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PATENT  
20-2833P

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : I. Saji et al.  
Serial No. : 07/726,172 Group: 1202  
Filed : July 5, 1991 Examiner: R. Bond  
For : IMIDE DERIVATIVES, AND THEIR PRODUCTION AND USE

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AMENDMENT

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

March 1, 1993

Sir:

In response to the Office Action dated November 27, 1992, the following amendments and remarks are respectfully submitted in connection with the above application.

In The Claims:

Please cancel claims 1-10 and substitute therefor the following new claims.

~~11.~~ An imide compound of the formula:



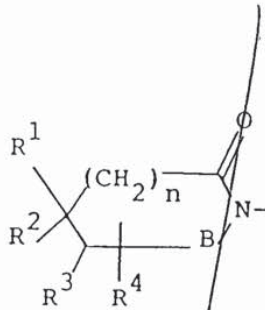
wherein Z is a group of the formula:

040 TD 03/16/93 07726172 1 103 88.00 CK  
040 TD 03/16/93 07726172 1 102 74.00 CK  
040 TD 03/16/93 07726172 1 104 230.00 CK

*Bi-subj!*

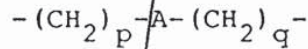
~~040 TD 03/16/93 077236172 1 103 88.00 CK  
040 TD 03/16/93 077236172 1 102 74.00 CK  
040 TD 03/16/93 07726172 1 103 88.00-CK  
040 TD 03/16/93 07724172 1 102 74.00-CK~~

*B*



in which B is a carbonyl group or a sulfonyl group, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are each a hydrogen atom or an alkyl group having 1-4 carbon atoms with a proviso that R<sup>1</sup> and R<sup>2</sup> or R<sup>1</sup> and R<sup>3</sup> are combined together to make a non-aromatic hydrocarbon ring having at most 7 carbon atoms and being un-substituted or substituted with at least one alkyl group having 1-4 carbon atoms, and n is an integer of 0 or 1;

D is a group of the formula:



in which A is a non-aromatic hydrocarbon ring having at most 7 carbon atoms and being un-substituted or substituted with at least one alkyl group having 1-4 carbon atoms, and p and q are each an interger of 0, 1 or 2;

Ar is a monocyclic heterocyclic aromatic group having at

*B' cont'd*  
*Sub G' cont'd*

most 6 carbon atoms and at most 4 hetero atoms chosen from nitrogen, oxygen and sulfur, or a bicyclic heterocyclic aromatic group having at most 10 carbon atoms and at most 5 hetero atoms chosen from nitrogen, oxygen and sulfur, both of the above groups Ar being unsubstituted or substituted with at least one of an alkyl group having 1-4 carbon atoms, an alkoxy group having 1-4 carbon atoms and a halogen atom; and G is  $\text{>N-}$ ; or an acid addition salt thereof.

12. The imide compound according to claim ~~11~~<sup>1</sup>, wherein Ar is the bicyclic heterocyclic aromatic group, of which one ring is a benzene un-substituted or substituted with at least one of an alkyl group having 1-4 carbon atoms, an alkoxy group having 1-4 carbon atoms and a halogen atom; or an acid addition salt thereof.

13. The imide compound according to claim ~~11 or 12~~<sup>1</sup>, wherein said non-aromatic hydrocarbon ring in Z is further bridged with an alkylene group having 1-3 carbon atoms and being un-substituted or substituted with at least one alkyl group having 1-4 carbon atoms, or an oxygen atom; or an acid addition salt thereof.

14. The imide compound according to claim ~~11 or 12~~<sup>1 2</sup>, wherein said non-aromatic hydrocarbon ring in D is further bridged with an alkylene group having 1-3 carbon atoms and being unsubstituted or substituted with at least one alkyl group having 1-4 carbon atoms, or an oxygen atom; or an acid addition salt thereof.

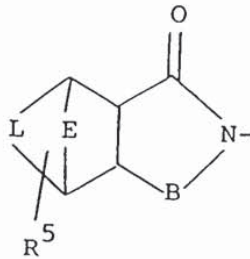
15. The imide compound according to claim ~~11 or 12~~<sup>1 2</sup>, wherein said non-aromatic hydrocarbon rings in Z and D are further bridged

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with an alkylene group having 1-3 carbon atoms and being un-substituted or substituted with at least one alkyl group having 1-4 carbon atoms, or an oxygen atom; or an acid addition salt thereof.

~~5-6~~ 26. The imide compound according to claim ~~11~~<sup>1</sup>, wherein Z is one of the following formulas:

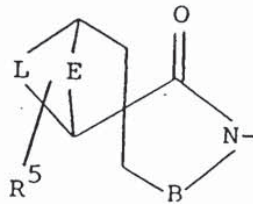
(Z-1)



B' contg

wherein L is -CH<sub>2</sub>-CH<sub>2</sub>- or -CH=CH-, E is an alkylene group having not more than 3 carbon atoms and being un-substituted or substituted with an alkyl group having not more than 4 carbon atoms or an oxygen atom, R<sup>5</sup> is a hydrogen atom or an alkyl group having not more than 4 carbon atoms and B is a carbonyl group or a sulfonyl group;

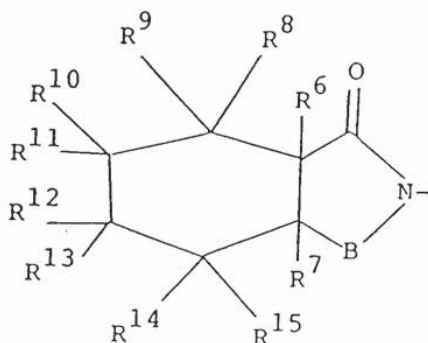
(Z-2)



wherein L, E, R<sup>5</sup> and B are each as defined above;

(Z-3)

*proof*

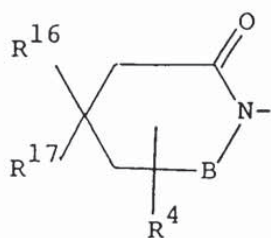


wherein R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup> and R<sup>15</sup> are each a hydrogen atom or an alkyl group having not more than 4 carbon atoms, or two of those present at the neighboring positions each other may be combined together to make a bond and B is as defined above; and

*Bond*

(Z-4)

*T921X*



wherein R<sup>4</sup> is a hydrogen atom or an alkyl group having not more than 4 carbon atoms, R<sup>16</sup> and R<sup>17</sup> are combined together to make a saturated hydrocarbon ring <sup>having</sup> not more than 7 carbon atoms, and B is as defined above; or an acid addition salt thereof.

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