

## SUBJECTS FOR INVENTIONS.

In a former number of the SCIENTIFIC AMERICAN we published a list of subjects suited for study by ingenious people, with a view to the development of further discovery or improvement. The publication of that catalogue has resulted in the bringing forward of several new and probably important inventions. For the benefit of our readers we again repeat the list, with alterations and additions. We shall at all times be pleased to receive from correspondents any further contributions to this column of suggestions.

**A PRACTICAL MODE OF SAVING THE WASTE MANURE OF CITIES.**—There is manure and ammonia enough wasted in the City of New York to enrich half a dozen counties.

**A NEW CEMENT FOR COATING CASKS CONTAINING PETROLEUM.**—Various cements have been tried, but all have failed to prevent the petroleum from leaking.

**CLOTHES LINE.**—A process, composition or device to protect clothes lines against the influence of the weather, particularly to prevent them from shrinking when getting wet.

**GAS APPARATUS.**—A portable self-acting gas apparatus, so arranged that the same can be started simply by turning a faucet whenever desired, and that it shuts itself off as soon as the gas holder is full.

**SURGICAL INSTRUMENTS.**—A simple instrument for extracting balls from wounds. With the implements now in use in most cases it is necessary to cut the wound larger or to cut a fresh opening in order to get hold of the ball.

**A SIMPLE AND COMPACT DEVICE FOR STRETCHING AND SUPPORTING FRACTURED LIMBS.**—The several devices now used in the army and navy for dressing limbs which have been fractured by balls are so numerous that a complete set fills a good-sized box, which consequently becomes very expensive to make and cumbersome to transport.

**A PROJECTILE FOR IRON-CLAD VESSELS.**—A projectile is wanted capable of penetrating or adhering to the sides of iron-clad vessels, in such a manner that by explosion or otherwise a breach may be made.

**COVERING VESSELS WITH PROTECTING ARMOR.**—A cheap and quick method of covering vessels with protecting armor.

**GRAPPLE FOR SEIZING HOLD OF AND BORING THROUGH IRON-CLAD VESSELS.**—A grapple or other device for seizing and holding fast to marine monsters like the *Merrimac*, and of boring through her sides when you get hold.

**ORDNANCE AND PROJECTILES FOR STRIKING IRON ARMOR-PLATED VESSELS BELOW THE ARMOR PLATING.**—Improvements in ordnance and projectiles for striking those parts of iron armor-plated vessels which are so far below the water line as to require no armor to protect them from the ordnance and projectiles at present in use; or some substitute for cannon as a means of arming vessels for the purpose of striking armor-plated ships below the plates.

**SUBMARINE MACHINES.**—A very important field for ingenuity is the discovery of an efficient method of preventing the entrance of vessels into harbors by submarine shells or explosives.

**AN EXPLODER.**—An adjustable attachment to the bow of a battery, by which a powder magazine could be carried under an enemy's vessel and exploded at the moment and place desired.

**A SMALL LOCOMOTIVE FOR FAMILY USE.**—Suited to run on common level roads, to be light, safe, neat, convenient, easily managed by any person and not expensive to run. Great speed not essential.

**AN INSTRUMENT TO INDICATE THE COMPARATIVE PURITY OF THE ATMOSPHERE.**—We already possess the thermometer which shows the temperature; and the hygrometer which tells us the comparative dryness or moisture of the air. We now need a simple instrument that will indicate to the eye whether the air in our rooms is pure or impure.

**A POROUS SUBSTITUTE FOR LEATHER.**—Many excellent substitutes have been invented, but most of them involve the use of gum, paint or some water-proof substance, so that the article produced is unfit for the feet, and for other purposes to which leather is applicable.

**A PULSE INDICATOR.**—A small instrument for the sick room, capable of application to the wrist of the patient, to show and record the number of pulse beats.

**A CHEAP METHOD OF PREPARING THE METAL MAGNESIUM.**—This metal possesses the remarkable property of burning with a most brilliant light when held in the flame of any common lamp or candle. The light thus produced far excels that of gas or coal oil; but the great expense of producing the metal is the obstacle which stands in the way of its employment. It is believed by many persons that if some cheap method of producing the metal can be invented, the magnesium light will come into general use. Here is a fine problem for amateur chemists.

**SUBSTITUTE FOR BREAD YEAST.**—A family instrument or machine for impregnating bread dough with carbonic acid gas, and thus avoid the necessity of using yeast.

**A MUSICAL INSTRUMENT.**—An improvement in musical instruments, so made that by passing a sheet of paper or other material through the instrument, the desired tune will be produced. The object of this improvement would be to enable every family to enjoy the latest and best music, or such selections as might be desired, without the requirement of educated manipulation of the instrument. The sheet or material by which the changes of sound are effected must be cheap and easily produced.

**A CLOTHES DRYER.**—A drying frame for clothes capable of being projected from the windows of dwelling houses.

**AN ARMOR-CLAD WAR VESSEL.**—Light of draft, cheap and quick of construction. As the iron plated ships have been thus far constructed, Sir Edward Belcher thought that even a well-constructed wooden ship, striking one fair across the bows, would cause such a shock as to sink the armor-plated vessel. And he declared that if he were hard-pressed, he should have no objection to try it. Indeed, he seemed to think that "compressed brown paper was one of the most powerful repellants of shot, and might be advantageously tried." Something better is needed in this line than has yet been brought out either in Europe or this country, unless the *Monitor* proves to be the desideratum, as her recent conflict with the *Merrimac* would seem to indicate she may be.

**AN ATTACHMENT TO GUNS TO CUT THE ENDS OF CARTRIDGES.**—At present the soldiers tear the cartridges with their teeth, but the niter and sulphur contained in the powder occasions diseases in the mouth and loss of teeth, besides causing the most acute thirst to the soldier during battle. A number of patents have been taken on devices for this purpose, but we believe there is room yet for improvement in this class of useful inventions.

**WATER PIPES.**—A material for making pipes for conducting water, not metallic, but pliable, durable and capable of being bent in any direction.

**A TENT FOR ARMY PURPOSES.**—Capable of being quickly converted into a substantial boat or raft for carrying troops across rivers.

**A SADDLE AMBULANCE.**—For mules or horses, capable of ready adjustment, so as to remove the wounded from the field of battle.

**CANDLES FOR ILLUMINATING PURPOSES.**—Capable of burning with flames of divers colors.

**FLEXIBLE GLASS.**—Or some equally good transparent composition, capable of being bent or fashioned into any desired form.

**A PLAN FOR KEEPING RIFLES CLEAN.**—No rifle will shoot with accuracy unless it is kept clean, and the necessity of wiping it out carefully every time that it is loaded is a great annoyance to sportsmen. At a trial of breech-loading rifles some time ago near Boston, one of the competitors fired his gun over 100 times without cleaning it; but he had a cup of oil standing by him and dipped the cartridges in it before placing them in the gun. Could not a sponge, or bladder, or metallic case of oil be attached to the cartridge in some way so as to clean the gun at every discharge?

**BREECH-LOADING SHOTGUNS AND CARTRIDGES.**—We should ask no better fortune than a patent for a perfectly practicable and unobjectionable breech-loading fowling piece with a cartridge that would keep the gun clean. This would save the necessity of carrying more than one barrel, which, with the other manifest advantages, would secure an enormous sale.

**SUBSTITUTE FOR VULCANIZED RUBBER PRESSURE ROLLERS NOW USED FOR CLOTHES-WRINGING MACHINES.**—A substance or combination of substances which will possess the requisite degree of elasticity, and not be

liable to be injured by the suds or the action of the clothes upon them.

**MACHINE FOR FILLING, BY MEASUREMENT OR WEIGHT, PAPER PACKAGES OF GROUND SUBSTANCES, SUCH AS COFFEE, &c.**—The packages to be neatly folded and put up and gummed at one operation.

**PROTECTION FOR ORNAMENTAL MANTEL CLOCKS.**—A protection for ornamental mantel clocks, which will effectually exclude dampness as well as dust, and admit of the winding up of the clock without removing the glass shade ordinarily used. This would be a great acquisition for country houses, the parlors of which are only occasionally used, and the absence of fires causing the atmosphere of the rooms to be loaded with vapor, which is ruinous to fine clocks.

**IMPROVEMENT IN BIRD CAGES.**—An improvement in bird cages, which will admit of the bottom being readily detached for cleaning, without removing the cage from the hook, and without the liability of liberating the bird.

**A SUBSTITUTE FOR THE TURKISH PIPE AND MEERSCHAUM.**—An article which will admit of the smoke being cooled in its passage from the bowl to the mouth, and deprive it of noxious substances, and still be quite short so that it may be carried in the pocket without inconvenience. The gradual advance in the price of cigars, and their general inferiority, are inducing many smokers to resort to the pipe.

**FIXING COLORS IN PHOTOGRAPHY.**—Photographic pictures have been taken with all their natural colors, but these were not permanent. A mode of fixing such colors would be one of the most profitable and important discoveries ever made.

## RECENT AMERICAN INVENTIONS.

**Evaporating Apparatus.**—M. Tufts and S. G. Tufts, of Mainville, Ohio, have secured a patent for an invention which has for its object to provide for the removal of the gum or sediment which is produced by the boiling of saccharine liquids, and particularly by the boiling of the juice of sorghum cane, and which, when not removed, is the cause of that particular green or acid taste so common in the molasses. The invention consists in the arrangement of two or more sets of swinging adjustable pans in combination with a heater and furnace, in such a manner that the juice can be passed from the heater into either one of the first set of pans and thence into either one of the second set, and so on, and that the heating in either of the pans can be discontinued at the desired point, thereby giving to the operator an opportunity to draw off the clear sirup without the interruption of boiling.

**Blasting Compound.**—This invention relates to an improvement in blasting compounds, secured by W. R. Thomas and M. Emanuel, Jr., of Catasauqua, Pa., who obtained a patent for a similar invention April 9, 1861. Their first compound was composed of nitrate of soda, sulphur and ground bark, worked up together into a paste by the aid of a suitable quantity of water, and afterward dried. It has been found by subsequent experiment that by the addition of a certain quantity of chlorate of potash the quality of the compound is much improved, inasmuch as by the supply of additional oxygen it makes it burn quicker and increases its strength. The improvement consists in a compound made of nitrate of soda, sulphur, ground bark and chlorate of potash.

**Telegraphing by Light.**—L. C. Colvin and H. Gardner, of Philadelphia, Pa., have secured a patent for telegraphing by night either at sea or on land by means of a lantern, or other illuminating apparatus, with an alphabet represented by combinations of flashes of longer or shorter duration, and to this end it consists in so combining a lantern, a shutter to shut off the light thereof and an electro-magnet, that an operator at any distance from the light may, by opening and closing the circuit in which the magnet is placed, cause the said shutter to alternately expose and conceal the light, and so produce the flashes of which the signals are composed.

**Roofing.**—Zadok Street, of Salem, Ohio, has secured a patent for roofing, which, including labor, is less costly than one of shingles; it is also entirely fire-proof, and being unaffected by changes of temperature, is more durable and effective than the best metal roof.