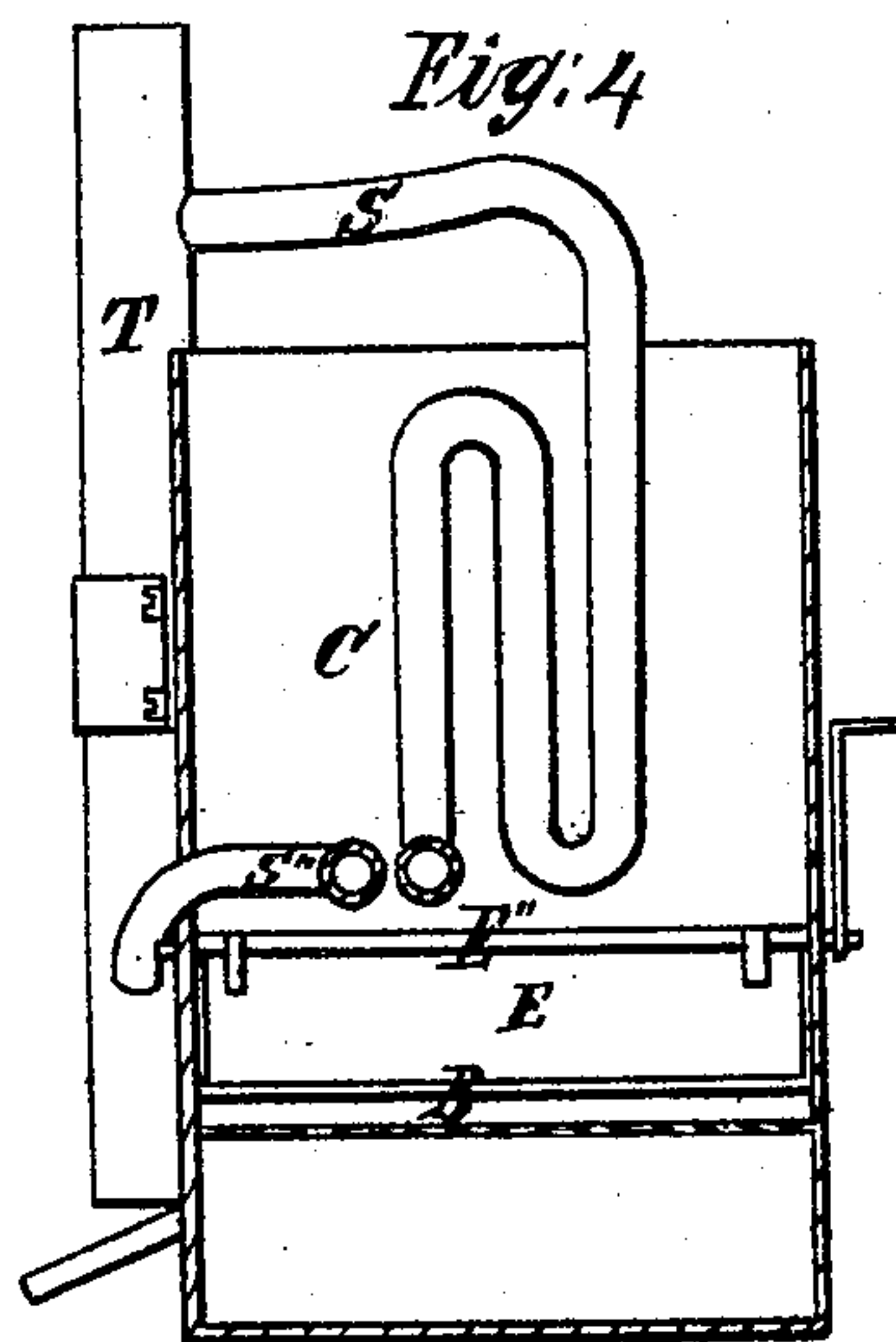
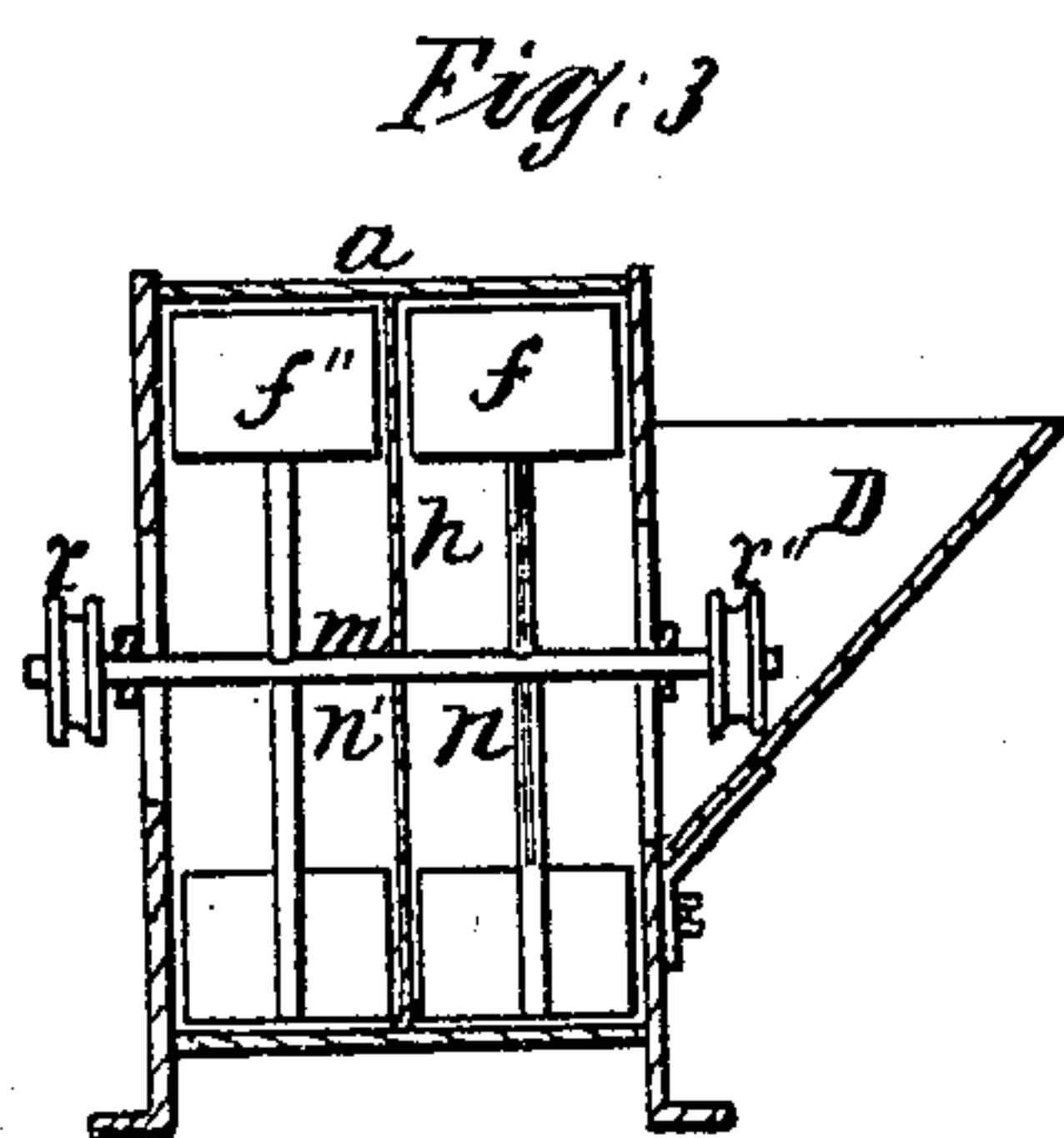
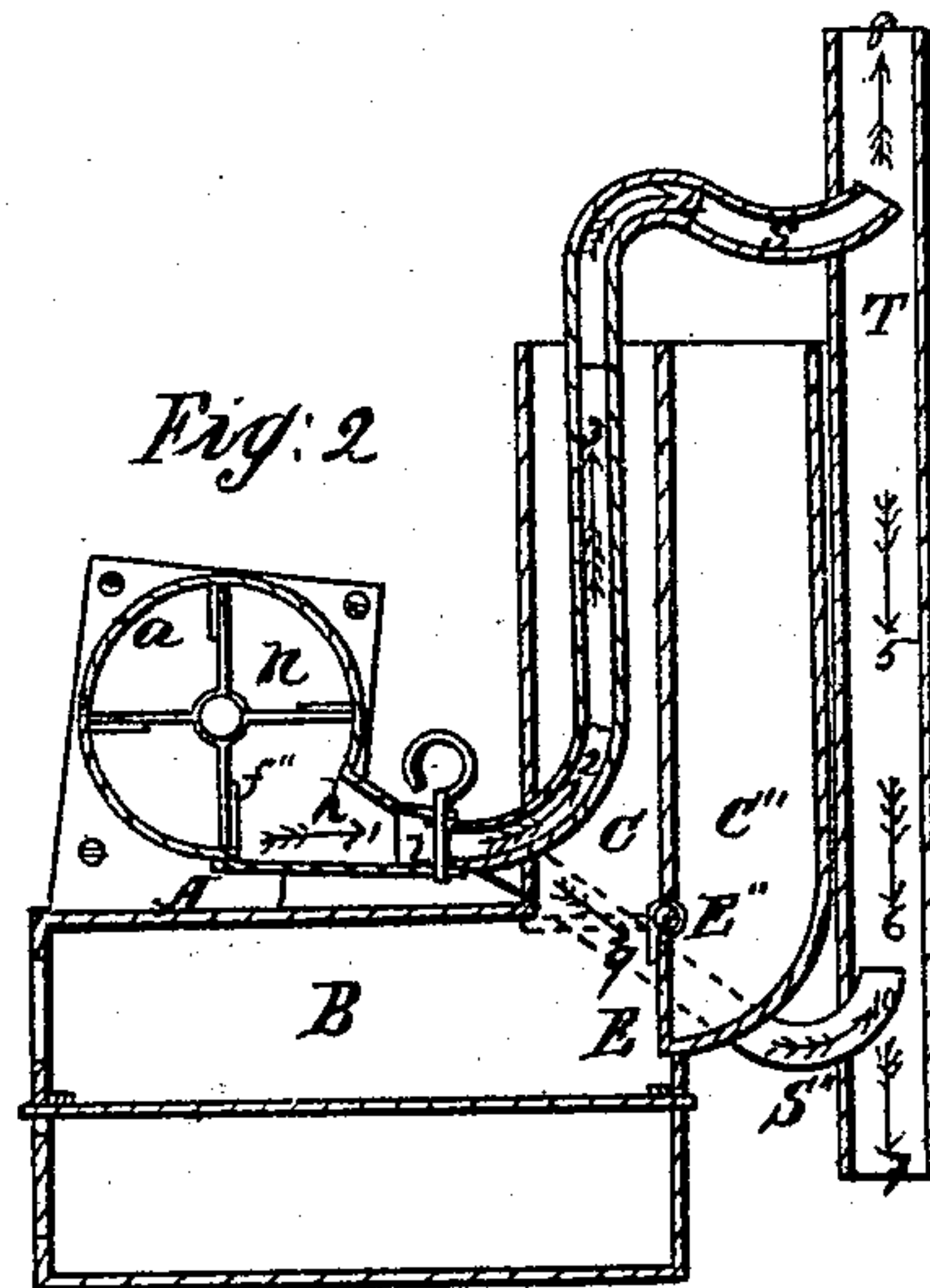
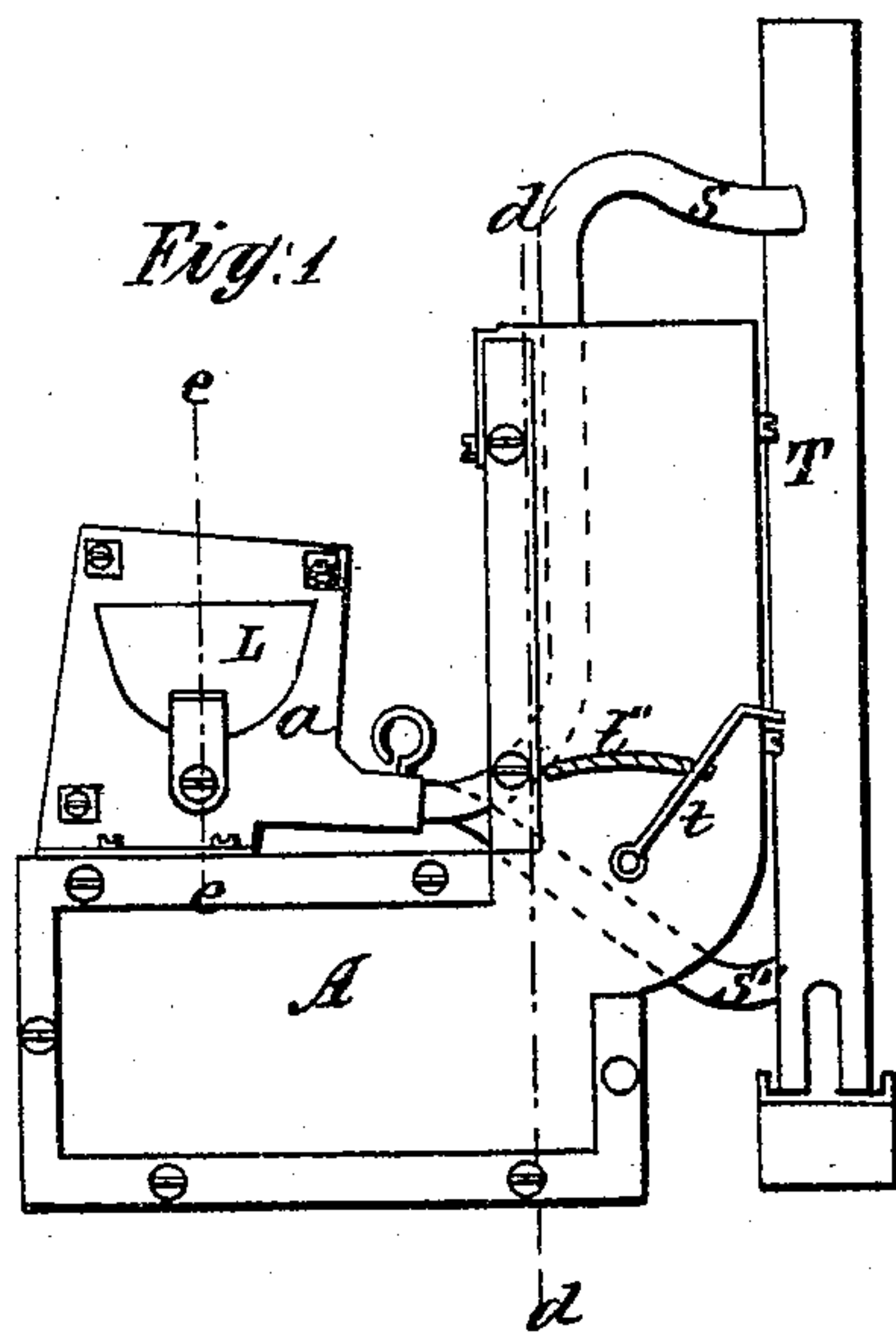


S. M. STEVENS.

Grain Dryer.

No. 95,616.

Patented Oct. 5, 1869.



Witnesses
C. H. Sherburne
Wm. L. Grant. & M.

Inventor
S. M. Stevens.

United States Patent Office.

SIDNEY M. STEVENS, OF ELWOOD, ILLINOIS.

Letters Patent No. 95,616, dated October 5, 1869.

GRAIN-DRIER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SIDNEY M. STEVENS, of Elwood, in the county of Will, and State of Illinois, have invented certain new and useful Improvements in Grain-Driers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 represents a side elevation of my invention;

Figure 2 represents a vertical longitudinal central section of the same, taking in a vertical central section of the cooling-device;

Figure 3 represents a vertical transverse central section of the fan-case on line *e e*: and

Figure 4 represents a vertical transverse section of the heater on line *d d*, taking a portion of the cooling-tubes.

Similar letters of reference, where they occur in the separate figures, denote like parts in each of the drawings.

The nature of my invention consists—

First, in forcing the grain, by means of a fan-blower, through a system of heated tubes, which are so arranged as to discharge the grain into the top of a vertical cooling-tube, which is provided at the bottom with a blast of cool air, through which the grain falls, whereby the same is dried and cooled at one operation.

Secondly, in the novel construction of the furnaces for heating the tubes, together with the fan-blower, as will be hereinafter more fully explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the heater-case, which may be of any suitable form of construction, allowing the same to have two vertical flues, C and C', which extend across from side to side of the heater-case.

E represents a damper, which is attached to a horizontal rock-shaft, E', extending across and through the sides of the heater-case, and so arranged as to allow said damper to be held in a vertical position or horizontal, as shown by dotted lines, fig. 2, by means of ratchet lever *t*, which takes into ratchet-teeth *t'* on the outer side of the heater-case. Thus said damper may be held at a given point, to allow all the heat from fire-box B to pass through either flue C or C',

or to allow a portion of the same to pass through both flues.

Attached to the upper side of the heater-case A, is a fan-case, *a*, which is provided through its centre with a partition, *h*, thus forming two separate air-chambers, *n* and *n'*.

Within said chambers are fan-blowers, *f* and *f'*.

Attached to fan-shaft H, from said air-chamber *n*, is a tube, S, passing through the heater-case into flue C, in the form shown by fig. 4, the upper portion of said tube passing into the upper end of a cooling-tube, T.

From air-chamber *n'* is a second tube, S', passing downward, and on the outer side of case A, into the lower end of tube T, as shown by fig. 2.

Said partition *h* is provided, at or near tubes S and S', with an opening, within which is a valve, *i*, so arranged as to allow the current of air from both fans to be thrown into one or both tubes.

The operation is as follows:

A fire is first placed in fire-box B, the heat allowed to pass into flue C, which properly heats tube S. The grain is fed into hopper L of fan-case *a*. Fans *f* and *f'* of shaft *m* are given a rotating motion, by means of suitable belts passing around pulleys *r r*, thus forcing the grain through tube S, as shown by arrows 1 to 4, into the top of tube T, and is there allowed to fall, as indicated by arrows 5 to 7, which comes in contact with the cool air from tube S, as shown by arrows 9 and 10.

Thus the grain is dried and cooled by one operation.

The light or bad portion is thrown out at the top of tube T, as shown by arrow 8.

Having thus described the nature and object of my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. Tubes S and S' and T, in combination with fans *f* and *f'*, arranged to operate substantially as and for purpose set forth.

2. Heater A, constructed as described, in combination with tubes S S' and T, fans *f* and *f'*, the whole arranged to operate substantially as and for the purpose specified.

SIDNEY M. STEVENS.

Witnesses:

N. H. SHERBORNE,
GEORGE J. KINNEY.