(No Model.)

W. H. PAGE.

HEATING APPARATUS.

No. 547,677. Patented Oct. 8. 1895.

Fig. I.

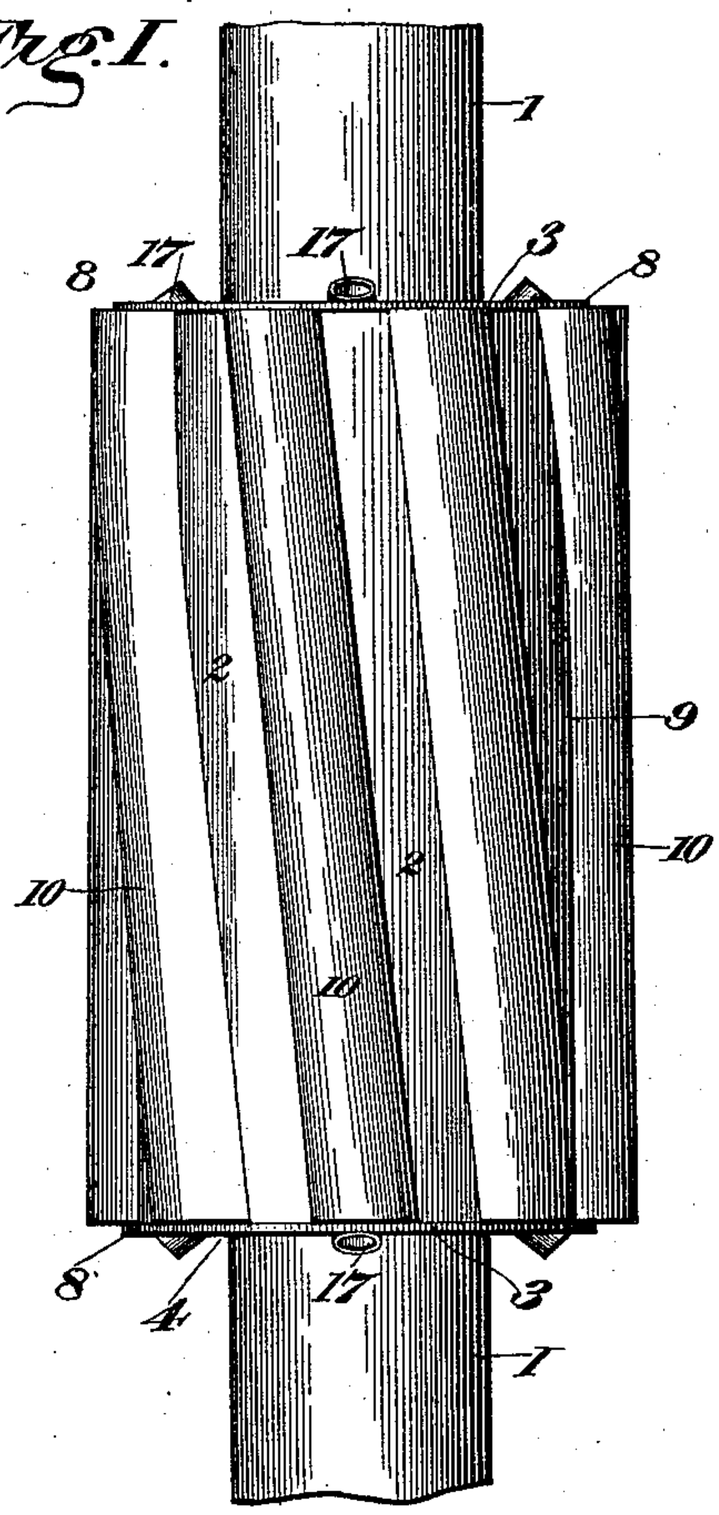


Fig. III.

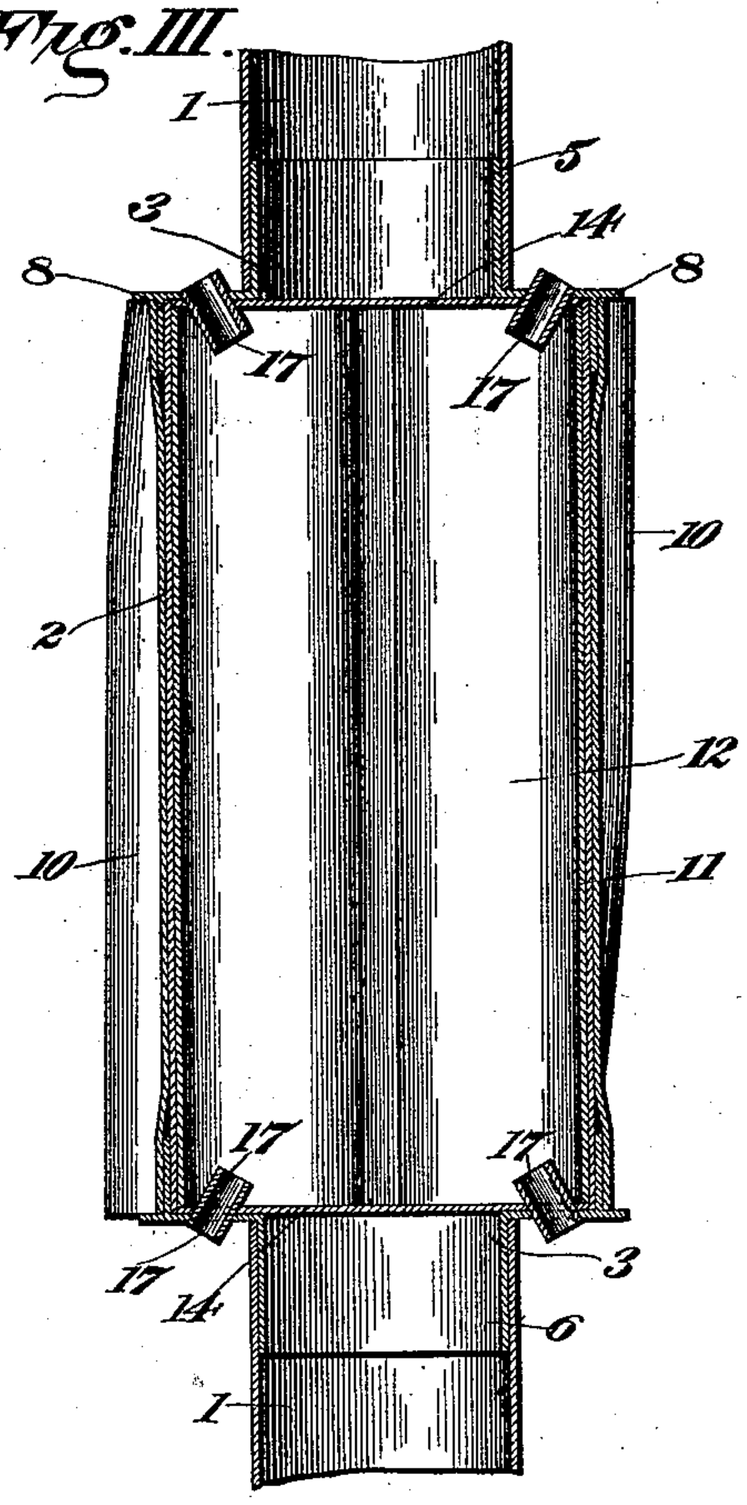


Fig. II.

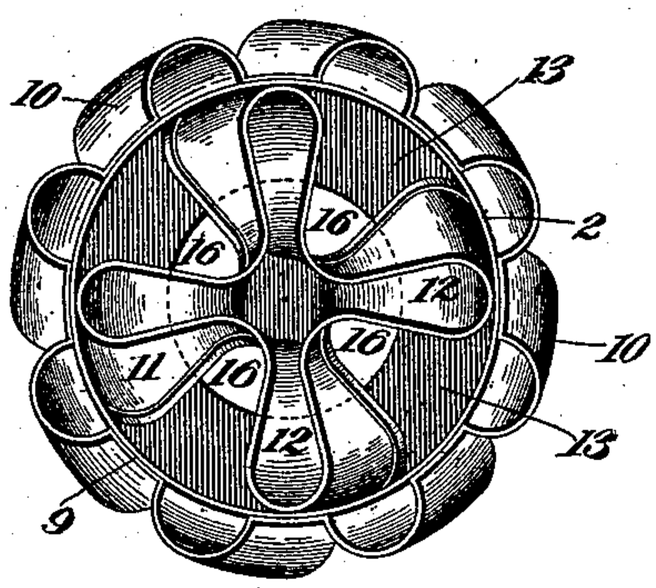
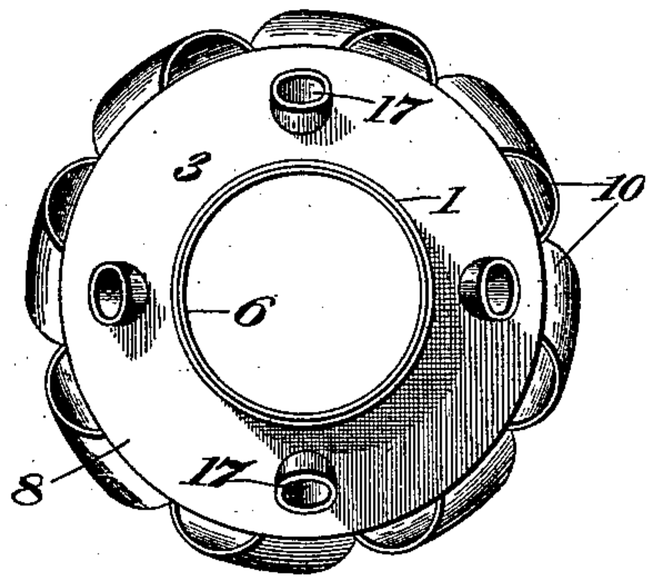


Fig. IV.



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UNITED STATES PATENT OFFICE.

WILLIAM H. PAGE, OF BASIC CITY, VIRGINIA.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 547,677, dated October 8, 1895.

Application filed November 23, 1894. Serial No. 529,731. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PAGE, of Basic City, county of Augusta, State of Virginia, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved apparatus for more economically utilizing the waste products of combustion, that are ordinarily allowed to escape hot through a stovepipe, than by the contrivances now used.

In the accompanying drawings, Figure I is is a side elevation of my heating apparatus complete and in its preferred form. Fig. II is a top plan view with the upper cap removed. Fig. III is a central vertical section thereof. Fig. IV is an end view.

Referring to the figures on the drawings, 1 indicates the two sections of an ordinary stovepipe above and below my apparatus, the latter forming a connection between them and constituting in effect a drum of special construction.

2 indicates the side wall of my drum, to which top and bottom caps 3 and 4, respectively, are secured by air-tight joints. The drum is, as usual, made of larger diameter than the stovepipe and is joined thereto by collars 5 and 6, respectively, that project from the top and bottom caps, respectively. The perimeters of the top and bottom caps, respectively, preferably project slightly beyond the wall of the drum, as indicated at 8, and are designed to support a fluted envelope 9. This envelope is preferably made of sheet metal of a width sufficient to fill the space between the edges of the caps, as illustrated. The flutings 10 in the envelope are preferably arranged spirally, so as to somewhat impede the passage of air through them, and constitute heating-passages through which the outside air of a room may be passed and heated against the wall of the drum, which the envelope surrounds.

Within the drum I provide a sheet-metal partition 11, preferably shaped substantially as illustrated, so as to define an interior air-heating space or chamber 12 and exterior smoke-flues 13, defined between the several bends of the partition-wall and the interior of the wall of the drum. By this arrangement the heated products of combustion pass directly in contact with the walls of the exterior and interior of air-heating chambers or passages. The partition-piece 12 is preferably twisted, so as to impart both to the flues and the interior heating-passages a spiral course.

To the top and bottom, respectively, of partition 12 are united by suitable air-tight joints supporting cap-pieces 14, conforming substantially to the shape of the bent partition-piece, thereby at the same time completely excluding access to its interior of the products of combustion in the drum and also defining across the interior ends, respectively, of the collars 5 and 6 smoke-apertures 16, through which the products of combustion may pass. Communication between the interior heating-chamber and the outside air to be heated may be established through tubes 17, passing through air-tight joints in the caps of the drum and air-tight joints in the interior cap-pieces 14 into the interior air-chamber.

In manufacturing my device the parts may be completely constructed and assembled with the exception of one of the caps 3, both of the interior cap-pieces and the other cap being previously assembled. Afterward the cap is set into place and the joints thereof secured from the outside.

It may be observed that the fluted envelope 9, although peculiarly adapted to the arrangement of my drum, may be used independently thereof as an envelope to any stovepipe or drum, and although constituting a distinct feature of my invention may also be regarded as possessing an independent utility.

What I claim is—

1. The combination with a drum, caps and means for uniting said drum to a stovepipe, of an interior partition wall defining an interior air chamber having spiral heating passages and exterior separate spiral smoke flues arranged alternately with the air heating passages, substantially as specified.

2. The combination with a drum and caps having central circular apertures, of an interior partition wall bent to define an interior air chamber having spiral air passages and exterior separate spiral smoke flues, commu-

nication through the apertures in the caps with the smoke flues and air chamber being established and prevented, respectively, and air tubes passing through the cap around the circular aperture, communicating, respectively, with the opposite ends of the air passages, substantially as specified.

3. The combination with a drum and caps, of an interior partition wall and an exterior fluted envelope defining an interior air chamber having spiral air passages, exterior spiral air flues arranged adjacent to the spaces between the air passages of the interior air chamber, intermediate separate spiral smoke flues co-adjacent to the exterior air flues and arranged alternately with the air passages of the interior air chamber, substantially as specified.

4. The combination with a drum and projecting caps, of an envelope confined between the projecting perimeters of said caps and having flutings projecting beyond the edges of the caps and opening into the atmosphere, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

WILLIAM H. PAGE.

Witnesses:
F. M. WHITE,
F. M. HUGHSON.