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The young man's book of amusement

Halifax, 1848

The Air Pump

[urn:nbn:de:bsz:31-100120](https://nbn-resolving.org/urn:nbn:de:bsz:31-100120)

the different spectators, some of whom thought he had come to life. About an hour was spent in these operations.

PNEUMATICS.

The Air Pump.

It will be advisable in the first place to describe the way in which the Air Pump is usually constructed. In the frontispiece, Fig. 15, represents the cheapest form, and in its action it exactly resembles the common sucking pump. Within each of the two strong brass barrels in front is fixed (at the bottom) a valve, opening upwards; these valves communicate with a concealed pipe leading to the hole under the glass receiver. The barrels also include moveable pistons, with valves opening upwards. To the upper parts of the pistons are attached rack-work, (part of which is elevated in the cut,) these racks are moved up and down by means of a little cog wheel turned round by a handle affixed. A little beneath the pistons is a small screw which serves to re-admit air into the receiver when it is in a state of exhaustion. When the Air-Pump is to be used, *a slip of wet leather should be placed under the edge of the receiver*, be-

cause the plate is liable to be scratched, and the smallest unevenness between the receiver and the plate would prevent the success of any experiment.

The Shower of Fire.

Place on the top of the air-pump a small circular plate, pierced with holes, and supporting a small cylindrical receiver, terminating in a hemisphere, and cover the whole with a larger receiver, having a hole in its summit, to admit a glass funnel filled with mercury. The funnel must shut with a stopper, so as to open when necessary. Then exhaust the air from the receiver, and open the funnel which contains the mercury, which will run down, and falling on the convex summit of the interior receiver, will be thrown up in small luminous drops, so as to resemble a shower of fire.

Bottles broken by Air.

Take a square bottle of thin glass, of any size. Apply it to the hole in the air pump, and exhaust the air. The bottle will sustain the weight of the external air as long as it is able, but at length it will suddenly burst into very small particles, and with a loud explosion.

An opposite effect will be produced, if the mouth