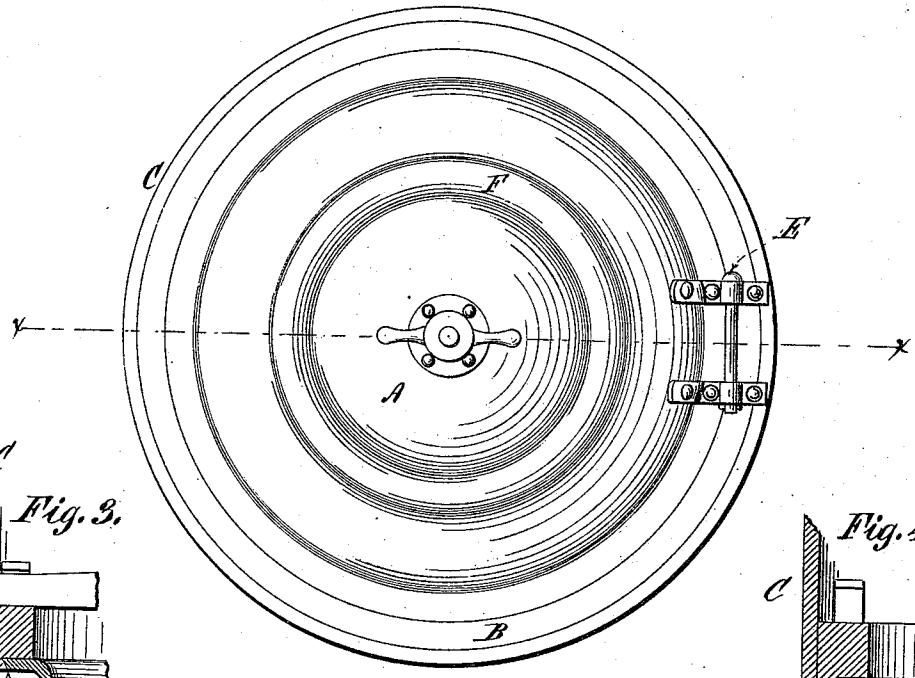
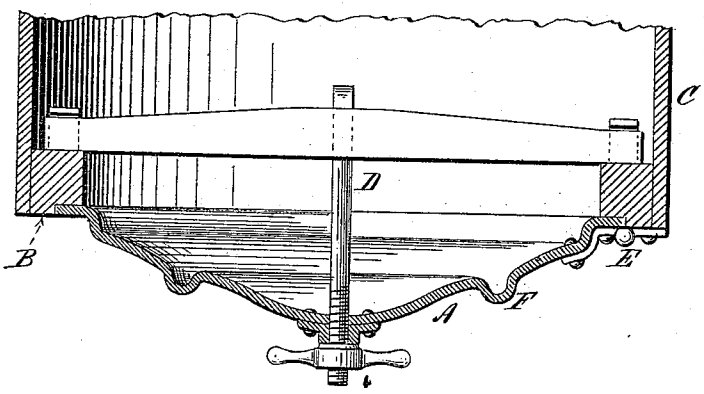


Fig. 3.

Fig. 4.

Fig. 2.



Witnesses:
Leo. W. Miatt
D. W. Gardner

Inventor:
William R. Stirling
By his attorney,
E. N. Dickerson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

W. R. STIRLING.

LOCOMOTIVE SMOKE BOX FRONT PLATE.

No. 440,929. Patented Nov. 18, 1890.

Fig. 5.

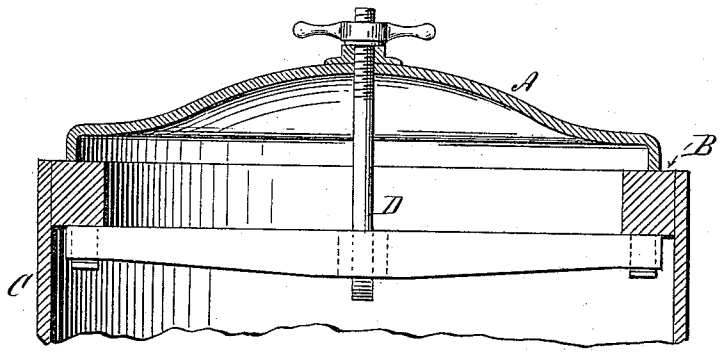
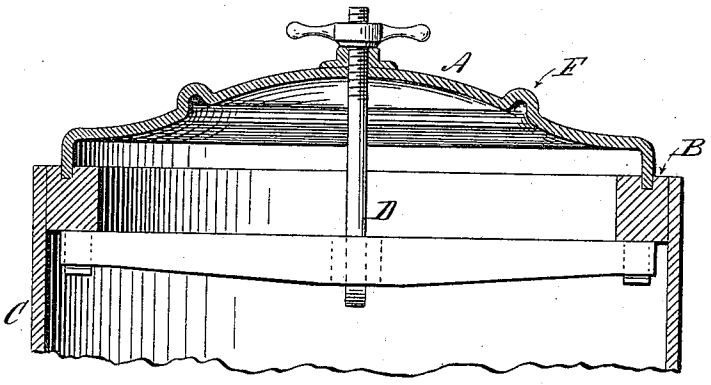


Fig. 6.



Witnesses:
Geo. W. Miatt
D. W. Gardner

Inventor:
William R. Stirling
By his Attorney
C. N. Dubois

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM R. STIRLING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE FOX SOLID PRESSED STEEL COMPANY, OF SAME PLACE.

LOCOMOTIVE-SMOKE-BOX FRONT PLATE.

SPECIFICATION forming part of Letters Patent No. 440,929, dated November 18, 1890.

Application filed May 10, 1890. Serial No. 351,297. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. STIRLING, of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Locomotive-Smoke-Box Front Plates, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

It is at present one of the objects of locomotive engineering to reduce as far as possible the weight of the front end of the locomotive. One of the large items of weight has been heavy castings forming the front end of the smoke-box. An attempt has been made to lighten these by making the smoke-box front of pressed steel and an interior central door.

By my present invention I make the entire front of the smoke-box door of a single plate of pressed steel, thereby still further reducing the weight and making a cheaper and more economical structure. I further combine this with a strengthening-ring on the front of the smoke-box, which serves the double purpose of sustaining and supporting the front end and also of making a joint or fit with the smoke-box front.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a front view of my smoke-box front in position; Fig. 2, a cross-section through Fig. 1 on the line $x x$; Fig. 3, a view of the joint between the smoke-box front and the ring when the plate is drawn up; Fig. 4, a view of the same before the plate is sprung into position to make a tight joint; and Figs. 5 and 6, cross-sections showing slight modifications of the method of making the joint.

A represents the smoke-box front; B, the strengthening-ring; C, the smoke-box side; D, the locking device, and E the supporting-hinge. This hinge E is shown merely in a conventional way, the method of making such supports being well known to those skilled in the art. The hinge may be dispensed with, if desired.

The front A is made of a single sheet of pressed steel and may be provided with corrugations F. It is dish-shaped, curving from the center to the joint. The joint may be a butt-joint, as shown in Fig. 5, or a countersunk joint, as shown in Fig. 6; or the plate may enter recesses in the ring, as shown in Figs. 2 and 3. By making the entire smoke-box front of one piece and dish-shaped it can be drawn in by the center screw D, so as to make an absolutely tight joint. This fastening device D may be of any suitable construction, but by preference should have a screw to put pressure upon the center of the plate.

In the form shown in Figs. 3 and 4 the smoke-box front is made somewhat less in diameter than the recess of the ring, as shown in Fig. 4. When compressed, it makes a tight beveled joint, as shown at G.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A smoke-box door consisting of a single piece of pressed steel covering the entire front of the smoke-box and provided with a hinge and a locking device, substantially as described.

2. A smoke-box door consisting of a single piece of pressed steel covering the entire front of the smoke-box, having a dish or arch shape, and a device bearing upon the arch for the purpose of making a tight joint, substantially as described.

3. The combination of the smoke-box front A, smoke-box C, and the ring B, serving both as a joint for the removable smoke-box front A and to support the boiler-front, and a locking device for said front, substantially as described.

4. The combination of the ring B, having a beveled recess, the smoke-box front A, formed of a single piece of pressed steel and having an arch shape and provided with a bevel edge, whereby the said smoke-box front can be closed and then spread into position to make the joint, and a device for spreading said front, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM R. STIRLING.

Witnesses:
W. S. HARTWELL,
WM. VOSS.