

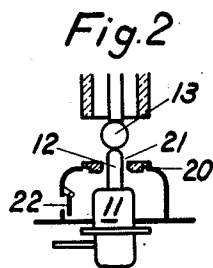
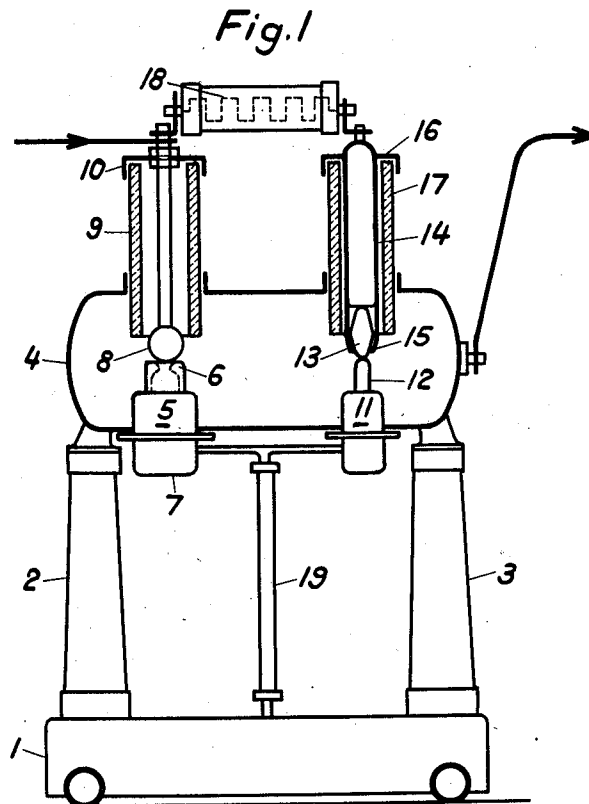
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AIR BLAST CIRCUIT BREAKER WITH PARALLEL RESISTANCES

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AIR BLAST CIRCUIT BREAKER WITH PARALLEL RESISTANCES

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5 Claims. (Cl. 200—148)

The present invention relates to electric air blast circuit breakers, in which the main breaking contacts are arranged in a compressed air container, always filled with air under pressure, in which container a resistance is coupled in parallel with the main breaking gap over a certain auxiliary breaking gap, also arranged in the container. The invention has for its purpose to produce, in a simple way, a flow of compressed air against the auxiliary breaking gap and thus facilitating the extinction of the arc appearing there. The invention is chiefly characterized thereby that the auxiliary breaking gap is arranged immediately before the outlet of a separate compartment in the container, so that, when at the opening of the circuit breaker air escapes from the container across the main breaking gap, the lowering of the pressure in the container also causes a flow of air from the separate compartment across the contacts of the auxiliary breaking gap. The arrangement may either be such that the escape of air from said separate compartment commences immediately after the said lowering of the pressure in the container, but it can also be such that the escape of air from the separate compartment commences first when the auxiliary breaking contacts are separated, e. g. by so designing the movable contact in the auxiliary breaking gap that, when this is closed, the movable contact closes the outlet opening from said separate compartment, which opening is then opened, when the movable contact moves to its open position.

A form of the invention is schematically shown on the accompanying drawing, Fig. 1, which schematically shows a circuit breaker with a main breaking gap and an auxiliary breaking gap, whereas Fig. 2 shows a modified form. On the drawing, 1 designates a base, on which two pillar insulators 2 and 3, carrying a compressed air container 4, are fastened. In the wall of the container a mechanism housing 5 is inserted, which contains an operating member for the movable contact 6 of the main breaking gap and an outlet valve 7 from the air container. The stationary contact 8 of the main breaking gap is attached to a leading-through insulator, which consists of an insulating cylinder 9 closed at the top by a cover 10 of metal. 11 designates also a mechanism housing inserted in the wall of the compressed air container, which housing contains the operating member for the movable contact 12 of the auxiliary breaking gap, the stationary contact of said gap being designated by 13. This contact is arranged at the lower end of a metal cylinder 14, which, at the lower end, is accommodated to the stationary contact 13 in such a way that a slot 15 is formed between the stationary contact and the cylinder. The cylinder 14 is attached to the cover 16, which, at the top, closes the cylinder 17 serving as

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a leading-through insulator. 18 designates a resistance, which is connected to the two covers 10 and 16. The mechanism housings 5 and 11 are over a pipe line 19 in communication with a container for compressed air for the operation of the operating devices in said mechanism housings. Compressed air is delivered to the container 4 through a delivery line not shown on the drawing, which is suitably arranged inside one of the insulators 2 or 3.

This device acts in the following way. In opening the circuit breaker, compressed air is delivered to the mechanism housing 5 through the pipe line 19, which air, on one hand, acts on the movable contact 6, so that it is separated from the contact 8, and, on the other hand, opens the escape valve 7. When air escapes through this valve, the pressure in the container 4 falls, and consequently the air in the cylinder 14 will escape from the cylinder 14 through the slot 15 and is brought in contact with the arc formed between the contacts 12 and 13, so that this arc is extinguished.

In the form shown in Fig. 1 the escape of air from the cylinder 14 commences immediately after that the pressure in the container 4 is lowered. In the arrangement shown in Fig. 2, however, the cylinder 14 is replaced by a container 20 arranged inside the container 4, the former container being provided with an outlet opening 21, in which the movable contact 12 of the auxiliary breaking gap fits. When compressed air is delivered to the mechanism housing 11, the movable contact 12 is moved downwards and leaves the contact 13 simultaneously as the opening 21 is liberated, so that the air in the container 20 can escape through said opening and come in contact with the arc between the contacts 12 and 13. In the wall of the container 20 a valve 22 is arranged, through which the space inside the container 20 is again filled with compressed air, when the pressure in the container 4 is subsequently increased.

I claim as my invention:

1. An air blast circuit breaker having a compressed air container and comprising main fixed and movable breaking contacts and auxiliary fixed and movable breaking contacts arranged in said container, means forming a separate compressed air compartment, an opening arranged in close proximity to the auxiliary breaker gap and providing communication between the said container and the said separate compartment, and air control means whereby the lowering of the air pressure in the container due to the opening of the circuit breaker and the consequent escape of air from the container permits air to escape from the said separate compartment through said opening and into contact with the arc gap formed between the contacts of the said auxiliary breaking gap.

2. An arrangement according to claim 1, in which the movable contact of the auxiliary breaking contacts closes the said opening when the auxiliary contacts are in their closed position.

3. An air blast circuit breaker having a compressed air container and comprising main breaking contacts located in the container, means for permitting the escape of air from the container to extinguish the arc at the main gap, means forming a separate compressed air compartment, an opening providing communication between the interior of said compartment and the interior of said container, a fixed and a movable contact forming auxiliary breaking contacts within said container, the said opening being arranged to divert the air from said compartment to said auxiliary gap when the air pressure

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in the container is reduced by the escape of air therefrom on the opening of the said main contacts.

4. An arrangement according to claim 3, in which the movable contact of the auxiliary breaking contacts serves to close the said opening when the auxiliary contacts are in the closed position.

5. An arrangement according to claim 4, comprising a non-return valve for the passage of compressed air from the said container to the said compartment.

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