Hailes Vs. Van Wormer

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Appellant : Hailes

Respondent : Van Wormer

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Hailes v. Van Wormer

87 U.S. (20 Wall.) 353

APPEAL FROM THE CIRCUIT COURT FOR

THE NORTHERN DISTRICT OF NEW YORK

SYLLABUS

1. A new combination, if it produces new and useful results, is patentable though all the constituents of the combination were well known and in common use before the combination was made. But the results must be a product of the *combination,*

and not a mere *aggregate* of several results, each the complete product of one of the combined elements.

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2. Merely bringing old devices into juxtaposition and there allowing each to work out its own effect without the production of something novel is not invention.

3. No one, by bringing together several old devices without producing a new and useful result, the joint product of the elements of the combination and something more than an aggregate of old results, can acquire a right to prevent others from using the same devices, either singly or in other combinations, or, even if a new and useful result is obtained, can prevent others from using some of the devices, omitting others, in combination.

Hailes & Treadwell, manufacturers of stoves, filed a bill in the court below against Van Wormer, engaged in the same business, to enjoin these last from making a certain sort of coal stoves called "base-burning," "self-feeding," or "reservoir" stoves. These stoves are so called because they have a magazine or reservoir suspended above the fire pot which may be filled with coal at its upper extremity. This, when filled, is closed by a cover. The lower end of the reservoir or feeder is left open, and as the coal in the fire pot is consumed, that in the reservoir falls and supplies the place of that consumed, the combustion being only in the fire pot and not in the reservoir. Every reader, on looking at the diagrams on pages 87 U. S. 355 , 87 U. S. 356 and 87 U. S. 357 , will recognize the sort of stove referred to.

The value of this sort of stove, which had been in large use in this country for some time, was not a matter of question. But persons were not all agreed as to what was the most economical and otherwise the most advantageous mode of embodying the principle which made the distinguishing characteristic of the stoves.

The bill was founded on two letters patent, one reissued patent, granted to the complainants, February 3, 1863, for an "improvement in stoves," the original

patent having been granted to Hailes & Treadwell, as inventors, May 7, 1861, the other a patent granted to one Mead & Hailes, assignees of Hailes & Treadwell, as inventors, August 11, 1863, for an "improvement in coal stoves," the interest of Mead in

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image:a

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image:b

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image:c

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which patent had become vested in the complainant Treadwell.

The specification of the reissue of February 3, 1863, said:

"Our experience in this class of stoves [base-burning or reservoir stoves] is that the most beneficial effects are to be secured from an organization which does not pass the products of combustion up, around, and over the top of the coal supply reservoir so as to heat a surrounding jacket thereof, but heats a circulating or ascending body of air by means of radiated heat from the fire pot, and at the same time heats the base of the stove by means of direct heat circulating through descending flues which lead into the ash-pit or around it, and to the smoke and draft flue; also that the greatest economy, considering the increased benefit secured from supplying coal continuously out of a reservoir, is attained with an

arrangement which holds the superincumbent body of coal in suspension, such arrangement being a reservoir with a contracted discharge extending slightly down into a flaring or enlarged fire pot, around or above the whole upper edge of which, outside of the contracted discharge of the coal supply reservoir, the flame is allowed to circulate, and therefore caused to descend and circulate around or under the base portion of the stove in its passage to the smoke and draft flue."

"The effect of the first-named plan is to husband the radiated heat and use it for the purpose of warming the upper part of the stove and the room in which it is situated, as well as for heating air for warming rooms above, if desirable, and at the same time to so confine the direct fire heat and keep it in contact with the base portion of the stove a sufficient length of time as to insure the warming of the same to a comfortable degree."

"The effect of the second plan is to relieve the incandescent coal from the weight of the body of superincumbent coal, and thus obviate a compression of the incandescent coal in the fire pot and secure for the flame a free expansion in a lively and brilliant manner, and thus enable it to act with great heating effect upon the lower portion of the stove in its passage to the smoke and draft flue."

"With the view of organizing a stove or heater which operates on the base-burning or coal supply reservoir principle and at the same time embraces the two plans of operation above referred to, we have devised the following plan of construction: "

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"A is a base of our stove, constructed with a chamber B, which extends around and beneath the top plate of the said base. In this chamber, air may be admitted through the front passage A. Upon the top plate of the base A is erected a support C, for horizontal grate D, and a fire pot E, as shown. The support forms a chamber below the grate, and out of the front of the support"

image:d

"a portion of metal is removed as at *b* so that air to the fire on the grate may have free access when the ordinary regulator or damper is open. In order to insure the passage of the air to the fire only from below the grate, a cut-off, *c* , extends out from the upper front part of the support C and rests upon the two lateral stops *d* , which extend out from the front of the support, as shown. The top plate of the base, at points outside of the support C, is perforated with three apertures, F, F1, F2, which communicate

with the chamber B. The apertures F1, F2, have vertical pipes F3, F4, placed in or around them, while the aperture F has the draft and smoke pipe or flue F5 placed in or around it, as shown. The pipes F3, F4, extend up to the upper rim of the fire pot E and connect to perforated flanges or ears of said pot, so that a space, *f* , exists between the pipes and fire pot, as shown. The outer portion of the top edge of the pipes F3, F4, protrudes above the flanges to a slight degree, as indicated at *g g.* "

"The fire pot flares at top and contracts at its bottom; the flare and contraction are gradual. The section of the metal of which the pot is made shows a gradual decrease in thickness from the center of the depth of the pot in an up and downward direction, as indicated at 1, 2, 3. This construction or form of the metal insures an equable heating of the pot at all parts, and a uniform expansion and contraction by the principle of conduction, the thickest and most intensely heated portion imparting to the thinnest or less intensely heated portions a large amount of its heat on the principle just mentioned."

"Above the fire pot and vertical pipes the coal supply reservoir G is arranged. The reservoir is constructed with a flange, *h* , at its base, said flange turning down at its outer edge so as to form a right angle, or thereabouts, as shown at *i* . The rim, *i* , of the flange fits down upon the rim of the fire pot and encloses the top opening of the fire pot of the vertical pipes within a continuous chamber J, as represented, the said chamber constituting an enlargement to the upper portion of the fire pot, as it were, and thus giving increased room for the expansion of the flame."

"The diameter of the coal reservoir is decreased below the point where the body of supply coal is suspended by means of an extension or ring flange *k* , which is in form of an inverted frustum of a cone. This flange also serves, in connection with a detachable ring *v* , which also is in form of an inverted frustum of a cone, to form a frame or sash for the reception of fire brick or other fireproof material, as shown at *m* . The ring *v* has a horizontal flange, and bolts by the same to the underside of the flange *n* of the coal supply reservoir. The fire brick are shaped so as to form, when put together, an inverted frustum of a cone, and they therefore, when clamped between the devices *k, v,* cannot descend separately out of their places, nor can they do so unitedly, as the largest circumference of the conic frustum *m* cannot pass through the space between the lower

ends of the devices *k, v.* It will be observed that the fire brick continue the contraction of the coal supply reservoir, and thus insure a gradual descent of the supply coal upon the central part of the bed of incandescent coal, and at the same time leave a large and open space outside of the conic frustum *m* for the free burning and expanding of the gases or flame. This result is also furthered by the dishing form of the flange *h* , the same forming a large circulating flame channel J all round the upper edge of the fire pot, as illustrated."

"The reservoir G is continued up to a horizontal division plate I of the stove by means of an extension G1, as shown. The division plate I has a large coal induction hole *n* in its center and several hot air passages *o o* near its circumference or outside of the circle of the coal supply reservoir, as shown. Around the central hole *n* there is constructed a small, combined cylindric and conic hopper J, which is furnished with an adjustable valve *s* , and a removable cover-plate *J2* , as hereinafter described. Through and from the rear of this hopper there extends a branch draft flue *r* , the same leading into the main draft flue F5, as shown. In order to open and close this flue (*r*) and also to open and close the induction hole to the coal supply reservoir, the taper valve *s* is fitted to the lower part of the hopper J, and up from the center of the back of this valve a vertical rod *s1* extends and passes through the removable cover plate J2 of the

hopper, and also through a weight *s2*, as shown. The weight *s2* is not level on its bottom with the top surface of the cover plate J2, nor is the quantity of metal on one side of the rod as great as that on the other side. The cover plate, the valve, the rod, and the weight, are all connected together, so that by taking hold of the rod the whole can be lifted together, that is, when the valve is raised, first, to its full stroke; but the connection is also such that, when the valve is required to be raised a less distance than its full stroke, the movement of the valve is independent of the cover plate J2; therefore the branch flue *r* can be opened and closed or the damper valve adjusted without disturbing the cover plate, and whenever such an adjustment of the valve is made, the weight, by reason of its being unbalanced, will automatically bind upon the rod and hold it and the valve in suspension."

"It is desirable to open the branch of the direct draft flue when the fire is first started and also before the cover plate J2

is removed, first, in order to obtain a powerful draft, and second, to pass off the pent up gases in the coal reservoir through the branch flue instead of allowing them to puff out into the room at the time when fresh coal is being introduced."

"The organization thus far described has but one shell, and in order to make it a double shell or wall stove a casing, K, L, M, is placed around it from base to top. The part K of this casing encloses a portion of the fire pot, and of the vertical pipes and draft flue. This part is finely perforated all around so as to admit air to the first wall, to be heated as indicated at *w*. The part L of the casing encloses the remainder of the vertical pipes and fire pot, and also a small portion of the coal supply reservoir, but not the main draft or smoke flue. It is also finely perforated so as to admit cold air, as indicated at *w1*. The part M of the casing encloses the remainder of the coal supply reservoir, and extends up to and unites with a stationary top or finishing plate W2. This part of the casing is not perforated, but the plate W2 has perforations through it for the escape of the confined heated air W3 into the room or into pipes leading to rooms above, as indicated by arrows W4."

"It will be seen that the air circulates all about the radiating surface, and thus protects the same from rapid destruction by the fire, and while this is the case the air is very thoroughly heated, and discharged in that state into the room where the stove is situated, or into other conductors."

There were in this reissue twelve claims, the first five of which, the complainants alleged, had been infringed by the defendants, namely:

"(1) A base-burning, coal supply reservoir stove or furnace, so constructed that the products of combustion do not pass up, around, and above the supply reservoir, nor up through the grate, but down outside of the fire pot toward the base of the stove and out through a main draught flue, which leads directly from a space or chamber about the lower part of the stove, all for the purpose set forth and substantially as described."

"(2) The contracting of the discharge end of the coal supply reservoir, the expanding of the fire pot, and the extending of the flame passage downward, for united operation, in a base-burning coal supply reservoir stove or furnace, essentially as set forth. "

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"(3) A fire pot resting on a base, and imperforated on its inner or outer circumference, or from its inner to its outer circumference, and so constructed and applied, with respect to a coal supply reservoir, that an enclosed horizontal chamber for the free expansion and circulation of the flame and gases is formed all around and outside of the contracted discharge, and above the upper edge of the fire pot, substantially as and for the purpose set forth."

"(4) The descending passage or passages, in combination with the continuous flame expansion and circulation passage, and a main draft flue, leading out of the base or lower part of the stove or furnace, substantially as set forth and for the purpose described."

"(5) Constructing the fire pot of a base-burning, coal supply reservoir stove or furnace, with an imperforated circumference and in the form of a trumpet mouth at its upper portion, in combination with descending flame passages, substantially as described and for the purpose set forth."

The specification of the patent of August 11, 1863, stated that the invention covered by it was an improvement on the stove patented by the reissue of February 3, 1863, and consisted,

"1st. In the construction of an illumination window or windows, at one or more points in the continuous flame expansion chamber or channel, which is about the base of the coal supply reservoir and the top of the coal burning fire pot, in combination with a descending flue which leads to a chamber about the base of the stove, and from such chamber into a chimney flue."

"2d. In the construction of a damper draft flue in the continuous flame expansion chamber or channel, located as just stated, in combination with a descending flue, which first leads down into a chamber about the base of the stove, and then into the chimney flue, with which the damper draft flue connects directly at the top of the fire pot."

The patent (*see* figures on page 87 U. S. 364) proceeded:

"Fig. 1 is a vertical longitudinal section of a stove patented by us at previous dates, with our improvements of the present date applied to it."

"Fig. 2 is a vertical transverse section of the whole stove. "

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"Our first improvement is carried into practice by casting the fire pot A with a rectangular, elliptical, or circular extension *a* (Fig. 1) (6) at one or more points of its upper edge. This enlargement we extend through an opening in the outer casing or jacket B of the stove, and close it with mica or other transparent material C, as shown. We may find it more practical to form a short ledge on the upper edge of the fire pot, as at *b* , and cast the"

image:e

"enlargement *c* on the part D, which forms the expansion flame passage E, as shown. In any case, the illumination window must be constructed so as to confine the flame and gases at this point within the flame chamber E."

"Our second improvement is carried into practice by casting in like manner an enlargement of proper form to make a branch flue F on the upper edge of the fire pot, or on the lower edge of

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the part D, as represented. This branch flue we run into the smoke pipe or draft flue G, and in order to open and close it at will, we have arranged within it a damper or valve I, which has its rod, by which it is turned, extended to the outside of the casing of the stove. By opening the damper, a direct draft is obtained, and the fire can be kindled very speedily, and the draft does not have to pass up through the body of coal in the reservoir, as in our other patented stove. When the damper is closed, the highly ignited gases pass down the descending flues J J, as in our former patent. We will here state that we have slightly modified the base of our stove by increasing the depth of the ash pit K, and dispensing with a chamber or space underneath the ash pit. This space or chamber L, in which the heated products of combustion circulate to heat the base of the stove, and pass to the draft or smoke flue, being only around the ash pit."

There were in this patent six claims, the first two of which, the complainants alleged, had been infringed by the defendants, namely:

"(1) The combination of the illuminating openings, flame expansion chamber, coal supply reservoir, fire pot, descending flue and draft flue, substantially in the manner and for the purpose described."

"(2) The combination with the flame expansion chamber, formed at the base of the coal supply reservoir, and around the upper edge of the fire pot of a base-burning stove, of the branch draft flue with damper, when the same are located with

respect to the flame expansion chamber, fire pot, coal supply reservoir, and descending combustion flues, substantially as and for the purpose described."

Certain parts of the things above described were shown by the evidence or were admitted not to be new in A.D. 1861, when the complainants professed to have invented their base-burning stove. Among them these:

The introduction of a magazine or reservoir into a stove for the purpose of supplying coal to the fire pot below.

The contraction of the lower end of the said reservoir so that it should be smaller than the upper portion thereof,

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which, the complainants asserted, aided in sustaining the mass of coal therein, and prevented too great pressure upon the burning coal in the fire pot.

The construction of a fire pot of larger diameter at the top than at the bottom.

So also stoves so constructed that the smoke, gas, and other products of combustion passed from the fire chamber through downward flues to or near the level of the bottom of the stove were common; the revertible flues so called had long been in use.

In one of the exhibits, these products of combustion were passed down and through a chamber in the base of the stove and thence out into the smoke pipe.

The addition of a direct draft to such stoves as were constructed with revertible flues by means of a flue above the fire pot provided with a damper to be closed after the fuel had been ignited was no novelty.

The use of openings in the exterior or shell of the stove and the insertion of mica therein in order to permit the light emitted in the process of combustion to be seen, had been employed for very many years.

The stove of the defendant, which the complainants alleged infringed their patents, contained in combination several of the devices claimed by the complainants, as:

1. The flaring fire pot supported by a base, the diameter of the pot narrower at the bottom than at the top.

2. A vessel over the fire pot to receive the coal, and let it down by way of supply on the fire below, the lower end of the vessel being narrower than the upper.

3. Revertible flues outside of the pot to conduct the products of combustion downwards to the base of the stove and thence to a main draft flue leading thereout.

4. A direct draft for such stoves as are constructed with revertible flues, the direct draft being obtained by a flue passing out above the fire pot and provided with a damper to be closed after the fuel has been ignited.

5. Holes or openings in the iron case of the stove in which to put plates of mica so as to let the fire in the stove be seen

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through it and to give light to the room in which the stove is.

In the defendant's stove, however, there was no such peculiar structure of the lower extremity of the supply reservoir, nor such a closed expansion chamber as in the complainant's stove; the reservoir did not rest on the fire pot, nor had it a connection either with it or with the sides of the stove; nor was there anything interposed to the passage of the products of combustion up and around the reservoir when the flue for direct draft was open, and when that flue was closed, the flame was not detained over the burning coal, but the products of combustion passed directly across the edge of the fire pot and descended along its sides to the interior draft passage.

So, in the defendant's stove, the entire space around the magazine and the fire pot was completely enclosed. There was but a single chamber around the reservoir

over the surface of the burning coal and around the fire pot. Through this chamber the products of combustion passed, either through the direct draft flue, when that was in use, or to the base of the stove and thence outward.

The court below dismissed the bill and the complainant brought the case here.

MR. JUSTICE STRONG delivered the opinion of the Court.

The sort of stoves known as "base burners," or self-feeding stoves, had been made and they were well known years before either of the complainants' patents were granted, and it is not asserted that merely as base-burning stoves they are within the monopoly of the patents. The inventions claimed are alleged improvements in the structure and arrangement of such stoves. They consist in what is described as a new combination of old and known devices producing a new manufacture -- namely a stove uniting in itself all the advantages of a reservoir stove and those of a revertible draft

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stove which prevents the products of the combustion in the fire pot from passing up, around, and over the reservoir, thereby heating the fuel therein so as to expel its gases and cause their explosion as well as their escape into the apartments where the stove may be placed. All the devices of which the alleged combination is made are confessedly old. No claim is made for anyone of them singly as an independent invention.

It must be conceded that a new combination, if it produces new and useful results, is patentable though all the constituents of the combination were well known and in common use before the combination was made. But the results must be a product of the combination, and not a mere aggregate of several results each the complete product of one of the combined elements. Combined results are not necessarily a novel result, nor are they an old result obtained in a new and improved manner. Merely bringing old devices into juxtaposition, and there allowing each to work out its own effect without the production of something novel, is not invention. No one, by bringing together several old devices without

producing a new and useful result the joint product of the elements of the combination and something more than an aggregate of old results, can acquire a right to prevent others from using the same devices, either singly or in other combinations, or, even if a new and useful result is obtained, can prevent others from using some of the devices, omitting others, in combination.

If now we examine the patents held by the complainants, looking first at the objects sought to be obtained by the combinations for which the patents were granted, they are, as described in the specification, first to prevent the passage of the products of combustion up, around, and over the top of the coal supply reservoir, so as to heat a surrounding jacket thereof, and secondly to heat a circulating or ascending body of air by means of radiated heat from the fire pot and at the same time to heat the base of the stove by means of direct heat circulating through descending flues which lead into the ash pit or around it and to the smoke

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and draft flue. A third avowed object is to secure economy by retarding the fall of the coal into the fire pot from the supply reservoir, and by causing the flame to circulate outside of the contracted discharge of the reservoir, and around the upper edge of the fire pot, and thence to descend around or under the base of the stove in its passage to the smoke and draft flue. Such are the avowed objects of the combinations claimed to have been devised by the patentees, and their effects they assert to be husbanding the radiated heat and using it for the purpose of warming the upper part of the stove and the room in which it is situated, as well as for heating air for warming rooms above, if desirable, and at the same time so confining the direct fire heat and keeping it in contact with the base portion of the stove as to insure warming it to a comfortable degree. A second effect claimed is relief of the incandescent coal from the weight of the body of superincumbent coal, thus preventing the compression of the burning coal in the fire pot, and securing for the flame free expansion, thus enabling it to act with greater heating effect upon the lower portion of the stove in its passage to the smoke and draft flue.

The combination employed to produce these effects consists of the following devices, among others:

1st. A flaring fire pot supported by a base, the diameter of the pot being larger at the top than at the bottom.

2d. A magazine or reservoir for supplying coal, located over the fire pot, and having its lower end contracted.

3d. Revertible passages or flues outside of the pot for the conduct of the products of combustion downwards to the base of the stove and thence to a main draft flue leading thereout.

4th. A direct draft for such stoves as are constructed with revertible flues, the direct draft being obtained by a flue passing out above the fire pot and provided with a damper to be closed after the fuel has been ignited.

5th. Openings in the case or exterior of the stove and the insertion of mica therein for the purpose of illuminating the

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room in which the stove may be with the light of the burning fuel.

These devices with others are brought together and claimed as a new combination, and several combinations of some of them are also claimed as inventions, producing novel and useful results. What those other devices are we need not specify, for it is not shown that they are employed by the defendants.

The stove of the defendants does, however, contain all those mentioned and contain them in combination. That each of them was an old device, well known, and in public use before the patents of the complainants were granted, is abundantly proved by the evidence submitted. A flaring fire pot, a supply reservoir with its lower extremity of smaller diameter than its upper, revertible flues, a place for flame expansion above the fire pot, the addition of a direct draft for use in igniting the fuel, provided with a damper, and the insertion of mica for illumination

openings were all found in stoves before Hailes and Treadwell claimed to have made their invention. It is true there is a peculiarity in the construction of the lower extremity of the complainants' supply reservoir. It is provided with a circular flange, extending outward and bending downward so as to fit upon the upper rim of the fire pot and thus form a closed combustion chamber. This, of course, cuts off communication with the space around the upper part of the reservoir and confines the flame and other products of combustion within a circular combustion chamber thus formed, leaving no outlet for them except through ear passages into revertible flues. For this device, the peculiar structure of the reservoir, and the formation of the closed expansion chamber there is no equivalent in the defendants' stove. There is no such closed chamber. The reservoir does not rest on the fire pot. It has no connection with it or with the sides of the stove. Nor is there any obstacle interposed to the passage of the products of combustion up and around the reservoir when the flue for direct draft is open. And when that flue is closed, the flame is not detained over the burning coal, but the products of

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combustion pass directly across the edge of the fire pot and descend along the sides thereof to the inferior draft passage. Such an arrangement is not fitted to produce the effects sought and claimed for the complainants' stoves. On the contrary, it plainly excludes them.

There are other differences in the devices used both in the complainants' and the defendants' stoves which we think are substantial, and not merely formal. The combination claimed by the complainants passes the products of combustion out of the chamber through perforations in the flange or through ears into flues leading downwards but wholly exterior to the fire pot, and not in contact with it. This arrangement makes it possible to introduce external air through perforations in the outer casing of the stove, and allow it when heated by contact with the fire pot and the descending flues to escape from the top. Accordingly, the outer casing is perforated, and there is no closed magazine around the fire pot. But in the defendants' stove there is no such device and no such effects are produced. There are no external downward flues separated from the fire pot. The whole space

around the magazine and the fire pot is completely enclosed. There is but a single chamber around the reservoir, over the surface of the burning coal, and around the fire pot. Through this chamber the products of combustion pass, either through the direct draft flue, when that is in use, or to the base of the stove and thence outwards. This arrangement also excludes the possibility of an effect claimed for the Hailes and Treadwell invention. It admits of no space around the fire pot to which the external air can have access.

It is not, then, the combination of old devices which the defendants use that Hailes and Treadwell invented. It is not those old devices that produce the new results claimed. The complainants' combination is a different thing. It has a greater number of constituent elements. It consists in the employment of the devices used by the defendants, together with others they do not use, and the result of the entire combination is the production of a stove differing very materially

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from that of the defendants. And the defendants combination cannot produce the results claimed for that of the complainants. We have said that the new results claimed, whatever they may be, are not the production of the combined devices common to both stoves. The devices used by the defendants produce no new effects because used in combination. The space around the fire pot leading to the base doubtless secures the beneficial results long known to follow the use of revertible flues. It may be conceded to be an equivalent for such flues. But the results of its construction are not changed by the fact that a flaring fire pot, and a supply reservoir with a contracted discharge end, and openings for illumination are used in the same stove. It still operates to conduct the products of combustion to the base, and into the exit flue. No new operation is given to it by the combination. The same may be said of every other device employed by the defendants which is also in the complainants' combination. Each produces its appropriate effect unchanged by the others. That effect has no relation to the combination; in no sense can it be called its product. Thus far, nothing novel is produced. This, then, is mere aggregation of devices, not invention, and consequently the use of those devices, either singly or together, cannot be held to be any infringement of rights

belonging to the complainants.

We pass now to consider more in detail the claims in the complainants' patents which it is alleged the defendants have infringed. The first in the reissued patent, dated February 3, 1863, is unquestionably too broad to be sustained unless limited to the means described in the specification. So it was doubtless intended by the patentees to be limited, for the claim speaks of the combination claimed "as substantially described" -- that is, described in the specification. Thus limited, one of its essential elements is a closed combustion chamber over the fire pot, formed by a flange of the reservoir resting on the upper edge of the pot and provided with perforations or ears connecting with two flues passing downwards. This element is indispensable for the purposes

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asserted in the claim as well as in the specification. And the peculiar structure of the chamber is more than formal. It is functional. It prevents the passage of the flame and other products of combustion up, around, and over the supply reservoir, which is a leading avowed object of the invention, precisely the improvement patented. But this constituent of the combination the defendants have never used, nor have they used any corresponding device, or device producing the same results.

The second claim is for contracting the discharge end of the coal supply reservoir, expanding the fire pot, and extending the flame passage downward for united operation in a base-burning coal supply reservoir stove or furnace, essentially as set forth. The means set forth for extending the flame passage downwards are perforations through the flange forming the lateral boundary of the closed combustion chamber, or ears leading thereout and close flues extending from the ears or perforations downward at some distance from the fire pot through a space bounded on one side by the fire pot and on the other by an outer casing of the stove perforated for the admission of external air. It might perhaps be questioned whether there is any device in the defendants' stove corresponding to this, but waiving the consideration of that question, it is very evident that the combination of

the three devices named is not the work of invention. They have no relation to each other. Neither the form of the feeder nor the shape of the fire pot bears at all upon the direction of the draft passages. There is no novel result flowing from the joint operation of the three devices. The revertible flues have no more to do with a stove supplied by a feeder than they would have with a stove supplied by hand. There is therefore nothing in this claim that interferes with what the defendants have done.

An essential element of the combinations mentioned in both the third and fourth claims is the closed combustion chamber formed, in part by a circular flange extending outward and closing on the top of the fire pot, with perforations in it, or ears for connection with the downward flues, or it is

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those perforations or ears leading out of such a chamber to the descending passages. These devices the defendants do not employ, and they cannot be used in the defendants' stove. There has been, therefore, no infringement of these claims.

The fifth claim is the only remaining one contained in the reissue which the defendants are alleged to have invaded. It is constructing the fire pot of a base-burning stove with an imperforated circumference and in the form of a trumpet mouth at its upper extremity, in combination with descending flame passages, substantially as described, and for the purposes set forth. How in combination? As described in the specification, united by means of perforated flanges or ears of the pot, involving, of course, the presence of a closed combustion chamber constructed substantially as already described. Construing the claim thus, as we think it must be construed, the defendants have been guilty of no infringement.

Passing now to the second patent, issued August 11, 1863, we observe that its first claim was for a combination of the illumination openings, flame expansion chamber, coal supply reservoir, fire pot, descending flue and draft flue, substantially in the manner and for the purpose described. In the main, this is the

same combination as that claimed in the reissued patent we have had under consideration. The only change is the addition of illumination openings. These were a well known device applied to stoves long before either of the patents was granted. They perform no peculiar office in the new combination. They have no possible relation to it. They do not affect in the slightest degree the results of that combination, whatever they may be. It is impossible to regard the mere addition of such openings to a stove containing the improvements described in the reissued patent as the formation of a new patentable combination. It is not invention. If, however, it were, the defendants have not trespassed upon it, for of the combination the peculiarly formed close expansion chamber is an essential constituent, and that is not found in the defendants' stove.

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Similar remarks might be made respecting the second claim of the patent of August, the only remaining one alleged to have been infringed. All the elements of the combination have not been used by the defendants.

Decree affirmed.

This case was argued before the CHIEF JUSTICE took his seat, and he did not participate in the judgment.