CONTROL ROD DRIVERS MODERNIZATION

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Electromechanical rod drives of a reactor WWR-M were provided by electromagnetic holders, that allow to use the compensation rods as supplementary safety elements.

In this drives the body of the holder, containing coils, connected with a rope with a reel of a reduction gear. The holder moves in wet channel, containing control rods. With holder dissupling the rod drops in core about 0.6 s. The holder have a power and control coils.

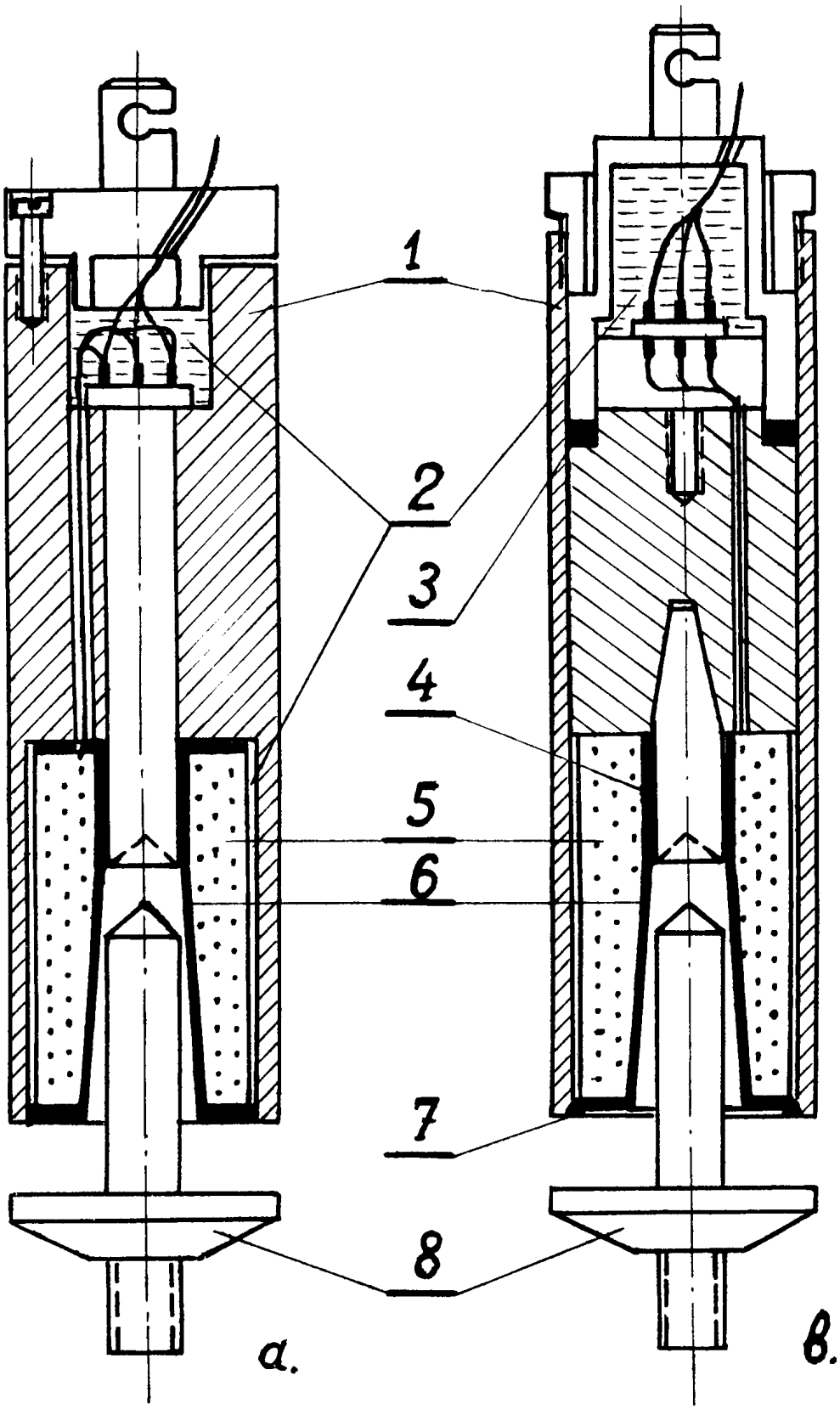

Fig. Previous and modern holders.
1 — body of holder, 2 — compound, 3 — gasket, 4 — braze joint, 5 — coils, 6 — basis of coils, 7 — welding seam, 8 — armature

The second coil provide control of the holder and rod clip (suspender) connection with each other.

In previous design of the holder the coil germetization was performed by "epoxid" compound, and 20-years practice of emploing showed, that almost all failures of drives were caused by ungermecity of holders. This involved either false signal about rod drop, or a real drop in the core from operating place.

In each and other incident this failure kept a safety, but led to reactor interruption.

In connection with the above, a modernization of the holder was realised.

In previous design (Fig. a), the coils were packed with thin layers of compound, which were inserted into radiation field and were capable to separate from the metal while temperature variation.

Otherwise the new holder (Fig. b) has basis of coils — (unmagnetic steel) wealed to the end of the holder body and upper end of basis brazed with the core. The top of the holder is gasketed. Only the cable lead-in is packed with "epoxid" compound, where the developed surface of metal-compound excludes water penetration.

New holders are maintainable, which is important in view of deficit for steel 0X17T, used for magnetic circuit.