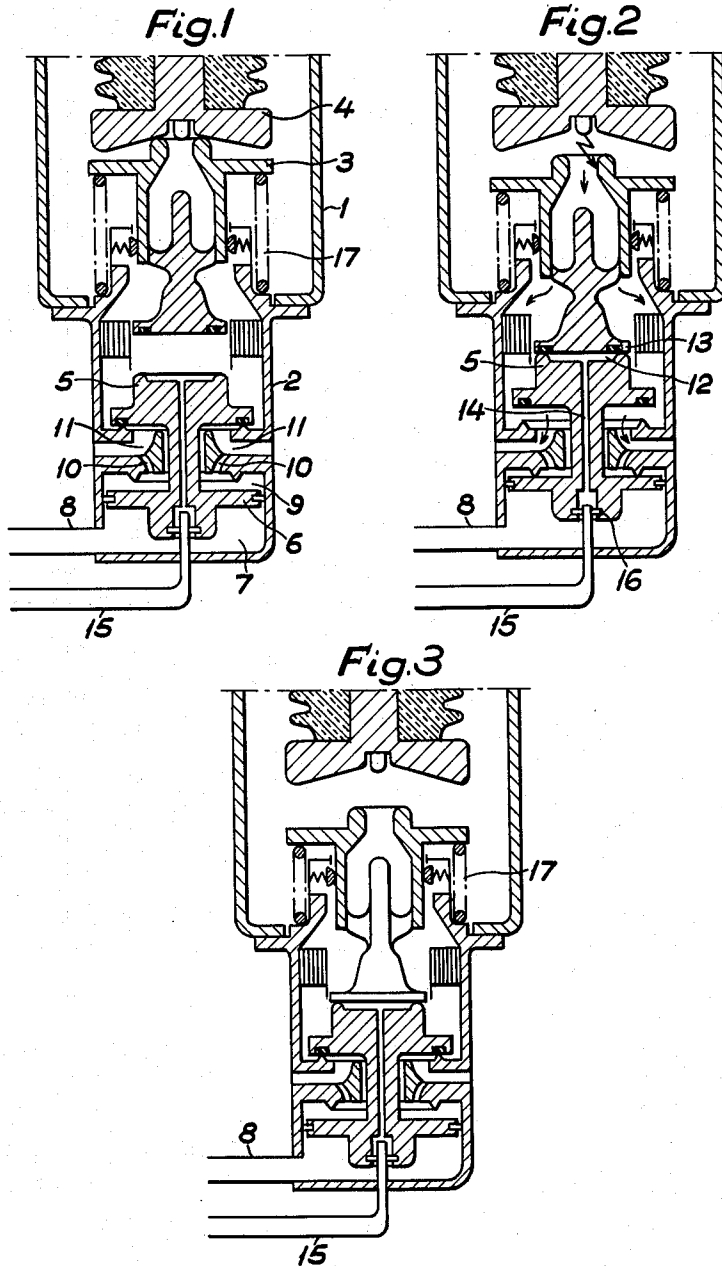


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OPERATING MEANS FOR A MOVABLE CONTACT IN THE MAIN
BREAKING GAP OF AN AIR BLAST CIRCUIT BREAKER
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OPERATING MEANS FOR A MOVABLE CONTACT IN THE MAIN BREAKING GAP OF AN AIR BLAST CIRCUIT BREAKER

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2 Claims. (Cl. 200-148)

In Swedish patent specification No. 153,413 an operating means is shown for a movable contact in the main breaking gap of an air blast electric circuit breaker, in which the main breaking gap is arranged in a compressed air container. By means of a blast valve this can be put in communication with the open air, so that the air pressure in the compressed air container is able to move the movable contact into open position. During its opening movement the movable contact, which is connected with a plate, meets the valve head of the blast valve and is pneumatically connected to this, after which the movable contact is finally moved to open position and held there at the same time as the blast valve is closed. When the plate of the movable contact meets the valve head a space is formed between them which, via special channels and a two-way valve in the valve head, may be put in communication either with the open air or the compressed air container. The two-way valve is operated by compressed air and is influenced by the same compressed air which controls the blast valve. Thus on the occasion of an opening movement the two-way valve is influenced in such a direction that the said space between plate and valve head is connected to open air so that these parts are pneumatically connected together.

The present invention relates to a simplification of the above described breaking mechanism and enables the two-way valve in the valve head to be dispensed with. This is brought about, according to the invention, by the space between the plate of the movable contact and the blast valve being put in communication with the open air or compressed air via a separate control air pipe.

The blast valve may be joined to a piston operated by compressed air. Through this piston a channel may be arranged to said space and the separate control air pipe may be inserted in this channel. The channel is provided with sealing rings which seal against the control air pipe. The piston can thus be displaced along the control air pipe.

One embodiment of an air blast electric circuit breaker in accordance with the invention will now be described, by way of example, with reference to the accompanying drawing in which

FIGURE 1 shows the circuit breaker in closed position, FIGURE 2 shows the circuit breaker at that moment when the plate of the movable contacts meets the valve head, and FIGURE 3 shows the circuit breaker in open position.

In FIGURE 1, 1 designates a container filled with compressed air and 2 a mechanism housing arranged in the container for the movable nozzle-shaped contact 3. 4 is a stationary contact which is supported by an inlet arranged in the wall of the container 1. By means of the nozzle in the movable contact and a blast valve, the container 1 may be put in communication with the open air and this takes place in the open position of the blast valve via outflow channels 11. The blast valve has a valve head 5 which is joined to a piston 6 on one side

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of which a space 7 may be put in communication with compressed air or open air via a control air pipe 8. The space 9 at the back of the piston is in permanent communication with the open air by means of channels 10.

FIGURE 2 shows how the space 12 which is formed between the plate 13 of the movable contact and the valve head 5 is in communication with a separate control air pipe 15 by means of a channel 14. This control air pipe 15 is inserted in an extension in the lower part of the channel 14. Sealing rings 16, which close against the control air pipe, are arranged in the extension and the piston 5 can thus be displaced along the control air pipe 15.

The operating means functions in the following way: When the circuit breaker is to be opened, the control air pipe 8 is put under pressure at the same time as the control air pipe 15 is emptied. The blast valve is thus opened and the compressed air in the container flows out through the movable contact 3 and the channels 11. Because of the pressure decrease which thus arises under the movable contact 3, this is carried downwards by the pressure in the container 1 and thus meets the valve head 5 of the blast valve, as shown in FIGURE 2. After a predetermined time the control air pipe 8 receives an emptying impulse which means that the contact 3 continues its movement to completely open position at the same time as the blast valve is closed. The valve head 5 and the plate 13 remain pressed together since the space 12 is in communication with the open air. Thus in the completely open position of the circuit breaker both the control air pipes 8 and 15 are empty, which must be regarded as an advantage and give complete security against unintentional closing of the main breaking gap as a consequence of a break in a control air pipe. The movable contact 3 is held in open position until the space 12 is again put in communication with compressed air via the pipe 15, after which the closing of the contact takes place by means of a spring 17. The control air pipe 15 must be under pressure as long as the circuit breaker is kept closed.

I claim:

1. Air blast circuit breaker including a compressed air container, an operating housing secured to the container, a fixed contact within the container, a movable contact supported by said operating housing in the container, a blast valve for putting the compressed air container in communication with the open air, means to move the blast valve to open position, said movable contact being in the path of air escaping through said blast valve so that the pressure of such air moves the movable contact towards open position, said movable contact being provided with a plate engageable with the blast valve, said plate and blast valve when in contact forming a space outside the container connected to said space and connectable to open air or compressed air, said blast valve opening means comprising a piston operated by compressed air, the connection from said control pipe to said space including a channel extending through said piston.

2. In an air blast circuit breaker according to claim 1, said channel being provided with sealing rings which seal against the control pipe.

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