

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAILED

Ex parte PAUL CHU, WILLIAM DOWNS,
JOHN B. DOYLE and PETER V. SMITH

OCT 27 1995

Appeal No. 93-3125
Application 07/504,192¹

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

ON BRIEF

Before STONER, Acting Chief Administrative Patent Judge, SCHAFER,
Vice Chief Administrative Patent Judge and FRANKFORT,
Administrative Patent Judge.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 6 and 8 through 17, which are all of the

¹ Application for patent filed April 3, 1990. According to applicants, the application is a division of Application 07/404,153, filed September 7, 2 1989.

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claims remaining in this application. Claims 1 through 5 and 7 have been canceled.

Appellants' invention relates to a method for controlling emissions of a fossil fuel fired boiler by treating the flue gases therefrom to reduce or eliminate the particulates, SO_x and NO_x in the flue gases. Claims 6 and 16 are representative of the subject matter on appeal and a copy of those claims, as they appear in the Appendix to appellants' brief, is attached to this decision.

The prior art references of record relied upon by the examiner as evidence of obviousness under 35 U.S.C. 103 are:

Handforth	1,814,597	Jul. 14, 1931
Porta et al. (Porta)	3,857,680	Dec. 31, 1974
Atsukawa et al. (Atsukawa)	4,282,115	Aug. 4, 1981
Klimczak	4,578,092	Mar. 25, 1986
Doyle	4,871,522	Oct. 3, 1989
Szymanski et al. (Szymanski)	4,874,586	Oct. 17, 1989

The appealed claims stand rejected under 35 U.S.C. 103 as follows:

a) claims 6, 8 through 10, 14, 16 and 17 as being unpatentable over Doyle in view of Szymanski;

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b) claim 11 as being unpatentable over Doyle in view of Szymanski as applied to claim 6 above, and further in view of Porta;

c) claim 12 as being unpatentable over Doyle in view of Szymanski as applied to claim 6 above, and further in view of Atsukawa;

d) claim 13 as being unpatentable over Doyle in view of Szymanski as applied to claim 6 above, and further in view of Klimczak; and

e) claim 15 as being unpatentable over Doyle in view of Szymanski as applied to claim 6 above, and further in view of Handforth.

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellants regarding those rejections, we make reference to the examiner's answer (Paper No. 16, mailed December 1, 1992) and to the supplemental answer (Paper No. 18, mailed March 22, 1993) for the examiner's complete reasoning in support of the rejections, and to appellants' main brief (Paper No. 14, filed September 2, 1992) and reply brief

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(Paper No. 17, filed December 21, 1992) for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Turning first to the rejection of claims 6, 8 through 10, 14, 16 and 17 as being unpatentable over Doyle in view of Szymanski, we agree with the examiner that Doyle discloses a method for controlling emissions of a fossil fuel fired boiler substantially as claimed, with the exception that Doyle does not teach or suggest the specific baghouse filter and selective catalytic reduction catalyst arrangement provided for in appellants' methods as set forth in independent claims 6 and 16 on appeal. Doyle indicates that the baghouse contains ceramic fabric filter bags suitable for high temperature baghouse operation and that there is a catalyst "contained in the baghouse" (column 4, lines 19-21 and lines 25-28). There is however no disclosure or teaching in Doyle of providing the

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fabric filter bags in the baghouse so that each fabric filter bag has a bag retainer situated therein and of positioning a selective catalytic reduction catalyst "inside each bag retainer of each of the fabric filter bags in the filter house" (claim 6), or of specifically positioning the selective catalytic reduction catalyst "in the exhaust plenum of the fabric filter house" (claim 16).

To overcome these deficiencies in Doyle (Figure 2), the examiner looks to the Szymanski patent, urging that Szymanski teaches a specific baghouse filter structure wherein a selective catalytic reduction (SCR) catalyst is positioned between outside and inside bag retainers (e.g., 31, 32) and that such a structure will improve cost effectiveness by permitting the filter bags to be frequently cleaned, such as by compressed air pulses from the nozzles (44), without the catalyst being removed from the bag. The examiner concludes, from the collective teachings of the applied references, that it would have been obvious to one of ordinary skill in the art "to have provided the control emission process of Doyle with the fabric bags as taught by Szymanski," because Szymanski teaches that such a filter bag structure would yield a more compact installation with high efficiency contaminant removal.

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Appellants' first argument with regard to the examiner's rejection is that Doyle is not properly available as a reference against the present application because the subject application claims benefit under 35 U.S.C. 120 as a continuation-in-part of the Doyle patent and is accordingly entitled to the filing date thereof "with respect to a common inventor and common subject matter" (main brief, page 6). Like the Court in In re Chu, ___ F.2d ___, 36 USPQ2d 1089 (Fed. Cir. 1995), we find this argument to be unpersuasive. Appellants are entitled to the benefit of the Doyle patent filing date under 35 U.S.C. 120 only if the disclosure of the earlier application resulting in that patent provides support for the claims of the present application in the manner set forth in 35 U.S.C. 112, first paragraph. However, on page 6 of their brief appellants have admitted that the Doyle patent

"does not teach or suggest positioning the SCR catalyst inside the bag retainer of the fabric filter bag or in the exhaust plenum of the fabric filter house as claimed in the present invention."

Accordingly, it is clear that independent claim 6, which includes the limitation regarding the catalyst being inside the bag retainer, claims 8 through 15 and 17 dependent therefrom, and independent claim 16, which includes the limitation concerning the catalyst being positioned in the exhaust plenum of the fabric filter house, are not supported by the Doyle patent disclosure. Thus, appellants cannot

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obtain benefit of the Doyle patent filing date for the claims of the present application and the Doyle patent is properly relied upon by the examiner as prior art under 35 U.S.C. 102(e).

The fact that some of the elements of the presently claimed subject matter have support in the earlier filed application to Doyle does not change this result. This is because, as to given claimed subject matter, only one effective filing date is applicable. See In re van Langenhoven, 458 F.2d 132, 173 USPQ 426 (CCPA 1972).

As for the examiner's combination of Doyle and Szymanski, while we are in agreement with the examiner's conclusion that it would have been obvious to one of ordinary skill in the art at the time of appellants' invention to use the filter bag structure taught by Szymanski in the baghouse (24) of Doyle Figure 2 to achieve the advantages noted in Szymanski, we share appellants' view that the combined disclosures of the applied references would not teach or suggest the step of positioning the SCR catalyst "inside each bag retainer of each of the fabric filter bags," as required in appellants' claim 6 on appeal. The examiner's position (answer, page 9) that Szymanski teaches positioning the SCR catalyst inside the bag retainer of the fabric filter bag "at figure 1... to prevent the catalyst being removed from the bag by a high energy pulse of air during cleaning cycle," is, in our opinion, in error. The bag (10) of

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Szymanski Figure 1 is constructed to allow inside-out flow of the flue gases and, as seen in Figure 2, is used in conjunction with a conventional baghouse (21) wherein a mechanism (23) is adapted to shake the bags periodically to remove the collected dust/particulates from the interior of the bag and allow the particulates to fall into the bottom of the hopper (24). The bag (10) is not disclosed as being used with, or for use with, a pulse jet fabric filter baghouse as is set forth in appellants' claim 6 on appeal. Moreover, even if the bag (10) of Figure 1 of Szymanski were to be used with pulse jet cleaning, the method as set forth in appellants' claim 6 on appeal would not appear to result from a combination of Doyle and Szymanski Figure 1.

Independent claim 6 on appeal requires, inter alia, providing a pulse jet fabric filter house having a plurality of fabric filter bags contained therein with each of the fabric filter bags "having a bag retainer situated therein," and positioning of a SCR catalyst "inside each bag retainer of each of the fabric filter bags." Looking to Figure 1 of Szymanski, if the inner wall (13) of the bag (10) is read as the fabric filter bag and the outer wall (12) is read as a bag retainer, then the catalyst (11) would be positioned inside the bag retainer (12), as the examiner appears to urge on pages 9 and 10 of the examiner's answer (Paper No. 16). However, we observe that the fabric filter bag (13) would then clearly not have a

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bag retainer "situated therein" as is set forth in claim 6 on appeal. Looking instead to Figure 3 of Szymanski, we note that this embodiment of the filter bag is specifically disclosed as being used in conjunction with a baghouse (40), seen in Figure 4, which employs a pulse jet bag cleaning system (43, 44). The bag (30) of Figure 3 is constructed to allow outside-in flow of the flue gases. Thus, the outer wall (31) may be read as the fabric filter bag and the inner wall (32), which is disclosed as being relatively stiff (column 2 lines 36-41), may be read as the bag retainer situated therein. Note also that the baghouse (40) of Szymanski Figure 4 appears to show some form of bag retainer structure which is to be positioned inside each of the bags (30). However, in this embodiment it is clear that the catalyst (11) is positioned between the fabric filter bag (31) and the bag retainer (32), instead of having the catalyst positioned inside the bag retainer as set forth in appellants' claim 6 on appeal. Therefore, based on this analysis, and in contrast with the examiner's position, it is clear to us that the combined teachings of Doyle and Szymanski would not have made obvious to one of ordinary skill in the art the method as set forth in appellants' claim 6 on appeal. As a further point, based on the determinations made by the Court in In re Chu, supra, we must also conclude that it would not have been merely an obvious matter of "design choice" to position the SCR catalyst within the bag retainer of Doyle as modified by Szymanski.

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Based on the foregoing, the decision of the examiner to reject independent claim 6 under 35 U.S.C. 103 based on Doyle and Szymanski is not well founded and will not be sustained. It follows that the examiner's rejection of dependent claims 8 through 10, 14 and 17 (which depend from claim 6) on this same combination of references will also not be sustained.

We have additionally reviewed the patents to Porta, Atsukawa, Klimczak and Handforth relied upon by the examiner, along with Doyle and Szymanski, in the rejections of dependent claims 11, 12, 13 and 15 under 35 U.S.C. 103. However, these references do not provide for that which we have identified above as lacking in the basic combination of Doyle and Szymanski. Accordingly, the examiner's respective rejections of dependent claims 11, 12, 13 and 15 under §103 will also not be sustained.

This leaves only the examiner's rejection of independent claim 16 under 35 U.S.C. 103 based on Doyle and Szymanski for our consideration. Claim 16 differs from independent claim 6 on appeal in that it does not require the fabric filter house provided therein to be a "pulse jet fabric filter house," does not require that the fabric filter bags have "a bag retainer situated therein" and does not set forth the step of "positioning a selective catalytic reduction catalyst inside each bag retainer of each of the fabric

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filter bags in the filter house." Independent claim 16 more broadly requires that a high-temperature fabric filter house having a plurality of fabric filter bags contained therein be provided and that the SCR catalyst be positioned "in the exhaust plenum of the fabric filter house." The exhaust plenum is defined in lines 10-11 of claim 16 as being that portion of the fabric filter house "where the flue gas without the particulate exists."

Looking at the examiner's combination of Doyle and Szymanski, we have indicated above that we agree with the examiner that it would have been obvious to one of ordinary skill in the art "to have provided the control emission process of Doyle with the fabric bags as taught by Szymanski," because Szymanski teaches that such a filter bag structure would yield a more compact installation with high efficiency contaminant removal. This combination, in our opinion, would have rendered obvious the method as defined in claim 16 on appeal to a person of ordinary skill in the art. With the bags of Szymanski Figure 3 provided in the baghouse (24) of Doyle and supported in the manner seen in Szymanski Figure 4, it is clear to us that the space internally of the outer walls (31) of the bags (30) would be an area within the baghouse where "the flue gas without the particulate exists," since the fine mesh of the outer bag wall (31) provides filtration of the particulates from the flue gas passing therethrough (Szymanski, column 2, lines 36-38). Thus, the space

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internally of the bag outer wall (31) is an "exhaust plenum" of the fabric filter house, as that term is broadly defined in claim 16 on appeal. As clearly seen in Figure 3 of Szymanski, the catalyst (11) is positioned within the confines of the outer wall (31) of the bag (30) and is therefore positioned "in the exhaust plenum of the fabric filter house," as required in appellants' independent claim 16. Accordingly, we will sustain the examiner's rejection of claim 16 under 35 U.S.C. 103 based on the collective teachings of Doyle and Szymanski.

To summarize our decision, we note that only the examiner's rejection of claim 16 under 35 U.S.C. 103 has been affirmed. All the other rejections on appeal regarding claims 6, 8 through 15 and 17 under 35 U.S.C. 103 have been reversed.

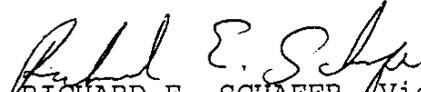
The decision of the examiner is accordingly affirmed-in-part.

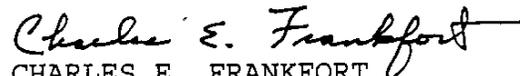
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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR 1.136(a).

AFFIRMED-IN-PART


BRUCE H. STONER, JR., Acting Chief)
Administrative Patent Judge)


RICHARD E. SCHAFER, Vice Chief)
Administrative Patent Judge)


CHARLES E. FRANKFORT)
Administrative Patent Judge)

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) APPEALS
) AND
) INTERFERENCES

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APPENDIX

6. A method of controlling emissions of a fossil fuel fired boiler which produces flue gases containing SO_x , NO_x and particulate, the flue gases being supplied along a flue gas stream to a stack for discharge, comprising the steps of:

providing a high-temperature pulse jet fabric filter house and heat recovering means between the boiler and the stack in series along the flue gas stream with the fabric filter house being upstream of the heat recovering means and having a plurality of fabric filter bags contained therein with each of the fabric filter bags having a bag retainer situated therein;

positioning a selective catalytic reduction catalyst inside each bag retainer of each of the fabric filter bags in the filter house;

injecting sorbent and an ammoniacal compound into the flue gas stream upstream of the fabric filter house for reacting with SO_x and NO_x , the NO_x being further reduced inside the fabric filter house in the presence of the catalyst to clean the hot flue gas; and

supplying the clean hot flue gas to the heat recovering means for recovery of the heat therefrom.

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16. A method for controlling emissions of a fossil fuel fired boiler which produces flue gases containing SO_x , NO_x and particulates, the flue gas being supplied along a flue gas stream to a stack for discharge, comprising the steps of:

providing a high-temperature fabric filter house and heat recovering means in series in the flue gas duct between the boiler and the stack with the fabric filter house being upstream of the heat recovering means and having a plurality of fabric filters contained therein through which the flue gas passes with the particulate being removed, the fabric filter house further having an exhaust plenum where the flue gas without the particulate exists;

positioning a selective catalytic reduction catalyst in the exhaust plenum of the fabric filter house;

injecting an ammoniacal compound into the flue gas duct upstream of the filter house;

injecting sorbent into the flue gas duct upstream of the filter house; and

recovering heat with the heat recovering means from the clean hot flue gas before it discharges from the stack.