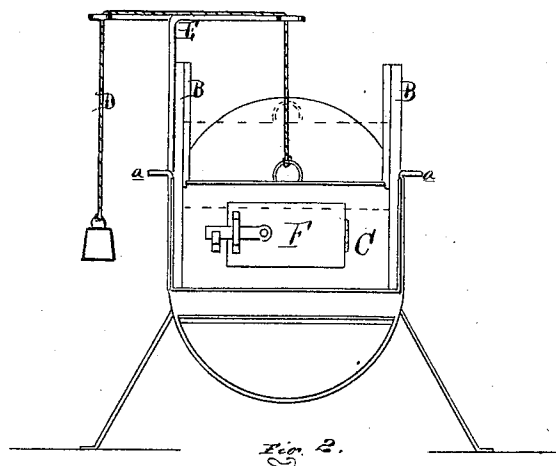
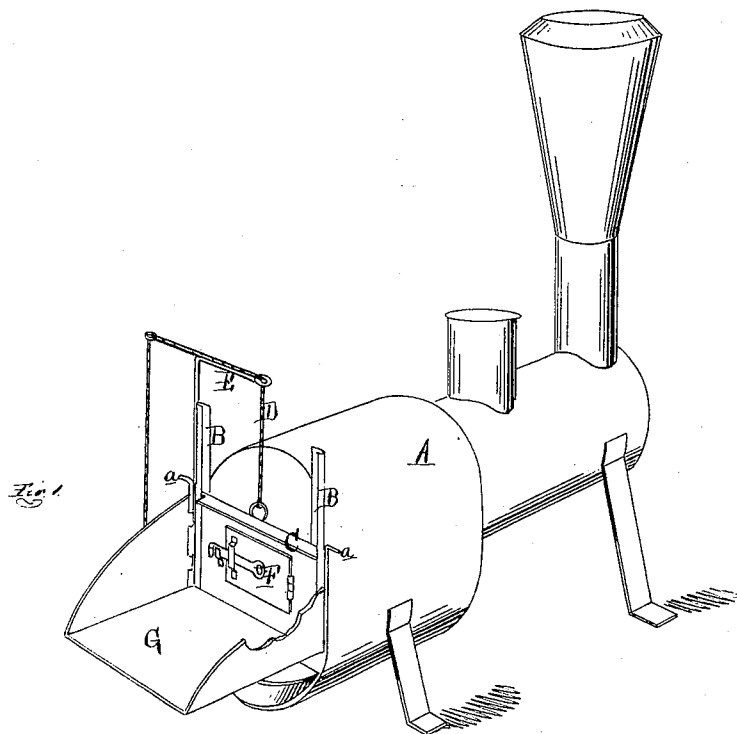


D. W. KELLOGG & B. C. COFFIN.

Straw-Burning Attachments for Steam-Boilers.

No. 141,359.

Patented July 29, 1873.



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DAN. W. KELLOGG, OF BATTLE CREEK, MICHIGAN, AND BERNARD C. COFFIN, OF NEW YORK, N. Y.

IMPROVEMENT IN STRAW-BURNING ATTACHMENTS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **141,359**, dated July 29, 1873; application filed March 8, 1873.

To all whom it may concern:

Be it known that we, DAN. W. KELLOGG, of Battle Creek, in the county of Calhoun and State of Michigan, and BERNARD C. COFFIN, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in a Straw-Burning Attachment to Steam-Boilers; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of a "locomotive"-boiler fitted with our attachments for introducing straw to the fire-box, a portion of the apron being broken away, and the movable front closed. Fig. 2 is an end elevation of the boiler.

The nature of this invention relates to an improved movable front to the fire-boxes of boilers of the locomotive or horizontal tubular variety, and certain attachments thereto, which have for their object to enable the use of straw as fuel, being more especially designed for boilers which supply steam to the engines of thrashing-machines, although equally useful and economical where straw and other quick-burning bulky fuels are used or are obtainable. The invention consists in a pair of grooved standards, secured to the front of a boiler, in which grooves slide a movable fire-front for the fire-box, which is counterweighted to move easily up and down, and in a detachable apron for receiving the fuel, which, when the front is raised, is quickly pushed into the fire-box in mass, when the front is immediately closed down, thus preventing the influx of a large volume of cold air to the fire-box to chill the heating-surfaces. The movable front is also provided with a fire-door, to be used for the introduction of ordinary fuels when such are used.

In the drawing, A represents a portable boiler of the locomotive variety, the front of the fire-box being open below the plane of the crown-sheet down nearly to the plane of the grate. At each side of this opening we bolt to the boiler-front a grooved standard, B, in which slides a movable iron fire-front, C. A

weighted cord, D, passing over sheaves at the ends of a horizontal bar, E, and secured to the top of the front C, serves to counterbalance the latter, so that it may be easily moved up or down in the grooved standards. In the movable front there is hinged an ordinary fire-door, F, over an opening therein, through which wood or coal may be fed to the fire-box when such is used for fuel. To the standards B is secured a metallic apron, G, which has a hinge at each side, and a rod, *d*, passing through it, and a similar pintle on the standards secures the apron thereto, its horizontal bottom being on a plane with the bottom of the opening. The smoke-stack is provided with a spark-arrester of suitable mesh.

In using straw for fuel, the latter is dumped on the apron, the front is then raised, the straw is pushed in a mass into the fire-box, and the front quickly lowered, the operation not requiring more than two seconds of time, so that no great volume of cold air can enter the fire-box to chill the heating-surfaces, and thus diminish the steam-generating capacity of the boiler.

In the process of thrashing grain no extra fuel is required for doing the work apart from the straw used as fuel, while with a suitable spark-arrester there is less danger from sparks than where wood is used as fuel, for the reason that the straw, being very combustible, is more thoroughly consumed, while the sparks, being very light and small, are thoroughly extinguished by the exhaust-blast used in such engines and boilers.

If desired, an endless apron driven by the engine may be employed to convey a sufficient amount of straw to the apron, or to a chute having its general form, and then be fed by hand into the fire-box; or any device actuated by the engine may be employed for delivering it into the fire-box.

If desired, the sliding front may be counterweighted by suspending it from the inner end of a simple lever, pivoted on a standard, with a weight suspended from the outer end of said lever.

Under certain circumstances, it may be deemed advisable to attach a small funnel-shaped chute to the front, under the fire-door,

for feeding in lesser quantities of fuel through said door, the said chute being detachable, however, so as not to interfere with the other one.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the standards BB, attached to an open fire-box boiler, and the front C, sliding in said standards, of the apron G, substantially in the manner and for the purpose set forth.

2. The combination, with the sliding fire-

front C, of the fire-door F, as and for the purpose set forth.

DAN. W. KELLOGG.
BERNARD C. COFFIN.

Witnesses as to the signature of DAN. W. KELLOGG:

H. F. EBERTS,
H. S. SPRAGUE.

Witnesses as to the signature of BERNARD C. COFFIN:

JOHN DUANE,
CHAS. S. FARREN.