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## Note

### A simple automatic venting valve for Coulson electrolytic conductivity and microcoulometric gas chromatographic detectors

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Electrolytic conductivity and microcoulometric detectors are widely used for the gas chromatographic determination of pesticide residues. Despite their many advantages, these detectors cannot handle the vapour of the injected solvent, and this solvent vapour therefore has to be vented to the atmosphere after passing through the GC column, before entering the combustion furnace. All commercially available detectors of this type are equipped with a venting valve, which is suitable provided that injections are performed manually. If, however, injections are made automatically *e.g.*, by the Hewlett-Packard 7670A automatic sampler, the venting valve has to be modified for automatic opening and closing. A feasible approach has been described by Hörmann *et al.*<sup>1</sup>.

An improvement to the above system, which is less expensive and of very simple construction, is described in this paper. A microswitch is located close to the injection port of the gas chromatograph, and horizontally attached to the microswitch is a lengthened lever-arm made of stainless steel and with a hole at its end. This hole is

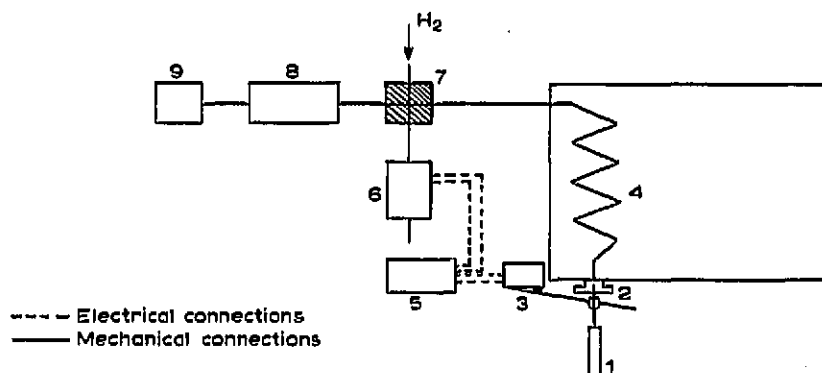


Fig. 1. Schematic diagram of the venting valve. 1, Syringe used either manually or automatically; 2, lengthened lever-arm (stainless steel) with hole; 3, microswitch (Type IB-DA, Burgess Products Co. Ltd., Gateshead, Great Britain); 4, gas chromatograph; 5, timer (Type LT 6S, Schaub Electronic Equipment, Basle/Neuallschwil, Switzerland); 6, solenoid valve (Type 121 A54, 70 kp/cm<sup>2</sup>, orifice 1.5 mm, Lucifer, Geneva, Switzerland); 7, detector block; 8, detector furnace; 9, detector cell.

situated exactly in front of the injection port. The needle of the syringe is inserted into the injection port through the hole in the lever-arm, so that the barrel of the syringe depresses the lever-arm and the microswitch activates an electrical timer. During the pre-selected operating time, the solenoid valve is opened and the effluent from the GC column by-passes the combustion furnace. Thereafter, the timer releases and the solenoid valve closes.

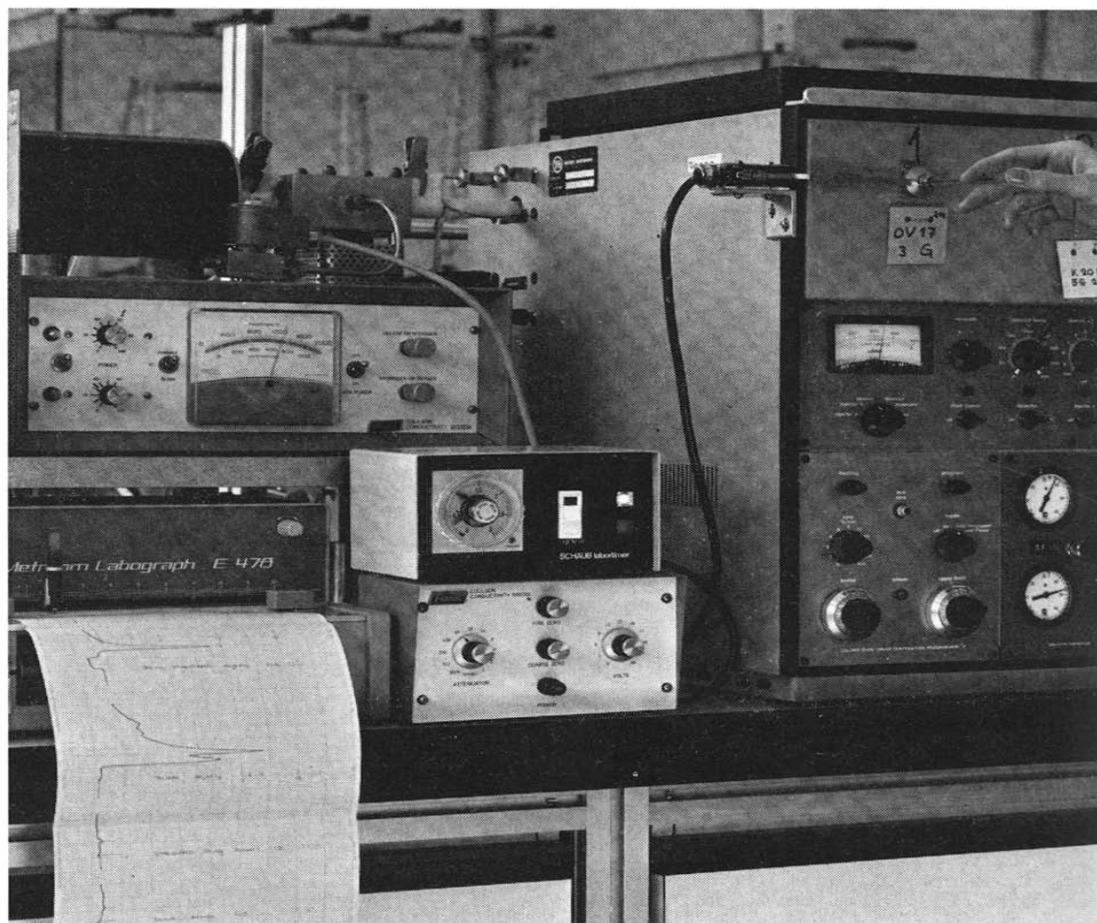


Fig 2. Venting valve, attached to a gas chromatograph equipped with a Coulson electrolytic conductivity detector

This assembly works with both automatic and manual injections, for in both modes of operation the syringe barrel depresses the lever-arm. The principle of this automatic venting system is shown in Figs. 1 and 2.

The venting system described has been in use on three of our gas chromatographs for 6 months without any breakdown.

#### REFERENCE

- 1 W. D. Hörmann, G. Formica, D. O. Eberle and K. Ramsteiner, *J. Ass. Offic. Anal. Chem.*, **55** (1972) 1031.