

## Chain Reaction Apparatus 516000

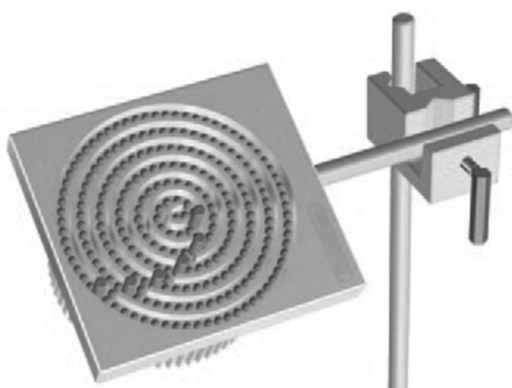
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AE 516000

### Description

The apparatus consists of an aluminum plate with holes and a mounting rod. One side is level – on the other side channels have been milled.

Six steel pins are included.



### Additional materials needed

Matches. Some matches have so small heads that they drop straight through the holes – they are discarded. The same applies to matches with large, deformed heads – although they may be use in the first experiment "Demonstration of uncontrolled chain reaction"

A piece of steel wire.

Protective glasses.

Retort stand and bosshead.

Experiments with the chain reaction apparatus are preferably performed in the open air as roughly one box of matches is lighted each time.

### Demonstration of an uncontrolled chain reaction

Mount the plate slanting with an inclination of roughly 45°, with the level side (the back side) upwards.

**The person who is to light the setup should wear protective glasses.**

If you want consistent starting conditions in the experiments, the setup should be lighted in the centre.

The safest way to light the match in the centre is to heat a piece of steel wire with a lighter until it is red hot and touch the match with that.

A simpler way to start the experiment is to ignite the lowest row with a match. The fire spreads rapidly to all the matches.



### Demonstration of a controlled chain reaction

Mount the plate slanting with an inclination of roughly  $45^\circ$ , with the milled side upwards. Mount the steel pins in the positions shown in the picture.

Load the remaining holes with matches

**Again: Wear protective glasses.**

Light the match in the centre as described above.

The fire now spreads from match to match in a spiral outwards. Each match lights only one neighboring match.



### Demonstration of a partly controlled chain reaction

Mount the plate slanting with an inclination of roughly  $45^\circ$ , with the milled side upwards. Mount the steel pins in the positions shown in the picture.

Load the remaining holes with matches.

**Wear protective glasses.**

Light the match in the centre as described above.

The fire now spreads from circle to circle after which it takes a tour in all the circles at the same time.

