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T. E. ROGERS.
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PATENTED MAR 8 1870

Fig. 1

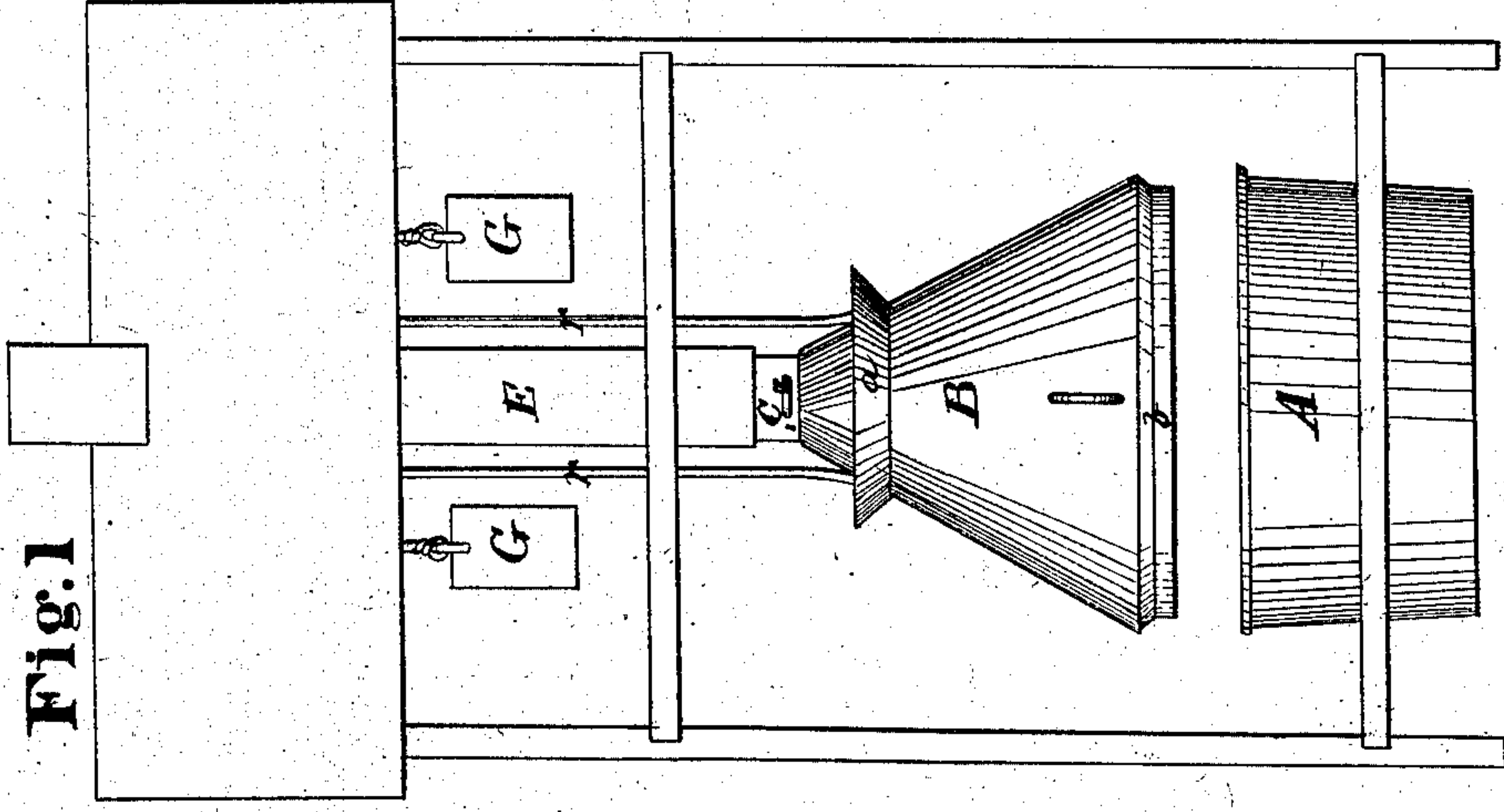
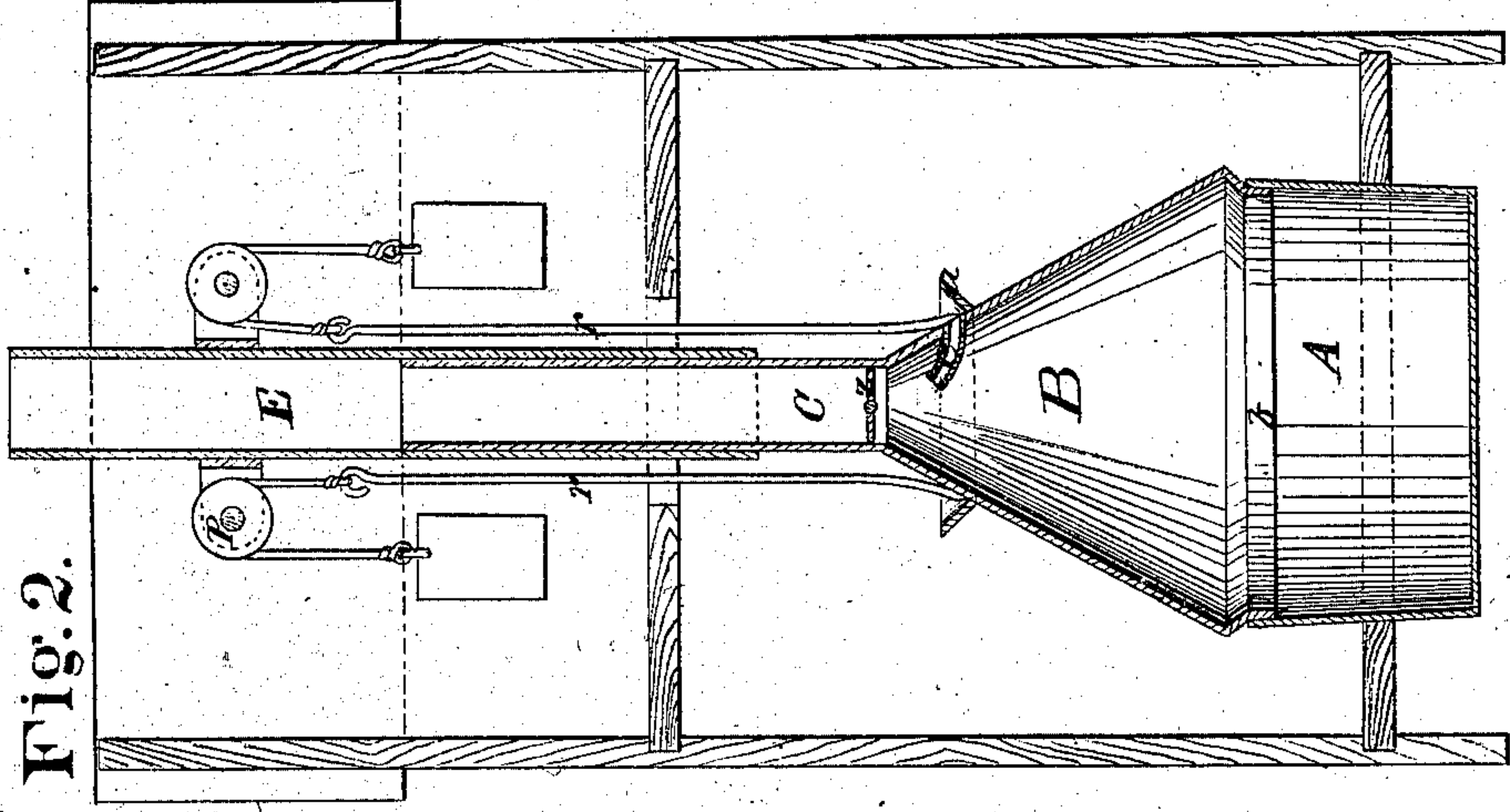


Fig. 2.



WITNESSES

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INVENTOR

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United States Patent Office.

THOMAS E. ROGERS, OF DEXTER, MAINE.

Letters Patent No. 100,670, dated March 8, 1870.

IMPROVEMENT IN DYE-VATS.

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, THOMAS E. ROGERS, of Dexter, in the county of Penobscot, and State of Maine, have invented a new and valuable Improvement in Vats; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is an external view of my invention.

Figure 2 is a central vertical section thereof.

My invention relates to means for conveying steam from the vats of dye-houses and other factories where steam is generated in large quantities, and consists, mainly, in the construction of a counterbalanced conical top to the dye-vat, provided with an escape-pipe, and arranged to prevent the escape of steam from the vat into the dye-room when the liquor is boiling.

The letter A of the drawings designates the vat.

B, the conical cover thereof, arranged like an inverted funnel, and provided with an escape-pipe, C.

The cylindrical bottom *b* of the cover B is arranged to fit inside the vat, so that when the solution therein is boiling, the liquor condensed on the interior wall of the funnel will be conveyed back into the vat. The escape-pipe C, from the top of the cover B, is adapted to slide up and down within the long shaft or pipe E, whereby the steam is conveyed out of the factory through the roof.

Counterbalancing weights G G are attached to the cover B by means of the rods *r r*, and ropes or chains passing over the pulleys *p p*, fixed to the sides of the pipe E. By this means the vat-cover, although of great weight, may be handled with facility when it is necessary to raise the same to turn the wool or cotton in the liquor.

In order to catch the liquor which condenses on the wall of the pipe E, and trickles down the outside of the pipe C, a cup or conical flanch, *a*, is formed around the cover B, near its top. The condensed fluid is con-

veyed back within the vat by the bent tube *c*, arranged to have its interior end higher than the opening through the wall of the cover, and lower than the upper edge of the cup *a*.

The damper *z* is arranged at the top of the conical cover B, in the escape-pipe C.

The operation of my apparatus may be thus described:

After the vat is filled, and heat applied, the cover B is pulled down to close the vat, and the damper *z* turned to prevent the heat from passing off. When the liquor is brought to a boil, the damper is opened to let the steam pass off. The cover can now be raised to admit the wool or other material to be colored. Then the cover is brought down, and the vat closed until the wool needs to be turned or broken. While this operation is being performed some steam will escape, but not much, as the cover and pipes are at steam heat, and before they become cooled the turning will be done and the cover drawn down. The bent tube *c* being always filled with water, no vapor can pass out thereby.

Should the dye-house be but one story high, the escape-pipe C may be made long enough to project through the roof, and the pipe E dispensed with.

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

1. The counterbalanced vat-cover B, provided with sliding escape-pipe C and damper *z*, as specified.
2. The conical vat-cover herein described, counterbalanced by the weight or weights G, arranged with its lower edge to descend inside the vat, and provided with an external receiving-flanch, bent tube, and escape-pipe C, with damper *z* arranged to slide within a fixed pipe, E, as specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

THOS. E. ROGERS.

Witnesses:

ISAAC M. RUSS,
JETHRO GOODWIN.