Exhibit 4

Initial Review

BOX AF

Commissioner of Patents and Trademarks
Washington, D. C. 20231
Box AF

URGENT, RESPONSIVE TO FINAL ACTION

Attention Patent Examiner: A. Hill, GAU 2617

Re: Patent Application of Brad A. Armstrong

Serial No.: 07/847,619 Filed: 03/05/92

Appl. Title: 6 DEGREES OF FREEDOM CONTROLLER WITH CAPABILITY OF TACTILE FEEDBACK

Applicant's Address: Brad A. Armstrong
848 Inyo St.
Chico, CA 95928

IN RESPONSE TO THE OFFICE ACTION OF 08/10/95, PAPER #17, MADE FINAL

Sir:

REMARKS:

This is responsive to the Outstanding Revised Office Action of 08/10/95 and made final. A **CERTIFICATE OF EXPRESS MAILING** is on page 62 attached hereto.

Included herewith is the small entity of $375.00 fee per 1.17(r) in accordance with 37 C.F.R. 1.129 (a) for a "Filing of a First submission after final rejection". This is Applicant's first submission after final, and the above specified application qualifies under 37 C.F.R. 1.129(a) to have the finality of the Outstanding Office Action withdrawn and the herein amendments entered and acted upon per 37 C.F.R. 1.129(a), and so it is requested this response be treated per 37 C.F.R. 1.129(a). There are no prior amendments or responses that have not yet been entered.

After the entering of this amendment there will be four independent claims and not more than 20 total claims, and thus a fee in the amount of $39.00 is included for one independent claim

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1 202 39.00 CK

in excess of three independent claims.

A petition for a two month extension of time under 37 CFR 1.136 (a) and the $190.00 fee therefor is hereto attached for responding to the outstanding office action of 08/10/95.

A check in the amount of $604.00 is hereto attached for the 37 C.F.R. 1.129(a) fee, the 37 CFR 1.136 (a) fee, and the one independent claim in excess of three independent claims.

Would the Examiner please amend the application as herein requested, and read and consider the herein remarks. Reexamination of the application and claims after entering of this amendment, in view of the remarks is requested. Allowance of the claims is respectfully solicited, as the invention is believed to clearly advance the art in a patentable manner. "All" of the herein remarks are directed toward and only toward the "patentability" of the invention and the issues at hand surrounding the patentability of the invention. Applicant has made every attempt in this response to be brief, while still responding to each objection and grounds for rejection raised by the Examiner in the Revised Office Action of 08/10/95. The amendments and remarks of this response are the best effort of Applicant to place the application in condition for allowance, and any assistance the Examiner can offer toward this end would be deeply appreciated.

In the past, Applicant has made every attempt within his capabilities to put the application in condition for allowance, however the Examiner still objects to some terminology used in the claims. If after the entering of this amendment, objections to the specification or claims still exists, would the Examiner please give constructive assistance in all cases wherein the Examiner believes he could improve specific terms.

Specifically regarding page 1 of the Office Action of 08/10/95: It has been noted claims 12-22 are rejected yet pending.

Specifically regarding the "Part III DETAILED ACTION" beginning on page 2 of the Office Action of 08/10/95 with "Response to Amendment" and the paragraphs under point "1.": The revised Office Action dated 08/10/95 has been carefully studied. The withdrawal by Supervisory Examiner Peng of the finality of the Office Action mailed 05/11/95 paper No. 13 as stated in paper 14 because the Office Action of 05/11/95 should have been more detailed has been noted. It is believed the revised Office Action of 08/10/95 is intended to completely replace the Office Action of 05/11/95, although this is not positively stated in any Office paper, since only the finality of the Office Action of 05/11/95 has been withdrawn as stated in paper No. 14 and again in paper No. 17. In any case, the Office Action of 05/11/95 includes essentially all of the objections and grounds for rejection which are stated in the revised Office Action of 08/10/95, only the Office Action of 08/10/95 is substantially more detailed and lengthy, and additionally introduces 35 U.S.C. 102 grounds for rejection which were not stated as grounds for rejection in the 05/11/95 Office Action even though the claims 12-22 have not been amended since their submission on 06/03/94. Applicant is upset the 35 U.S.C 102 grounds of rejection were applied "piecemeal" in the Office Action of 08/10/95, as such grounds were not applied in the Office Action of 05/11/95 or the earlier office action of 09/28/94 paper #8 when no amendments to the claims were made between the initial submission of claims 12-22 on 06/03/94 and the Office Action of 08/10/95. However, this response addressing the objections and grounds for rejection stated in the highly detailed Office Action of 08/10/95 is considered to fully address all of the objections and grounds for rejection stated in the less detailed Office Action of 05/11/95,

and to fully address all of the objections and grounds for rejection stated in the Office Action of 08/10/95.

Henceforth unless otherwise specifically stated, the terms "Office Action" used herein refers to the Office Action date mailed 08/10/95, paper No. 17.

Specifically regarding page 2 of the Office Action, and the paragraphs under point "2." "Specification" and bridging pages 3, 4 and 5: The quotation of the first paragraph of 35 U.S.C 112 and the objection to the specification as not now supporting the invention as claimed in claims 12-22 has been noted. All of the terms in the pending claims which the Examiner states are not supported by the originally filed specification have been noted. Applicant believes that the term "means" may be utilized in the claims even when not used in the specification, thus Applicant will continue to use means clauses in the claims where appropriate. The vast majority of the claim terms which the Examiner objects to in the pending claims as not being supported in the original specification are believed to be terms having the addition of the allowable term "means", or are readily ascertainable very slight variations or synonyms of words or word strings from the originally filed specification, or terms which are very strongly implied in the specification and supported in the originally filed drawings and thus easily ascertained in meaning in the original version of the application. The Examiner seems to be stating that the terms in the claims must in all cases be found absolutely precisely quoted in the specification in order to be "clearly ascertainable" in meaning in the claims. Applicant strongly objects to being held to standards of claim writing which far exceed those required of patent attorneys by other Patent Examiners, and respectfully requests that the Examiner grant a broader assumption of the "reader's" capabilities as to readily ascertaining meanings of claim terms which are not "precise quotes" from the specification. Those

skilled in the art do have significant knowledge in this field as is evidenced by the prior art of record, as some concepts within the scope of the present invention are known and understood by those skilled in the art, and this is not an admission that Applicant's invention is known to those skilled in the art. Applicant believes those skilled in the art would be able to clearly and readily ascertain the meaning of most of the words in the claims that the Examiner states are unsupported in the specification. The Examiner has repeatedly cited terms which he has clearly read out of context and thus states the meanings of the claim terms cannot be ascertained from the specification. Clearly, many terms if isolated from the claims, taken out of context, and placed in a vacuum absent any words before or after the isolated term would be rendered meaningless in their relationship to the claimed invention from which the term or terms have been isolated. In addition and for example, on page 3 of the Office Action the Examiner states "exposed handle" as used in the claims is unsupported in the originally filed specification. This objection by the Examiner is not at all appreciated by Applicant. It is abundantly clear that the "exposed handle" is properly supported in the specification as originally filed. Please see the drawing Figs. 1, 2, 3A, 3B, 6, 7 and 9 wherein each of these drawings clearly shows a handle, the handle being called a "handle" in the written portion of the original disclosure, and the handle not once being shown covered or hidden in any of the drawings by anything, and thus clearly exposed, and the handle by its very nature and as stated in the writing being for grasping by the human hand and thus at least exposed to the point of being graspable by the hand to allow hand inputs in the balance of the controller. Thus, it is beyond Applicant's comprehension as to how the Examiner is "honestly" finding lack of support in the specification for the claim term "exposed handle". Applicant grants the Examiner that the terms "exposed handle" are not precisely quotable from the original disclosure, but are readily and clearly ascertainable in meaning

from the original disclosure. Thus, again, Applicant objects to being held to standards of claim writing which far exceed those required of patent attorneys by other Patent Examiners, and respectfully requests the Examiner grant a broader assumption of those skilled in the art being able to readily and clearly ascertaining meanings of claim terms which are not precise quotes from the specification. Applicant believes the "reader" would be able to easily ascertain the meaning of most of the words in the claims that the Examiner states are unsupported in the specification, however, with Applicant always wishing to advance the application in the quickest way possible toward patent allowance, Applicant does not traverse the grounds of objection, and has noted each and every claim term the Examiner states is unsupported by the specification, and in amending the claims, Applicant will diligently pursue utilizing terms more in line with those words used in the specification, and will amend the specification without adding any new material so that each and every term of each and every claim will have what is hoped to be clear antecedent basis to the Examiner.

On page 4 of the Office Action immediately following the extremely long list of claim terms said to not be supported in the specification, and specifically regarding the statement in the Office Action on page 4 starting with

"And since applicant argues in the response filed 01/11/95 (e.g. on page 5, lines 11-13, 17-70 and 21-31 of said response, at the least) that the invention embodies numerous features which are clearly not set forth in and supported by the specification as originally filed, such as the sensors being radio wave sensors, optical sensors, etc.,..." (end quote);

It is not at all appreciated that the Examiner is misconstruing Applicant's remarks. The following are quotations from Applicant's response of 01/11/95 which show the Examiner is taking Applicant's statement clearly out of context and misconstruing them. From Applicant's response of 01/11/95, page

5, lines 8-31: "Would the Examiner please read page 22 of Applicant's specification describing a variety of sensors which are clearly proportional sensors, not simply on/off switches. These numerous known types of proportional sensors and others commonly known and not cited, output variable signals indicating positional information. Many of these sensors manipulate or provide varying resistance and or voltages. Also please review Applicant's drawings, and particularly Figs. 11c, 11d, 11e, 11f, 11g and 11h which show proportional sensors. Additionally, optical sensors and potentiometers of many types can also function in Applicant's invention, as they are so well known and common that those skilled in the art do not need to be told how to apply sensors they commonly utilize. There is a central off or null position in Applicant's controller with some "play" about this center off or null position so that the controller is not excessively sensitive in view of the range of control of the average or normal human hand, and this is where sensors "may" not be activated. Within this center off or null and "play" region, is where sensors "may" not be activated. If no sensors are activated, then it would be indicated that the controller is centered or in the central off or null position. Outside of the center null position or area, sensors will be outputting positional information as to the current position of the controller." (end of quote)

In the above quotation, please note the sentence "Additionally, optical sensors and potentiometers of many types can also function in Applicant's invention". Please note "<u>can also function in Applicant's invention</u>". It is very clear from Applicant's originally filed specification that the present invention is not dependant upon any one type of sensor being used, and in fact in the originally filed specification, it is clearly stated, and Applicant quotes from page 4 second to last line thereof bridging page 5 of the specification: "While the prior art is dependant upon specific types of sensors, this invention can be constructed with sensors as inexpensive as

simple electrical contacts or as sophisticated as a manufacturer desires."

Applicant's pending claims utilize "sensor means" or the like because the invention was never intended to be dependant upon any one type of sensor, but in fact is structured to be able to utilize many types of sensors, and this is and continues to be but one major advantage of the present invention. Furthermore Applicant does describe many types of sensors in the specification, and the Examiner has identified seven types of sensors which the Examiner states are clearly supported by the originally filed specification, see page 6 of the Office Action and point "4" thereon wherein the Examiner lists seven sensor types (a) through (g). Applicant does not view his invention as limited to any one particular sensor type. The use of the claim terms "sensor means" and the like is fully supported in the originally filed disclosure.

Thus the Examiner statement in the Office Action on page 4 starting with

"And since applicant argues in the response filed 01/11/95 (e.g. on page 5, lines 11-13, 17-70 and 21-31 of said response, at the least) that the invention embodies numerous features which are clearly not set forth....." is wholely unsupported and inaccurate.

Regarding page 5 of the Office Action and point "3." thereon stating claims 12-22 are rejected under 35 U.S.C 112, second paragraph: This has been read and carefully considered.

Regarding page 6 of the Office Action and point "4." thereon stating claims 12-22 are rejected under 35 U.S.C 112, second paragraph: This has been read and carefully considered. As addressed briefly above, Applicant's pending claims utilize "sensor means" because the invention was never intended to be dependant upon any one type of sensor, but in fact is structured to be able to utilize many types of sensors.

It is hoped that the Examiner is not telling Applicant that Applicant cannot use the term "sensor means" or "means for sensing" and the like in Applicants claims because Applicant has only specifically described seven different types of sensors in the specification. If this is what the Examiner is trying to tell Applicant in point "4" of the Office Action, Applicant is extremely upset, as no other patent applicants are held to such strict standards by other Patent Examiners.

Question: Is the Examiner stating that Applicant cannot use the term "sensor means" or "means for sensing" and the like in Applicant's claims, unless Applicant wishes a sure rejection of those claims, due to Applicant having only specifically described seven different types of sensors in the original specification ? Applicant needs to know the answer to the above question so that during the continued prosecution of this application in the future, if Applicant desires to use "sensor means" or "means for sensing" and the like in his claims, whether such terms are likely to be acceptable or objected to the Examiner. Applicant is sincerely concerned about this issue and requests clarification. Thank you.

Regarding page 7 bridging pages 8, 9, 10, 11, 12 and 13 of the Office Action and point "5." thereon stating claims 12-22 are rejected under 35 U.S.C 112, second paragraph: This has been read and carefully considered. Applicant respectfully and strongly disagrees with the Examiner's definition of the phrase "in communication with" as requiring information such as language, or computer bit streams or electrical information to be sent such as by a radio transmitter or the like, however, in amending the claims all occurrences in all applicable claims of "in communication with" will be deleted and replaced with some other phrase in order to advance the application and claims toward allowability.

Regarding page 8 of the Office Action part of point "5."

wherein the Examiner asks about "said member" in lines 8 and 11 of claim 12: The term "said member" is believed to be most clear in claim 12. It is clearly the "movably retained member", since no other "member" has been introduced into the claim prior to the next two uses of "said member" in lines 4-5 following the introduction of "movably retained member". Clearly, based on the lack of complaint on the part of the Examiner regarding the two occurrences of "said member" in line 4-5 of the claim, the Examiner must know "said member" in the claim means "movably retained member". "linkage member" is introduced in line 7 of the claim, and then thereafter always referred to as "said linkage member". After the introduction of "movably retained member" in lines 2-3 of the claim, it is always thereafter referred to as "said member". The introduction of the terms in question appears proper in claim 12, and the use thereof thereafter is consistent, although after the introduction of "movable retained member" it is further used in a slightly shorten version as "said member" as an attempt to keep the claim short and thus easily readable. Thus Applicant is frustrated with the Examiner's apparent inability to make such distinctions in the clearly written claims. However, Applicant does not wish to traverse the grounds for rejection since Applicant believes the application and claims will be advanced toward allowance more quickly simply by amending the claims in an attempt to overcome this grounds for rejection. The claims will be appropriately amended to overcome the rejection.

Additionally, on page 8 of the Office Action, Applicant has noted the Examiner's statement pertaining the Examiner having in the past not requested "permission" to amend the claims. Applicant is and was very much aware of the Examiner not requesting "permission" to amend the claims. Applicant has in past responses simply been trying to get the Examiner to not simply stop at critiquing terms in the claims, but to critique the terms and then provide constructive suggestions in all case

when the Examiner believes he knows of improved terminology per the requests of the M.P.E.P. of patent examiners. Such constructive assistance from the Examiner following a critiquing of a term is believed to be requested by the PTO in the M.P.E.P. whenever possible and without regard as to whether the Examiner sees patentable material in the application or not. Otherwise Applicant is believed to be allowed to use his own terms provided they are reasonable and ascertainable in their meaning. Applicant requests specific constructive assistance from the Examiner whenever possible.

Regarding page 8 bridging page 9 of the Office Action wherein "support means" of claim 12 line 13 of the claim is addressed relative to "linkage support means" set forth in line 9 of the claim: Clearly "linkage support means" is introduced into claim 12 in line 9 of the claim (note the lack of a "the" or "said" in front of "linkage support means"), and then thereafter "linkage support means" is consistently recited as "said linkage support means". The lack of a "said" or of a "the" in front of a means clause or any feature being introduced for the first time into a claim is believed normally an indication the means clause or feature is being introduced into the claim. After introduction of the means clause or feature into the claim, normally a "said" or a "the" is inserted in front of additional uses of the same means clause or feature in the given claim to allow the reader to distinguish that which is being introduced from that which has already been introduced. Thus, clearly "support means" is introduced into claim 12 in line 13, and then thereafter is consistently recited as "said support means".

Question: Is Applicant wrong about the use of "said" or "the" in claims as stated above ? An answer to this question would be helpful to Applicant in future prosecution of this application.

Applicant is not traversing the 35 U.S.C. 112 grounds for rejection as this might slow movement of the application and claims toward allowance, but is clearly having a difficult time in writing claims which the Examiner is able to understand, and desires the Examiner understand Applicant's logic behind the style or format of Applicant's claims so that once the Examiner understands the claims, then the Examiner will be able to see that the claims patentably distinguish over the prior art. Appropriate amendment to all appropriate claims to overcome this rejection will be herein made.

Regarding page 9 of the Office Action and the claim 12 line 14 occurrence of "a theoretical point": this has been read and carefully considered. All occurrences in all appropriate claims regarding the "theoretical point" will be appropriately amended to overcome the rejection.

Regarding page 9 of the Office Action and the claim 12 lines 20-21 and "said support means": this has been considered and the claims will be appropriately amended in all appropriate cases to overcome the rejection.

Regarding page 9 of the Office Action and the claim 12 line 23 occurrence of "said member": this has been considered and all appropriate claims will be appropriately amended to overcome the rejection.

Regarding page 9 of the Office Action and the claim 12 lines 25-26 and specifically the use of "said linkage support means for rendering said linkage member substantially non-tiltable relative to said member": this has been considered and all applicable claims will be appropriately amended to overcome the rejection. The Examiner has started his quotation of "said linkage support means for rendering" in the middle of a recitation, and thus that which is quoted by the Examiner is quoted out of context, and

apparently has been read out of context by the Examiner. Applicant believes that if "said linkage support means for rendering said linkage member substantially non-tiltable relative to said member" were read in context with the wording occurring before and after that which has been quoted, that such langauge would be quite clear. However, Applicant does not wish to traverse the grounds for rejection since Applicant believes the application will be advanced toward allowance more quickly simply by amending the claims to overcome this grounds for rejection.

Regarding page 10 of the Office Action and the claim 12 line 26 and specifically "said member": this has been considered and all applicable claims will be appropriately amended to overcome the rejection.

Regarding page 10 of the Office Action and the claim 12 line 29 and specifically "said member": this has been considered and all applicable claims will be appropriately amended to overcome the rejection.

Regarding page 10 of the Office Action and the claim 12 lines 33-35 and specifically "base means, sensor means": Applicant had intended "sensor means" to have been on the next line down and substantially indented to clearly separate it from "base means". Applicant apparently failed to install a hard right command in word processing between "base means" and "sensor means", and thus the terms were mistakenly ran together on the same line. The Examiner is thanked for his pointing to this error. This will be appropriately amended in all applicable claims to overcome the rejection.

Regarding page 10 of the Office Action and the claim 13 line 2 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 10 of the Office Action and the claim 13 lines 2-3 and specifically "said member": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 11 of the Office Action and the claim 13 line 3 and specifically "said member": as mentioned above, this will be appropriately amended in all appropriate claims to overcome the rejection.

Regarding page 11 of the Office Action and the claim 14 lines 2-3 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 11 of the Office Action and the claim 14 line 3 and specifically "said member": as mentioned above, this will be appropriately amended in all appropriate claims to overcome the rejection.

Regarding page 11 of the Office Action and the claim 17 line 5 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 11 of the Office Action and the claim 17 line 8 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 11 of the Office Action and the claim 17 line 12 and specifically the occurrence of "a theoretical point": this has been read and considered. All occurrences in all appropriate claims regarding the theoretical point will be appropriately amended to overcome the rejection.

Regarding page 11 bridging page 12 of the Office Action and

the claim 17 lines 20-22 and specifically the occurrence of "said shaft support means....relative to said member": The comments by the Examiner have been considered, and appropriate amendments to the claims in which this occurs will be made to overcome the rejection.

Regarding page 12 of the Office Action and the claim 17 line 28 regarding "base means, sensor means": This will be appropriately amended in all applicable claims to overcome the rejection.

Regarding page 12 of the Office Action and the claim 20 line 10 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 12 of the Office Action and the claim 20 line 13 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 12 of the Office Action and the claim 20 line 17 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 12 of the Office Action and the claim 20 line 20 and specifically "in communication with": as mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 12 of the Office Action and the claim 20 line 25 and specifically the occurrence of "a theoretical point"; this has been read and considered. All occurrences in all appropriate claims regarding the theoretical point will be appropriately amended to overcome the rejection.

Regarding page 13 of the Office Action and the claim 20 lines 34-35 and specifically "in communication with": as

mentioned above, this will be appropriately amended to overcome the rejection.

Regarding page 13 of the Office Action and the claim 20 lines 37-39 and the lack of antecedent basis for "said shaft support means....relative to said plate member": The comments by the Examiner have been considered, and appropriate amendments to the claims in which this occurs will be made to overcome the rejection.

Regarding page 13 of the Office Action and the point "6." thereon regarding the 35 U.S.C. 112 deficiencies set forth, and the statement that the claims are accorded their most reasonable interpretation consistent with the specification for evaluation with respect to the prior art. The entire point "6." and been carefully read and considered. Applicant strongly disagrees that the claims 12-22 are "grossly indefinite" as stated by the Examiner, however under amendment herein, Applicant will amend the claims to the best of his abilities in an attempt to satisfy the Examiner.

Regarding page 14 of the Office Action and the point "7." quoting the appropriate paragraphs of 35 U.S.C. 102: This has been read and carefully considered.

Regarding page 14 bridging pages 15, 16 and 17 of the Office Action and the point "8." regarding the 35 U.S.C. 102 (b) rejection applied to non-amended claims 12-14 and 17 for the first time since the claims were entered on 06/03/95 as being anticipated by Dzholdasbekov et al (GB 2,240,614), henceforth Dzholdasbekov; the Examiner's comments have all been carefully read and considered. Most addressing of the prior art will be made after amendment of the claims, however, the rejection of claims 12-14 and 17 under 35 U.S.C. 102(b) as being anticipated by Dzholdasbekov is inappropriate and should not have been

applied. Clearly the handle 2 of Dzholdasbekov is not resolvable into positions about "said three axes", the three axes being mutually perpendicular to one another, and intersecting one another within the handle, with the three degrees of freedom of rotation which is detected by "pick-ups" being about these three axes.

The Dzholdasbekov handle 2 is resolvable in three degrees of freedom, but not by being detected or tracked by "pick-ups" about three axes defining a point defined by the three axes being mutually perpendicular to one another and intersecting one another within the handle of Dzholdasbekov. And so the Dzholdasbekov structure is completely different than that claimed in Applicant's claims 12-14 and 17. The Dzholdasbekov handle 2 includes a thumbwheel for one degree of rotational freedom, and thus this aspect of a separate thumbwheel proves that the Dzholdasbekov handle 2 is not resolvable about three sensed axes,(sensed by "pick-ups") but rather handle 2 is only resolvable about two axes.

Regarding page 17 bridging pages 18, 19 and 20 of the Office Action and the point "9." regarding the 35 U.S.C. 102 (b) rejection of claims 12-14 and 17 as being anticipated by King (US 4,555,960), henceforth King: the Examiner's comments have all been carefully read and considered. Most addressing of the prior art will be made after amendment of the claims, however, the 35 U.S.C. 102(b) rejection of claims 12-14 and 17 as being anticipated by King is inappropriate and should not have been made, in that Applicant's claims 12-14 and 17 specify a handle support shaft as being non-tiltable, and the shaft of King which supports the spherical handle of King tilts and must tilt in order for the KIng controller to operate. The tilting shaft of King is a major and significant structurally different arrangement than that of Applicant's claims 12-14 and 17, thus the 35 U.S.C. 102(b) rejection of claims 12-14 and 17 in view of King is inappropriate because King does not describe or

anticipate that which Applicant claims in claims 12-14 and 17. Additionally, although the Examiner has gone to great lengths attempting to show that King includes horizontally moving members which move in the first and second horizontal linear degrees of freedom somewhat correlating with the arching handle movements of King on the first and second horizontal linear degrees of freedom, the Examiner is reaching, as these aspects do not exist in the King device or in the King disclosure. King includes nothing similar to Applicant's sliding-plate-linear-conversion structure or means.

Regarding page 20 of the Office Action and the point "10." quoting the appropriate paragraphs of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in the Office Action: This has been read and carefully considered by Applicant. Applicant strongly disagrees the present invention is obvious as claimed in claims 12-22 or in the new or amended claims presented in this response.

Regarding page 20 bridging page 21 of the Office Action and the point "11" regarding the 35 U.S.C. 103 rejection of claims 15 and 18 as being unpatentable over Dzholdasbekov as applied to claims 12-14 and 17 previously, and further in view of IBM Technical Disclosure Bulletin Vol. 32, No. 9B, henceforth IBM: the Examiner's comments have all been carefully read and considered. Applicant strongly disagrees the present invention is obvious, as neither of these prior art references include a handle resolvable and sensed as it is resolved about three axes intersecting one another mutually perpendicular at a point within a handle to provided three degrees of freedom of "sensed" rotation about these three axes. Addressing of the prior art will be made after amendment of the claims.

Regarding page 22 bridging page 23 of the Office Action and the point "12" regarding the 35 U.S.C. 103 rejection of claims

15-16 and 18-19 as being unpatentable over King as applied to claims 12-14 and 17 previously, and further in view of IBM: the Examiner's comments have all been carefully read and considered. Applicant strongly disagrees the present invention is obvious, as neither of these references includes anything similar in structure to Applicant's sliding-plate-linear-conversion means. Addressing of the prior art will be made after amendment of the claims.

Regarding page 23 of the Office Action and the point "13" regarding the "alternative" of the discussion of Dzholdasbekov and King with reference to claims 12-19: The Examiner's comments have all been carefully read and considered, and it is apparent from the Examiner's comments on page 24 that the Examiner is for some reason unable to precisely determine the structure of Dzholdasbekov regarding handle rotations, and this brings to question as to why the Examiner made the 35 U.S.C. 102(b) rejection of Applicant's claims over Dzholdasbekov as addressed above. The Dzholdasbekov device appears clearly detailed in the Dzholdasbekov disclosure, and does not describe Applicant's invention of claims 12-14 and 17 as stated earlier in the Office Action. King's device is also clearly detailed in the King disclosure, and does not include anything similar to Applicant's sliding-plate-linear-conversion means as alleged in point 9 on page 17 of the Office Action. The Examiner is however correct that King's handle is resolvable in three degrees of rotation about a point within the King spherical handle. Applicant strongly disagrees the present invention is obvious as speculated in points 13 and 14 of the Office Action.. Addressing of the prior art will be made after amendment of the claims.

Regarding page 24 bridging pages 25, 26 and 27 of the Office Action and the point "14": Point 14 has been carefully read and considered, and has at least in part been addressed above in regards to point 13 of the Office Action. Applicant would like to

state that Dzholdasbekov clearly does not provide three rotational signals for rotations about three axes which meet at a theoretical point in the handle. In point 14 of the Office Action it is clear that the Examiner is picking and choosing features at random simply based on whether the features exist or do not exist in the art, and clearly the Examiner is acting a though the mere existence of some feature in the art suggests its combination with other features which can be shown to merely exist in the art, without any suggestion to combine the shown features more than their mere existence. Applicant's agrees some features of Applicant's invention may be individually shown to exist within the prior art, but the suggestion that the features of the prior art be combined precisely along the teachings of Applicant's disclosure in order to receive the many benefits provided by the claimed combination is not suggested and is not obvious. Comparison of the prior art will be made after amendments to the claims so that the amended claims may be compared to the prior art.

Regarding page 28 bridging page 29 of the Office Action and the point "15": Point 15 has been carefully read and considered. Applicant strongly disagrees the present invention is obvious, however comparison of the prior art will be made after amendments to the claims so that the amended claims may be compared to the prior art.

Regarding page 29 bridging pages 30 and 31 of the Office Action and the point "16": Point 16 has been carefully read and considered. Applicant strongly disagrees the present invention is obvious. Comparison of the prior art will be made after amendments to the claims so that the amended claims may be compared to the prior art.

Regarding page 31 bridging page 32 of the Office Action and the point "17": Point 17 has been carefully read and considered.

Comparison of the prior art will be made after amendments to the claims so that the amended claims may be compared to the prior art.

Regarding page 32 bridging pages 33, 34, 35, 36, 37, 38 and 39 of the Office Action and the point "18": Point 18 has been carefully read and very carefully considered. Applicant has read the statement that Applicant is encouraged to place greater emphasis on the particular issues raised in the Office action when formulating any future responses. Applicant has never intended to ever raise or address any issue that in Applicant's opinion was not directly related to issues raised by the Patent Office or issues which directly focused on the patentability of the invention and movement of the application and claims toward allowance. All of the Examiner's remarks regarding said 01/11/95 response have been read and carefully considered. Although Applicant does not agree with many of the remarks and grounds for rejection made by the Examiner, Applicant does deeply appreciate the Examiner taking the time and effort to respond in detail to Applicant's 01/11/95 response.

On page 33 of the Office Action the Examiner states "the application has been processed in a timely manner".
Question: Does this mean that the Examiner did not process a first office action on any non-special application that had a filing date later than the present application filing date during the 27 plus month wait from the filing date to the first office action of the present application ?

On page 33 the Examiner states "the application contains no allowable subject matter". Applicant does not understand why the Examiner makes this statement, when in an earlier telephone interview that was not made of record by the Examiner or by Applicant, the Examiner stated the application did contain allowable subject matter, and the subject matter if incorporated

into a claim would be held allowable. The Examiner stated Applicant should incorporate one particular type of sensor into a claim to overcome the grounds of rejection pertaining to prior art, in order to have at least one claim allowed. Applicant told the Examiner that the invention was not dependant upon any one particular type of sensor. Does this statement by Applicant regarding the fact that his invention is not dependant upon any one particular type of sensor make the allowable subject matter disappear? Applicant's originally filed specification stated the invention was not dependant upon one particular sensor, and thus it must be assumed the Examiner understood this when he made his statement pertaining to allowable subject matter. What is going on here?

On page 39 of the Office Action the Examiner states "Applicant's amendments necessitated the new grounds of rejection": Applicant questions what amendments the Examiner is speaking about. Claims 12-22 were submitted 06/03/94 and were rejected over the prior art ONLY under 35 U.S.C. 103 and not 35 U.S.C. 102 in the Office Action of paper 8. Again in the now withdrawn paper #13, claims 12-22 were rejected relative to the prior art only under 35 U.S.C. 103. Claims 12-22 were not amended since their submission, were not amended in Applicant's response filed 01/11/95, and were not amended in any telephone interview between the Examiner and Applicant as stated by the Examiner on page 33 of the present Office Action paper #17 where the Examiner states Applicant's response of 01/11/95 contained no "amendatory material", and NOW all of a sudden, the claims 12-22 are rejected under 35 U.S.C 102. What is going on here? What "amendments" necessitated the "new ground for rejection" stated in the present Office Action of 08/10/95 ?? Applicant does not understand how by the Examiner's admission no amendments were made to claims 12-22, and yet these "amendments" which were not made, and thus do not exist, have necessitated moving the ground for rejection from 35 U.S.C. 103 ONLY relative to the

prior art, to now being rejected under 35 U.S.C. 102 over the same prior art that was of record and known to the Examiner when he first rejected the claims 12-22 only under 35 U.S.C. 103 relative to the prior art.

Is the Examiner angry with Applicant and trying to take-out aggression to the harm of Applicant and Applicant's application ? If the Examiner cannot honestly say this is not the case, would the Examiner please be so kind as to withdraw from this application in the name of fairness ?. Thank you.

Specifically in reference to page 40 of the Office Action and the point "21." information regarding Applicant's right to Appeal to the Board of Patent Appeals: Applicant appreciates this information but does not intend to Appeal because Applicant believes that once the claims are clearly understandable to the Examiner, and the Examiner fully understands the prior art, that the claims will be found patentable. Again, any constructive assistance from the Examiner that the Examiner can and is willing to lend would be deeply appreciated. As the Examiner will see with continued reading, rights to Applicant's invention has been eagerly sought by at least one of the largest computer input device manufacturing and sales companies in the world, and with offers exceeding one million dollars. Thus this application is very important to Applicant, and the novel invention that advances the art is perceived as having great value by those skilled in the art working for the at least one of the largest computer input device manufacturing and sales companies in the world.

Regarding the Examiner's comment in the Office Action referring to Applicant as being unfamiliar with the patent process: Applicant has not in the past, and does not now claim to be an "expert" in the very complex process of patenting. Applicant is reasonably sure that very few human beings, if any,

know and understand "all" laws and rules, and court decisions defining the laws and rules pertaining to the patenting process, since codes 35 and 37, and the M.P.E.P constitute thousands of pages, not to mention the many court decisions pertaining to interpretations and the application of the laws. Applicant apologizes for any hardships Applicant's lack of being a patent law expert may have caused the Examiner. Applicant is doing the best he can, and believes that considering the application was examined after filing indicates that the application must have met all of the requirements for a proper patent application filing at the U.S. Patent and Trademark Office, thus indicating a degree of familarity with the patenting process.

Comparison of the prior art will be made after amendments to the claims so that the amended and new claims may be compared to the prior art.

AMENDMENTS

Amendments in the claims:

Cancel claims 12-22; and insert in the appropriate location the following new claims presented for examination.

~~23.~~ A hand-operated controller allowing six degrees of freedom of hand input force into a single handle for conversion of the hand input force into electrical output signals, said controller comprising;

stationary base means including a first portion of said base means and a horizontally positioned second portion of said base means for supporting

sliding-plate-linear-conversion means for moving within a horizontal first linear degree of freedom and a horizontal second linear degree of freedom of said six degrees of freedom and for actuating

linear sensor means for sensing positions of said sliding-

plate-linear-conversion means within the horizontal first and second linear degrees of freedom and for producing electrical output signals related to sensed positions of said sliding-plate-linear-conversion means;

said sliding-plate-linear-conversion means sandwiched between said first portion of said base means and said horizontally positioned second portion of said base means and thereby restrained against upward and downward movement;

a shaft coupled to said sliding-plate-linear-conversion means to move with said sliding-plate-linear-conversion means at least in the horizontal first and second linear degrees of freedom;

said shaft having

said single handle on an upper end of said shaft to allow all of said six degrees of freedom of hand input force to be applied to said controller through said single handle;

means for transferring horizontal linear hand input force applied to said single handle directionally correspondingly to the horizontal first and second linear degrees of freedom into directionally corresponding horizontal linear force against said shaft, whereby with said shaft being coupled at least in the horizontal first and second linear degrees of freedom to said sliding-plate-linear-conversion means, the shaft can transfer horizontal linear force applied to said single handle into said sliding-plate-linear-conversion means so as to move said sliding-plate-linear-conversion means in the horizontal first and second linear degrees of freedom in a substantially identical direction as the direction of the horizontal linear hand input force applied to said single handle;

means for allowing said single handle to be rotatable in three separate degrees of rotational freedom about a single point defined by an intersection of three mutually perpendicular axes within said single handle, whereby three degrees of rotational freedom of said six degrees of freedom are provided;

rotational force sensor means for sensing rotational force

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against said single handle in any of said three degrees of rotational freedom, and for producing electrical output signals related to sensed rotational force against said single handle,

means for allowing said single handle to be moved vertically upward and downward in a third linear degree of freedom of said six degrees of freedom by vertical hand input force against said single handle,

up and down movement sensor means for sensing upward and downward movement of said single handle in said third linear degree of freedom and for producing electrical output signals related to sensed upward and downward movement of said single handle.

2 ~~24~~. A controller in accordance with claim 1 ~~23~~ further including

spatial isolation means in association with said linear sensor means, said rotational force sensor means and said up and down movement sensor means.

3 ~~25~~. A controller in accordance with claim 2 ~~24~~ wherein said linear sensor means is more narrowly defined as

an independent first sensor and an independent second sensor each associated with the horizontal first linear degree of freedom;

and further,

an independent third sensor and an independent fourth sensor each associated with the horizontal second linear degree of freedom;

the independent first through fourth sensors each being separate and distinct from one another.

4 ~~26~~. A controller in accordance with claim 3 ~~25~~ wherein said rotational force sensor means is more narrowly defined as

six independent sensors each separate and distinct from one another, and each separate and distinct from said independent

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first through fourth sensors.

6 ~~27~~. A controller in accordance with claim 4 ~~26~~ wherein said up and down movement sensor means is more narrowly defined as

two independent sensors each separate and distinct from one another, separate and distinct from said six independent sensors, and separate and distinct from said independent first through fourth sensors.

~~28~~. A controller in accordance with claim 5 ~~27~~ wherein said independent first through fourth sensors, and said six independent sensors and said two independent sensors all jointly comprise twelve sensors each being separate and distinct from one another;

each separate and distinct sensor of said twelve sensors is an electricity manipulating sensor each capable of manipulating electricity independently of the other sensors of said twelve sensors.

7 ~~29~~. A controller in accordance with claim 6 ~~28~~ wherein said twelve sensors are each electrical contact switches.

8 ~~30~~. A controller in accordance with claim 7 ~~29~~ wherein each switch of the twelve electrical contact switches is an open switch closeable with force applied thereto.

9 ~~31~~. A controller in accordance with claim 8 ~~30~~ further including tactile feedback means for providing vibration which can be felt through said single handle.

10 ~~32~~. A hand-operated controller allowing six degrees of freedom of hand inputs for conversion of the hand inputs into twelve orthogonal outputs each dependant upon hand inputs, with the twelve orthogonal outputs each represented by an electrical output signal each produced by one of twelve separate sensors

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attached to said controller, with each of said sensors associated one said sensor per each orthogonal output of said twelve orthogonal outputs, said controller comprising;

a stationary base for supporting

sliding-plate-linear-conversion means movably sandwiched between a first portion and a second portion of said base; said sliding-plate-linear-conversion means movable in a first linear degree of freedom and in a second linear degree of freedom of said six degrees of freedom for actuating

a first four sensors of said twelve separate sensors;

said first four sensors mounted within said base;

said first four sensors including a move-forward sensor associated with

a first output of said twelve orthogonal outputs;

said first four sensors including a move-back sensor associated with

a second output of said twelve orthogonal outputs;

said first four sensors including a move-right sensor associated with

a third output of said twelve orthogonal outputs;

said first four sensors including a move-left sensor associated with

a fourth output of said twelve orthogonal outputs;

said sliding-plate-linear-conversion means sandwiched between said first portion and said second portion of said base so that said sliding-plate-linear-conversion means is moveable exclusively horizontally to and from actuation of each of the sensors of said first four sensors;

a shaft; said shaft having a lower end and an upper end;

the lower end of said shaft coupled to said sliding-plate-linear-conversion means so that said shaft is coupled with said sliding-plate-linear-conversion means to move in the first and second linear degrees of freedom so that linear horizontal movements of said shaft can be translated into linear horizontal movements of said sliding-plate-linear-conversion means to move

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said sliding-plate-linear-conversion means to and from actuation of each of the sensors of said first four sensors;

a handle on said upper end of said shaft, said handle manipulable by human hand inputs for applying all of said six degrees of freedom of hand inputs into said controller;

means for allowing said handle to be rotatable in three degrees of rotational freedom about a single point defined by an intersection of three mutually perpendicular axes within said handle, whereby three degrees of rotational freedom of said six degrees of freedom are provided;

a second four sensors of said twelve separate sensors, said second four sensors mounted within said handle and associated with at least two rotational degrees of freedom of said three degrees of rotational freedom;

said second four sensors including a turn-up sensor associated with

a fifth output of said twelve orthogonal outputs;

said second four sensors including a turn-down sensor associated with

a sixth output of said twelve orthogonal outputs;

said second four sensors including a turn clockwise sensor associated with

a seventh output of said twelve orthogonal outputs;

said second four sensors including a turn counter-clockwise sensor associated with

an eighth output of said twelve orthogonal outputs;

said controller including a turn-right sensor associated with

a ninth output of said twelve orthogonal outputs; said ninth output associated with a third degree of rotational freedom separate from said two rotational degrees of freedom;

said controller including a turn-left sensor associated with

a tenth output of said twelve orthogonal outputs; said tenth output associated with said third degree of rotational freedom;

means for allowing said handle to be moved vertically up and