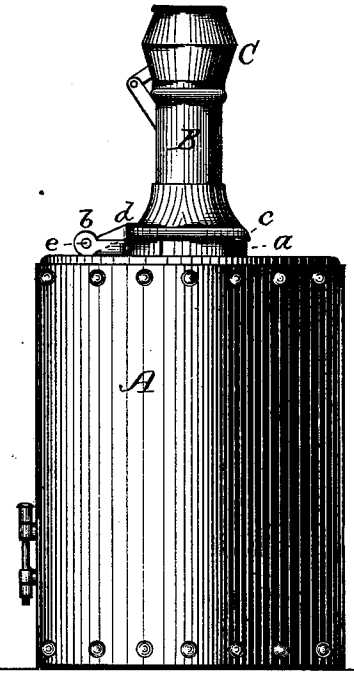
G. KRATZ.

Agricultural Engine.

No. 213,511. Patented Mar. 25, 1879.

Fig. 1



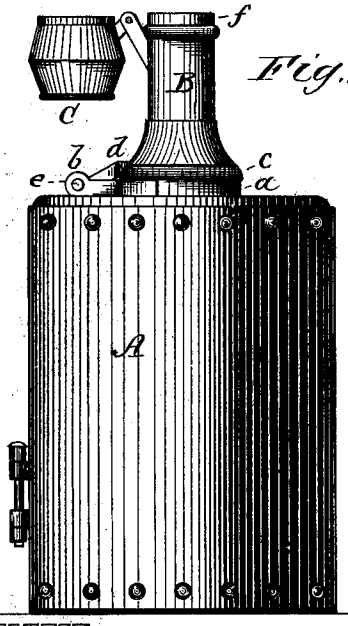
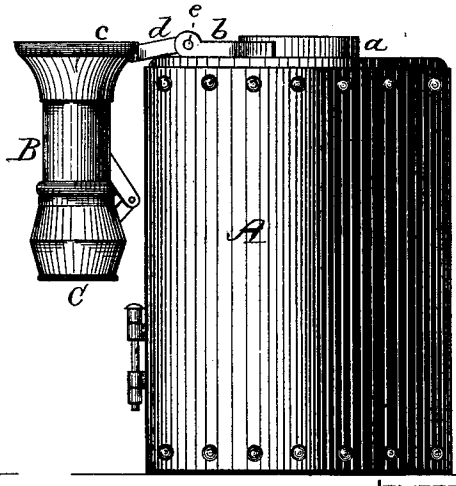


Fig. 2.

Fig. 3



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE KRATZ, OF EVANSVILLE, INDIANA.

IMPROVEMENT IN AGRICULTURAL ENGINES.

Specification forming part of Letters Patent No. **213,511**, dated March 25, 1879; application filed January 13, 1879.

To all whom it may concern:

Be it known that I, GEORGE KRATZ, of Evansville, in the county of Vanderburg, and State of Indiana, have invented a new and valuable Improvement in Upright or Agricultural Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of a steam-boiler, showing my invention. Fig. 2 is a similar view with the spark-arrester disconnected from the smoke-stack. Fig. 3 is a side view of the steam-boiler, showing the smoke-stack swung down in position over the top of the boiler.

This invention has relation more particularly to that class of portable engines used as a power to operate thrashing or other agricultural machines, which have a smoke-stack connected to the boiler of the engine in a manner that will admit of the smoke-stack being swung over the top of the boiler for the purpose of placing it out of the way when the engine is not in use, and thereby prevent, as far as possible, injury to the smoke-stack by coming in contact with any obstruction during the transportation of the engine.

The invention therefore consists in a smoke-stack provided with a spark-arrester, said smoke-stack being hinged or otherwise connected to the boiler of the engine, whereby the stack may be swung over in a vertical position, or parallel or nearly parallel to the boiler.

In the accompanying drawings, A represents the boiler of the ordinary construction, which may be mounted upon a carriage-frame, or otherwise, as desirable. The upper end of the boiler A is formed with, or has secured thereto, in any suitable manner, an annular or other form of flange, *a*, provided with arms *b*, extending out in a horizontal or nearly horizontal direction. The smoke-stack B may be made in the usual form, and has upon its lower end an annular or other form of flange, *c*, to correspond with the flange *a* upon the top of the boiler. To the flange *c* are secured arms *d*, projecting out horizontally, or nearly so, or at right angles to the smoke-stack B. The arms *d* are connected to the arms *b* by a horizontal rod, *e*, the ends thereof passing through holes in the ends of the arms.

This arrangement will allow of the smoke-stack B being swung over the top of the boiler A, and parallel or nearly parallel thereto, thereby placing it entirely out of the reach of the limbs of trees or other objects during the transportation of the engine, thus preserving it from injury, as it swings clear from the top of the boiler and cannot be torn off by the limbs of trees, and the usual rest is entirely dispensed with, as the position of the smoke-stack when swung over the top of the boiler requires no fastening to a support to hold it in place, and does not make the engine top-heavy; also, is not so liable to shake to pieces or become injured when passing over rough roads.

To the upper end of the smoke-stack B is hinged or pivoted a spark-arrester, C, of the usual construction, the lower end or flange of the same when in line with the smoke-stack fitting over the upper flange, *f*. When the spark-arrester is not required for use, as is frequently the case when coal or similar hard fuel is burned, the arrester C may be disconnected from the flange *f*, and swung over parallel, or nearly so, with the smoke-stack, thereby securing an increased or unobstructed draft.

The spark-arrester, although of the ordinary construction, is considered of very great importance to the class of engines to which my invention relates, as without it the sparks or fire would escape or be discharged through the top of the smoke-stock, resulting in great danger of igniting the grain or other agricultural product.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the boiler of a portable engine, of a smoke-stack provided with a spark-arrester, said smoke-stack being hinged or otherwise connected to the boiler, whereby

it can be swung over the top of the boiler in a vertical position, or parallel, or nearly parallel, thereto substantially as and for the purpose set forth.

2. The combination of a smoke-stack hinged or otherwise connected to the boiler of a steam-engine, that will admit of the smoke-stack being swung over parallel, or nearly parallel, to the boiler, said smoke-stack being provided with a hinged spark-arrester, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE KRATZ.

Witnesses:
JOHN W. KRATZ,
WM. KRATZ.