

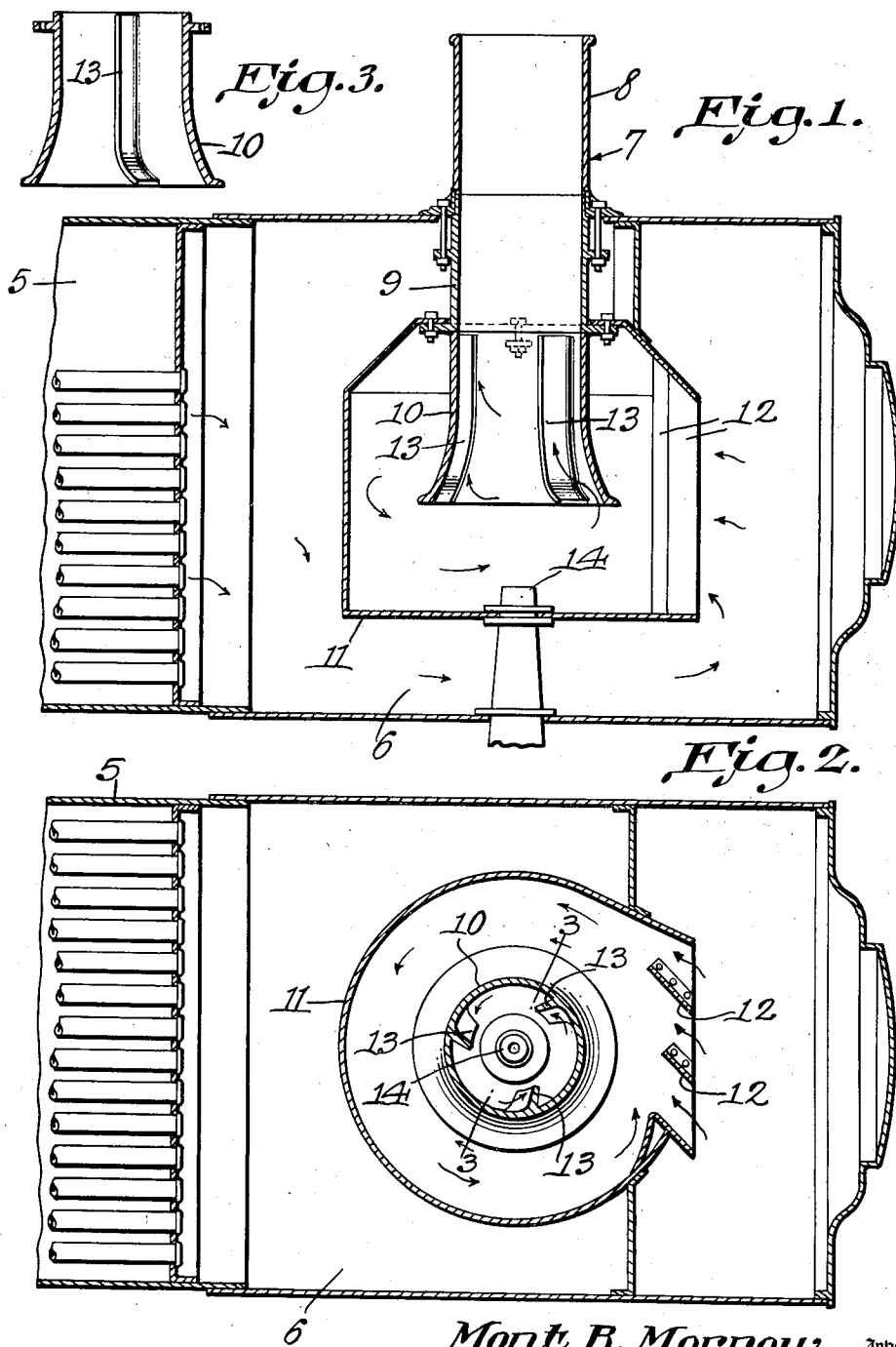
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LOCOMOTIVE SMOKE STACK CONSTRUCTION

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LOCOMOTIVE SMOKE-STACK
CONSTRUCTION

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5 Claims. (Cl. 110—184)

By way of illustration, it might be stated that in locomotive construction, wherein spark arresters are used which cause the smoke and products of combustion to take a swirling motion in passing through the stack, the cinders passing through the stack, due to the swirling motion, cause the stack to become worn unduly or cut by the contact of the cinders with the stack, rendering the stack unfit for use and greatly reducing the life of the stack.

It is, therefore, the primary object of the present invention to provide a smoke-stack having means for breaking up the swirling motion of the smoke and products of combustion while passing through the smoke-stack and at the same time receive the force of the cinders and consequent wear otherwise directed to the wall of the smoke-stack.

A further object of the invention is the provision of means to dissipate the swirling motion of the cinders and products of combustion, and cause the cinders and products of combustion to take a substantially direct vertical passage through the stack.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Figure 1 is a vertical sectional view through the forward end of a locomotive boiler.

Figure 2 is a transverse sectional view there-through.

Figure 3 is a detail sectional view on the line 3—3 of Figure 2.

Referring to the drawing in detail, the forward end of a locomotive boiler is indicated generally by the reference character 5, the smoke-box of the boiler being indicated by the reference character 6.

The reference character 7 designates the smoke-stack assembly, which embodies an upper section 8, intermediate section 9, and extension section 10, the extension section being slightly flared, as clearly shown by the drawing.

Mounted within the smoke-box of the boiler, is a spark arrester indicated by the reference character 11, which spark arrester includes blades 12 disposed in the entrance end of the spark arrester,

and arranged at oblique angles with respect to the sides of the spark arrester so that the products of combustion will enter the spark arrester tangentially and thus be caused to take a swirling motion.

The reference character 13 designates blades which are disposed longitudinally of the extension section 10, the blades extending inwardly towards the center of the extension, lying within the path of travel of the products of combustion entering the smoke-stack with a swirling motion.

These blades 13 are slightly curved, as clearly shown by Figure 2 of the drawing, the curvature of the blades, however, being such that the swirling path of travel taken by the products of combustion will be dissipated, and the products of combustion directed towards the center of the stack, where they are picked up by the steam from the nozzle 14 and directed upwardly through the stack, increasing the draft, and at the same time greatly reducing the number of cinders scouring the smoke-stack wall.

While I have shown and described these blades 13, as supported by the extension section 10 and extending to the intermediate section of the stack, it is to be understood that the lengths and curvatures of these blades may be varied without departing from the spirit of the invention.

Having thus described the invention, what is claimed is:

1. In a smoke-stack, a body portion, blades within the body portion and disposed longitudinally thereof near the intake end of the smoke-stack, said blades being disposed parallel to the axis of the smoke-stack providing baffles against which products of combustion entering the smoke-stack with a swirling motion impinge, and said blades adapted to direct the products of combustion entering the smoke-stack upwardly.

2. In a smoke-stack, a body portion, blades within the body portion and disposed parallel to the axis of the smoke-stack, said blades being curved transversely presenting curved side faces, the side faces of the blades lying in the path of travel of the products of combustion through the smoke-stack, and said blades adapted to direct the products of combustion through the stack in a vertical path.

3. A steam boiler construction including a smoke-stack, a steam nozzle within the boiler and adapted to direct steam through the smoke-stack, blades within the stack and arranged parallel to the axis of the smoke-stack, the lower ends of the blades being curved outwardly to receive the

impact of products of combustion entering the stack, and said blades being curved to direct the flow of products of combustion inwardly into the path of travel of steam directed to the smoke-stack from the nozzle.

- 5 4. The combination with a smoke-stack, of a plurality of blades extending inwardly from the stack and disposed parallel to the axis of the smoke-stack the inner longitudinal edges of the blades being spaced apart providing a central
10 passageway, and said blades being curved transversely to receive the impact of products of com-

bustion passing through the smoke-stack with a swirling motion.

- 5 5. The combination with a smoke-stack having a flared lower end, of a plurality of blades extending inwardly from the stack and disposed parallel to the axis of the smoke-stack, the lower ends of the blades being curved conforming to the curvature of the flared lower end of the stack and said blades adapted to receive the impact of
10 products of combustion passing through the stack.

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