



(12) **United States Patent**
Kotlarski et al.

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(54) **WIPER BLADE FOR CLEANING VEHICLE GLASS PANES**

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Karlheinz Lorenz, Baden-Baden, both of (DE)

(73) Assignee: **Robert Bosch GmbH**, Stuttgart (DE)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(52) U.S. Cl. **15/250.201**; 15/250.43;
15/250.32; 15/250.451

(58) Field of Search 15/250.43, 250.451,
15/250.452, 250.453, 250.454, 250.44,
250.32, 250.201

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,093,856 * 6/1963 Smithers .

3,116,507 * 1/1964 Scinta .
3,192,551 * 7/1965 Appel 15/250.43
3,390,416 * 7/1968 Scinta 15/250.32
3,408,678 * 11/1968 Linker 15/250.32
3,430,285 * 3/1969 Rickett .
4,348,782 * 9/1982 Fournier 15/250.32

FOREIGN PATENT DOCUMENTS

1028896 * 4/1958 (DE) .
1 505 397 10/1969 (DE) .
316114 * 5/1989 (EP) .
1239780 * 7/1960 (FR) 15/250.453
2222853 * 10/1974 (FR) .
2222855 * 10/1974 (FR) .

* cited by examiner

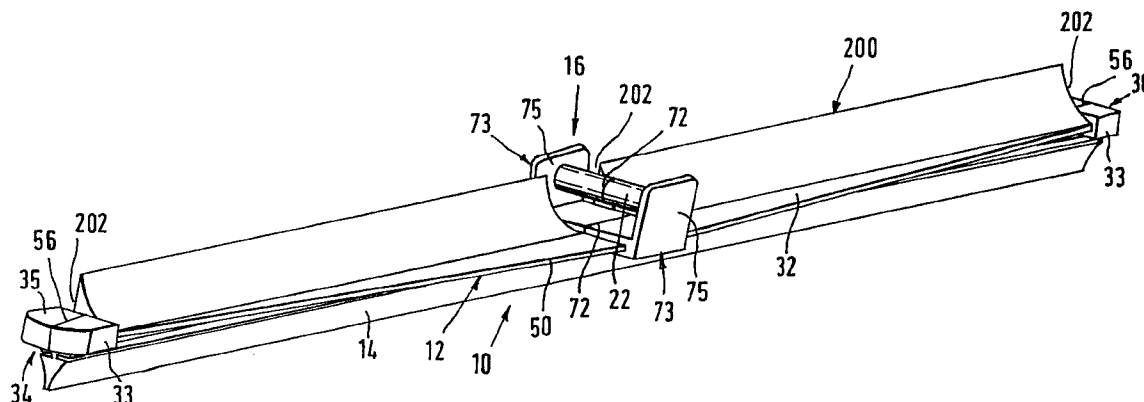
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(57) **ABSTRACT**

A wiper blade (10) is proposed, which serves to clean vehicle windows. The wiper blade has an elongated, strip-like spring-elastic support element (12), against one band face (48) of which, facing away from the window, a connection device (16) that can be connected to a driven wiper arm (18) is held, and against whose other band face (46), facing toward the window, an elongated, rubber-elastic wiper strip (14) is disposed parallel to the longitudinal axis, wherein the multi-part support element (12) has two spring rails (30, 32), disposed in longitudinal grooves (38, 40) facing one another of the wiper strip (14), which rails are secured in the longitudinal grooves by at least one holder fitting over their longitudinal edges remote from one another. Simplified and thus economical assembly with improved wiping performance is assured if the holder (34 or 36) is divided in the longitudinal direction of the wiper blade (10) into holder parts (33, 35), and if further the holder parts (33, 35) are joined together.

14 Claims, 4 Drawing Sheets



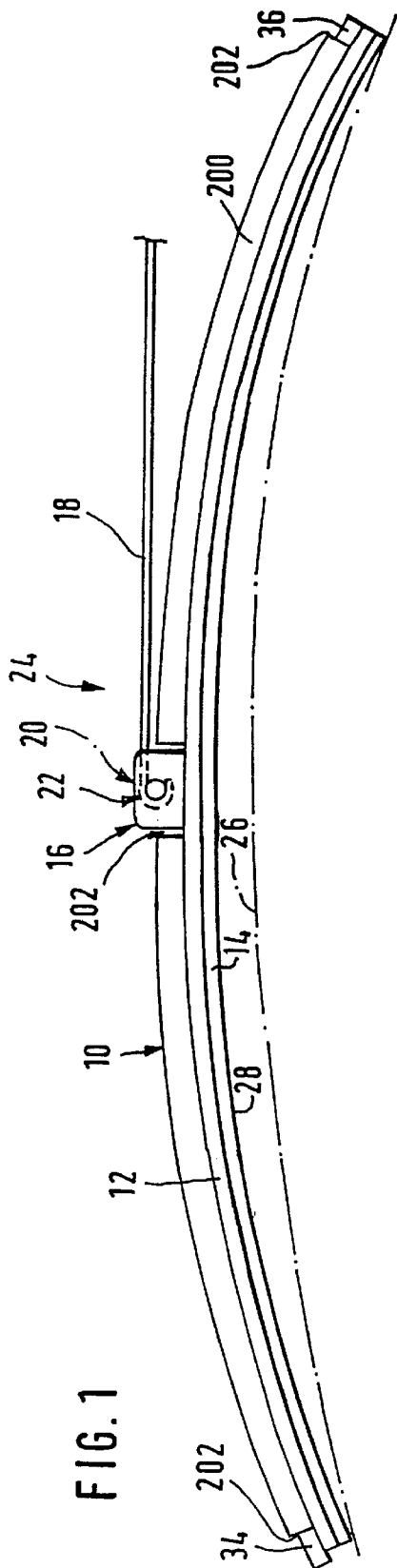


FIG. 1

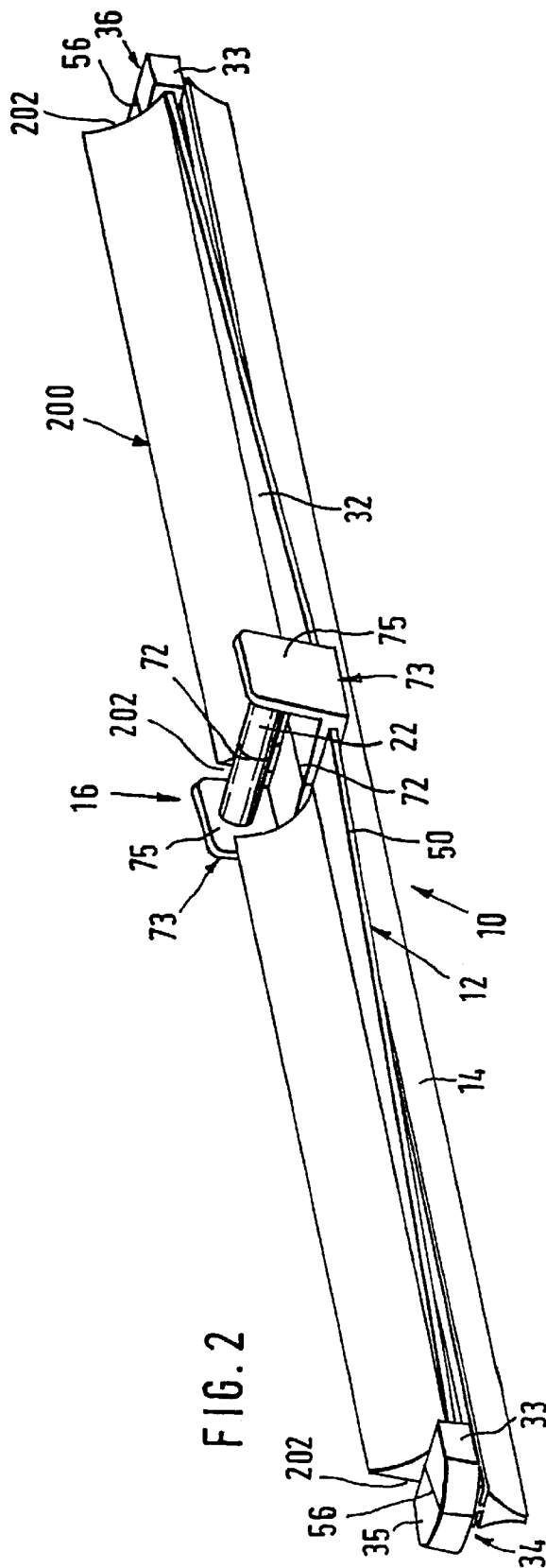


FIG. 2

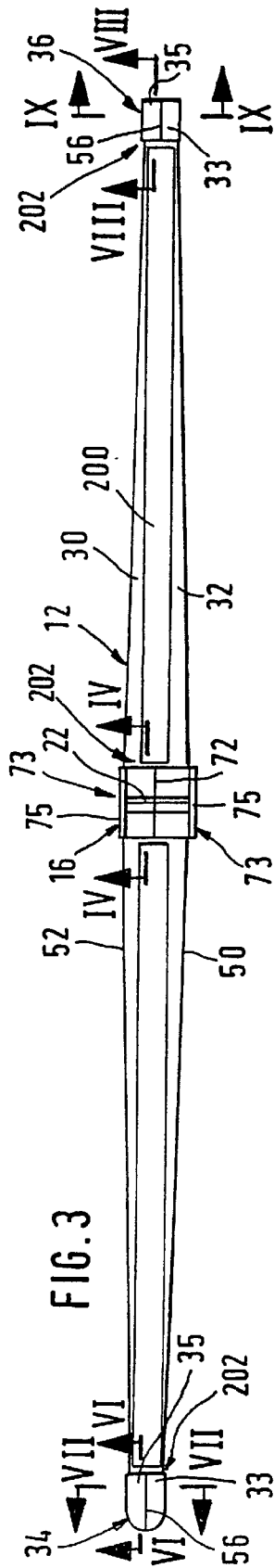


FIG. 3

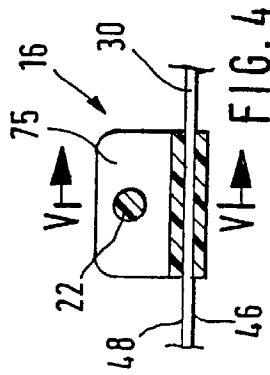


FIG. 4

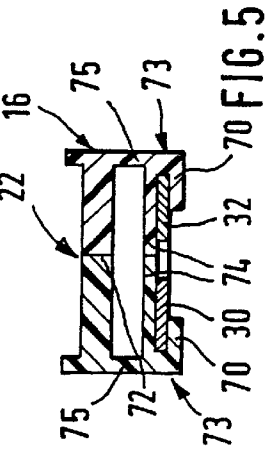


FIG. 5

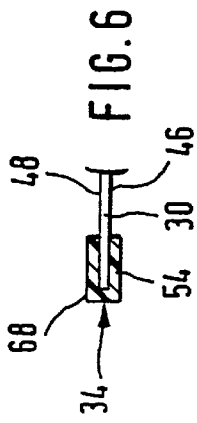


FIG. 6

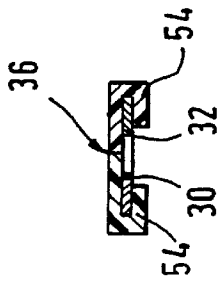


FIG. 7

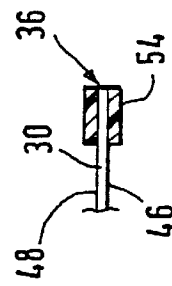
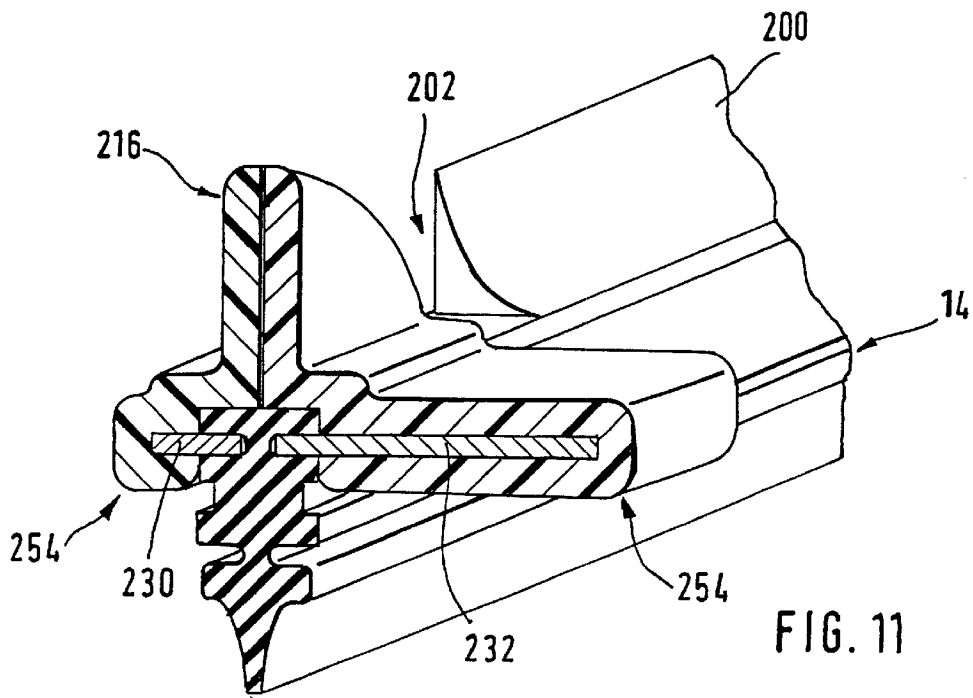
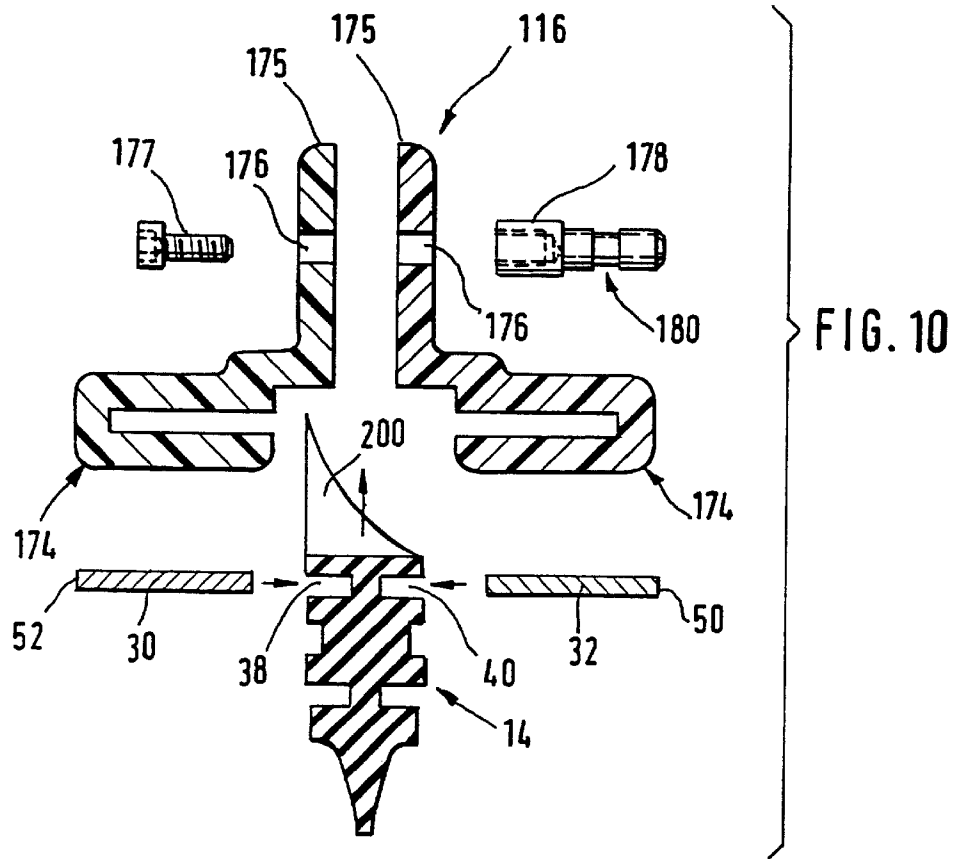
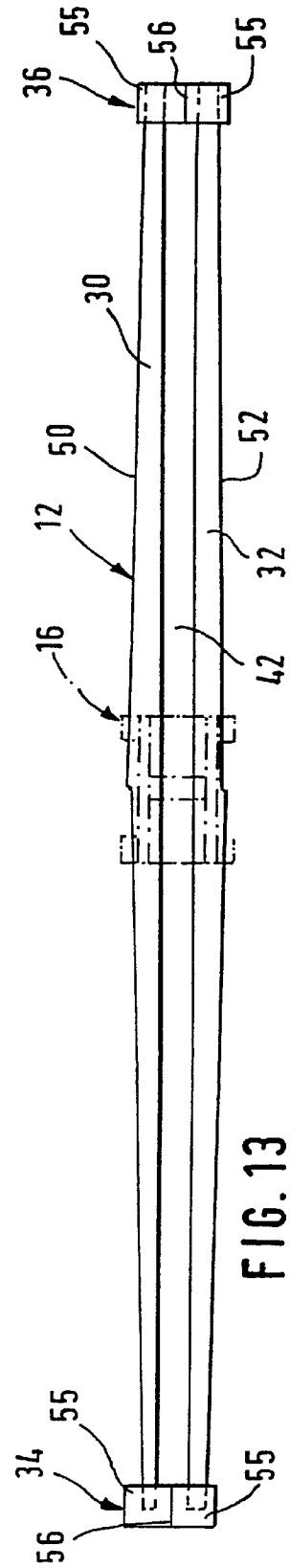
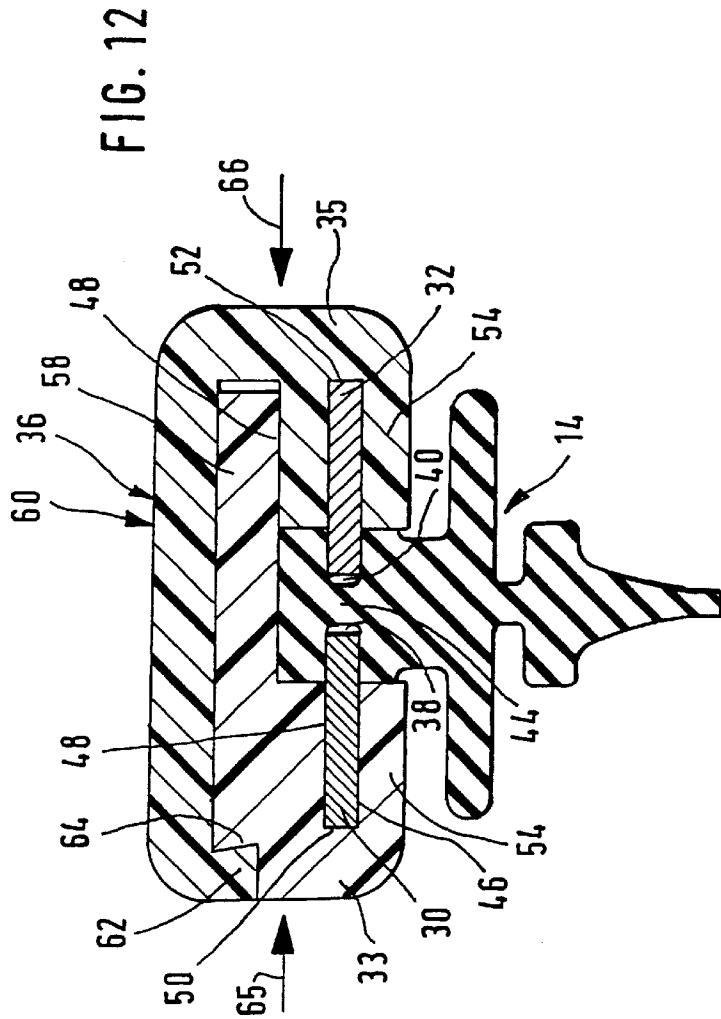


FIG. 8

FIG. 9





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