

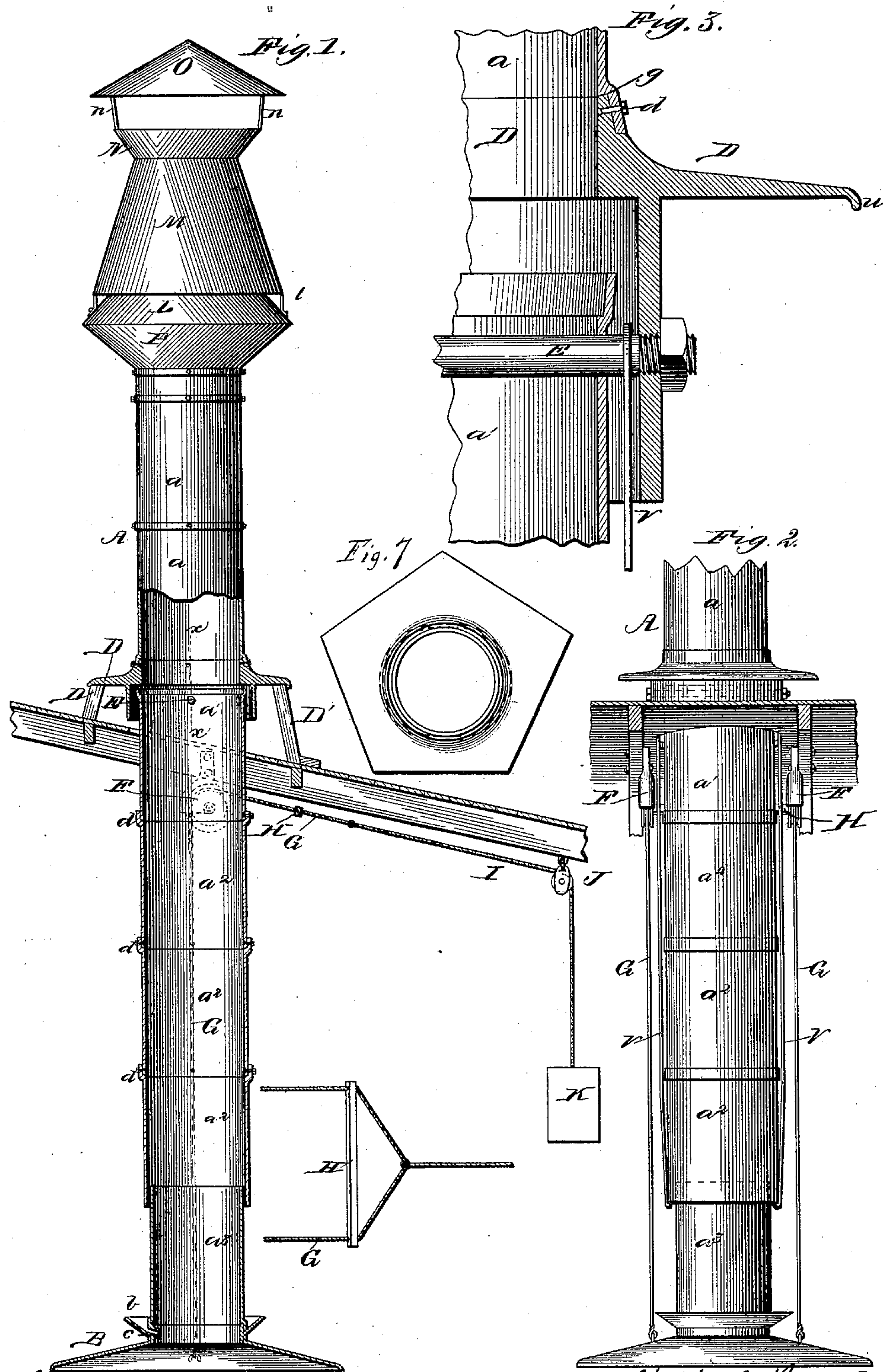
(No Model.)

2 Sheets—Sheet 1.

C. S. ROE.
SMOKE STACK.

No. 387,568.

Patented Aug. 7, 1888.



Witnesses.

Wm. P. Foster
J. D. Vreder

Charles S. Roe, Inventor
By Geo. H. Howard, Atty.

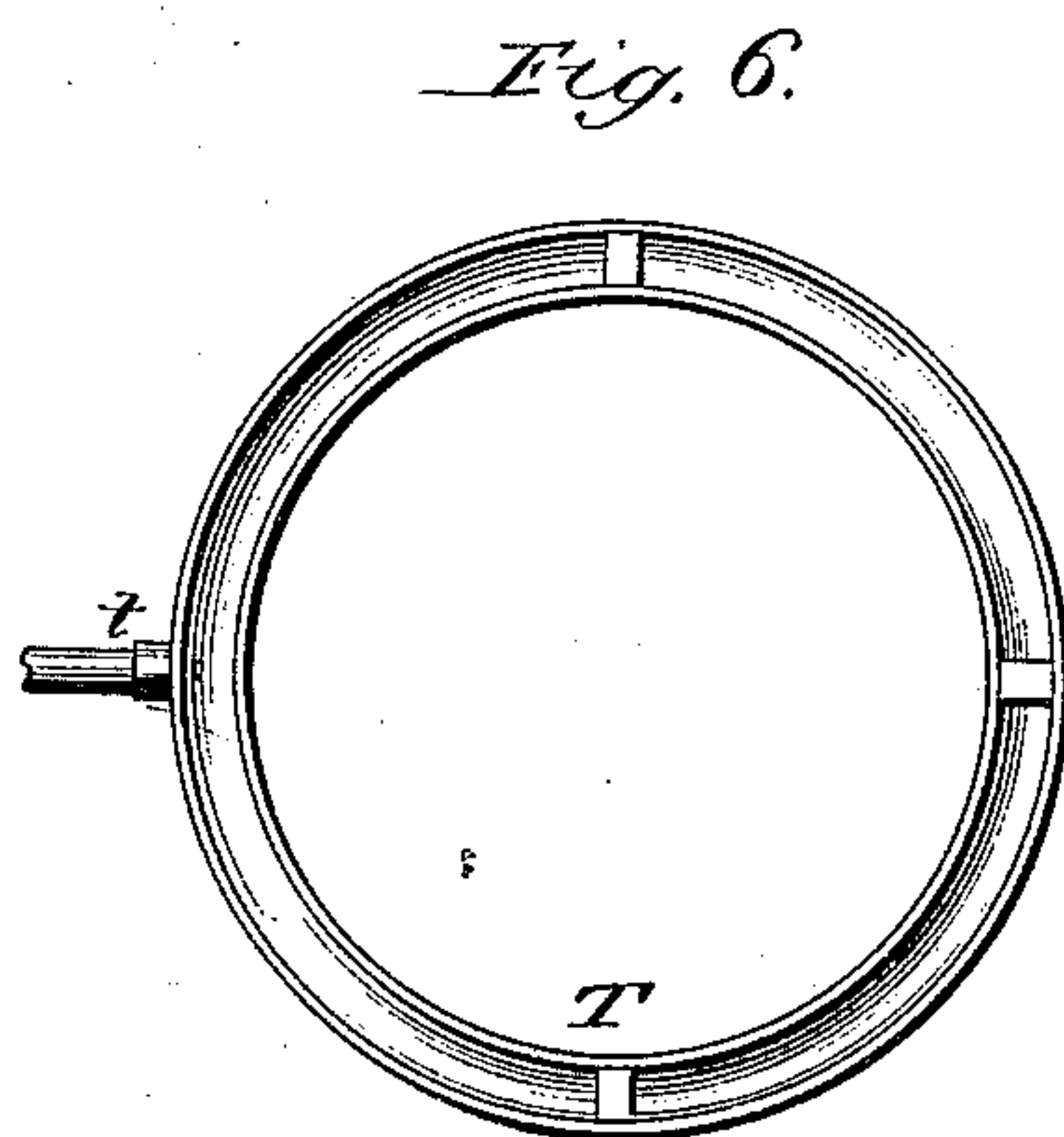
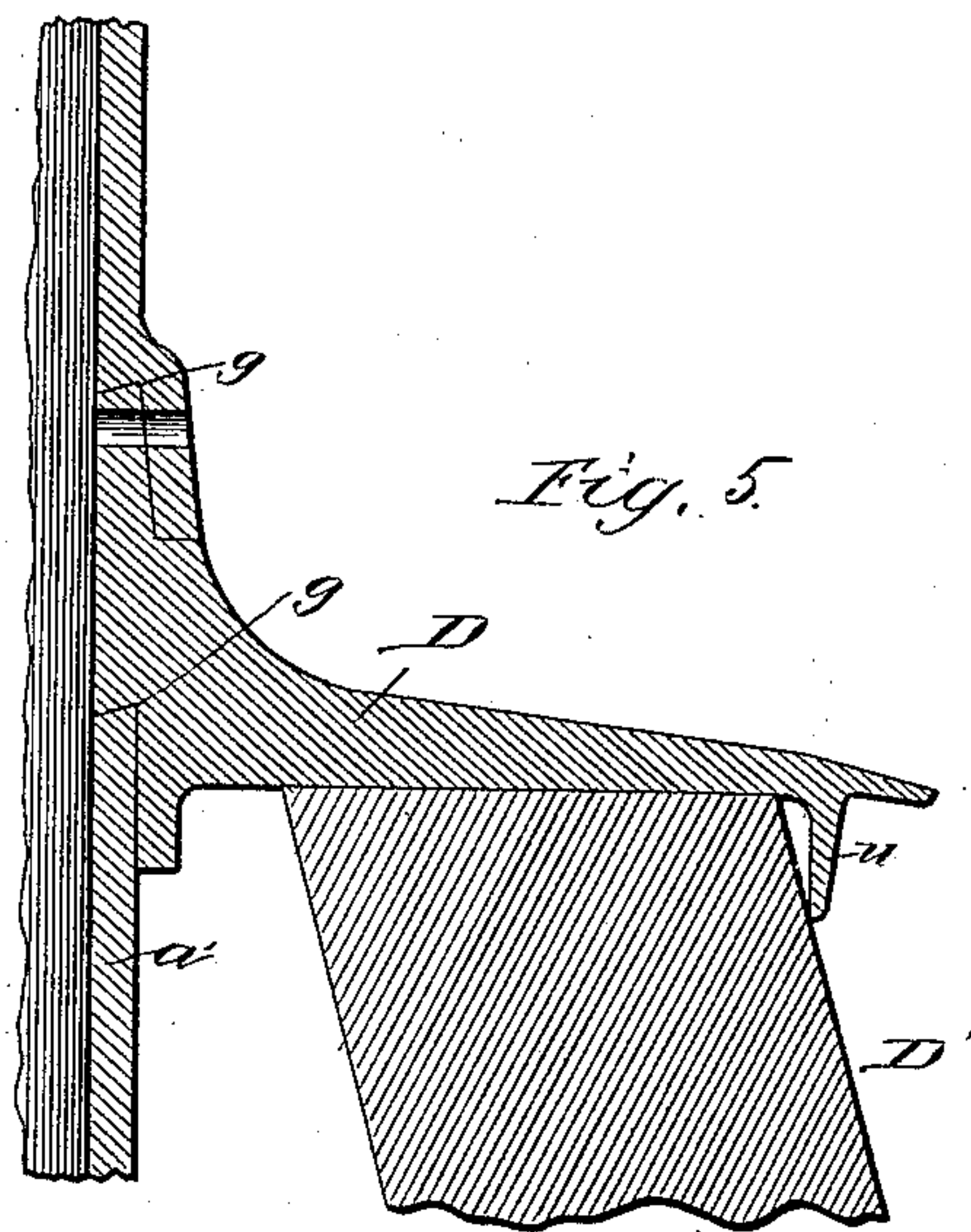
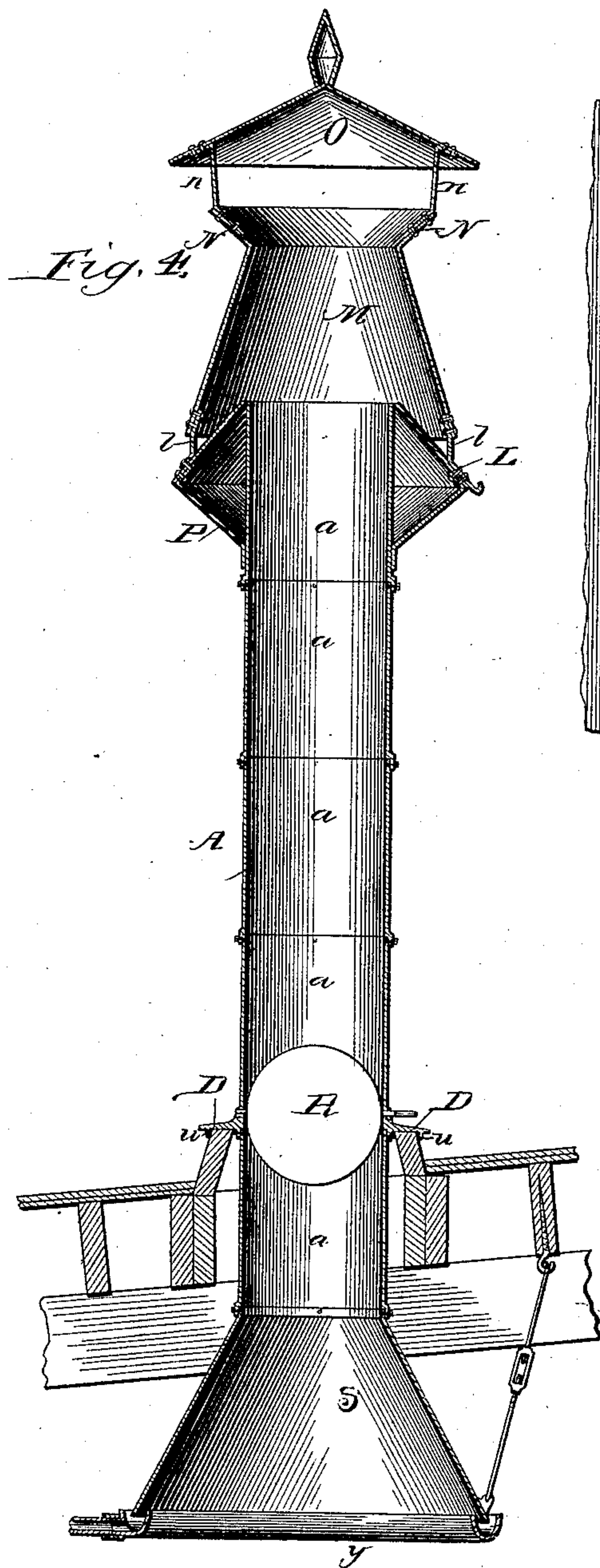
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Charles S. Roe
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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES S. ROE, OF CHICAGO, ILLINOIS.

SMOKE-STACK.

SPECIFICATION forming part of Letters Patent No. 387,568, dated August 7, 1888.

Application filed January 18, 1888. Serial No. 261,083. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. ROE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Smoke-Stacks, of which the following is a specification.

My invention is especially designed for use in locomotive-roundhouses, but is also adapted to other situations, such as forge-fires and the
10 like.

The object of my invention is to produce a smoke-stack which shall be durable, not subject to downdrafts, convenient, and not liable to be broken or injured by careless usage.

15 My invention consists in the parts and combinations hereafter described and claimed.

In the accompanying drawings, Figure 1 is a side view, partly in section, of the full length of my improved stack. Fig. 2 is a side view
20 of the lower part of same at right angles to Fig. 1. Fig. 3 is an enlarged section on line *x x*, Fig. 1. Fig. 4 is a vertical section of a stack having the ordinary fixed conical bottom. Fig. 5 is an enlarged section of a portion of the roof-plate. Fig. 6 is a top view of the drip-trough. Fig. 7 is a top view of the roof-plate or collar by which the stack is supported.

A, Fig. 1 or Fig. 4, is the stack, which is composed of a number of cylindrical sections *a*
30 *a'*, &c., preferably of cast-iron, the flange of one section overlapping the next. Bolts *d d* passing through the overlapping ends, hold the sections together. In order to prevent the entrance of rain or snow the sections above the roof of the roundhouse are placed with their flanges downward. The moisture resulting from condensation within the stack would escape from the downwardly-opening joints
35 were it not for the formation given to the upper end of each section and its seat within the flange of the section above.

A bevel sloping downward toward the center of the pipe is given to the upper edge of each section, and the interior of the flange is shaped to correspond therewith, as shown at
45 *g*, Figs. 5 and 3, in which the flange end of one of the sections, as is shown, and the upper edge of collar D are beveled in the same manner as the pipe-section *a'*, &c. As no protection against rain is needed below the collar or

roof-plate D, the position of the sections *a' a'*, &c., may be reversed, as seen in Fig. 1.

The stack is surmounted by a cowl composed of the cone O, (*vide* Figs. 1 and 4,) supported
55 by braces *n n* above the inverted conical frustum N, which is united to the conical frustum M, which in turn is supported by braces *l l*, &c., above the conical frustum L, which encircles the top of the stack A. The inverted
60 cone P serves simply as a stay to the cone L, and adds to the appearance of the stack. The arrangement of cones just described gives an upward direction to currents of air crossing the stack, preventing downdrafts and assisting the rise of warm air within by the induced
65 currents. External air enters at *l l*, passes through M and out at *n*, thus creating an upward draft through the body of the stack.

In Fig. 3 the ordinary fixed hood is shown,
70 which is always high enough above the locomotive-stack to clear it.

In Fig. 1 the stack is shown with a drop-section, *a'*, on the bottom, which can be lowered so as to rest upon the locomotive-stack.
75 Said section *a'* is supported by ropes or chains G G, one on each side, which pass over pulleys F F, attached to the roof, whence they are led, after being brought together or united to a single rope, over the pulley J to the counterbalance-weight K. A cross-piece, H, Fig.
80 2, through which they pass or to which they may be secured, keeps them parallel for a short distance from the stack. The bottom of the drop-section *a'* (*vide* Fig. 1) is surrounded
85 by a gutter, *b*, for catching the drip. A short tube, *c*, extends far enough inward to discharge the drip into the interior of the locomotive-stack, thereby preventing injury to the outside of the engine and boiler.
90

The stack is supported by the roof-plate or collar D, the upper part being united thereto by a flange-joint, as shown in Figs. 3 and 5. The collar D is provided with a downwardly-projecting flange, *u*, for excluding wet from
95 the leveling timbers D' D', on which it rests.

In order to prevent the breaking of the lower part of the stack (shown in Figs. 1, 2, and 3) in case the locomotive were moved, without raising the drop-section *a'*, the lower
100 part of the stack is swung from a pivot, E, which passes through the collar D and the up-

per end of the lower portion of the stack. The lower flange of collar D is made elliptical or enough larger than the pipe to allow the latter to swing clear of the engine even if the drop-section a^3 be not raised, while the upper flange is made circular to fit the pipe-section, as seen in Fig. 7. Straps V V, suspended from the pivot E and bent at their lower ends under the edge of lowest section, a^2 , form an additional bond for holding the swing-sections together. A damper—such as R, Fig. 4—may be inserted, if desired.

I claim—

In a smoke-stack, the combination of a roof-plate or collar, the fixed upper portion of the stack which rests thereon, and the swinging lower portion, which is pivoted to said roof-plate and is provided at the bottom with a telescopic drop-section, substantially as described.

CHARLES S. ROE.

Witnesses:

P. H. T. MASON,
J. I. VEEDER.