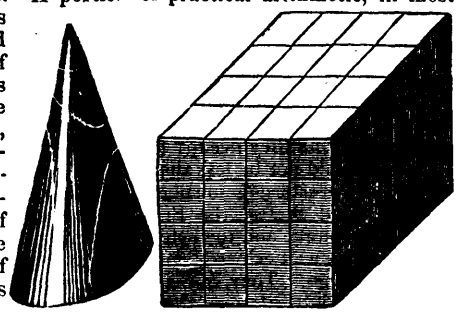
teacher can instruct a whole class or school at the same time. Involution and evolution may be illustrated, by means of the instrument, to those further advanced in mathematical study.

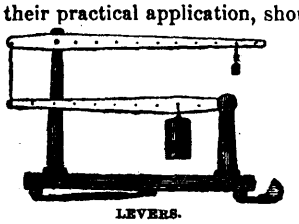
GEOMETRICAL SOLIDS.—A portion of practical arithmetic, in most or all the text-books now in use, is devoted to the mensuration of solids. Such solids should be put into the pupil's hands. Cubes, cones, prisms, pyramids, spheres, hemispheres, spheroids, cylinders, and sections of each, should comprise a portion, at least, of the set. If measures of length, as the foot, divided into inches and nails—yard and rod; and measures of capacity, as pint, quart, gallon, and half-bushel were added, the assortment would be more useful and complete. Solids, representing timber and boards of different measurements, should also be secured.



FORMS AND SOLIDS.

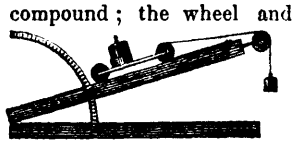
CUBE ROOT BLOCK.—To make apparent the reason of the rules for the extraction of cube and square roots, the sectional cube block should be used. This block, or rather number of blocks united, forms a cube. The parts may be separated from each other, being held together by wire pins. In connection with the abacus before mentioned, the whole subject may be rendered perfectly plain by its use. The cost of the above articles depends upon their size and the finish put on them.

MECHANICAL POWERS.—The principles of natural philosophy, in their practical application, should be seen and understood in school. Many arithmetical operations are based upon them. An apparatus, such as is seen in the cuts, would give a better practical knowledge, in a few weeks, of the principles of mechanics, than would be learned by experience in years. Such knowledge is invaluable to its possessors, as every day some principle is used in practice. The set should embrace the lever, simple and compound; the wheel and axle, erect and inverted; the pulley, fixed and moveable; the inclined plane; the wedge and the screw. To these might be added a set of illustrations for the centre of gravity, both amusing and instructive.

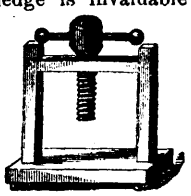


LEVERS.

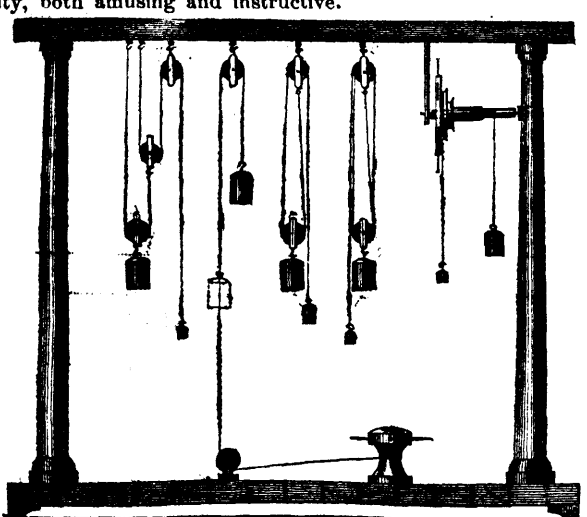
WEDGE.



INCLINED PLANE.

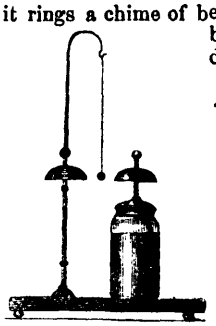


SCREW.

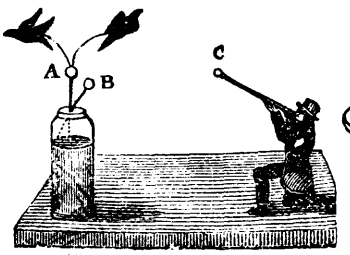


SET OF MECHANICAL POWERS.

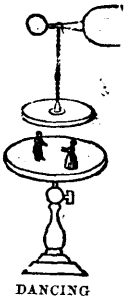
ELECTRICITY.—The science of Electricity affords perhaps as great and as interesting a variety of experiments as any other. The principles of the science may be presented in so many applications, as to keep the student in constant wonder and delight. By aid of apparatus the operator seems invested with magical or supernatural power. He calls this invisible agent into active life, directs its energy, and controls its force. Now, it appears darting and flaming, sparkling and crackling like the lightning's flash; and now subdued and tame, it rings a chime of bells. Now like an engine of death the birds fall before the mimic gun, charged to destroy; and again, it causes light footed figures to dance a merry reel. We fear its force, we wonder at its greatness, and we laugh at the curious freaks it plays. The shattered model of the miniature house, the head of hair in wild disorder, the miser's plate, the magic picture, all are full of interest and instruction. There are various kinds of electric machines. Instead of the plate, many machines are furnished with a glass cylinder, as a generator. The plate machines are deemed the best. Machines may be purchased at from five to one hundred and fifty dollars, exclusive of jars, discharging rod, chains, &c.



ELECTRIC BELLS.

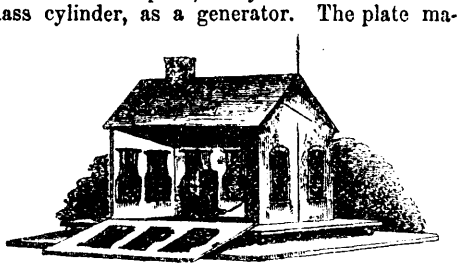


ELECTRIC SPORTSMAN AND BIRDS.



DANCING FIGURES.

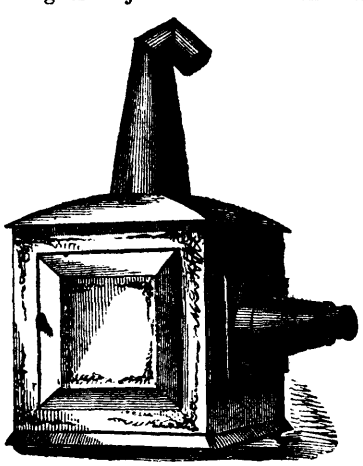
LEYDEN JAR.



THUNDER HOUSE.

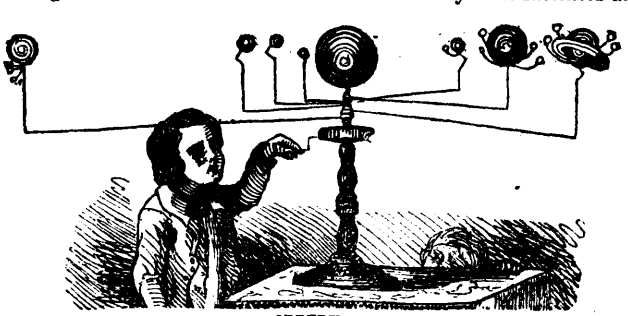
LEYDEN JAR.

THE MAGIC LANTERN.—There is no instrument of which we know that embraces a wider range of application than the magic lantern. Ingenuity and invention seem to have been almost exhausted in providing its subjects for exhibition. It seems to throw light on every subject. By it, the glories of celestial scenery are made apparent to our astonished vision. Systems and suns, constellations and comets, are made beautiful subjects for illustration. An Adam and Eve driven from Paradise; Abraham offering his son; Joseph sold into Egypt; David and Goliah; the flight of the holy family into Egypt; the Prodigal Son,—carry us back to patriarchal days; while the pictures of Venice, Naples, Niagara Falls, and the St. Lawrence, bring us to our own times and places. Botany, with its innumerable specimens of floral beauty; natural history, with its various orders of animal creation—all afford instruction and amusement. The drunkard's progress; the progress of intemperance; and the bad boy's progress,—illustrated by some thirty different representations,—convey moral truths and virtuous lessons. While the lover of the ridiculous finds infinite fun in the comic characters and humorous scenes.



MAGIC LANTERN.

ASTRONOMY.—The apparatus to which we refer, for the study of the science of astronomy, consists of the Orrery, or model of the planets, revolving in their various orbits and surrounded by their satellites and



ORRERY.