



# **FEDERAL SUPREME COURT**

**IN THE NAME OF THE PEOPLE**

## **JUDGMENT**

X ZR 37/21

Delivered on:  
March 7, 2023  
Anderer  
Judicial Employee  
as Clerk of the Court  
Registry

in the patent nullity case

The X. Civil Senate of the Federal Supreme Court, at the oral proceedings on March 7, 2023, by the Presiding Judge Dr. Bacher, the Judge Dr. Deichfuß, the Judge Dr. Marx, and the Judges Dr. Rensen and Dr. Crummenerl

ruled:

On appeal by the defendant, the judgment of the 2nd Senate (Nullity Senate) of the Federal Patent Court of February 4, 2021, is amended.

European patent 1 621 055 is declared partially invalid with effect for the Federal Republic of Germany by giving the patent claims the following wording:

1. An actuator comprising a cabinet (4), an electric motor (10) arranged in the cabinet, said motor having a motor shaft, a transmission (8) connected to the motor shaft, said transmission having an output stage, an activation element (1, 2, 3) connected to the output stage of the transmission, said activation element being intended to cause movement of an adjustable element in the structure in which the actuator is to be incorporated, characterized in that at least the electric motor (10) is mounted in a tightly fitting recess (12) in a block (11) of foam plastics arranged and secured in the cabinet (4), wherein a claw coupling (9a, 9b) is arranged in the transmission or between the transmission and the activation element (2, 3; 15, 16; 23) of the actuator.
2. An actuator according to claim 1, characterized in that at least a part of the transmission (8) is built together with the motor, and that this part of the transmission is likewise accommodated in the recess in the foam plastics block.

3. An actuator according to claim 1 or 2, characterized in that the foam plastics block fills the interior of the cabinet entirely or substantially entirely.
4. An actuator according to claim 1, 2 or 3, characterized in that the foam plastics block is composed of two parts with an assembling face in the longitudinal plane of the motor.
5. An actuator according to claim 1, 2 or 3, characterized in that the foam plastics block is one entity, and that the recess has an opening extending out to the outer side of the block for insertion of at least the motor.
6. An actuator according to any of claims 1 to 5, characterized in that a gasket (19) of rubber is provided between the individual claws of the claw coupling.
7. An actuator according to any of claims 1 to 6, characterized in that the two parts (9a, 9b) of the claw coupling have three axially extending claws each, and that the gasket (19) has six protruding flaps from a central ring wall or solid core.
8. An actuator according to claim 1 as well as 6 or 7, characterized in that it comprises a spindle part, and that one end of the claw coupling is secured to the end of the spindle.
9. An actuator according to claim 1 as well as 6 or 7, characterized in that it comprises a spindle part with a drive pipe for rotation of a spindle, and that the claw coupling is secured to one end of the drive pipe.
10. An actuator according to claim 8 or 9, characterized in that the spindle part is secured to the cabinet by means of a plate member screwed firmly on to the bottom of the cabinet.

In all other respects, the action is dismissed.

The further appeal of the defendant and the appeal of the plaintiff are dismissed.

The costs of the legal dispute are set off against each other.

By operation of law

Facts of the Case:

1           The defendant is the owner of European patent 1 621 055 (patent in suit), which was granted with effect for the Federal Republic of Germany, was filed on May 6, 2004, claiming a Danish priority of May 6, 2003, and relates to an actuator.

2           Claim 1, to which ten further claims are referred back, reads in the language of the proceedings:

**An actuator comprising a cabinet (4), an electric motor (10) arranged in the cabinet, said motor having a motor shaft, a transmission (8) connected to the motor shaft, said transmission having an output stage, an activation element (1, 2, 3) connected to the output stage of the transmission, said activation element being intended to cause movement of an adjustable element in the structure in which the actuator is to be incorporated, characterized in that at least the electric motor (10) is mounted in a tightly fitting recess (12) in a block (11) of foam plastics arranged and secured in the cabinet (4).**

3           The plaintiff claimed that the subject matter of the patent in suit was not patentable. The defendant has defended the patent in suit as granted and with seven auxiliary requests in amended versions.

4           The Patent Court declared the patent in suit invalid insofar as its subject matter extended beyond the version defended at first instance in auxiliary request 4 and dismissed the further action. The plaintiff and the defendant appeal against this decision. The plaintiff further seeks an entire declaration of invalidity of the patent in suit. The defendant defends the patent in suit as granted, with the majority of its first instance auxiliary requests (in partially amended order) and with four further auxiliary requests.

Reasons for Decision:

5 Both appeals are admissible. Only that of the defendant is - partially - well-  
founded.

6 I. The patent in suit relates to an actuator which can be used to move an  
adjustable element.

7 1. According to the description of the patent in suit, actuators are used in  
furniture such as beds, chairs and tables that have adjustable elements.

8 In a linear actuator, the motor drives a spindle via a gear (transmission), on  
which a nut is arranged that is secured against rotation. A tubular rod is arranged  
on the nut, the free end of which is provided with an attachment for securing it in the  
structure. Typically, the transmission consists of a worm gear with a worm provided  
in the extension of the motor shaft and a worm wheel secured to the spindle (para.  
2).

9 During mechanical adjustment, noise would occur, for example, in the motor,  
in the gear, in the suspension, or due to vibrations propagating through the  
structure. Common means of reducing noise include rubber or plastic  
suspensions, plastic bushings and lubricants. In international application WO  
01/94732 A1, an attempt is made to reduce noise in the gear of window openers  
by means of controlled engagement between the worm and worm wheel. The  
known measures for noise reduction are expensive, complicated and not readily  
implementable (paras. 3-8).

10 2. Against this background, the patent in suit concerns the technical  
problem of reducing the noise level of actuators without significantly increasing  
their cost.

11                    3. For solution, the patent in suit as granted claim 1 proposes an actuator  
whose features can be divided as follows:

12

|   |  |   |
|---|--|---|
| 1 | An actuator comprising   | Ein Stellglied, umfassend   |
| 2 | a cabinet (4),   | ein Gehäuse (4);  |
| 3 | an electric motor (10) arranged in the cabinet, said motor having a motor shaft,   | einen in dem Gehäuse angeordneten Elektromotor (10), der eine Motorwelle aufweist;  |
| 4 | a transmission (8) connected to the motor shaft, said transmission having an output stage,   | eine Transmission (8), die mit der Motorwelle verbunden ist und eine Ausgangsseite aufweist;  |
| 5 | an activation element (1, 2, 3) connected to the output stage of the transmission (8), said activation element being intended to cause movement of an adjustable element in the structure in which the actuator is to be incorporated, | ein Aktivierungselement (1, 2, 3), das mit der Ausgangsseite der Transmission (8) verbunden und dazu bestimmt ist, die Bewegung eines einstellbaren Elements in der Struktur zu verursachen, in die das Stellglied aufzunehmen ist. |
| 6 | characterized in that at least the electric motor (10) is mounted in a tightly fitting recess (12) in a block (11) of foam plastics arranged and secured in the cabinet (4).   | Wenigstens der Elektromotor (10) ist in einer satt passenden Aussparung (12) in einem Block (11) aus Schaumkunststoff befestigt, der in dem Gehäuse (4) angeordnet und sicher befestigt ist.  |

13                    4. Some features require explanation.

14                    a) The intended use of the actuator provided in feature 1 is not further specified in claim 1.

15            However, it follows from feature 5 that the actuator must have the suitability to be included in a structure having an element adjustable by means of the activation element of the actuator.

16            b) For the activation element (1, 2, 3), feature 5 also specifies only one function.

17            According to this, the activation element must be suitable to cause the movement of the adjustable element in the structure in which the actuator is housed. The way in which this function is achieved is not specified.

18            c) The transmission (8) is connected to the motor shaft according to feature 4 and to the activation element on its output side according to feature 5. Accordingly, it serves as a transmission that transfers the power of the motor to the activation element.

19            The manner in which this is done is not specified in claim 1. In particular, the transmission and the activation element do not have to be directly connected to each other. Claim 6 additionally provides that a claw coupling (9a, 9b) is arranged in the transmission or between the transmission and the activation element.

20            d) The motor (10) and the block (11) in which it is mounted are arranged in the cabinet (4) according to features 3 and 6.

21            With regard to the further elements of the actuator, namely the transmission and the activation element (features 4 and 5), claim 1 does not necessarily provide for an arrangement within the cabinet. Only claim 2 requires that a part of the transmission is formed together with the motor and is also received in the recess of the block.



22 e) As a means of reducing noise, feature 6 provides for mounting the  
motor (10) in a tightly fitting recess (12) of a block (11) made of foam plastic.

23 aa) This embodiment can absorb the motor and transmission vibrations in  
the foam plastic and prevent their transmission to the cabinet (paras. 10, 16).

24 Against this background, the requirement that the recess (12) must be tightly  
fitting is to be understood as matching the motor and the recess in such a way that  
the motor is adequately supported in the block and any vibrations and noises  
emanating from it are transmitted to the foam plastic.

25 bb) The Patent Court correctly assumed that feature 6 does not require a  
complete enclosure of the engine.

26 This follows from the explanations contained in the description of the patent  
in suit concerning the embodiment example shown in Figure 4 reproduced below.

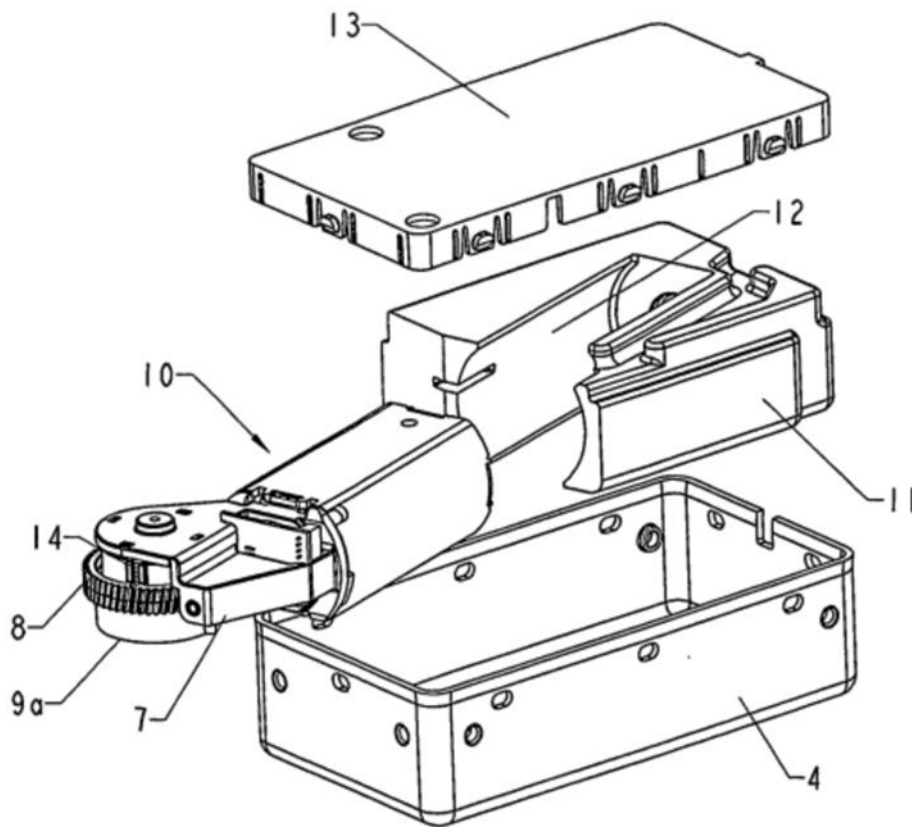


Fig. 4

27 In this example, the motor (10) and the part of the transmission (8) adjacent thereto are mounted in a tightly fitting recess (12) of a block (11) made of foam plastic. The block (11) is located in a cabinet (4) with a cover (13). The heat generated by the motor is transferred to the cabinet. For this purpose, there is an open space between the plane-parallel sides of the motor and the cabinet (para. 16).

28           cc) According to the explanations in the description, the block (11) may  
consist of several parts (para. 11). In accordance with this, claim 4 provides for an  
embodiment in which the block consists of two parts.

29           However, as the Patent Court correctly assumed, it does not follow that any  
multi-part structure will suffice. Rather, it follows from the requirement that the  
structure be a block with a tightly fitting recess that the individual parts as a whole  
must enclose a substantial portion of the surface of the engine.

30           This requirement is not met if there are only individual parts for supporting  
or mounting the motor in the cabinet. Individual supports are described as known  
and insufficient in the introductory remarks of the patent in suit (para. 4). Also  
against this background, a block in the sense of feature 6 must form an enclosure  
that goes beyond this. Where the boundary runs in detail does not require a final  
decision for the assessment of the legal status.

31           dd) Specifications as to how the foam plastic block is arranged and mounted  
in the cabinet are not contained in claim 1.

32           Contrary to the view of the defendant, it cannot be derived from the concept  
of arranging ("arrange") that the block must already exist as an independent entity  
before it is positioned in the cabinet.

33           In the example shown in Figure 4, the block forms an independent component  
which is inserted into the cabinet together with the motor. However, this special  
design is not reflected in claim 1. According to this, it is sufficient if the block is  
arranged in the cabinet and securely fastened. The way in which this is done and  
the stage of the manufacturing process are not specified.

34           No further requirements result from the function of the block. In particular, it is not apparent that the ability to absorb vibrations is dependent on the block having existed as a separate structure prior to its placement in the cabinet. In the embodiment shown in Figure 4, it may be difficult to insert the motor into the block if it is already fixed in the cabinet beforehand. However, this is due to special features of the spatial design of this example, which are not reflected in the patent claim.

35           II.    The Patent Court gave the following main reasons for its decision, insofar as it is still of interest in the appeal proceedings:

36           The subject matter of the granted claim 1 had been suggested to the skilled person, a mechanical engineer with a master's degree and several years of experience in the design and realization of actuators, on the basis of the Japanese disclosure 2002-101607 (D3) in connection with its expert knowledge. The only difference to D3 was that there the block was not made of foam but of elastic material such as rubber. As the international application WO 95/34232 (D1) and the US Patent 6 021 993 (D10) proved, foam plastic was an elastic material commonly used for insulating and fixing engines. Consequently, the skilled person would have used it in an obvious manner for the block described in D3.

37           On the basis of the international application WO 99/20152 (D5), which discloses the features of the generic term of the granted claim 1, the existence of inventive step must also be denied. D5 disclosed to equip the cabinet with sound-absorbing material and to provide damping rubber parts for damped mounting of the motor. Since D5 did not further explain how and to what extent the sound-absorbing material was to be inserted and how the motor was to be fastened in a damped manner, the person skilled in the art should inform himself about this in

relevant documents. In this connection, the plaintiff takes from D3 the teaching that a sound-insulating, secure and, with regard to assembly, simple fastening of the motor in the cabinet can be achieved if the electric motor is fastened in a tightly fitting recess in a block of elastic material which is arranged and securely fastened in the cabinet.

38           Based on D5, the subject matter of the first-instance auxiliary requests 1 to 3 had also been suggested. According to Figures 1 to 3 of D5, a coupling (coupling 9, 10 or the rectangles drawn between the reference signs 13 and 17 and 14 and 18) is arranged between a transmission (reduction unit 26, coupling 37, outgoing shaft 38) and an activation element (shaft 17, 18; screwed spindle 19, 20) of the actuator, the actuator comprising a spindle part (shaft 17, 18; screwed spindle 19, 20) and one end of the coupling being fastened to the end (shaft 17, 18) of the spindle. Since the design of the coupling is not described in more detail in D5, the skilled person refers here to further prior art which ensures good and at the same time flexible power transmission with low noise development. These requirements are met by the claw coupling (projections 12, hub 11) known to him from the Japanese disclosure 2000-081051 (D7) with a rubber seal (rubber 20) between the individual claws, which he would consequently have used in the device according to D5.

39           On the other hand, the subject matter of claim 1, which was permissibly defended by means of auxiliary request 4 (second instance: auxiliary request 6<sub>2</sub>), was patentable.

40           D5 does not provide any reason to fasten the spindle part to the cabinet by means of a plate element firmly screwed to the bottom of the cabinet in accordance with this auxiliary request. This is because the person skilled in the art would have to replace the drive unit of the device shown in Figure 1 with individual drive units for each table leg.

41           In the case of the actuator according to D1, it was not obvious to use the claw coupling known from D7 due to the limited space in the cabinet and the insufficient

mounting and turning possibilities. D7 discloses a non-separable claw coupling, the claw halves of which are vulcanized with the rubber seal in between and which is to be fastened to the spindle by means of screws. Even if the skilled person, taking into account the teaching of D3, arranges the motor in a recess in a foam plastic block, the person will not use such a non-separable claw coupling in the actuator according to D1, since there the motor is arranged directly above the spindle or the coupling and this, together with the tight cabinet, prevents easy assembly and disassembly of the non-separable coupling. The plaintiff had not submitted any prior art on separable claw couplings with a rubber seal between the claws.

42           The same applies to a combination with international application WO 02/39848 (D2). Here, too, there was no apparent suggestion to use the non-separable claw coupling from D7 in the transmission or between the transmission and the activation element of the actuator according to D2.

43           The skilled person would not combine D10, which deals with measures for soundproofing an electric motor and reducing the transmission of unwanted vibrations into the motor cabinet, with D1 or D2, since placing the insulated electric motor from D10 from above on the actuators or table legs described in D1 and D2 would cause the motor to protrude upward beyond the tabletop.

44           A combination of D10 with D5 is not suggested, since this would require replacing the drive unit disclosed in D5 with individual drive units for each table leg.

45 III. This assessment with regard to the granted version of the patent in suit  
withstands the review in the appeal proceedings as a result.

46 1) The Patent Court correctly assumed that the subject-matter of the  
granted claim 1 is new.

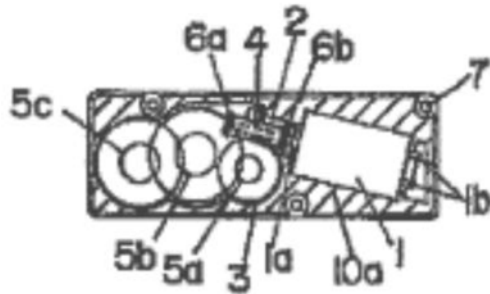
47 a) D3 does not completely anticipate the subject matter of the patent in  
suit.

48 aa) D3 addresses the assembly and noise of gearmotors in drive devices  
used to adjust lumbar or head restraints in motor vehicle seats (D3' Summary para.  
2).

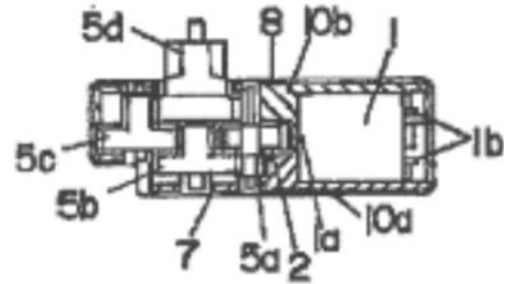
49 As known measures, D3 describes surrounding the motor, except for the  
motor shaft, over its entire surface with elastic support elements which absorb the  
noise generated by the main body of the motor and reduce its transmission to the  
housing (D3' para. 7). However, in the area of the gearbox with its gears, the effect  
on the generation of noise would be small (D3' para. 8). In addition, the assembly  
of the drive unit is time-consuming.

50 In a first variation, for ease of assembly and to reduce noise interference, D3  
provides for the outside of the actuator cabinet receiving the motor and gears to  
be formed of an elastic body (D3' para. 18). In a second variant, shown in Figures  
6 and 7 reproduced below, motor rubber elements (10a, 10b) made of an elastic  
material such as rubber are molded into the inner sides of the upper and lower  
cabinets (7, 8) (D3' para. 21).

【図6】



【図7】



51 Thus, an elastic support element (10a, 10b) is formed on the inside of the cabinet in a unit with the cabinet, which supports and fixes the motor (D3' claim 2). Since, in addition to covering and supporting the motor, the surroundings of the gear area are also covered, the emission of noise is also reduced here (D3' claim 24). Assembly is simplified because the time required to fit an elastic body to the motor is eliminated (D3' para. 23).

52 bb) Thus, as the defendant does not dispute in the appeal proceedings, features 1 to 5 are disclosed.

53 cc) Feature 6 is only partially anticipated.

54 (1) The support element disclosed in D3 is a block within the meaning of feature 6.

55 (a) The rubber elements (10a, 10b) surround the engine from two sides in any case and thus to a sufficient extent.

56 (b) Contrary to the view of the appeal, it does not prevent the disclosure of feature 6 that the rubber elements form a unit with the cabinet.



57           As has already been explained, feature 6 does not require that the block has already been manufactured before it is positioned in the cabinet. Therefore, a block within the meaning of this feature is also disclosed if the rubber elements are cast or molded into the cabinet.

58           (2) The disclosure of a snug-fitting recess follows from the indication in D3 that the motor is substantially completely covered, supported and fixed by the resilient support members (10a, 10b) and in this way can absorb motor noise and reduce the transmission of vibrations to the cabinet (D3' para. 24, claim 2).

59           (3) On the other hand, as the Patent Court correctly assumed, feature 6 is not anticipated insofar as it requires the block to be made of foam plastic.

60           (b) D5 also does not oppose the novelty of the granted claim 1.

61           aa) D5 has as its object a unit for driving the adjustment mechanism of a piece of furniture. An example of an embodiment in the form of a table with height-adjustable legs is shown in Figure 1 reproduced below.

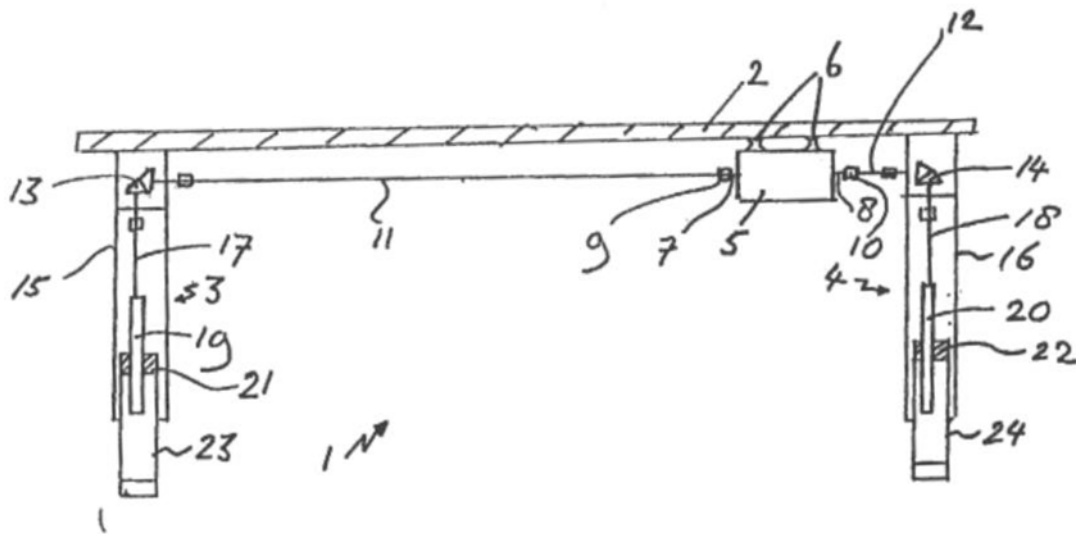
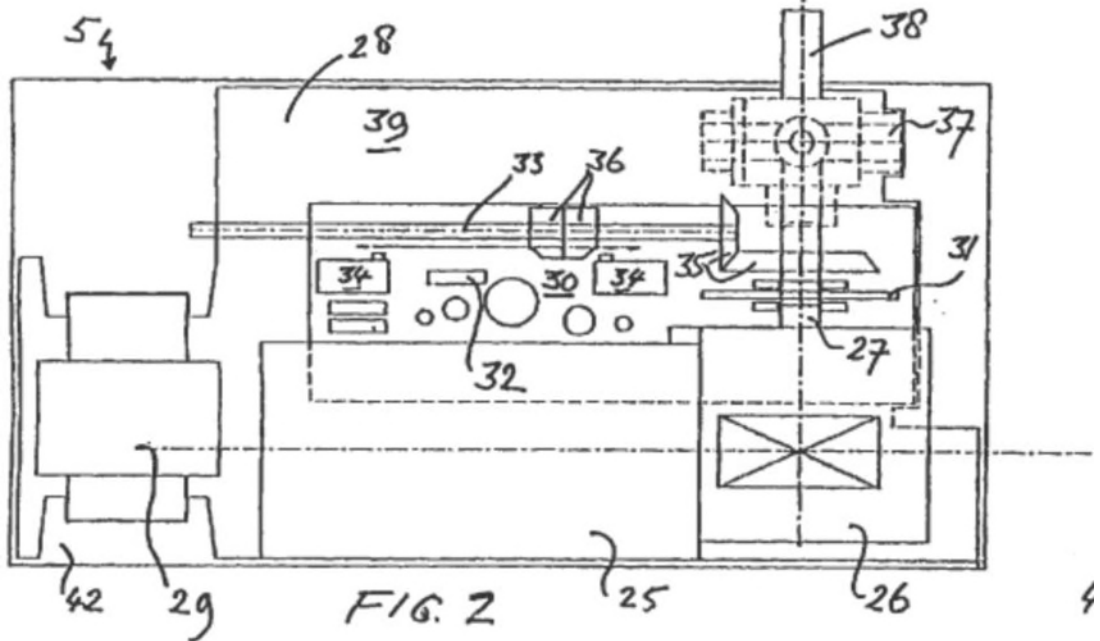
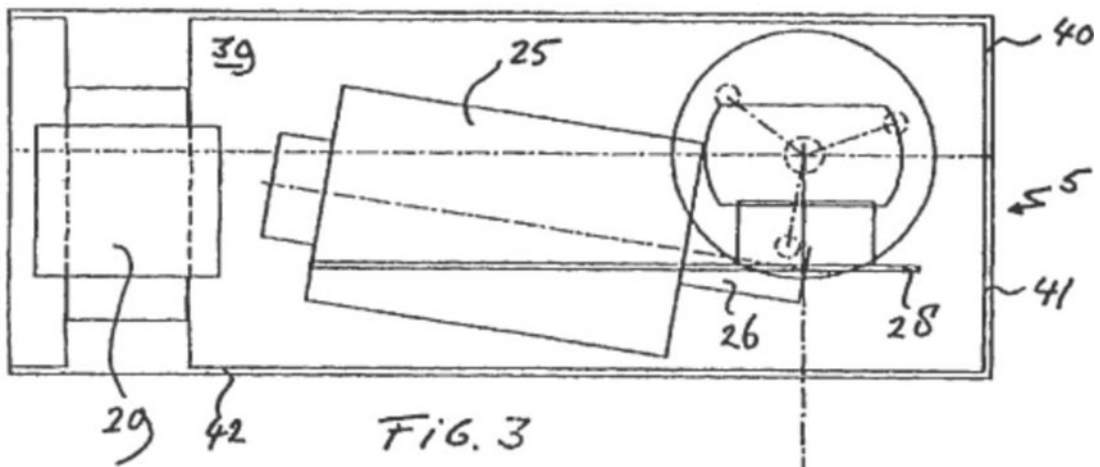


FIG. 1

62 The drive unit, which is attached to the underside of the table top, has output shafts (7, 8) on both sides which are coupled to drive rods (11, 12) via couplings (9, 10). The drive rods are coupled to right-angled gear units (13, 14), which are connected to screw spindles (19, 20) via shafts (17, 18). When the screw spindles are rotated via this connection, the nuts (21, 22) are displaced along the spindle and the lower leg support parts (23, 24), which are firmly connected to them, are displaced telescopically relative to the upper parts (15, 16) (p. 4 f.).

63 Figures 2 and 3 reproduced below show details of the drive unit (5).



64

An electric motor (25) and a reduction unit (26) with an output shaft (27), which is coupled to the output shaft (38) via a coupling (37), are arranged in a two-part cabinet (39; 40, 41) (p. 5, line 13 et seq., p. 6, line 5 et seq.).

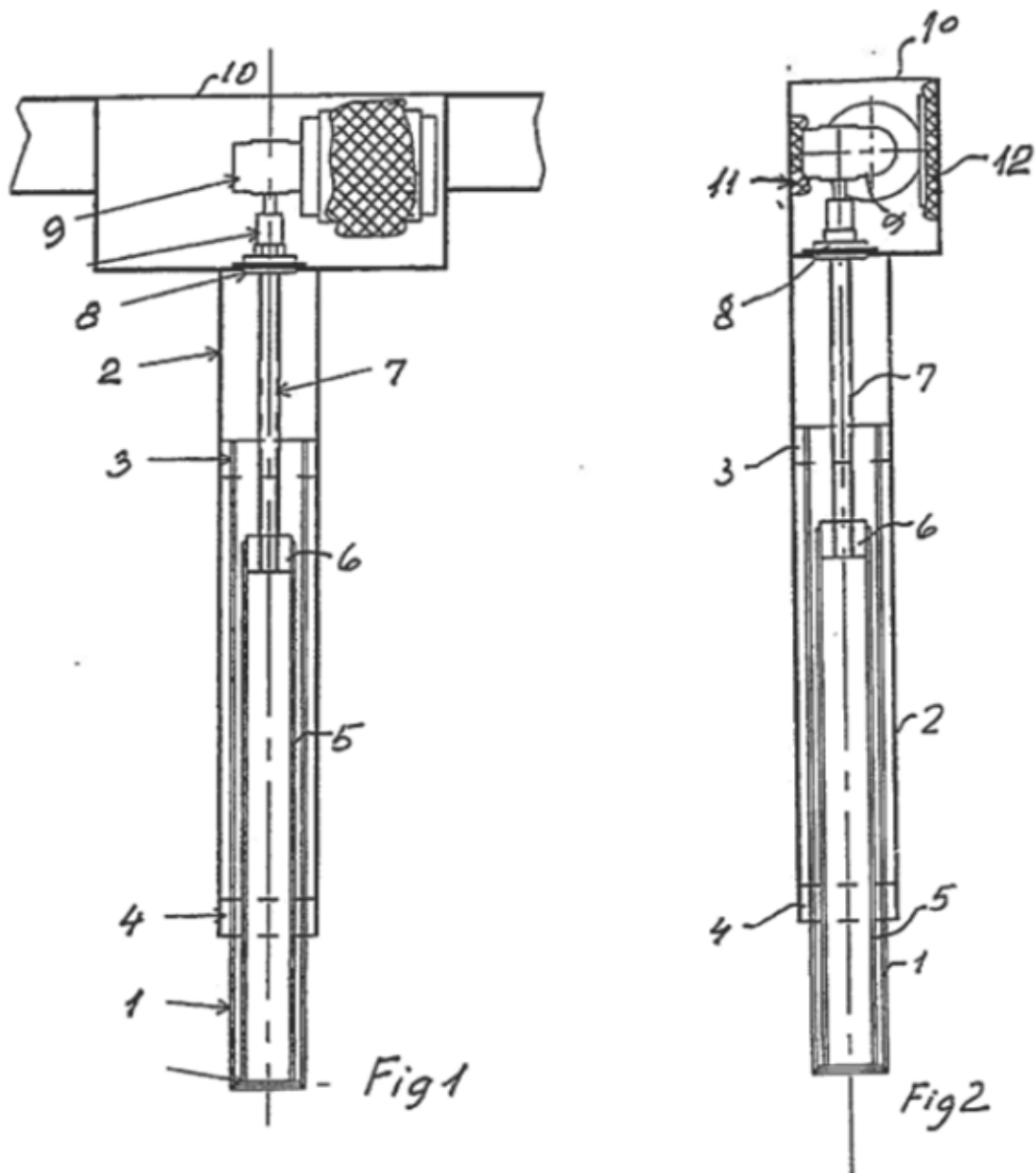
65           The cabinet (39) can additionally be provided with a sound absorbing material  
(p. 6, lines 16-18). Preferably, it is also provided with rubber damping means to  
mount the electric motor in such a way that a damping effect is achieved (p. 6,  
lines 24-26).

66           bb) Features 1 to 5 are thus disclosed.

67           cc) Not anticipated, which the parties do not doubt, is feature 6.

68           c) As a result, the Patent Court correctly assumed that D1 also does not  
anticipate all features of the granted claim 1.

69           aa) D1 has as its object an actuator for height-adjustable table legs, the  
design of which is shown by way of example in Figures 1 and 2 reproduced below.



70

At the upper end of the tubular element (5), a threaded bushing (6) is held non-rotatably for the engagement of a spindle (7). The spindle is embedded in a ball bearing (8) and coupled to the geared motor (9) (p. 3, lines 10-18).

71           The motor is located in a cabinet (10) and is held there by elastic support elements (11, 12), which may consist of foam rubber. D1 considers this to be advantageous with regard to the possibilities of accommodating the motor in a supporting structure and at the same time reducing vibration and noise. Compared to a fixed anchoring of the motor, the requirements for the accuracy of the positioning of the motor in relation to the spindle and the coupling of spindle and motor are less strict (p. 3, lines 19-30).

72           bb) D1 thus discloses features 1 to 5.

73           cc) Not anticipated is feature 6.

74           The support elements (11, 12) are made of foam plastic. However, they do not form a block with a snug-fitting recess.

75           2. The Patent Court rightly denied the existence of inventive step on the basis of D3.

76           a) In the starting point, the Patent Court correctly pointed out that D3 merely mentions rubber or caoutchouc by way of example as a material from which the elastic body or the elastic support elements can be formed, and that there was therefore reason to consider comparably suitable elastic materials as well. This applies in particular with regard to materials that have been used in the prior art in a comparable context for fastening or fixing motors and for sound or vibration absorption.

77           Such a material is disclosed in D1 with the elastic support elements (11, 12) made of foam plastic arranged between the cabinet and the motor for vibration isolation. The same applies to the insulating strip (80) shown in D10 and the cushion (82) made of foam plastic, which support and insulate the motor (22) against the ribs (62) and floor enclosing it, respectively.

78           b)    Contrary to the defendant's view, the teaching disclosed in D3 is not limited to preventing the radiation of noise. Rather, the reduction of the transmission of vibrations is expressly addressed (D3' para. 24). Irrespective of this, foam plastic would also be considered a suitable material if it were only a matter of absorbing noise.

79           c)    Whether elastic support elements made of foam plastic generally have larger dimensions, lower compliance or lower thermal conductivity than rubber does not need to be decided, if only because D3 does not formulate any special requirements with regard to these characteristics.

80           d)    D3 also does not specify that only such elastic material be used for the formation of the supporting bodies that can be integrally cast onto the cabinet.

81           The unit described in D3 between the support elements and the cabinet can be produced by any method familiar to the skilled person, for example also by positive locking or adhesive bonding. The use of foamed plastic is therefore not excluded for the manufacture of the unit.

82           IV.   The defense of claim 1 with auxiliary claim 0, filed for the first time in the appeal instance, remains unsuccessful.

83           1.    According to auxiliary request 0, the following feature is to be added to the granted version of claim 1:

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|    |  |  |
|----|--|--|
| 13 | in consequence of the block (11) having been moved from a position outside of the cabinet into the cabinet | nachdem der Block (11) von einer Position außerhalb des Gehäuses in das Gehäuse bewegt worden ist. |
|----|--|--|

85           2     As the defendant correctly points out, feature 13 only specifies the  
block, but not the order in which the block and engine are to be installed.

86           a)    The requirement that the block has been moved into the cabinet means  
that the block must have existed as a finished structure before it was inserted into  
the cabinet.

87           This does not exclude the possibility that the block consists of several parts.  
However, it is then necessary that these parts have been joined together before  
insertion into the cabinet.

88           b)    However, feature 13 does not specify at what time the engine was  
inserted into the block.

89           3.     With this subject matter, auxiliary request 0 goes beyond the content of  
the originally submitted documents.

90           a)    The originally filed documents, the contents of which correspond to the  
international application WO 2004/100632 (KSP7), however, already contain  
Figure 4, which is also shown in the patent in suit, with the explanations related  
thereto, according to which, prior to insertion of the foam plastic block, the motor  
part with the motor itself is moved into the recess (p. 6, lines 25-27 = para. 16 of  
the patent in suit).

91           b)    From this it can be seen that the block is already present as a finished  
structure before it is inserted into the cabinet, into which the motor can be inserted.

92           c)    Contrary to the view of the defendant, however, it is not to be inferred  
from these statements as belonging to the invention to insert the block into the  
cabinet as a finished structure even if the motor is not inserted into the block until  
a later time.



93 The comments on Figure 4 merely indicate that a block which is already present as a finished structure before insertion into the cabinet can be used as a means of also inserting the motor into the block before both components are inserted together into the cabinet. It does not follow from these explanations that the insertion of the block as a finished structure can also be carried out independently of the motor.

94 II. the statements of the patent court concerning the patentability of the subject matter defended by auxiliary request 1 are erroneous in law.

95 1. According to the auxiliary request 1 already filed at first instance, the granted version of claim 1 is to be supplemented by the following feature:

96

|   |  |  |
|---|--|--|
| 7 | a claw coupling (9a, 9b) is arranged in the transmission or between the transmission and the activation element (2, 3; 15, 16; 23) of the actuator | eine Klauenkupplung (9a, 9b) ist in der Transmission oder zwischen der Transmission und dem Aktivierungselement (2, 3; 15, 16; 23) des Stellgliedes angeordnet |
|---|--|--|

97 2. Contrary to the opinion of the Patent Court, this subject matter was not suggested on the basis of D5.

98 a) It can be left open whether, as the Patent Court believes, there was a sufficient suggestion based on D5 to arrange the electric motor according to the model of D3 in the manner provided for in feature 6.

99 b) Contrary to the view of the Patent Court, feature 7 was in any case not suggested on the basis of D5.

100 aa) For the couplings (9, 10) shown in Figure 1, D5 specifies the use of standard couplings with a hexagonal cross-section (p. 4, lines 14-17). A suggestion to deviate from this specification is not to be inferred from D5.

101 In particular, there is no indication from D5 that the use of such standard  
couplings is associated with a problem in terms of power transmission or noise  
that could be remedied by the choice of a different coupling design, such as that  
disclosed in D7.

102 Against this background, the assumption of the Patent Court that the skilled  
person would have resorted to further prior art in the absence of more detailed  
explanations of the couplings used in D5 proves to be erroneous in law.

103 bb) Whether the rectangles drawn in Figure 1 between reference signs 13  
and 17 and 14 and 18 are to be interpreted as additional couplings does not  
require a final decision.

104 Even if the question were to be answered in the affirmative with the Patent  
Court, there would also be no suggestion from this representation that these  
couplings should be designed differently from those expressly mentioned in the  
description of D5.

105 III. The judgment under appeal does not prove to be correct in its result for  
other reasons (Sec. 119 (1) Patent Act).

106 1) The Patent Court correctly assumed that feature 7 was not obvious on the  
basis of D1.

107 D1 does not specify how the spindle (7) is coupled to the drive mechanism  
or the motor. Since there are no special specifications with regard to the  
connection to the motor and the noise that occurs, any type of coupling connection  
that is suitable for the space conditions can be considered.

108 There is therefore no concrete reason to resort to special coupling forms with  
claws or projections for this purpose, as disclosed in D7 and also in the newly  
introduced D18.

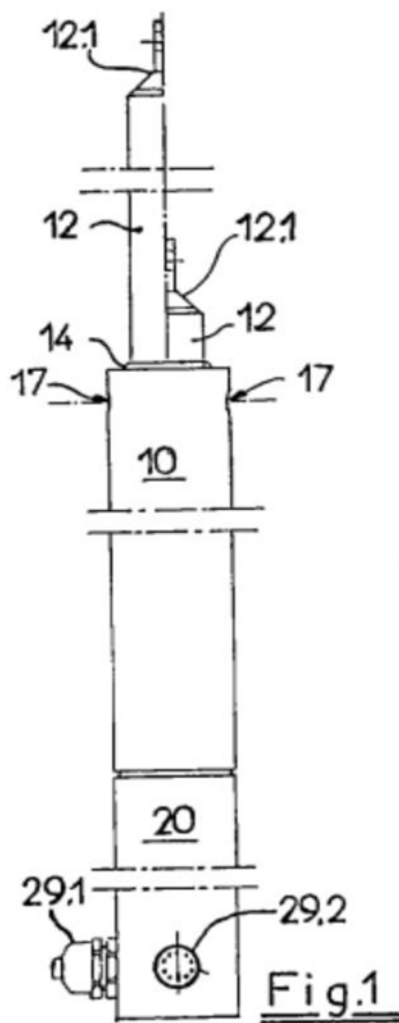
109 D7 and the U.S. Patent 2 716 334 (D18), which was introduced for the first  
time in the appeal proceedings, are also not suitable to prove that such claw  
couplings are standard components for actuators, the use of which the skilled  
person would always have had in mind anyway.

110 2. The subject-matter of claim 1 as amended by auxiliary claim 1 also  
proves to be patentable over German disclosure document 37 43 159 (D17), which  
was introduced for the first time in the appeal proceedings.

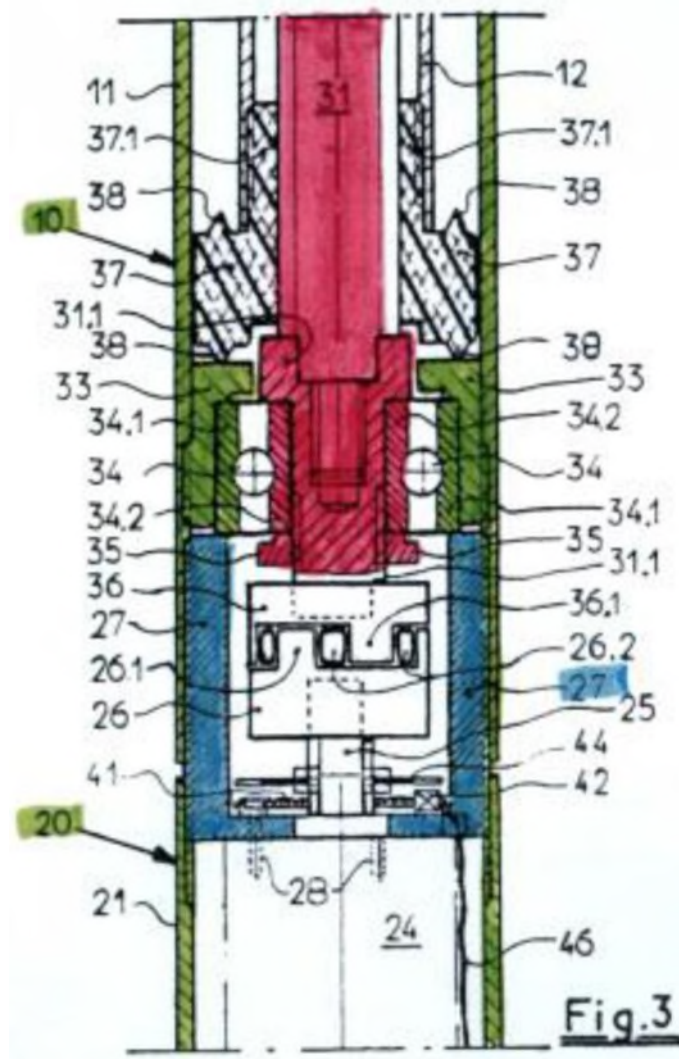
111 a) D17 discloses an electric push rod actuator having a tubular cabinet  
and a push rod extending and retracting through the end face of the cabinet.

112 Such drives are generally used as actuators for ventilation or flue gas exhaust  
flaps or for operating doors (column 1, line 18 et seq.). In the case of long thrust  
lengths and the associated long actuators, oscillation of the threaded spindle,  
which is only supported on one side, cannot be avoided. It could also be that the  
drive does not start after a longer period of non-use or only runs "rattling" because  
the nut has seized on the threaded spindle (column 1, lines 53-61).

113 Figure 1 reproduced below is an exterior view showing the retractable and  
extendable push rod (12), the push cabinet (10), and the actuator cabinet (20).



114 Figure 3 reproduced below, colored by the plaintiff, shows details of the superstructure in a sectional view.

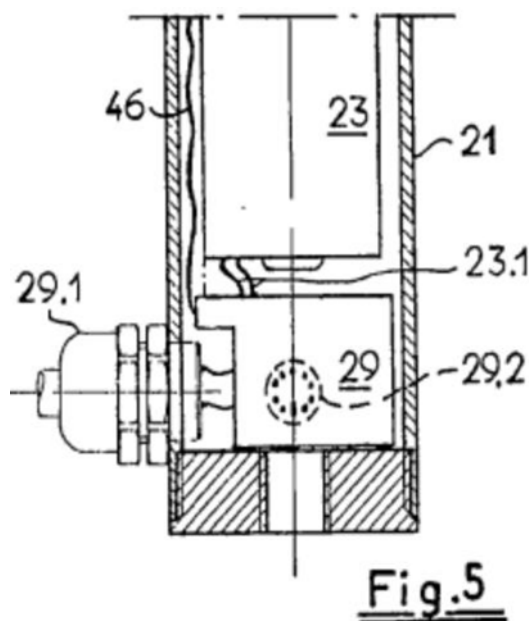


115 The actuator cabinet (20) is detachably connected to the thrust housing (10) by a support ring (27). For this purpose, the support ring (27) is provided with an external thread which engages in corresponding internal threads of the actuator and thrust cabinets so that the support ring (27) can be screwed to both cabinets (Sp. 6 lines 33-41).

116 A threaded spindle (31) is arranged inside the push rod (12), which can displace the nut (37) upwards or downwards depending on the direction of rotation (column 7, lines 14-21). The threaded spindle is driven by an intermediate piece (31.1) which is firmly connected to it and is guided by a lower bearing (34). The

outer shell (34.1) of the bearing is held by a support ring (blue) inserted into the shell (11) of the push rod cabinet (10) (column 7, line 67 to column 8, line 8).

117 The threaded piece (31.1) extending the threaded spindle is provided with a plug-in coupling part (36) on the push rod side, which has coupling claws (36.1) distributed over the circumference (column 8, lines 11-15). The drive cabinet (20) with its casing (21) contains, as can also be seen from Figure 5 below, the electronic load cut-off (29), the drive motor (24) and the reduction gear (24).



118 The output side of the transmission (24) shown in Figure 1 ends in a stub shaft (25) on which the output-side plug-in coupling part (26) is arranged with its coupling claws (26.1), which mesh with the claws of the input-side counterpart with play (column 8, lines 18-29).

119 Elastic moldings (26.2) are located between the claws (26.1, 36.1). D17 states that these are designed in such a way that they are still deformed below the elastic deformation limit at nominal torque. If the torque increases abruptly - as, for

example, when reaching an end position - the increase of the torque acting back on the drive is flattened for the time of the elastic deformation (column 8, lines 29-39).

120           b) D17 thus anticipates features 1 through 5 and 7, which the defendant does not dispute.

121           c) Feature 6 is not disclosed.

122           d) Contrary to the plaintiff's view, feature 6 was not suggested by a combination of D17 with D3.

123           D17 offers no indication that, in the field of application of the disclosed push rod actuator, the noise and transmitted vibrations generated by the motor and gearbox are significant or disturbing. The oscillation of the threaded spindle, which D17 evaluates as disadvantageous, and the rattling running of the actuator in the event of seizure of the nut on the spindle are not related to this.

124           D17 also provides for the gear unit (24) and possibly also the motor (23) to be bolted directly to the support ring (27) connecting the drive and thrust cabinets (20, 10) by means of bolts (28) (column 8, lines 43-46). Thus, starting from D17, there is no reason to resort to a structurally deviating prior art with D3, in which the fixation of the motor is provided by means of an elastic support body enclosing the components and to be distinguished from the cabinet.

125           e) Accordingly, feature 6 was not suggested to the skilled person on the basis of D3 in combination with D17.

126           2. The further citations and combinations are not closer and are rightly not discussed separately by the parties.

127 IV. The decision on costs follows from Sec. 121 (2) Patent Law and Sec. 97 (1) and Sec. 92 (1) sentence 1 ZPO.

Bacher

Deichfuß

Marx

Rensen

Crummenerl

Lower court:

Federal Patent Court, decision of 04 Feb. 2021 - 2 Ni 31/20 (EP) -