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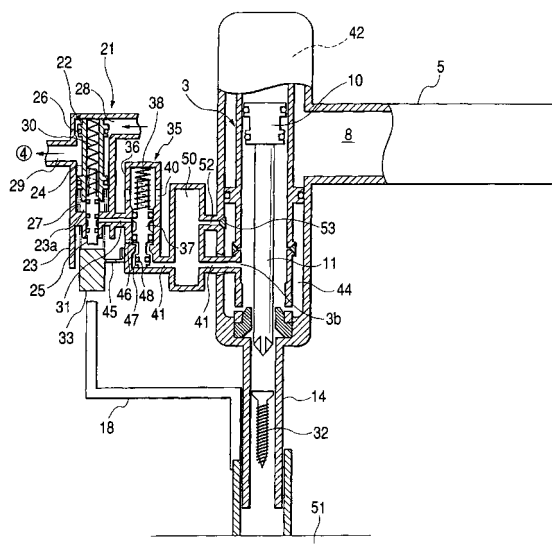
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(54) **Pneumatic screwdriver with screwing depth limitation**

(57) An automatic stop device for a screwdriver stops the rotation of the air motor of the screwdriver if the desired screwing depth is reached. A screw feed device (15) of the screwdriver comprises a pneumatic cylinder (3). In an air passage (41) formed in the pneumatic cylinder, a valve chamber (47) is formed in order to operate an air exhaust valve (35) to communicate the pilot air chamber (23a) with the open air. An air exhaust hole (46) for exhausting compressed air from the air passage (41) is formed in the valve chamber (47). A timer chamber (50) is formed in the upstream of the valve chamber (47) in the air passage (41). A pressure within the valve chamber (47) increases and the air exhaust valve (35) operates upon the pressure increase and the stop valve (22) is actuated to close by discharging the compressed air from the pilot air chamber (23a) of the stop valve (22), when the piston reaches a position near the lower dead point and the compressed air flows from the air passage (41) to the valve chamber (47) via the timer chamber (50) and the air exhaust hole (46) is closed in synchronism with the operation of the contact arm (18).

FIG. 3





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EUROPEAN SEARCH REPORT

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| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|---|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| D,X | EP 0 967 052 A (MAX CO LTD) 29 December 1999 (1999-12-29) * paragraphs [0039] - [0054] * * figures 9-12 * | 1 | B25B23/00 B25B21/02 |
| A | ----- US 3 732 934 A (BRANDENBERG K) 15 May 1973 (1973-05-15) * column 5, line 62 - column 6, line 3 * * figure 1 * ----- | 1 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| | | | B25B |
| The present search report has been drawn up for all claims | | | |
| Place of search Munich | | Date of completion of the search 10 January 2005 | Examiner Schultz, T |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | | | |

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 00 4959

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| Patent document cited in search report | | Publication date | | Patent family member(s) | Publication date |
|---|---|---------------------|----|----------------------------|---------------------|
| EP 0967052 | A | 29-12-1999 | JP | 2000006051 A | 11-01-2000 |
| | | | JP | 3570491 B2 | 29-09-2004 |
| | | | JP | 2000326248 A | 28-11-2000 |
| | | | DE | 69917714 D1 | 08-07-2004 |
| | | | DE | 69917714 T2 | 23-09-2004 |
| | | | EP | 0967052 A2 | 29-12-1999 |
| | | | US | 6205894 B1 | 27-03-2001 |
| ----- | | | | | |
| US 3732934 | A | 15-05-1973 | GB | 1281908 A | 19-07-1972 |
| | | | US | 3580285 A | 25-05-1971 |
| ----- | | | | | |

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82