

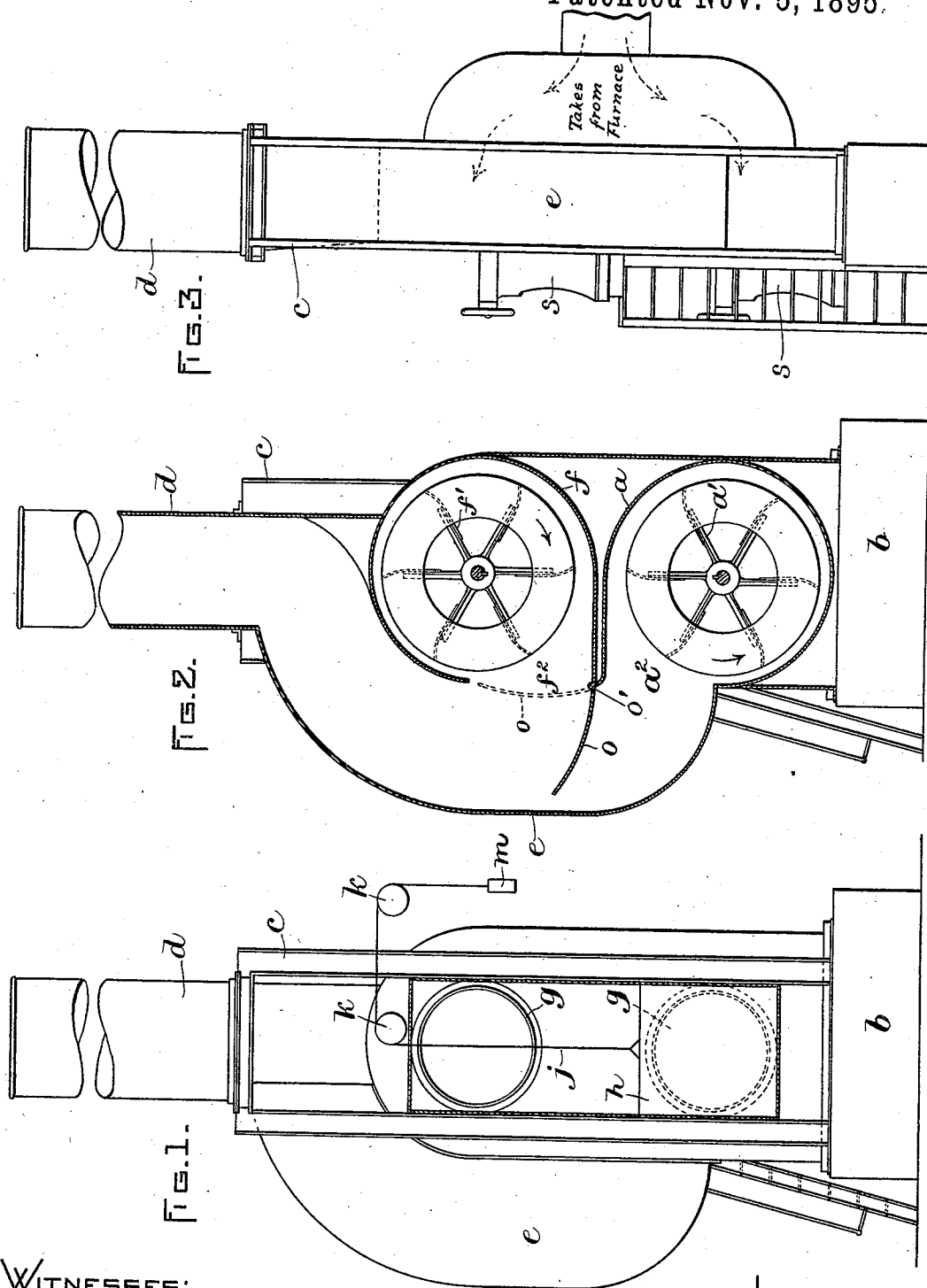
(No Model.)

2 Sheets—Sheet 1.

W. R. RONEY.
INDUCED DRAFT APPARATUS.

No. 549,395.

Patented Nov. 5, 1895.



WITNESSES:
A. D. Hanson
Rollin Abell

INVENTOR:
W. R. Roney
by *Wm. Brown & Co.*
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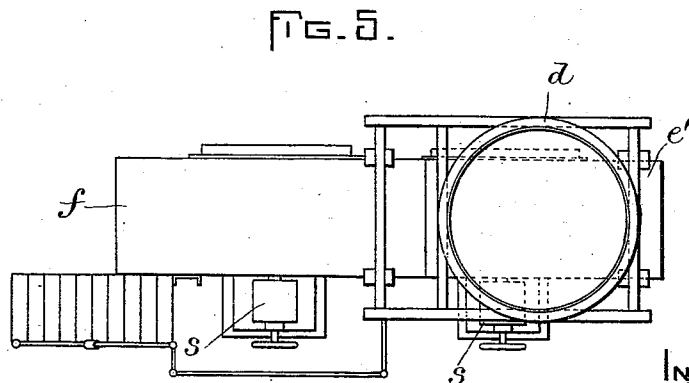
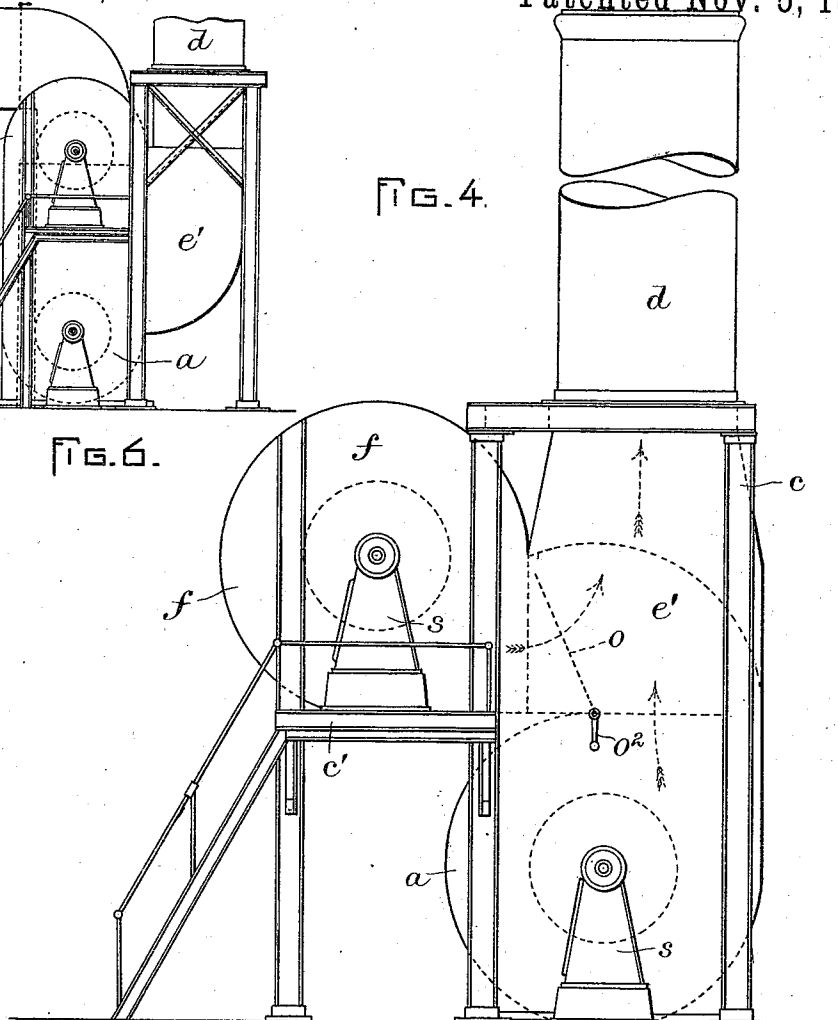
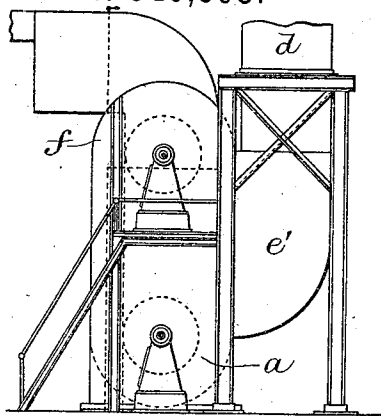
(No Model.)

2 Sheets—Sheet 2.

W. R. RONEY.
INDUCED DRAFT APPARATUS.

No. 549,395.

Patented Nov. 5, 1895.



WITNESSES:

A. D. Harrison
Rollin Abell.

INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM R. RONEY, OF BROOKLINE, MASSACHUSETTS.

INDUCED-DRAFT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 549,395, dated November 5, 1895.

Application filed March 25, 1895. Serial No. 543,020. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. RONEY, of Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Induced-Draft Apparatus, of which the following is a specification.

This invention relates to mechanical exhaust or induced-draft apparatus comprising a suction-fan and flues or conduits connected therewith, the arrangement being such that the fan draws the waste gases from a furnace and discharges them into a stack.

The invention has for its object to provide certain improvements in this class of apparatus looking to compactness of apparatus, economy of space, and increased convenience and efficiency of operation; and it consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation showing the stack, fan-casings, and fans of an induced-draft apparatus provided with my improvements. Fig. 2 represents a vertical section, and Fig. 3 an elevation of the same. Figs. 4 and 5 represent, respectively, a side and a top view showing the upper casing offset from the lower. Fig. 6 represents a side view on a reduced scale, showing a modification.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a fan-casing adapted to contain a rotary exhaust-fan *a'*, which may be of any suitable construction. Said casing is located on a suitable foundation *b*, which may be a pier of masonry, and may be used also to support the metal frame *c*, upon which the stack *d* rests, the casing *a* being located between the side uprights of the said frame.

e represents an outlet passage or flue communicating with the casing *a* and connecting the latter with the stack *d*.

f represents another fan-casing, which is located at a higher point than the casing *a*, and communicates with the flue *e*, through an opening *f'*, immediately above the opening *a'*, which connects the casing *a* with said flue.

In the casing *f* is located a suction-fan *f'*, which may be similar in construction to the

fan *a'*. These fans may be driven independently by small direct-connected engines *s s*, or by any other suitable means.

The casings *a* and *f* have central side openings *g g* communicating with the flues or spaces through which the waste gases pass from the furnaces of the plant, and as it is intended that under ordinary conditions but one of the fans shall be in operation, the other being held in reserve as a relay or substitute, I provide a movable damper *h*, which is adapted to slide in guides on the frame *c*, and is formed to cover either of the openings *g*, the damper being here shown as suspended by a chain *j*, passing over the pulleys *k k*, and provided with a weight *m*, which counterbalances the damper, so that the damper can be adjusted to cover the opening of either casing, leaving the other uncovered, or it may occupy an intermediate position, leaving both openings uncovered.

It will be seen that the described arrangement of the fan-casings, one being located above the other, affords the following advantages:

First. The amount of floor-space occupied is reduced to the minimum, only enough floor area being required to support one casing. Hence the horizontal sectional area occupied by the fan-casings is comparatively small, a feature which is often of considerable importance where the floor-space is limited.

Second. The fans have a direct connection with the stack, the length of said connection being reduced to the minimum by the described arrangement, so that the friction of the flowing volume of gases upon the walls of said flue connection is minimized.

Third. The single damper is enabled to serve for both casings.

o represents a deflecting plate, which is hinged at *o'*, and constitutes an extension or continuation of the lower portion of the casing *f* when adjusted, as shown in full lines in Fig. 2, said deflector facilitating the passage of the gases from the casing *f* to the stack by preventing them from eddying downward into the portion of the flue below said deflector. Hence said gases pass easily and naturally upward and are not retarded by any downward eddy. When the fan *f'* is not in use, the deflector *o* may be turned upwardly,

as shown in dotted lines in Fig. 2, the deflector being formed so that it nearly closes the opening f^2 , leaving a sufficient crevice to prevent the accumulation of gases in the casing f in sufficient quantity to render an explosion liable. The deflector o is also arranged so that when occupying the position shown in full lines, as when the fan a' is not in use, it will leave a sufficient opening in the flue to permit the escape of gases from the casing a for the same purpose.

In Figs. 4 and 5 I show the upper fan-casing f offset from the lower casing a and supported by an extension c' of the supporting-frame c , said extension being formed to afford a passage under it beside the casing a . By this arrangement I am enabled to connect the casings with the stack by a single flue e' , which is even shorter and more direct than the flue e , (shown in Figs. 1, 2, and 3,) so that in the matter of decrease of frictional resistance to the movement of the gases from the fans to the stack the arrangement shown in Figs. 4 and 5 is preferable to that first described, both fans discharging almost directly into the stack.

The flue shown in Fig. 4 should be provided with a damper or deflector o , arranged to partially close the outlet of either casing, as shown in Fig. 2. An operating-crank o^2 may be affixed to the hinged edge of the deflector.

In Fig. 6 I show the casing f directly over the casing a and the stack d directly over the flue e' , both the stack and flue being offset from the casings.

I claim—

1. An induced-draft apparatus comprising in its construction two fan-casings located at different heights and each containing an exhaust-fan and having their outlet ports in close proximity to each other, a stack located

above said casings, and a single flue connecting the stack with both outlet ports.

2. An induced-draft apparatus comprising in its construction two fan-casings located at different heights and each containing an exhaust-fan and having their outlet ports in close proximity to each other, a supporting frame embracing said casings, a stack supported by said frame above the casings, and a single flue connecting the stack with both outlet ports.

3. An induced-draft apparatus comprising in its construction two fan-casings located at different heights and each containing an exhaust-fan and having their outlet ports in close proximity to each other, a stack located above said casings, a single flue connecting the stack with both outlet ports, each casing having a central inlet-port or opening, a movable damper adapted to cover either of said openings, and guides arranged to hold said damper over either opening.

4. An induced-draft apparatus comprising in its construction two fan-casings located at different heights and each containing an exhaust-fan, a stack located above said casings, a single flue connecting the stack with the outlet ports or passageways of both casings, and a hinged plate or deflector located in the flue between said outlet ports and having a length or diameter less than the size of the passageways or ports, whereby a complete closing of either passageway is prevented.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 20th day of March, A. D. 1895.

WILLIAM R. RONEY.

Witnesses:

A. D. HARRISON,
ROLLIN ABELL.