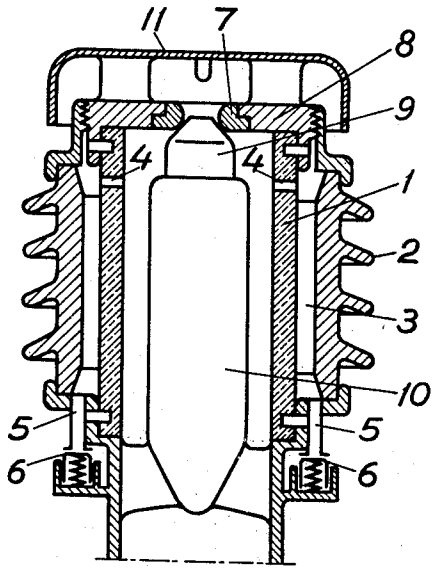
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ARRANGEMENT IN ELECTRIC AIR BLAST CIRCUIT BREAKER

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ARRANGEMENT IN ELECTRIC AIR BLAST CIRCUIT BREAKER

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In electric air blast circuit breakers the porcelain insulators enclosing the breaking elements and also the porcelain cylinders carrying the circuit breaker and conducting compressed air to the breaking points often are lined with a cylinder of organic material in order to prevent the porcelain insulators or cylinders from being exposed to stresses due to an inner overpressure. In such arrangements humidity has been condensed on the inner wall of the porcelain cylinders with a resultant corresponding decrease of their flash-over strength.

The present invention has for its object to provide an arrangement by which such disadvantage can be avoided. According to the invention, a space between the inner lining cylinder and the outer porcelain cylinder is brought into communication with the space inside the lining cylinder by means of ducts allowing compressed air to get access to the said space between the cylinders, and in addition this space is brought into communication with the external air by ducts which may be provided with spring-loaded valves or restricting valves so set in relation to the before mentioned ducts that a flow of compressed air can take place through this intermediary space, but so that a pressure is maintained which is considerably lower than the pressure inside the lining cylinder but, however, two or more times higher than the external atmospheric pressure dependent upon the stress which may be allowed on the porcelain cylinder. Instead of arranging restricting valves in these ducts, their cross-section may be so chosen in relation to the cross-section of the other ducts that the desired pressure is attained.

The arrangement according to the present invention has the important advantage that although the porcelain cylinder is subjected to internal pressure from the extinguishing fluid, it is relieved from excessive pressure by the inner cylinder and the vents whereby fluid pressure passes from the interior of the inner cylinder to the space between such cylinder and the porcelain cylinder and whereby the pressure within said space is vented to the atmosphere and is thus prevented from reaching an excessive value that might damage the porcelain cylinder, but is permitted to attain a pressure of more than two atmospheres.

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The invention is illustrated on the accompanying drawing applied on an extinguishing chamber for an air blast circuit breaker. On the drawing, 1 designates the inner lining cylinder which is made from paper treated with suitable waterproofing and insulating material or a similar material. 2 is the outer porcelain cylinder and 3 is the space between the cylinders which by ducts 4 is in communication with the space inside the cylinder 1 and by ducts 5 in communication with the external air. 6 designates a spring-loaded valve for each of the ducts 5. 7 designates the stationary contact of the circuit breaker, which is arranged in the cover 8 of the extinguishing chamber. 9 is the movable contact of the circuit breaker, which is actuated by a piston movable in the cylinder 10 but not shown on the drawing. 11 is a cap arranged above the blow-out opening in the contact 7.

In spite of the fact that the invention is illustrated as applied on an extinguishing chamber, it is, however, also applicable on other places in an air blast circuit breaker in order to protect a porcelain cylinder against excessive inner overpressure by arranging inside of it a lining cylinder made of a material more resistant than the ceramic material.

I claim as my invention:

1. In an electric air blast circuit breaker, means enclosing the air blast for the breaker elements, comprising an outer ceramic insulating cylinder, an inner cylinder of organic material spaced from the said outer cylinder and exposed on its inner surface to the fluid pressure of the circuit breaker, ducts for the passage of fluid pressure from the interior of the said inner cylinder to the space between the cylinders, said ducts being in direct communication with the air blast, and restricted ducts for the passage of fluid pressure from said space to the outer air, the restriction through the latter ducts being such that the pressure within said space is considerably lower than the pressure within the inner cylinder and is at least twice that of the outer air.

2. Means according to claim 1, comprising spring loaded valve means for restricting the passage of fluid from said space to the outer air.

3. In an electric air blast circuit breaker,

means enclosing the air blast for the breaker elements, comprising an outer ceramic insulating cylinder, an inner cylinder spaced from and concentric with said ceramic cylinder and forming an inner space exposed to the full pressure of the air blast and an outer annular space between said cylinders, at least one vent for the passage of fluid from said inner space to said annular space in direct communication with the air blast, and at least one vent for the escape of fluid from said annular space to the atmosphere, said vents being so dimensioned as to

protect the said ceramic cylinder from harmful internal pressure and to permit a pressure within said annular space substantially above atmospheric pressure.

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