

(No Model.)

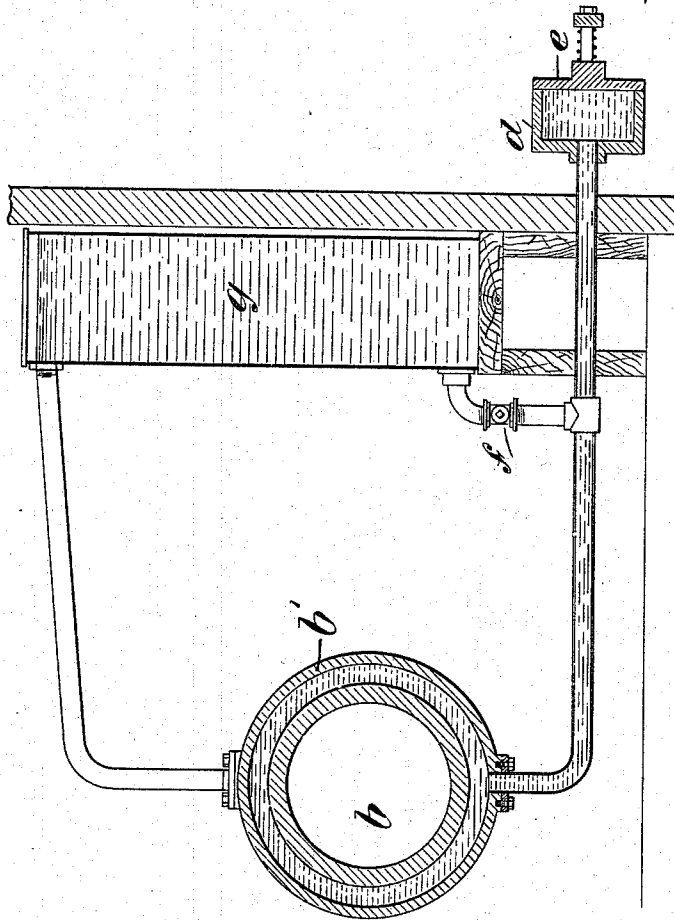
2 Sheets—Sheet 1.

H. H. ANDREW & A. R. BELLAMY
GAS, OIL, OR SIMILAR MOTOR ENGINE.

No. 528,063.

Patented Oct. 23, 1894.

FIG. 1



Witnesses
A. D. Bissong
E. H. Sturtevant

INVENTORS
Honey Herbert Andrew
Alfred Ross Bellamy
By their atty *Edward R. [Signature]*

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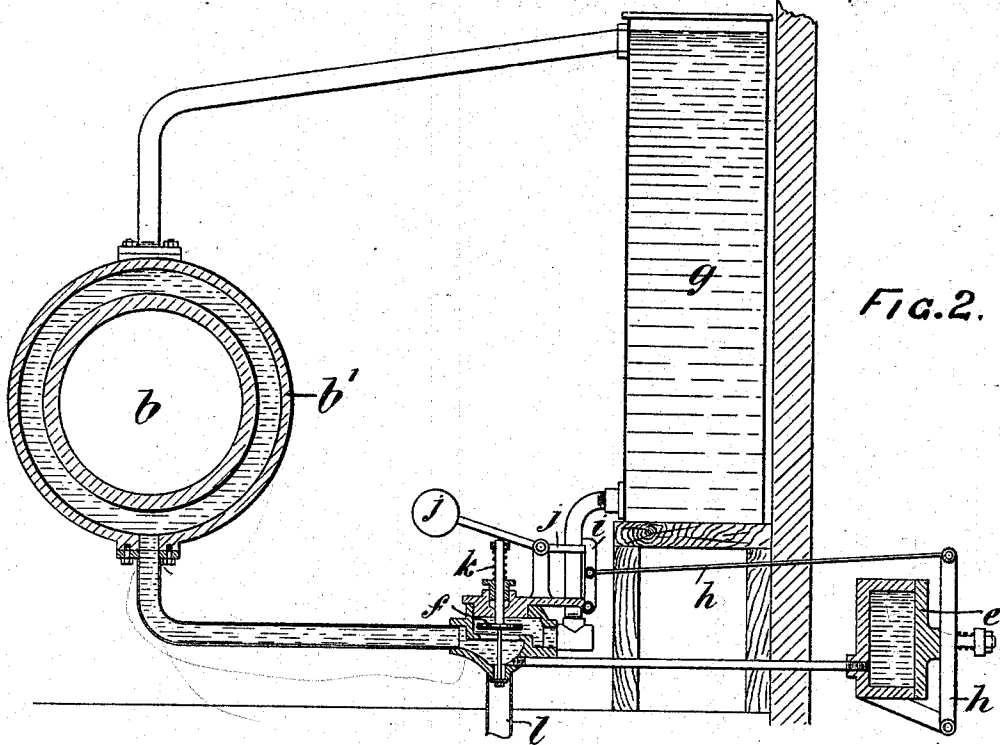


FIG. 2.

Witnesses.
A. D. Buring
E. H. Sturtevant

INVENTORS.
Henry Herbert Andrew
Alfred Rowe Bellamy
Chambers
By Wm. C. W. W.

UNITED STATES PATENT OFFICE.

HENRY HERBERT ANDREW AND ALFRED ROWE BELLAMY, OF REDDISH,
NEAR STOCKPORT, ENGLAND.

GAS, OIL, OR SIMILAR MOTOR ENGINE.

SPECIFICATION forming part of Letters Patent No. 528,063, dated October 23, 1894.

Application filed March 13, 1894. Serial No. 503,506. (No model.) Patented in England November 17, 1892, No. 20,302.

To all whom it may concern:

Be it known that we, HENRY HERBERT ANDREW and ALFRED ROWE BELLAMY, subjects of the Queen of Great Britain, and residents of Reddish, in the county of Chester, England, have invented certain Attachments for Gas-Engines and the Like, (for which we have obtained Letters Patent in Great Britain November 17, 1892, No. 20,302,) of which the following is a specification.

Our invention is designed to prevent the bursting of the water jacket of the gas engine due to freezing.

In the drawings Figure 1, is a sectional view of one form of the invention and Fig. 2, a similar view of another form in which an automatic cut off valve is employed.

In order to prevent the cylinder *b* of a gas or similar engine from being burst through freezing of the water in the cylinder jacket we propose to place outside (or in a position most exposed to the weather) and in connection with the water jacket *b'* of the cylinder, a chamber or box *d* fitted with a spring covering *e* which would yield or with a thin and weak cover which would break under sudden pressure. A tap *f* to cut off the supply of water from the reservoir *g* to the jacket *b'* would be kept closed at night, or when the engine was not working, to prevent any essential escape of water, in case the cover *e* on the chamber *d* should be broken by frost and a suitable provision is made in the chamber or box to drain the water from the jacket of the

engine cylinder. In the modification of this arrangement shown in Fig. 2 we have an arrangement of levers *h*, which when the spring covering *e* yields, withdraws a pivoted catch *i* thereby releasing a weighted tumbler lever *j* which forces down the spindle of the valve *f* and so closes the said valve which is kept normally open by the spring *k*. When the valve *f* is closed, the communication with the water supply reservoir is shut off and the water from the jacket *b'* drains off through the pipe *l*.

We claim as our invention—

1. In combination with a water jacket of a gas engine, the outlet pipe leading therefrom, the box *d* connected with said pipe and having an open side, and the relief cap *e* closing said open side, substantially as described.

2. In combination with the relief box *d* and cover *e* the levers and rods *h, i, j* operating upon the valve spindle and valve *k, f*, in such a manner as to shut off communication with the water reservoir and drain the water from the cylinder jacket on the freezing of the contents of the box *d* and consequent movement of the cover *e*, as hereinbefore described and shown.

In witness whereof we have hereunto set our hands in presence of two witnesses.

HENRY HERBERT ANDREW.
ALFRED ROWE BELLAMY.

Witnesses:

JOSHUA ENTWISLE,
RICHARD IBBERSON.