(No Model.)

J. H. BAKER.

AIR COMPRESSOR.

No. 259,741. Patented June 20, 1882.

Fig. 3.

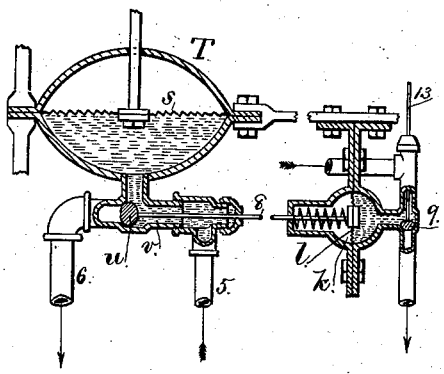
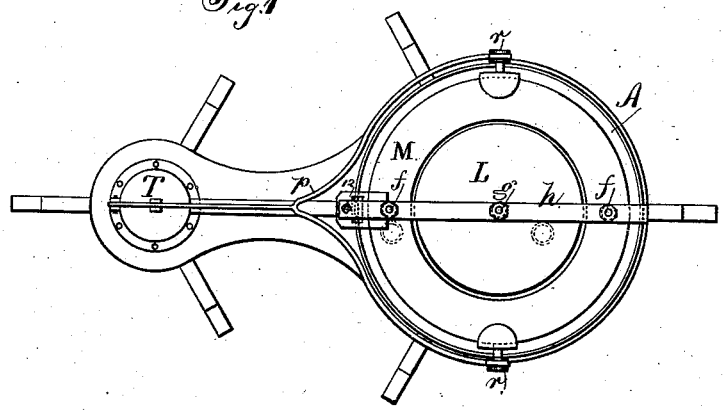


Fig. 2.

Fig. 1



Witnesses.
Harold Serrell
Chas. H. Smith

Inventor
per James H. Baker
Lemuel W. Serrell
atty.

UNITED STATES PATENT OFFICE.

JAMES H. BAKER, OF SARATOGA SPRINGS, NEW YORK.

AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 259,741, dated June 20, 1882.

Application filed February 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BAKER, of Saratoga Springs, in the county of Saratoga and State of New York, have invented an Improvement in Air-Compressors, of which the following is a specification.

The object of this invention is to use the power of a water-pressure to pump air into a holder in such a manner that there will be a slight compression of the air sufficiently to produce a current thereof through a pipe. These air-compressors are adapted to gasoline-machines in which air is passed over or in contact with gasoline and vaporizes the same, so that it can be burned as a gas; or these air-compressors may be used for supplying atmosphere to coal-oil or other lamps to produce a perfect combustion without the use of a chimney.

My invention relates to the combinations of devices hereinafter set forth, whereby the air-compressor is rendered more uniform in its operation and cheaper in its construction.

In the drawings, Figure 1 is a plan of the apparatus. Fig. 2 is a vertical section, and Fig. 3 is a section in larger size of the water-valve and diaphragm.

The vessel A is by preference cylindrical, and within it there are two stand-pipes, *b* and *c*, that are vertical branches from the horizontal pipe *d*. There are two valves, *e* and *e'*, in this pipe *d*. One of them admits air to the apparatus; the other, *e'*, allows air to pass through the stand-pipe *b* to the stand-pipe *c*.

There are guide-rods, *f f* and *g*, passing from the bottom of the vessel A to the frame *h*, that is above the vessel A, and rises to such a height that the holders L M can be elevated to near the top of the water filling the vessel A. The holders L M are similar to gas-holders—that is, they are inverted cylinders closed at top and open at the bottom—and they have tubes running through them for the passage of the guide-rods *f f* and *g*, so that they are free to slide up and down. The holder L is of a weight that is sufficient to give the necessary pressure to air confined within it by the water; or the said holder L may be weighted, as in ordinary gas-holders. The holder M is annular, and it is within the vessel A and surrounds the holder L. This holder M can be moved up or down upon the guide-rods *f f*. When the holder M is moved up it draws air into itself through the pipes *d b*, the valve *e* opening. When the holder M descends it forces the air through the pipe *b*, opening the valve *e'* and causing the holder L to rise. This varies the pressure of the air but little, because the holder L will rise by a very small increase of pressure of the air within such holder L. The air passes away uninterruptedly by the pipe *d* to the burner or lamp or other device where it is to be used.

The lever *p* is pivoted at 3, and its end is forked to pass at the sides of the vessel A and be connected by the links *r* with the opposite sides of the holder M; and usually the weight of this vessel M will be sufficient to cause it to descend and force the air into the holder L, as aforesaid. In this case it is necessary to apply a force to lift the holder M and draw the air into itself. This I effect by the pressure of water acting upon the diaphragm *s* in the regulator T. There is a valve, *u*, in the water passage-way *v*, there being a supply-pipe at 5 and a discharge-pipe at 6.

The small diaphragm *l* in a chamber, *k*, is connected by a rod, 8, with the valve *u*, and a small valve, 9, at the water-inlet to the chamber *k*, is on a rod, 13, and operated by a traveler, 12, upon the holder M, coming into contact with one or the other of the tappets 15 or 16 on the rod 13, so as to open the valve 9 when the holder M reaches its lowest point and admit water to move the diaphragm *s* and valve *u*, so that the water-pressure, acting upon the diaphragm, raises the lever *p* and holder M, drawing in the air, as aforesaid. When the holder M reaches its extreme upward movement the valve *u* is moved the other way and the escape of water is permitted, so that the holder M descends by its own weight.

I claim as my invention—

1. The combination, with the holders L M and vessel A, of the air-tubes *b c d*, valves *e e'*, lever *p*, actuating-diaphragm, and inlet water-valve, substantially as set forth.

2. The combination, with the holders L M and vessel A, of the air-tubes and valves, the lever *p*, and the diaphragm *l*, the water-valve 9 and valve *u*, and diaphragm *s*, substantially as set forth.

Signed by me this 18th day of February, A. D. 1882.

JAMES H. BAKER.

Witnesses:
GEO. T. PINCKNEY,
HAROLD SERRELL.