

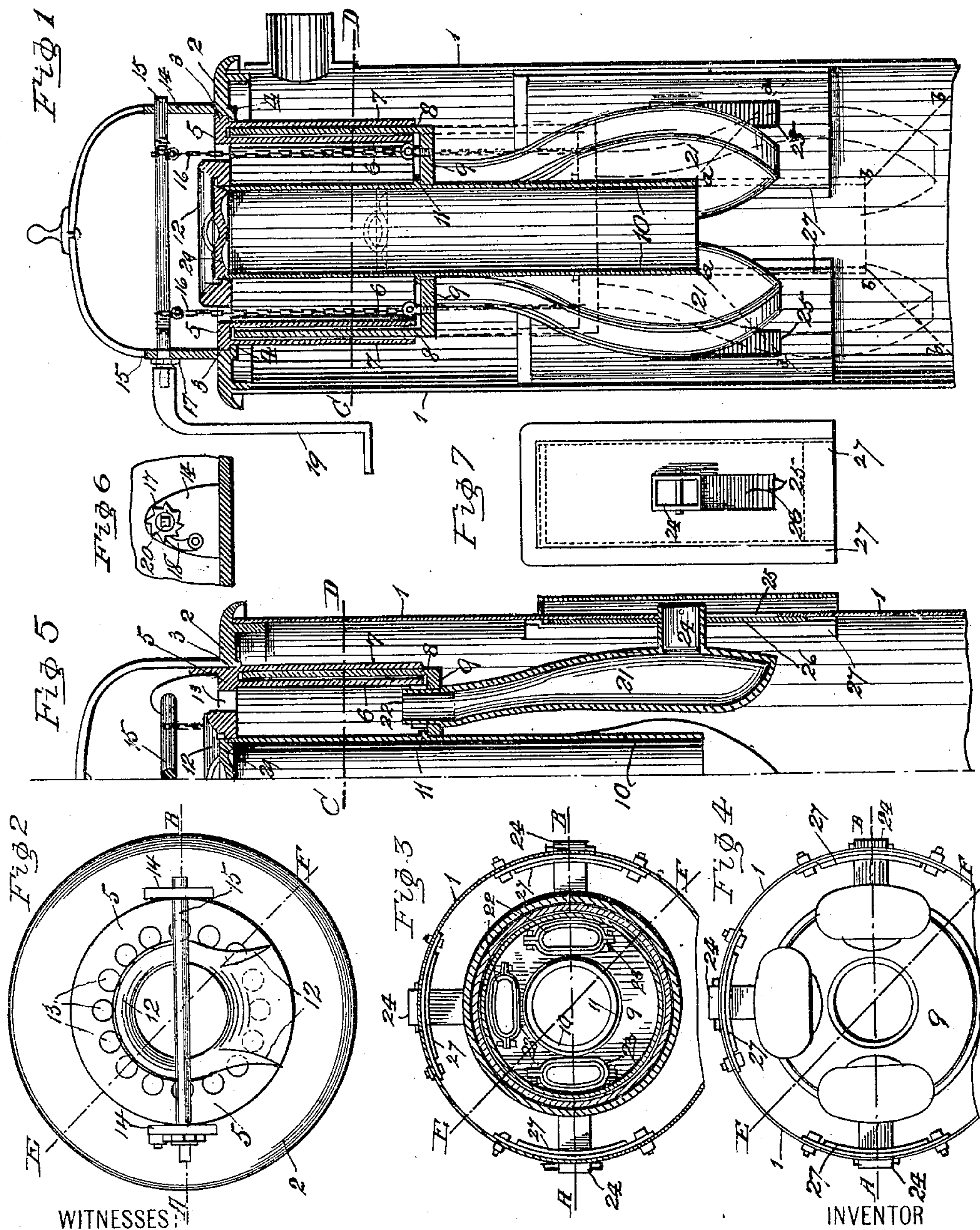
No. 825,533.

PATENTED JULY 10, 1906.

T. F. HATTON.

HOT AIR ATTACHMENT FOR HEATING STOVES.

APPLICATION FILED FEB. 14, 1906.



J. M. Springer.  
Francis M. Springer

Thomas F. Hatton  
BY  
Thompson & Bell  
ATTORNEY



# UNITED STATES PATENT OFFICE.

THOMAS F. HATTON, OF INDIANAPOLIS, INDIANA.

## HOT-AIR ATTACHMENT FOR HEATING-STOVES.

No. 825,533.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed February 14, 1906. Serial No. 301,067.

*To all whom it may concern:*

Be it known that I, THOMAS F. HATTON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Hot-Air Attachments for Heating-Stoves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in heating-stoves, as will be hereinafter described, and particularly pointed out in the claims.

The object of this invention is to provide an air heating and circulating means that may be applied to the ordinary or any heating-stove, whereby the air passing through or circulating through the air-heating means will be thoroughly and effectually heated with a minimum expenditure of fuel, to provide means whereby the said air-heating means will automatically descend as the fire in the stove burns down, so that the depending air-heating tubes of the air-heating means will at all times be in contact with the fire in the stove, also to provide means whereby either anthracite or bituminous coal may be burned in the stove equipped with this apparatus with equal facility. I attain these objects by means of the heating-stove attachment illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a broken-off sectional elevational view of the top portion of a heating-stove, showing my invention of an air-heating and air-circulating means applied thereto and taken through the line A B. (See Figs. 2, 3, and 4.) Fig. 2 is a top view of the same with the top cover thereof removed. Fig. 3 is a transverse sectional view taken through the line C D. (See Figs. 3 and 5.) Fig. 4 is an inverted plan view of the stove. Fig. 5 is a broken half-sectional elevational view of the top portion of the heating-stove, taken through the line E F. (See Figs. 2, 3, and 4.) Fig. 6 is a broken detail sectional view of a portion of the top of the stove, showing one of the chain-shaft-bearing standards and pawl-and-ratchet mechanism thereof; and Fig. 7 is a detail view of one of the sliding panels, whereby the openings through which the air-inlets of the air-heating tubes project are closed.

The stove to which this apparatus is ap-

plied may be of any suitable type of heating-stove provided with a casing 1, the lower or grate portion of which is not shown, as the same is not necessary to a proper understanding of my invention and its application to a heating-stove, since any kind of a grate and base may be used in connection with the heating-stove to which my attachment is applied without affecting it in the least.

The hot-air chamber, which is the main feature of this attachment for stoves, comprises an upper removable stationary and a lower movable or descending telescoping portion, and said hot-air chamber is situated at the top of the stove to project downwardly into the interior thereof. In order to apply this attachment to a heating-stove, the top 2 thereof is provided with a cylindrical bore or opening sufficiently large to permit said air-chamber to be passed therethrough. The top portion of the hot-air chamber is provided with a supporting-flange 3, which is adapted to loosely fit in the bore of said top and rest on the flange or supporting-lip 4, so that the top stationary portion of said hot-air chamber is removable.

The top or stationary portion of the hot-air chamber comprises the top 5 and the inner and outer cylindrical depending walls 6 and 7, between which the cylindrical wall 8 of the movable or bottom portion of the hot-air chamber loosely fits to freely slide or telescope.

The movable or descending bottom portion of the hot-air chamber is provided with a closing base or bottom 9, which latter is provided with a central opening of a diameter or size sufficiently large to loosely receive the bottom depending portion of the removable magazine 10.

The top 5 of the stationary top portion of the hot-air chamber is provided with a similar central bore through which the top portion of the coal-magazine 10 is adapted to project and to loosely fit therein, and the same is of sufficient diameter or size to permit said magazine to be passed therethrough when it is required to remove the same.

The coal-magazine 10 is provided with a supporting-collar 11, which is situated at a point intermediate its ends, and said collar is provided for the purpose of resting or bearing on the base or bottom 9 of the lower movable or telescoping portion of the hot-air chamber to support said magazine in proper position.

The top 5 of the stationary top portion of the



hot-air chamber is provided with a coal-chute 12, which is formed integral with said top and whereby hard coal is fed into the magazine 10, and said top 5 is provided with air-outlets 13, which permit the escape of the heated air from the interior of the hot-air chamber.

On the stove-top 2 are the standard shaft-bearings 14, in which the winding-shaft 15 is journaled, and connected to said shaft are the supporting-chains 16, which depend therefrom to be connected to the closing base or bottom 9 of the movable or descending telescoping portion of the hot-air chamber.

The shaft 15 is provided with a ratchet 17 and a pawl 18, whereby said shaft may be locked to retain the movable or descending telescoping portion of the hot-air chamber at any point of its travel. A suitable crank 19 is adapted to be applied to the square end 20 of said winding-shaft 15, whereby to turn the latter to elevate the movable or descending telescoping portion of the hot-air chamber.

The depending air-heating tubes 21 have their top or neck ends 22 fitted into receiving-openings formed in the bottom 9 of the movable or descending telescoping portion of the hot-air chamber, and said necks are prolonged to receive their retaining-straps or clamping-collars 23, whereby said necks are maintained securely in place. Air-inlet ducts or passages 24 are situated at or near the bottom sides of said depending tubes and the same have their open ends projecting through the cylindrical casing 1 of the stove to receive the exterior air to be heated.

It will be noted that the cylindrical casing of the stove is provided with vertical slots 25, one for each tube-inlet duct, through which the duct or air-inlets of the depending air-heating tubes 21 project, which slots are of a length to permit said ducts to descend their full extent—that is, an extent equal to the travel of the movable or descending telescoping portion of the hot-air chamber—and means must be provided whereby the open portion of this slot be closed to prevent the gases and smoke resulting from the combustion of the fuel within the stove escaping into the room wherein the stove is situated. To accomplish this, I provide the sliding covers or panels 26, which covers or panels are provided with duct-receiving openings, each of which is adapted to receive and to accurately fit its air-inlet duct 24, and said sliding covers or panels are adapted to slide vertically in their guides 27, which latter are secured in any suitable manner to the interior of the cylindrical casing 1 of the stove, and the said ducts are secured to said sliding covers or panels by any suitable means, as by a pin or key, as shown in the drawings.

The magazine 10 is provided with a lid 29, which is adapted to fit the open top of the magazine 10, thereby effectually preventing the escape of gas generated from the coal

contained in the magazine into the hot-air chamber and from thence into the room.

When it is desirable to burn soft or bituminous coal in stoves equipped with this type of air heating and circulating means or attachment, the anthracite or hard coal magazine 10 is removed, and the openings in the top 5 and the bottom 9 of the hot-air chamber are closed by suitable close-fitting lids to prevent gas or smoke entering into said hot-air chamber and being discharged therefrom into the room in which the stove is situated.

The operation of the air heating and circulating device is as follows: Suppose, first, that it is required to burn hard or anthracite coal in the stove. Then the magazine 10 is situated in the hot-air chamber, as shown, with its bottom depending end projecting below the bottom 9 of the movable or descending telescoping end of the hot-air chamber, and the said bottom movable or descending telescoping portion of the hot-air chamber is elevated to its higher position, as shown in Figs. 1 and 5, by the winding-shaft 15, and said shaft is locked to retain said movable or descending telescoping bottom portion of said hot-air chamber by the pawl and ratchet 17 and 18. A fire is next made in the stove, after which the magazine 10 is charged with coal, and the closing-lid 29 is applied to the top open end thereof for the purpose hereinbefore stated. The pawl 18 is now moved out of engagement with its ratchet 17 to release the winding-shaft 15 to permit the movable or descending telescoping bottom portion of the hot-air chamber to descend till the sharp bottom ends of the depending air-heating tubes 21 not only contact with but rest upon the fire to be maintained at a red-hot heat. It will be readily seen that as the fire in the stove gradually burns down the ends of the said depending tubes 21 will descend in the same proportion—that is, will follow the fire as it burns down—said tubes being directly connected to the movable or descending telescoping bottom portion of the hot-air chamber at their neck ends.

When it is desired to burn soft or bituminous coal in the stove, the magazine 10 only is removed and the magazine-opening in the bottom of the hot-air chamber closed by suitable cover-lids, as previously explained, and the attachment is arranged as previously described for hard coal. It will be understood that soft coal is supplied to the stove through the usual door-opening.

Referring to Fig. 1, the depending hot-air tubes 21 and the movable bottom or descending telescoping portion of the hot-air chamber are shown in their higher or top positions, at which positions of said parts the fire in the stove is supposed to be built up to the dotted lines *a a*, and the said tubes being connected to the descending telescoping portion of said hot-air chamber the said tubes, together with



their hot-air chamber, descend or follow the burning fire as the latter burns lower, and finally reaches the lines *b b*, at which position of said fire said depending tubes and the movable or descending telescoping portion of the hot-air chamber have reached their lower positions, as shown in dotted lines.

I claim—

1. In a heating-stove, the combination with the top thereof, of a fixed chamber situated within said stove and depending from the top thereof, a lower movable or descending telescoping chamber having its top open end adapted to receive said fixed chamber to slide vertically thereon, air-heating tubes depending from the closed bottom end of said movable or descending telescoping chamber and connected with the interior of the latter, suitable air-inlet ducts extending from the sides of said depending tubes near the bottom ends of the latter, and means for permitting the air-heating tubes to fall as the fire in the stove burns lower.

2. In a heating-stove, the combination with the top thereof having a central hot-air-chamber-receiving opening, of a hot-air chamber comprising an upper stationary portion removably supported in said stove-top opening, and a lower movable or descending telescoping portion having its top end open and its bottom end closed, said movable or descending telescoping portion adapted to receive said top stationary portion of said hot-air chamber to slide vertically thereon, air-heating tubes having their top ends open and their bottom ends closed depending from the bottom of said movable or descending telescoping portion of said hot-air chamber, and having their top open ends connected with the interior of said chamber, air-inlet ducts extending from the sides of said air-heating tubes and situated near the bottom closed ends thereof and having their inlet ends situated exteriorly of the stove, and means for permitting the air-heating tubes to fall as the fire in the stove burns lower.

3. In a heating-stove, the combination with the top thereof having a central hot-air-chamber-receiving opening, of a hot-air chamber comprising an upper stationary portion removably supported in said top opening, said upper stationary portion having an open bottom and provided with inner and outer depending walls, and a lower descending telescoping portion having open top and closed bottom ends, said movable or descending portion adapted to receive said inner wall of said stationary portion and arranged to slide vertically thereon and between said inner and outer walls of said stationary portion, air-heating tubes having their top ends open and connecting with said hot-air chamber and their bottom ends closed depending from the bottom end of said movable or descending telescoping portion of said hot-air

chamber, air-inlet ducts extending from the sides of said depending tubes and situated at or near the bottom closed ends of said tubes and having their air-inlet ends situated exteriorly of the stove, and means for permitting the air-heating tubes to fall as the fire in the stove burns lower.

4. In a heating-stove, the combination with the top thereof having a central hot-air-chamber-receiving opening, of a hot-air chamber comprising an upper stationary portion removably supported in said top opening, said upper portion having an open bottom and provided with inner and outer depending walls, and a movable or lower descending telescoping portion having open top and closed bottom ends, said movable or descending portion adapted to receive said inner wall of said stationary portion and arranged to slide thereon between said inner and outer walls of said stationary portion, air-tubes, having their top ends open and connected with the interior of said hot-air chamber and their bottom ends closed, depending from the bottom end of said movable or descending telescoping portion of said hot-air chamber, air-inlet ducts extending from the sides of said depending tubes and situated at or near the bottom closed ends thereof and having their air-inlet ends situated exteriorly of the stove, a suitable winding-shaft situated above the top of the stove, suitable shaft-bearings, a pair of chains depending from said shaft into the interior of said hot-air chamber and connected at their bottom ends to the bottom of said movable or descending telescoping portion of said hot-air chamber, and means for controlling and checking the motion of said winding-shaft.

5. In a heating-stove, the combination with the top thereof having a central hot-air-chamber-receiving opening, of a hot-air chamber comprising, an upper stationary portion removably supported in said top opening, said upper portion having an open bottom and provided with inner and outer concentric depending walls, and a movable or lower descending telescoping portion having open top and closed bottom ends, said movable or descending telescoping portion adapted to receive said inner wall of said stationary portion and arranged to slide thereon and between said inner and outer walls of said stationary portion, air-tubes, having their top ends open and connected with the interior of said hot-air chamber and having their bottom ends closed, depending from the bottom of said movable or descending telescoping portion of said hot-air chamber, air-inlet ducts extending from the sides of said depending air-heating tubes and situated at or near the bottom closed ends of said tubes and having their outer air-inlet ends situated exteriorly of the stove, a suitable winding-



shaft situated above the top of said stove, suitable winding-shaft bearings, a pair of chains depending from said shaft into the interior of said hot-air chamber and connected at their lower ends to the bottom of said movable or descending telescoping portion of said hot-air chamber, and a winding-shaft ratchet and pawl whereby said winding-shaft may be held at rest.

6. In a heating-stove, the combination with the top thereof, of a fixed air-heating chamber situated within said stove and depending from the top thereof and a lower movable or descending or telescoping portion having its top end open and adapted to receive said fixed portion or chamber and to slide vertically thereon, air-heating tubes depending from the closed bottom end of said movable or descending telescoping portion or chamber and connected at their top ends with the interior of the latter, suitable air-inlet ducts extending from the sides of said tubes and situated near the bottom ends thereof, said ducts extending outwardly from said tubes through the casing of said stove and panels or sliding doors connected to said ducts to move therewith and situated directly over said openings in said casing and suitable panel or sliding door-guides.

7. In a heating-stove, the combination, with the top thereof having a central hot-air-chamber-receiving opening, of a hot-air chamber comprising an upper stationary portion removably supported in said top open-

ing, said upper portion having an open bottom end and provided with inner and outer depending walls, and a movable or descending telescoping portion having open top and closed bottom ends, said movable or descending portion adapted to receive said inner wall of said stationary portion and arranged to slide thereon and between said inner and outer walls of said stationary portion, said bottom of said movable or descending telescoping portion having a central coal-magazine-receiving opening, a magazine having an open bottom and a covered top situated in said opening of said movable or descending telescoping portion and removably situated therein, air-heating tubes having their top ends open and connected with the interior of said hot-air chamber and their bottom ends closed, depending from the bottom end of said movable or descending telescoping portion of said hot-air chamber, air-inlet ducts extending from the sides of said depending tubes and situated at or near the bottom closed ends thereof and having their inlet ends situated exteriorly of the stove, and means for controlling and checking the motion of said winding-shaft.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS F. HATTON.

Witnesses:

FRANCIS M. SPRINGER,  
THOMPSON R. BELL.