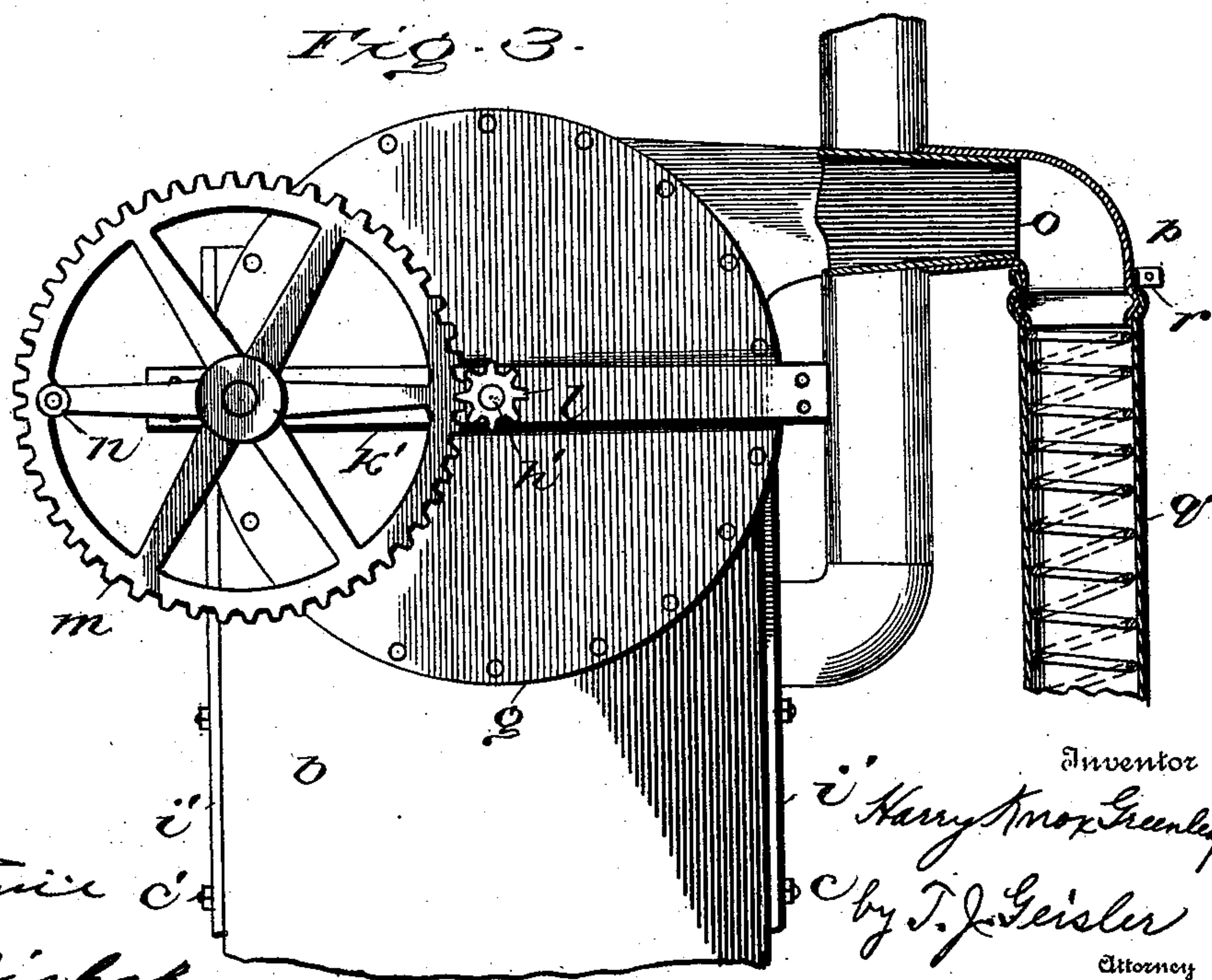
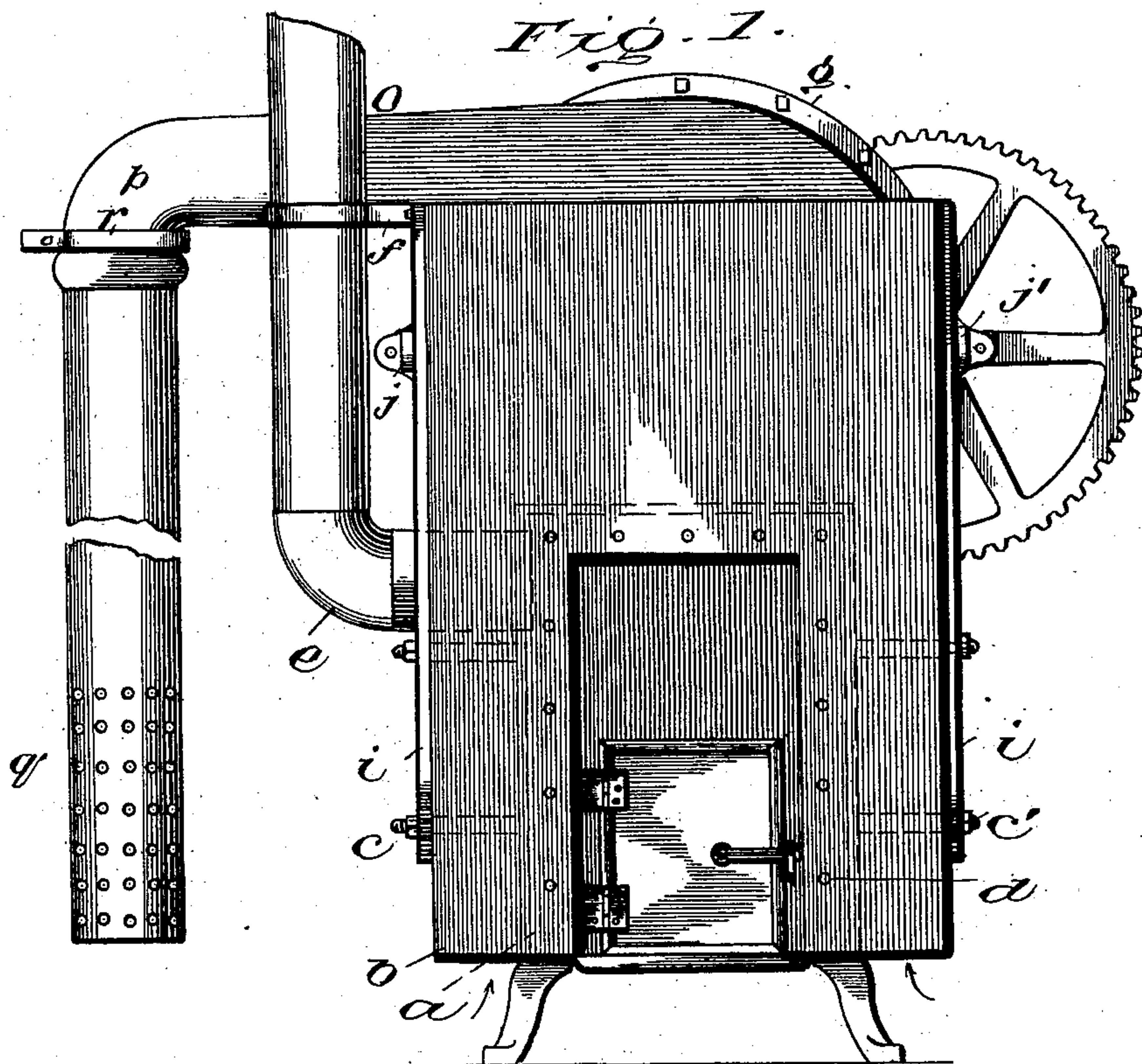


(No Model.)

2 Sheets—Sheet 1.

H. K. GREENLEAF.
THAWING MACHINE OR DEVICE FOR PRODUCING HOT AIR BLASTS.
No. 601,135. Patented Mar. 22, 1898.



Witnesses

Jas. M. C. Bishop.

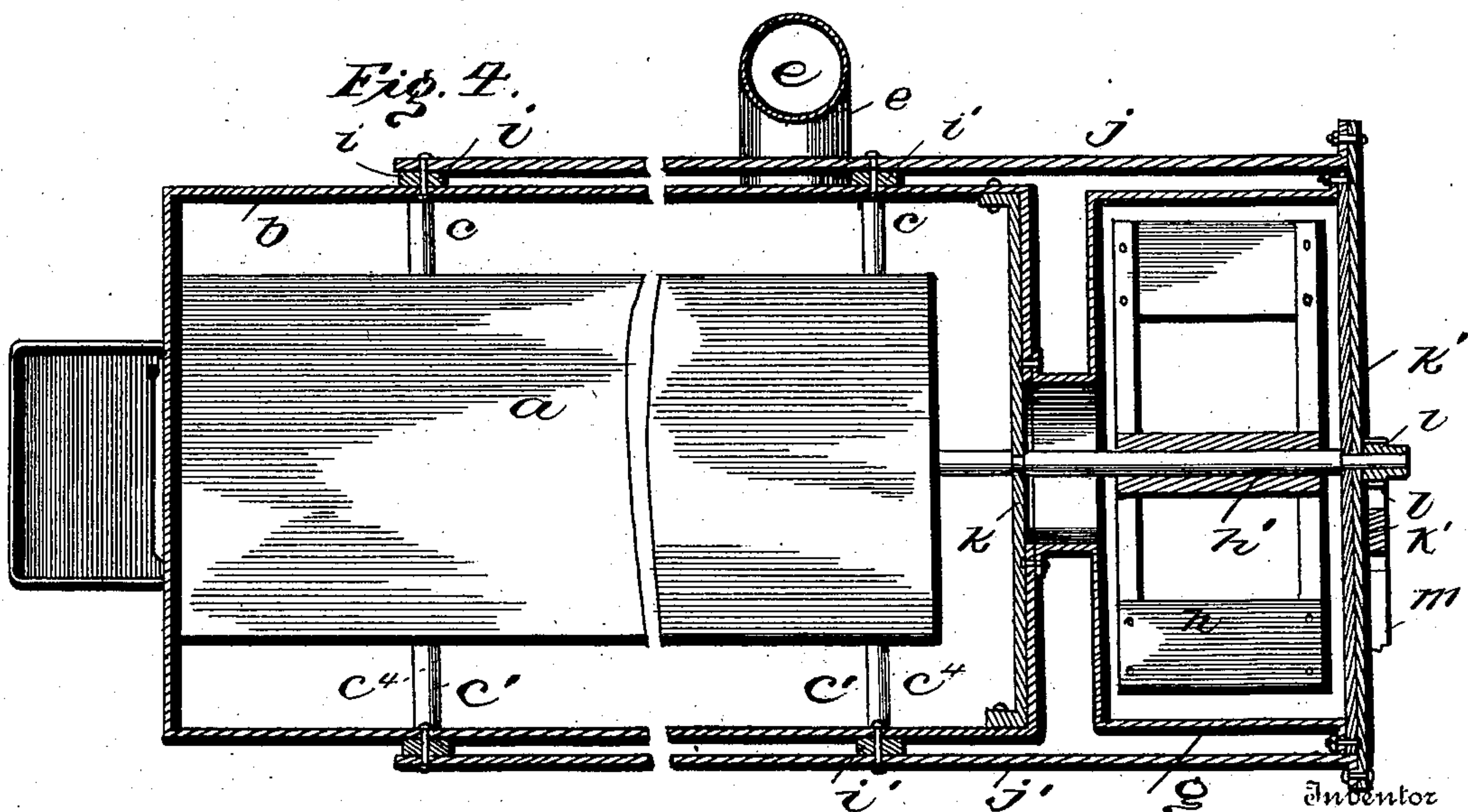
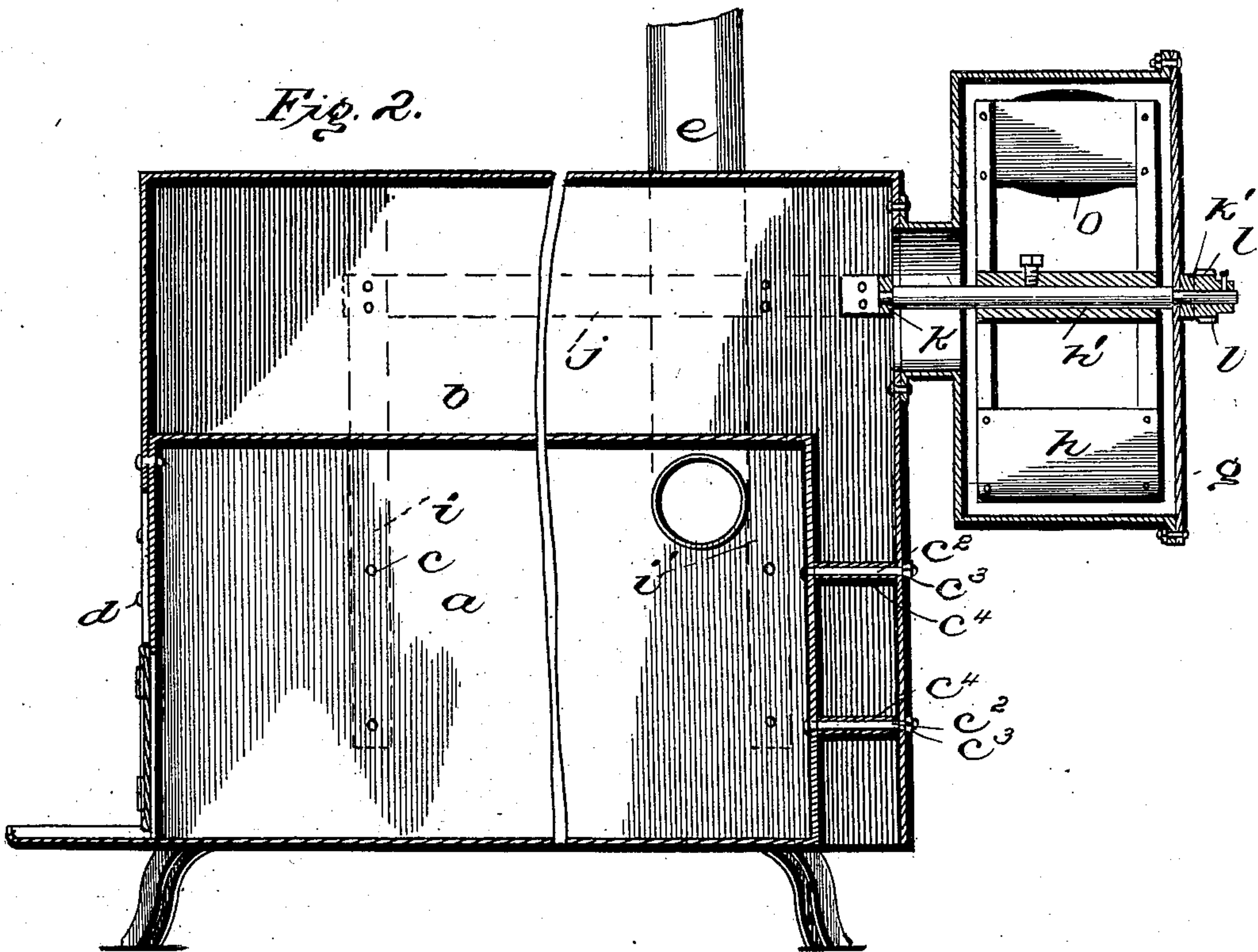
Inventor

H. K. Greenleaf
by *J. J. Geisler*
Attorney

(No Model.)

2 Sheets—Sheet 2.

H. K. GREENLEAF.
THAWING MACHINE OR DEVICE FOR PRODUCING HOT AIR BLASTS.
No. 601,135. Patented Mar. 22, 1898.



Witnesses

John Irvine
Chas. Bishop

Harry Knox Greenleaf
by J. J. Geisler
Attorney

UNITED STATES PATENT OFFICE.

HARRY KNOX GREENLEAF, OF PORTLAND, OREGON, ASSIGNOR OF TWO-THIRDS TO CHARLES E. POTTER AND JOHN C. HOLLISTER, OF SAME PLACE.

THAWING-MACHINE OR DEVICE FOR PRODUCING HOT-AIR BLASTS.

SPECIFICATION forming part of Letters Patent No. 601,135, dated March 22, 1898.

Application filed September 13, 1897. Serial No. 651,541. (No model.)

To all whom it may concern:

Be it known that I, HARRY KNOX GREENLEAF, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Thawing-Machines or Devices for Producing Hot-Air Blasts, of which the following is a specification, reference being had to the accompanying drawings as forming a part thereof.

My invention relates generally to means for heating by the use of hot air, yet it is more especially directed toward placer-mining in a cold country.

The object of my invention is to produce a contrivance whereby hot air, artificially generated, can be thrown in the form of a blast wherever wanted; and, as already stated, the principal object which I have in view at this time is to assist the miner in a cold country to continue his work to a considerable extent notwithstanding intense cold and frozen ground. For this purpose I have constructed a mechanism as illustrated in the said accompanying drawings, in which—

Figure 1 is a front elevation of my invention, some of the interior parts being shown in broken lines. Fig. 2 is a partial longitudinal vertical section taken about through the center of Fig. 1. Fig. 3 is a partial rear end elevation, this figure more particularly showing the fan and mechanism for operating the same and the means for delivering the hot-air blast where wanted, such means being partially shown in a centrally-taken vertical section. Fig. 4 is a partial plan section taken about centrally through the fan and its casing, this view more particularly showing the bearings supporting the spindle of the fan and its coöperating gear-wheel.

Referring now to the letters and numbers as designating the parts of my invention, my invention comprises a small furnace *a*, cast of iron and of any suitable construction, inclosed in a hood of sheet-iron *b*, which is supported over the furnace by means of a series of arms *c c'*, extending around the furnace on three sides and consisting of a bolt *c²*, provided with threaded end and nut *c³*, and a short end of tube *c⁴*, as illustrated in the drawings, the space between the exterior of the furnace and hood constituting a hot-air chamber.

Part of the front of the hood *b* is cut away to give access to the furnace, such front being fastened to the furnace by means of a series of bolts *d*, as illustrated in Fig. 1.

The flue-pipe *e* extends from the furnace through the hood, the upper end being supported by a collar *f*, fixed to and projecting from the hood. To the rear end of the hood I attach a casing *g* to contain a fan *h*. To provide bearings for the spindle *h'* of such fan and the gear-wheel, I use four vertical bars or supports *i i'*, two on each side, which are fastened to the exterior of the hood *b* by means of the bolts of the arms *c c'*. Two bars *j j'*, one on each side, extend horizontally across and are bolted to the supports *i i'*, and a pair of shorter bars *k k'* extend horizontally between and are bolted to the said bars *j j'*, (see Fig. 4,) the bars *k k'* being suitably perforated to receive the reduced ends of the spindle of the fan and the gear-wheel. The end of the fan-spindle projecting out of the head of the fan-casing is provided with a small gear-wheel *l*, which meshes with the larger gear *m*, on the face of which is a handle *n*, so as to be able to rotate the fan by turning such larger gear-wheel. The fan-casing is provided with a spout *o*, over the discharge end of which I affix a short length of pipe and fasten over the discharge end of the latter a length of flexible tubing *q*, so that the blast of hot air may be discharged in any direction. The flexible tube may consist of canvas or any other suitable material covering a coil of wire, and the tube may be secured in place over the end of the pipe *p* by making said pipe end slightly flaring and using a clamp like *r*, and the discharge end of said flexible tube may be provided with a series of perforations, (see Fig. 1,) so that the hot air may be caused to issue in jets from the circumference of said tube when such would be an advantage, as in working in an excavation.

My invention operates as follows: A fire being built in the furnace the hot air is confined in the air-chamber formed around the furnace by the hood inclosing the same. By then turning the gear-wheel *m* and revolving the fan the hot air is impelled forward through the spout of the fan-casing and the tube *q*, and may then be utilized as wanted, the air

in the air-chamber being replenished as withdrawn from the base of such air-chamber, as indicated by the arrows.

Having fully described my invention, what I claim is—

In a device for the purpose specified, the combination of a furnace, a hood inclosing the same, a fan-casing at the rear end of the hood, horizontal longitudinal bars secured to the hood and projecting beyond the rear end of the same, transverse bars secured to and between the rear ends of said horizontal bars

and on the rear end of the hood, a fan within the fan-casing having its shaft journaled in said transverse bars, and means for rotating the said fan.

In witness whereof I have hereunto set my hand, in the presence of two witnesses, this 26th day of August, 1897.

HARRY KNOX GREENLEAF.

In presence of—

E. S. SEAMAN,

GEO. W. HAZEN.