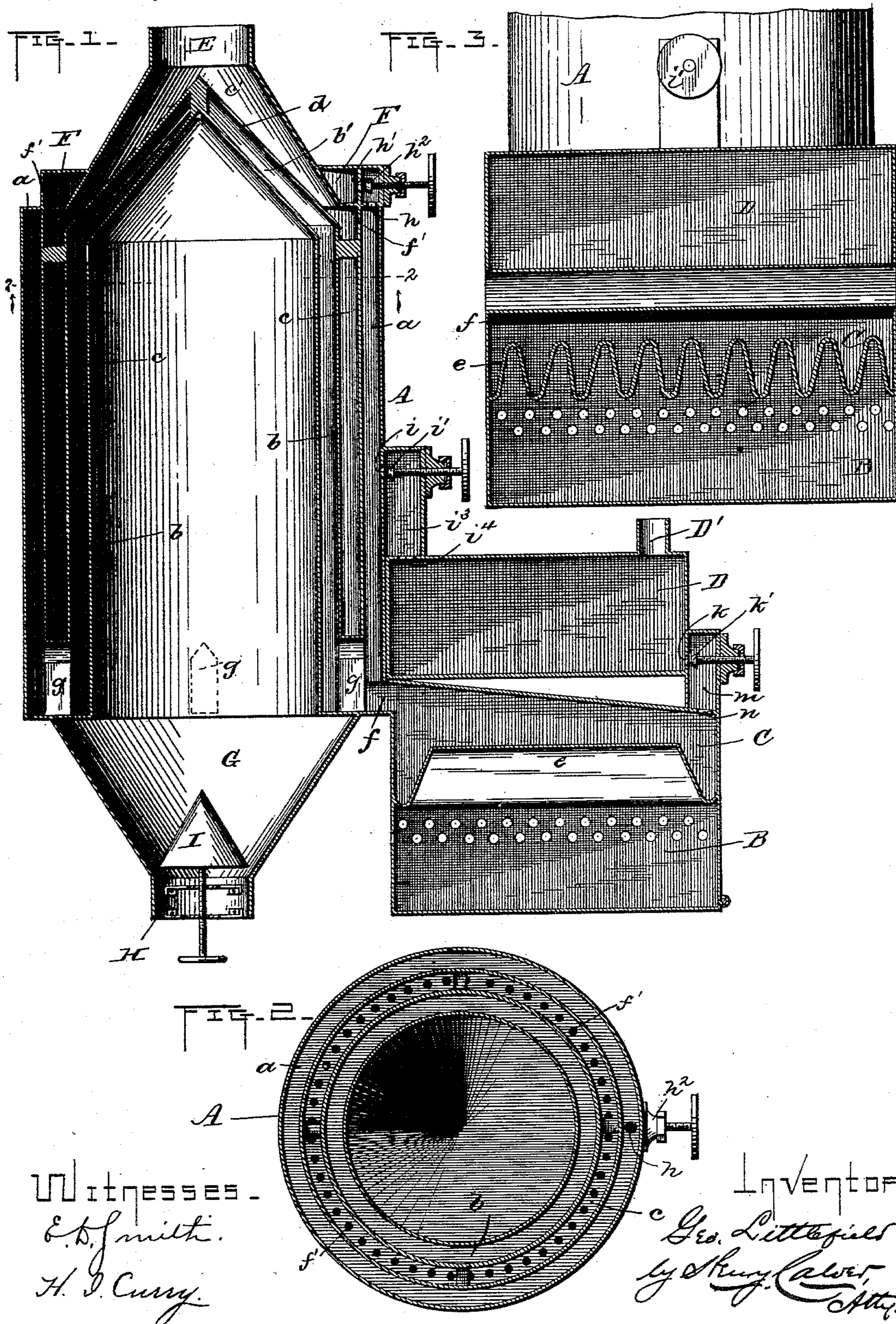


(No Model.)

G. LITTLEFIELD.
WHEAT STEAMING APPARATUS.

No. 401,185.

Patented Apr. 9, 1889.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE LITTLEFIELD, OF BURLINGTON, WISCONSIN.

WHEAT-STEAMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 401,185, dated April 9, 1889.

Application filed March 29, 1888. Serial No. 268,892. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LITTLEFIELD, a citizen of the United States, residing at Burlington, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Wheat-Steaming Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of my invention is to provide a wheat-steaming apparatus of such construction that the wheat which has been passed through it will be better prepared for the grinding operation than it is when passed
15 through the wheat-steamers heretofore in use, my apparatus being comparatively simple in construction and convenient and economical in use.

20 To this end my invention consists in certain new constructions, arrangements, and combinations of parts, as indicated by the claims at the end of this specification.

25 In the drawings, Figure 1 is a central vertical section of my improved apparatus. Fig. 2 is a horizontal section of the same on the line 2 2, Fig. 1, looking up; and Fig. 3 is a sectional view of the boiler at right angles to the sectional view thereof in Fig. 1.

30 A denotes a cylindrical receptacle, made preferably of metal, four plates or thicknesses of which divide the body of said receptacle into the outer annular steam-chamber, *a*, the inner annular steam-chamber, *b*, and the annular wheat-chamber *c*, between said steam-chambers. In the top or upper part of the
35 receptacle A is the inclined or conical wheat-spreader *d*, which is merely a conical upward continuation of the outer wall of the inner steam-chamber, *b*, the inner wall of said chamber having also a conical upward continuation
40 to form a steam-space, *b'*, below the conical wheat-spreader *d*, to heat the latter.

45 B is the fire-box or combustion-chamber, and C is the boiler, the bottom of the latter being preferably corrugated, or consisting of a series of pyramidal sections, *e*, to form a large heating-surface and to adapt the boiler to be heated by flame-jets in the fire-box. The boiler communicates by the passage *f* with
50 the outer steam-chamber, *a*, and the latter com-

municates by the steam-openings *g*, through the base of the wheat-chamber, with the inner steam-chamber, *b*.

The outer steam-chamber, *a*, communicates, through the openings *h* and *h'*, (the latter having the steam-controlling valve *h'*), with the steam-spray pipe or chamber F, having spray holes or openings *f'*, leading into the wheat-chamber *c*. The said outer steam-chamber also communicates, through the opening *i*,
60 (controlled by the valve *i'*), with the chamber *i'*, and the opening *i'* with the water-tank D, the said tank having an outlet-opening, *k*, which is controlled by the valve *k'*, the said outlet-opening communicating, through the
65 chamber *m* and opening *n*, with the boiler. By opening the valve *i'* steam is admitted to the water-tank to heat the water therein prior to its passage to the boiler. The water-tank is filled through the supply-pipe D'.
70

The cylinder A is (when in use) placed above the grinding-mill (not shown) and in any suitable relation thereto. The wheat to be steamed enters at the feed-pipe E, and as it passes through the hot-air chamber *c'* and in
75 contact with the heated conical spreader *d* it becomes somewhat warmed before it is subjected to the action of the steam from the spray pipe or chamber F. After passing the steam-spray pipe or chamber the wheat con-
80 tinues downward through the wheat-chamber *c*, in which it is subjected to a strong heat from the heated steam-chambers on both sides of the said wheat-chamber. This heat dries the excess of moisture from the outside of the
85 kernels and drives enough moisture into and through the husks of the kernels to prevent the bran formed in grinding from being so finely broken as to form dust, which would discolor the flour, while at the same time the wheat
90 kernels or berries are rendered in proper condition for perfect and uniform grinding, the small quantity of moisture driven into the flour-cells of the kernels by the heat to which the wheat is exposed in passing through the
95 highly-heated wheat-chamber fitting the wheat more perfectly for the grinding operation than is done by the wheat-steaming devices heretofore in use.

As the wheat emerges from the wheat-cham- 100

ber *c*, it passes through the cold-air chamber or funnel *G* to the discharge-pipe *H*, and thence to the grinding-rollers. To regulate the egress of the wheat from the discharge-pipe, I prefer to provide the latter with an adjustable conical valve, *I*.

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

1. A wheat-steaming apparatus provided with wheat and steam chambers, combined with a boiler and a water-tank, the latter being in communication with one of said steam-chambers to enable the water therein to be heated prior to being supplied to the said boiler, substantially as set forth.

2. The combination, with the receptacle *A*, having the steam-chambers *a* and *b*, the interposed wheat-chamber *c*, and the steam pipe or chamber *F*, of the boiler *C*, the water-tank *D*, communicating with said boiler and with one of said steam-chambers, and the valve *v'*, for controlling admission of steam to said water-tank, substantially as set forth.

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

GEORGE LITTLEFIELD.

Witnesses:

DANIEL FOLEY,
F. J. AYERS.