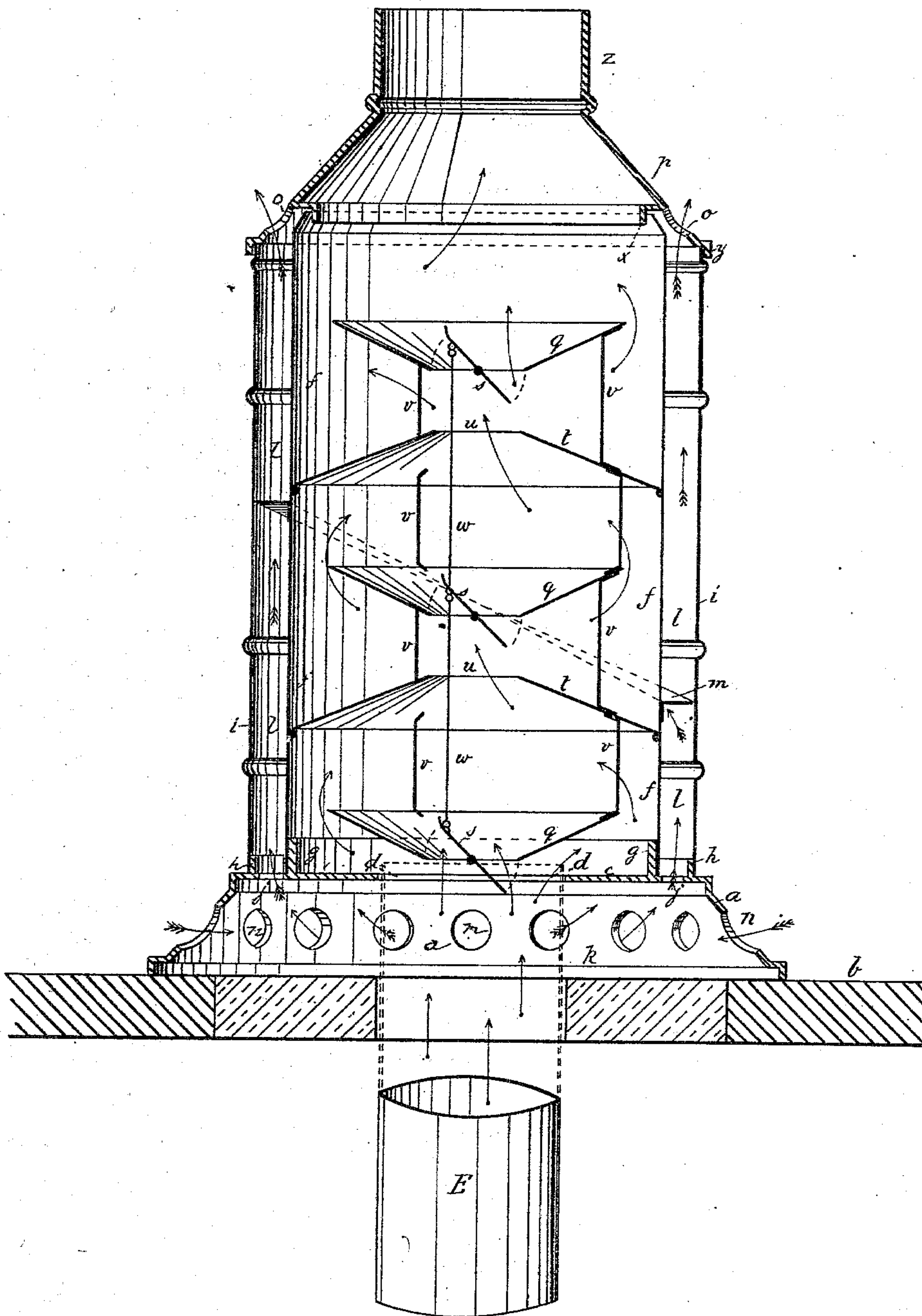


(No Model.)

H. G. WILLIAMS.  
HEATING DRUM.

No. 281,219.

Patented July 10, 1883.



WITNESSES:

*Wm. A. Lowe*  
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# UNITED STATES PATENT OFFICE.

HENRY G. WILLIAMS, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO ALONZO R. MORGAN, OF NEW YORK, N. Y.

## HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 281,219, dated July 10, 1883.

Application filed February 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY G. WILLIAMS, a citizen of the United States, and residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Heating-Drums; of which the following is a specification.

My invention consists of an improved construction of heating-drums for connection with stove-pipes to heat upper rooms, comprising a novel arrangement of smoke-deflectors and valves to cause the hot products of combustion to impinge on the cylinder of the smoke-dome, or not, to heat the air, which is made to circulate around the smoke-dome by an exterior jacket, or allow the said products to pass away directly and without impinging on said drum, all as hereinafter fully described, reference being made to the accompanying drawing, which is a sectional elevation of my improved heating-drum.

I make a cast-metal base, *a*, of suitable form, to rest on the floor *b*, and having a top, *c*, provided with a central hole, *d*, for the connection of the stove-pipe *E*, by which the smoke and other hot products of combustion are to be discharged into the smoke-drum *f*, resting on said top *c*, and connecting with a flange, *g*, thereof to make a proper joint.

At a suitable distance outside of the flange *g* there is another flange, *h*, on the top *c* and near its outer edge, for the connection of the cylinder *i*, which forms the jacket for causing the circulation of air up along and around the smoke-drum to be heated, and between these two flanges said top *c* has a series of openings, *j*, for the air to pass from the space *k* below into the space *l*, between drum *f* and jacket *i*, wherein it is made to pass around the drum *f* in a spiral course by a spiral partition, *m*, for longer and better exposure to the heat than if taking a directly-upward course.

The base *a* has holes *n* for the air to enter into space *k* on its way up through the heater, from which it escapes into the room again through the holes *o* in the dome *p*.

Directly over the mouth of the smoke-pipe *e*, and above the bottom *c* a short distance, there is a sheet-metal deflector, *q*, shaped like a saucer, and having a valve, *s*, in the bottom,

which is to deflect the heat products when the valve is closed, and cause them to impinge directly on the surface of the smoke-drum *f* for an effective application of the heat, said deflectors being of less diameter than the drum, to afford suitable space for the passage of the gas and smoke above it. Over this deflector is another one, *t*, of same form, but inverted, and joining the drum at its periphery to turn the smoke, &c., back to the center, where it passes through an opening, *u*, which is not provided with a valve, it being open at all times for directing the smoke against another deflector, *q*, which again projects the smoke against drum *f*, when its valve is closed, to again intensify the effect of the heat on the drum. Another deflector, *t*, is placed over the second one, *q*, and a third one, *q*, is placed over the upper one, *t*, to repeat the operations described, and others may be added, if preferred.

It will be seen that the deflectors *q*, causing the smoke and hot gases to impinge directly on the surface of the smoke-drum, and deflectors *t*, obstructing the escape directly upward, and causing longer and more intimate contact than would be without them, make the heater more effective than other heaters of the kind.

The small deflectors *q* are connected to the large ones *t*, for support, by the bars *v*, the large ones having support by connection with the smoke-drum.

The valves *s* are connected together by rods *w* so as to be worked by one shaft. They are to be opened when it is desired to let the heat escape directly, and closed when it is desired to utilize it more by heating the air.

The dome *p* has two flanges, *x* and *y*, similar to the base, for the connection of the smoke-drum *f* and jacket *i*, respectively, and it has a collar, *z*, for the connection of the smoke-pipe for conducting the smoke away.

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

1. In a smoke-drum, the combination of the smoke-drum *f*, air-jacket *i*, spiral partition *m*, for causing the air to pass around the drum in which the smoke ascends, the series of diverging deflectors *q*, and the series of converging deflectors *t*, for successively projecting the hot gases against the drum around which the air



to be heated is thus made to pass, substantially as described.

2. The combination, in a heating-drum, of the base *a*, having top *c* and flanges *g* and *h*,  
5 and being provided with the stove-pipe hole *d* and the air-openings *n* and *j*, with the drum *f*, jacket *i*, deflectors *q* and *t*, and the top *p*, said deflectors being arranged to cause the hot products of combustion to traverse the drum  
10 from center to side, and the reverse, alter-

nately, and the top being provided with the flanges *x* and *y* and the air-passages *o*, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing  
15 witnesses.

HENRY G. WILLIAMS.

Witnesses:

W. J. MORGAN,

S. H. MORGAN.