

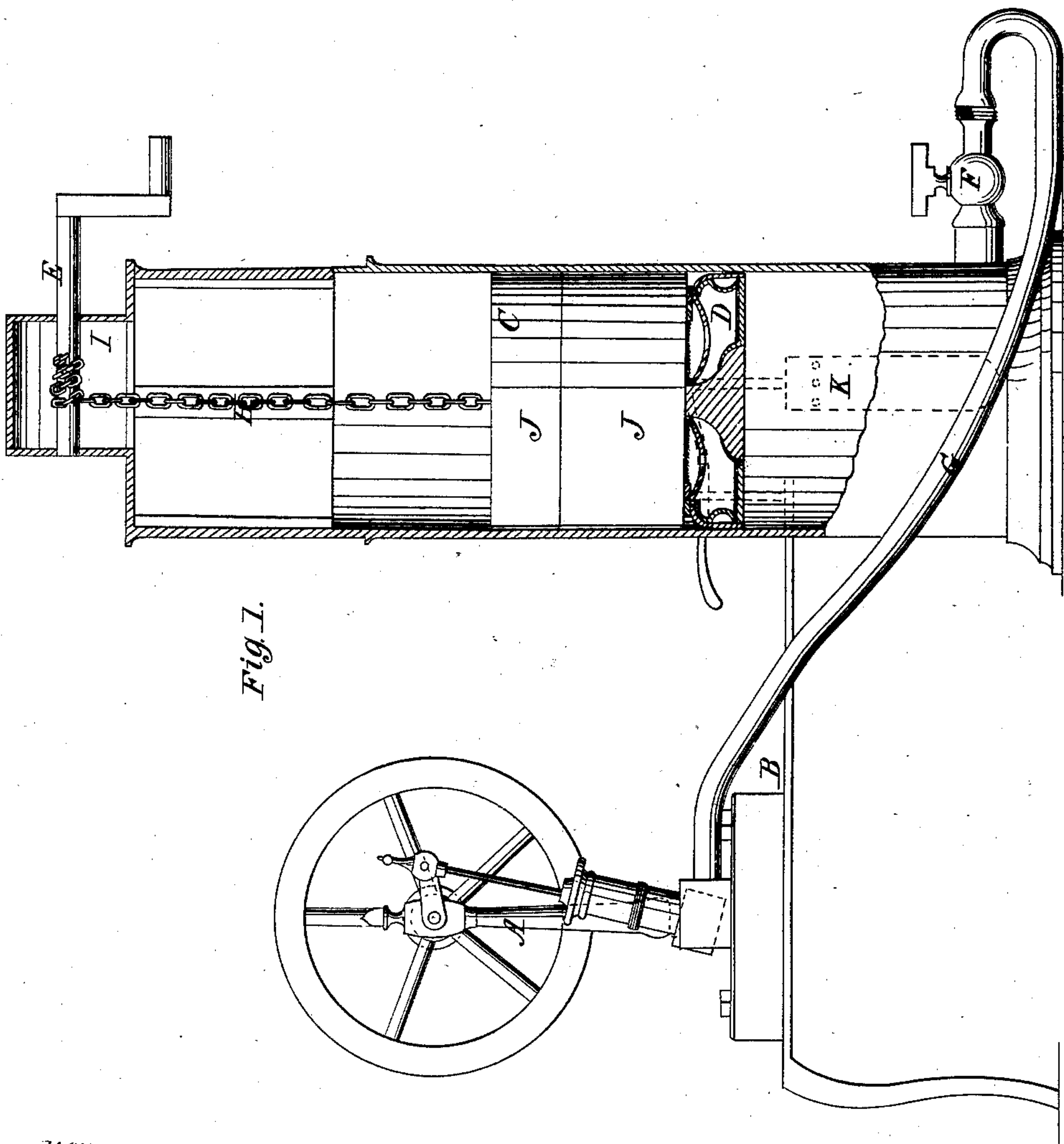
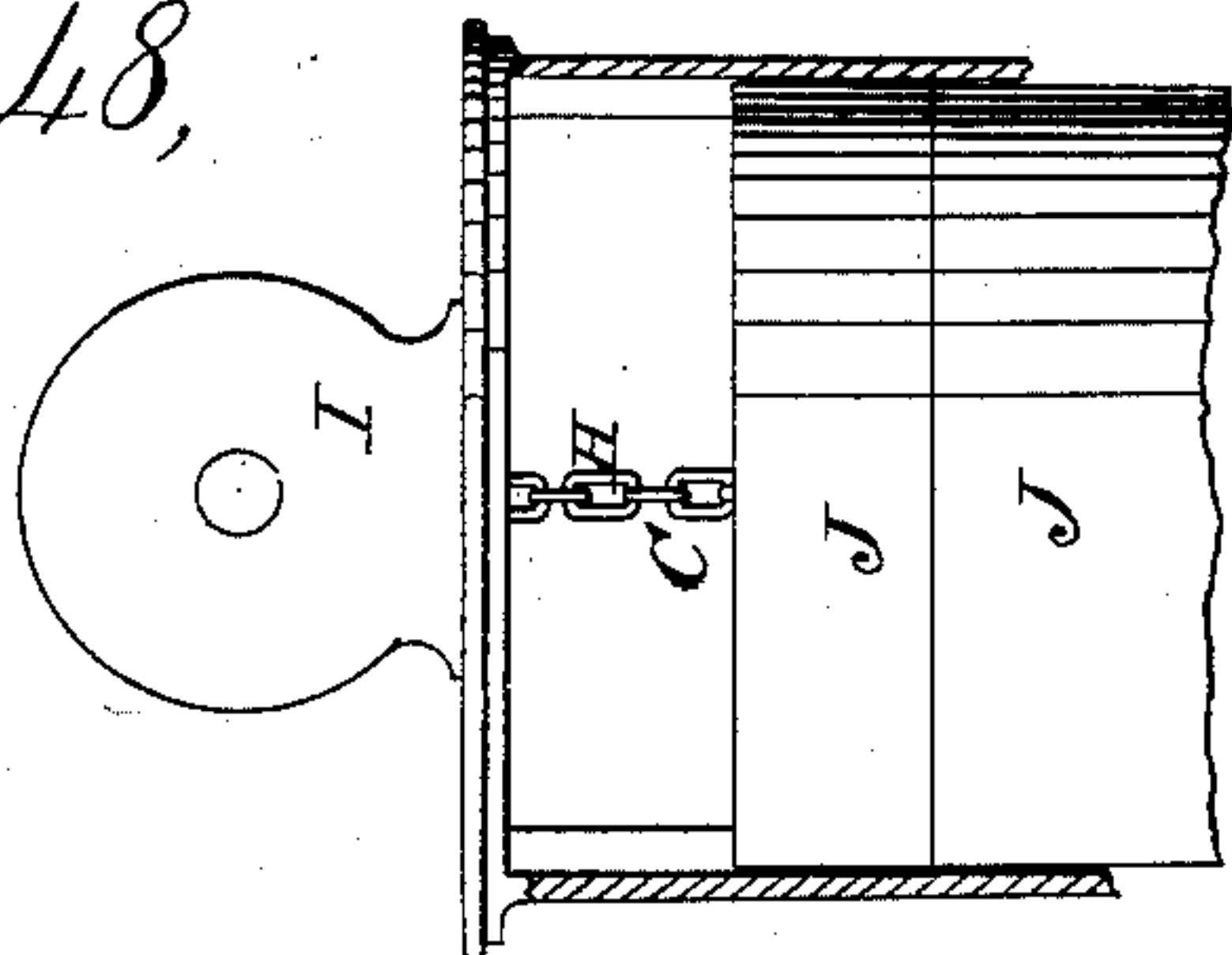
*D. Bickford,*

*Compressing Air,*

*N<sup>o</sup> 28,248,*

*Patented May 15, 1860.*

*Fig. 2.*



*Fig. 1.*

*Witnesses:*

*Am. E. Prue*  
*Wm. J. Ketchum*

*Inventor:*

*Dana Bickford,*

# UNITED STATES PATENT OFFICE.

DANA BICKFORD, OF WESTERLY, RHODE ISLAND.

## COMPRESSED-AIR ENGINE.

Specification of Letters Patent No. 28,248, dated May 15, 1860.

*To all whom it may concern:*

Be it known that I, DANA BICKFORD, of the town of Westerly, county of Washington, and State of Rhode Island, have invented or produced a new and useful mode of procuring a motive power from a combination of compressed or expanded air and the power of weight, screw, live spring, or gears arranged as described in the following; and I do hereby declare that the following is a full and exact description of the same.

Figure 1 is a perspective view; Fig. 2, a sectional.

Similar letters of reference indicate corresponding parts in each figure.

This invention relates to compressing or expanding air and then combining the power of the pressure of either weight lever screw spring or gears for the purpose of procuring a steady power and a surplus without the aid of stationary power.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A is an engine which may be constructed upon any plan chosen.

B is a stand or table on which the engine is placed.

C is an airtight tender or tank with an airtight movable head marked D which can be moved up and down freely. This tender or tank is arranged with a force pump K attached to one side and either worked by hand or machinery, and is used to force in the air into the tender after the head is raised.

E is a crank constructed for the purpose of raising the head D.

F is a faucet or stop cock for the purpose of letting the compressed air from the ten-

der into the piston of the engine, through the pipe marked G.

H is a chain attached to the portion of the crank that is in the box I, and the other end being attached to the weight J which is upon the head D. They are both raised by turning the crank and winding up the chain. Then the air is forced into the tender by force pumps until the required pressure is attained. Then the weight is lowered upon the air and forces it upon the piston head with a steady even pressure and to any amount to the square inch required. We also use screw lever spring and gears power to produce the same result, and with the assistance of either of these the compressing by steam power is not required, and we also use a number of tenders or tanks when we require a surplus of power and in filling one while the others are running and supplying the machinery we obtain it, and also when we use these arrangements upon railroad trains the power required in stopping the train we use for compressing the air and filling the tanks.

Therefore what I do claim and wish to secure by Letters Patent is—

One or more reservoirs for compressed air with movable airtight head to be operated with either weights screw levers spring or any similar power, for the purpose of keeping up a uniform pressure upon the contained air, combined with an engine of any form for the purpose of propelling vehicles or machinery the whole constructed arranged and operating substantially as set forth.

DANA BICKFORD. [L. s.]

Witnesses:

JOHN HOLLINGSHEAD,  
J. F. WOLLAND.