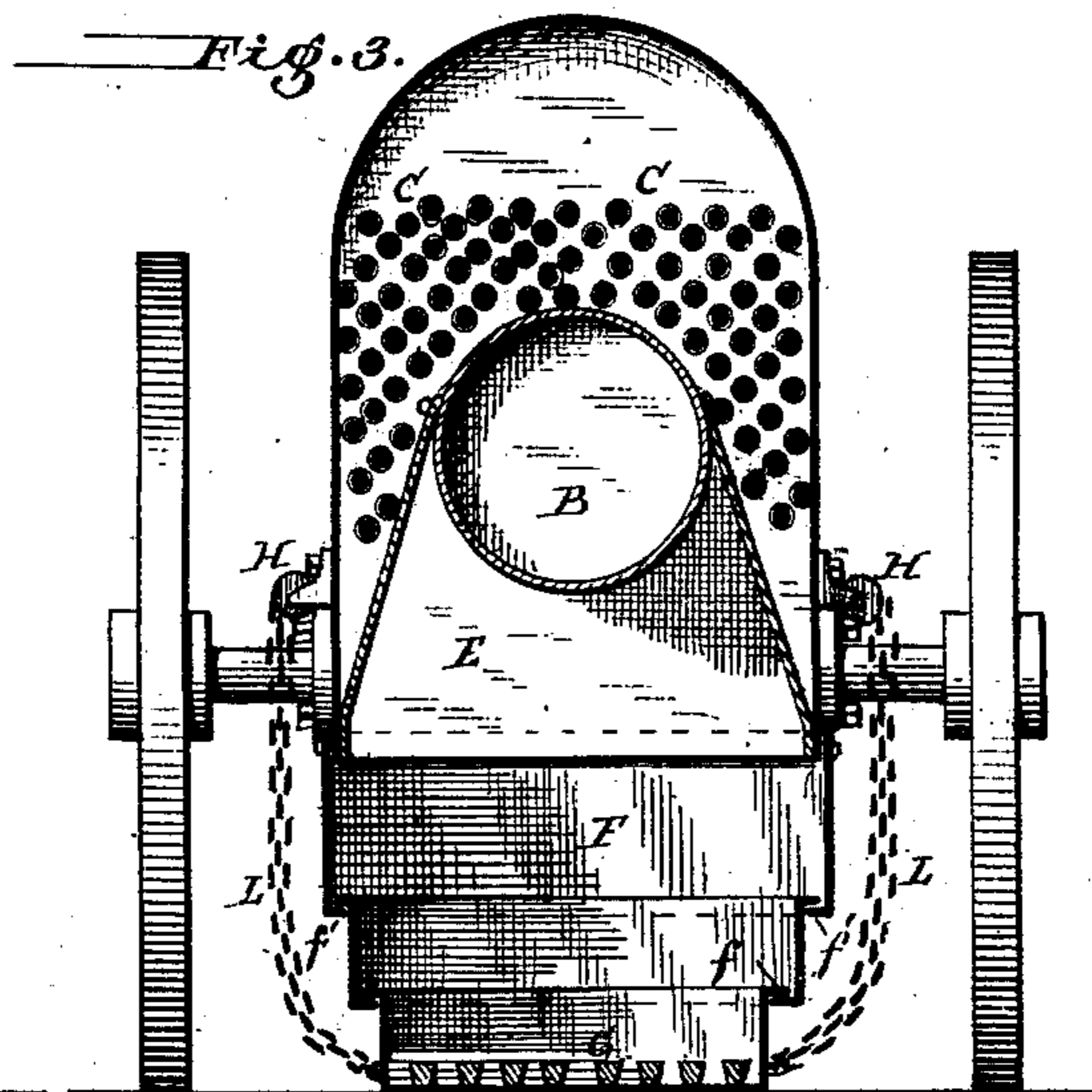
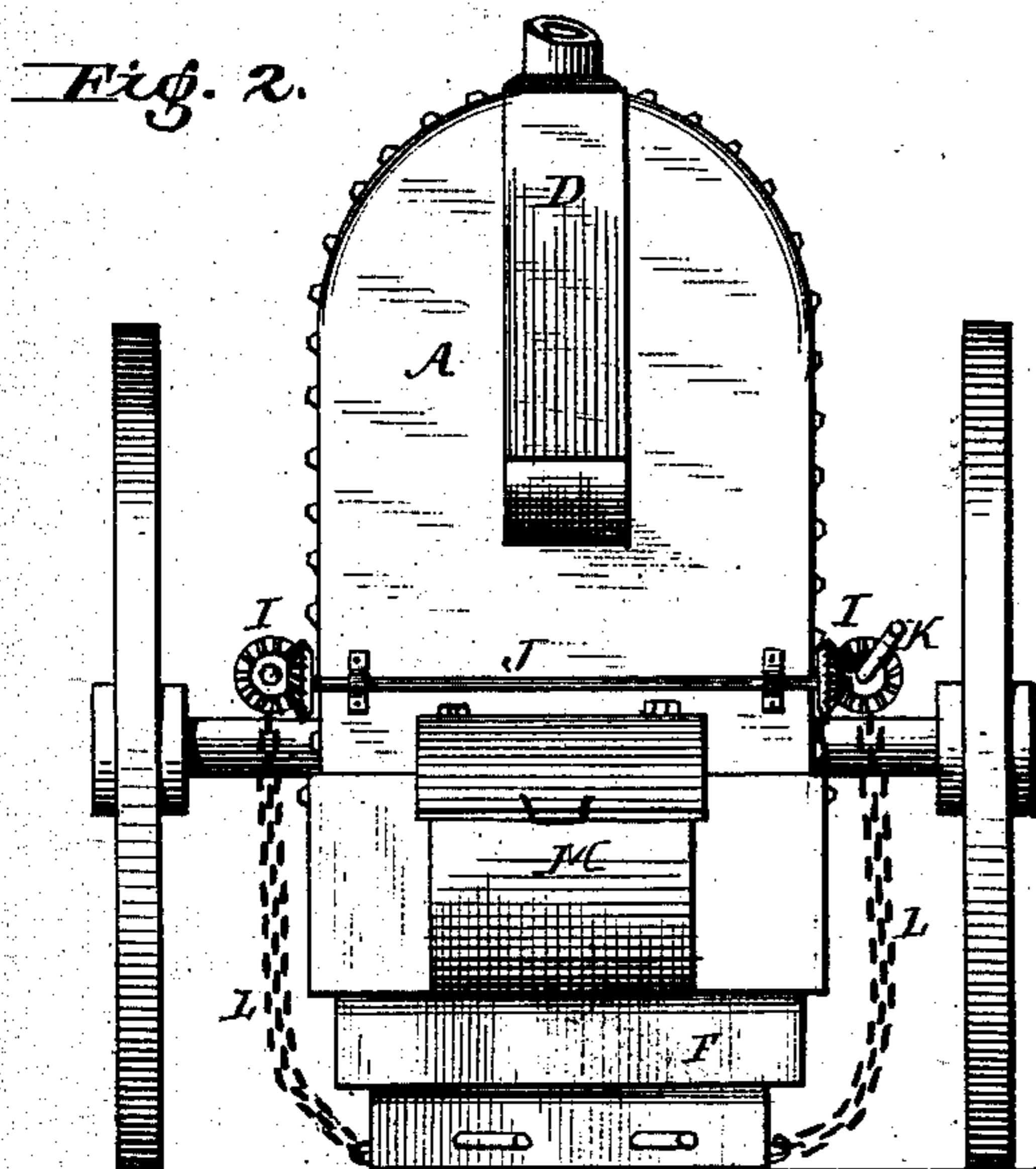
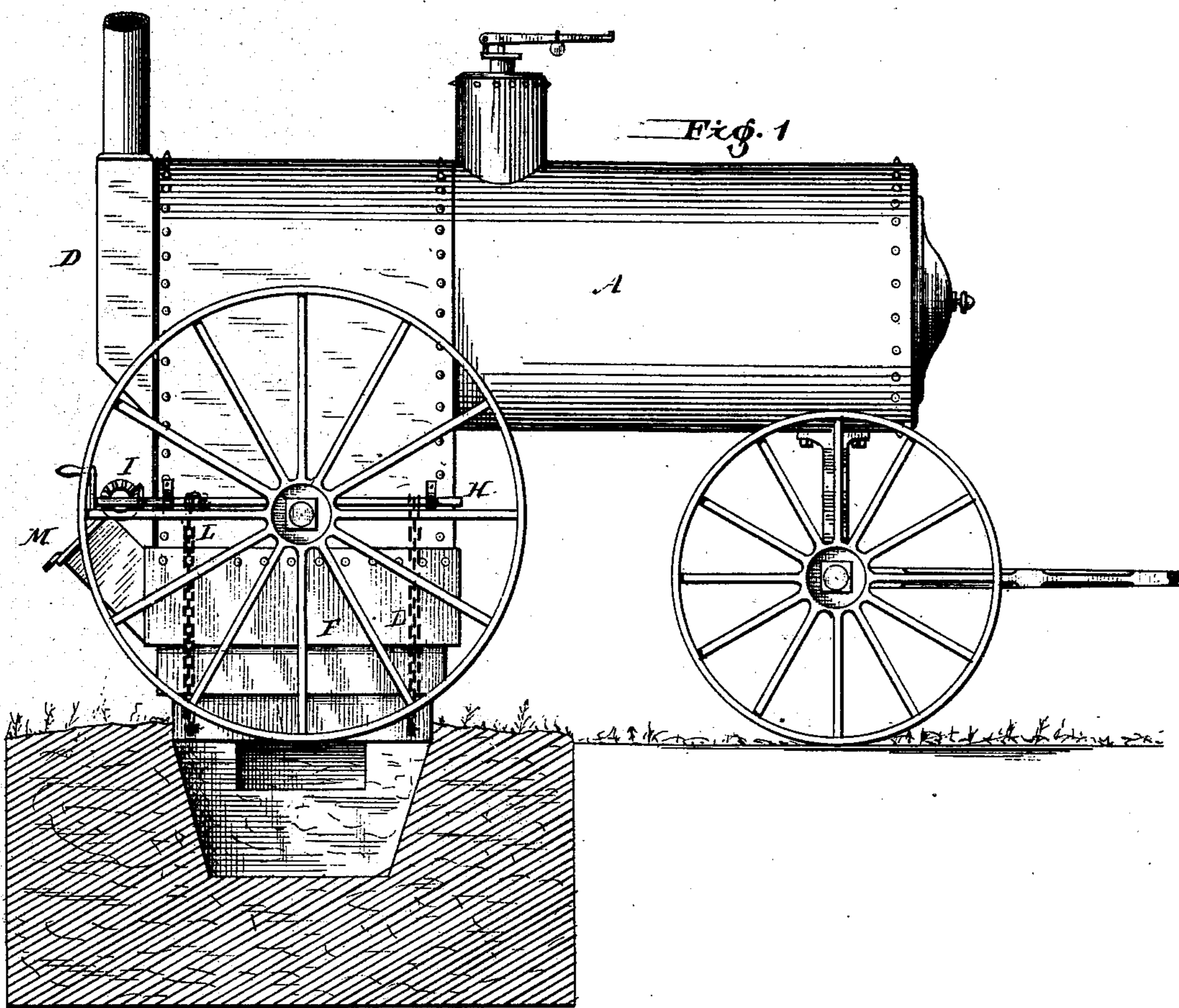


(No Model.)

J. H. & H. GILLETT.
Straw Burning Boiler Furnace.
No. 237,107. Patented Feb. 1, 1881.



Witnesses:

Alfred
A. M. Tanner

James H. Gillett & H. Gillett, Inventors.
By Baine, Maffett & Sons, Attys.

UNITED STATES PATENT OFFICE.

JAMES H. GILLETT AND HARRISON GILLETT, OF LAKE CITY, MINNESOTA.

STRAW-BURNING BOILER-FURNACE.

SPECIFICATION forming part of Letters Patent No. 237,107, dated February 1, 1881.

Application filed November 17, 1880. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. GILLETT and HARRISON GILLETT, citizens of the United States, residing at Lake City, in the county of Wabasha and State of Minnesota, have invented certain new and useful Improvements in Straw-Burning Boiler-Furnaces; and we 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The present invention has particular reference to that class of portable engines or agricultural locomotives which are adapted for burning straw or similar fuel; and the objects of the invention are, first, to prevent the ashes from filling up the fire-chamber and clogging the flues; and, second, to provide means to prevent the ashes accumulating in the ash-pan from being blown, spread, or cast over the ground or field, in which case there is great danger of starting fires, the ashes being dropped or conveyed into a hole made in the ground. We attain these objects by a fire-box of peculiar form, and in the combination therewith of an extensible ash-pit adapted to form a connection or closed passage from the fire-box to a hole in the ground beneath the engine.

In the drawings, Figure 1 is a side elevation of a portable engine having our improvements applied thereto. Fig. 2 is an end elevation of the same; and Fig. 3 is a vertical cross-section through the fire-box.

In the present instance we illustrate a boiler, A, having a large main flue, B, and a series of return-flues, C, leading into the smoke-stack D. At the front end of the main flue is formed a fire box or chamber, E, the sides of which are made slanting or inclined, and the top whereof is rounded or arched, as is shown in Fig. 3. The main flue extends through the rear wall of the fire-box at the top or apex of the same, and serves to receive the flames and products of combustion.

It will be apparent that the shape of the fire-box will create a forcible upward draft, and effect a more active combustion than is the case in boilers having fire-boxes with vertical or straight sides. A defect very common in

furnaces adapted for burning straw or other similar fuel is the accumulation of ashes in the flues, thus clogging up the same and retarding the combustion of the fuel.

We find that a fire-chamber shaped as proposed by us, and used in connection with an ash-pit of a special construction, to be hereinafter described, will most effectually obviate the above-mentioned difficulty or defect.

To the open bottom of the fire-box is connected an extensible ash pit or box, F, which is preferably constructed of any desired number of square or rectangular or round sections, fitting one within the other, telescope like, and constructed with top and bottom flanges, *f f'*, turned outward and inward, respectively, to prevent the separation of the various sections. The bottom section of the ash-pit is provided with any preferred form of dumping grate or grates G, so that the contents of the ash-pit can easily be discharged. A chute or hopper, M, connected with the upper stationary section of the ash-pit or bottom prolongation of the fire-box in the front of the boiler, serves to receive the straw, hay, or other fuel, and convey it into the fire-box.

When the engine is in use for driving agricultural machinery in the field, the ash-pit is lowered so as to come immediately over a hole previously made in the ground, and then earth is banked up around the pit, except on the leeward side, which is left open, so that air can pass in under the lower section of the ash-pit and up through the grates. The object of forming a connection with the ground in the manner described is to prevent the ashes or cinders from being blown or cast over the field or ground and starting fires.

It will be obvious that a sufficient amount of air for supporting combustion can enter the fire-chamber through the aforesaid opening left in the earth-bank at the bottom of leeward side of the ash-pit.

When the engine is to be moved to another place the ashes and cinders or entire contents of the ash-pit are dropped into the hole made in the ground by simply dumping the grates. Then by raising or collapsing the ash-pit, through the medium of elevating devices, it is disconnected from the ground to permit the engine to be moved away.

It will be apparent that by the method herein

described of disposing of the ashes and cinders, both during and after the running of the engine, destructive field and farm fires are effectually prevented.

5 Owing to the lightness of cinders and ashes resulting from the combustion of straw and other light fuel, it would not be sufficient to dump the same on the surface of the ground, because they would generally be blown away
10 after the removal of the ash-pit. Hence the necessity of discharging the same into a hole made in the ground will be readily perceived.

For the purpose of raising and lowering the ash-pit we generally employ two longitudinal
15 shafts, H H, journaled in bearings at the sides of the boiler and connected with each other by bevel or miter gearing I and a transverse shaft, J. One of the side shafts is provided with a hand-crank, K, for turning the same.
20 Chains L, connected with the side shafts and bottom section of the ash-pit, serve to draw up the various sections when the shafts are turned. We prefer the arrangement of the shafts and chains shown, but may also resort to a wind-
25 lass on the top of the boiler and branched chains leading therefrom for accomplishing the same result.

We desire it to be understood that, while we

prefer the construction of ash-pit herein shown, we may also make use of any other suitable
30 construction or arrangement of devices for lengthening the ash-pit, or forming a connection of the same with a hole in the ground. Thus it may be stated that hinged or movable shutters or doors can be employed to form
35 a casing or box above the hole in the ground, or else the earth or other materials can be banked up sufficiently high to surround the ash-pit, except on the side left open for the admission of air. 40

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In an agricultural furnace, the combination
45 of an extensible ash-pit or fire-box constructed of telescopic sections, with suitable devices for raising and lowering said pit or fire-box, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES H. GILLETT.
HARRISON GILLETT.

Witnesses:

GEO. L. MATCHAU,
CARLOS CLEMENT.