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The young man's book of amusement

Halifax, 1848

Alarum

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If, while you are turned towards the light, you suddenly incline the seal, while you continue to regard it, those parts that seemed to be engraved will immediately appear in relief: and if, when you are regarding these seemingly prominent parts, you turn yourself so that the light may fall on the right hand, you will see the shadows on the same side from whence the light comes, which will appear not a little extraordinary. In like manner the shadows will appear on the left, if the light fall on that side. If instead of a seal you look at a piece of money, these alterations will not be visible, in whatever situation you place yourself.

Alarum.

Against the wall of a room, near the ceiling, fix a wheel of twelve or eighteen inches diameter; on the rim of which place a number of bells in tune, and if you please, of different sizes. To the axis of this wheel, there should be fixed a fly to regulate its motion; and round the circumference there must be wound a rope, to the end of which is hung a weight.

Near to the wheel let a stand be fixed, on which is an upright piece that holds a balance or moveable lever, on one end of which rests the weight just mentioned, and to the other end must hang an inverted hollow cone, or funnel, the aperture of which is very small. This cone must be graduated on the inside, that the sand put in may answer to the number of hours it is to run. Against the upright piece, on the side next the cone, there must be fixed a check, to

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prevent it from descending. This stand, together with the wheel, may be enclosed in a case, and so contrived, as to be moved from one room to another with very little trouble.

It is evident, from the construction of this machine, that when a certain quantity of the sand is run out, the weight will descend, and put the wheel in motion, which motion will continue till the weight comes to the ground. If the wheel be required to continue longer in motion, two or more pulleys may be added, over which the rope may run.

Two Experiments to be made with a Concave Mirror, which may be easily tried.

If a fire be made in a large room, and a smooth well-polished mahogany table be placed at a good distance near the wall, before a large concave mirror, so that the light of the fire may be reflected from the mirror to its focus on the table, and you stand by the table, you will see nothing but a long beam of light; but if you stand at some distance as towards the fire, you will see, on the table, an image of the fire, large and erect; if another person, knowing nothing of the matter, enters the room, he will be startled at the appearance, for the table will seem to be on fire, and being near the wainscot, to endanger the whole room. There should be no other light than the fire in the room. If the fire be darkened by a screen, and a large candle be placed at the back of the screen, a