

STOVES.—Joseph Collins and John Knox, Conshohocken, Pa.—This invention relates to a method of constructing stoves, whereby they are rendered suitable not only for cooking, but for heating purposes.

STEREOSCOPE.—W. M. Kohl, Cincinnati, Ohio.—This invention relates to a stereoscope or stereoscopic box, and consists in a new and improved application of the lenses to the box, whereby the former may be adjusted in two different directions, in order to obtain a proper focal distance and to suit the width of the pictures. Also, in an improvement pertaining to the scene or picture holder.

DEVICE FOR CONVERTING MOTION.—M. M. Follett, Westboro, Mass.—The nature of this invention relates to a novel means of changing reciprocating motion into rotary motion, or rotary motion into reciprocating, and at the same time changing the relative velocities of the parts having the two different movements.

COMBS.—Josiah S. Dickinson, Essex, Conn.—This invention consists in the combination of a detachable comb plate with a holder, whereby the former can be readily moved from the holder when dirty or broken, and a new comb plate affixed in the said holder instead.

MOP WRINGERS.—M. M. Follett, Westboro, Mass.—This invention relates to an improvement in mop wringers, whereby the same may be more readily adjusted to the pail or tub, and securely fastened to the same, and at the same time providing a ready means of detachment, so as to substitute one tub or pail for another.

STILT SKATE.—Wm. Jordan, Galena, Ill.—This invention relates to improvements in stilt skates, and consists in so constructing them that the elevated shoe is jointed to the vertical connection of the runner, and the support for the leg, in a manner to make a very convenient, light, and graceful stilt skate. In this improvement the foot piece of the skate is detached from the runner and elevated above the same by a jointed connection, and provided with vertical extensions for securing to the side of the leg nearly as high as the knee, whereby a very graceful, light and superior stilt skate is provided.

SAWING MACHINE.—John L. Knowlton, Philadelphia, Pa.—This invention relates to a machine for sawing timber, in straight, curved, or beveled form, and is an improvement on a machine for the same purpose patented October 20, 1863. The object of the present invention is to render the machine better adapted for the sawing of crooked or curved timber, such as is used for ship building, and while effecting this result, to obtain simplicity in construction, a greater facility of manipulation, and a less cumbersome machine than usual.

FANNING CHAIR.—Augustus R. Hobbs, Elizabethport, N. J.—This invention relates to a method of constructing chairs, whereby the same are convertible at pleasure into rocking or fixed chairs, and whereby a fan is made to rotate by the rocking of the chair, thereby greatly increasing the comfort of the occupant.

BREECH-LOADING FIRE-ARMS.—Charles H. Allison, Middletown, Conn.—This invention consists in a novel manner of constructing the breech, and applying the barrels thereto, and in a peculiar fastening or catch for the barrels, whereby the piece may be loaded or charged with the greatest facility, and the parts rendered very permanent and durable.

HOT AIR FURNACE.—H. G. Burr, Minneapolis, Minn.—This invention relates to a method of constructing hot air furnaces for warming buildings, and it consists in an arrangement of vertical flues and tubes, and horizontal plates, whereby the heat radiating surface of the furnace is greatly increased.

FLUTE.—Theodore Berteling, New York City.—This invention relates to the supplying of the keys of flutes or similar musical instruments, with adjustable regulating screws, for the purpose of regulating the throw or lift of the keys. Where a note is required to be repeatedly played, the cushions on the lower surfaces of the keys are apt to become flattened, and the instrument is thereby caused to fall to sound according to the wish of the operator.

MACHINERY FOR THE MANUFACTURE OF GUNPOWDER.—Paul A. Oliver, New York City.—This invention relates to a machine for combining and incorporating the ingredients of which gunpowder is composed, and also for granulating or separating into small lumps the mass of powder compressed in cake form, by the combining and incorporating of the ingredients. The object of the invention is to obtain an economical device whereby the above result may be obtained within a comparatively small compass, and one which will be continuous in its operation. The present Chilian mill which is now used for the purpose, being very cumbersome and expensive, and not continuous in its operation.

FISH TRAP.—Thomas B. McCaughan, Moscow, Tenn.—This invention relates to a device for catching or hooking fish, and is designed to be used in connection with a set line. It is a common practice with fishermen, in many localities, to bait hooks, and have the lines attached to a pole or rod sunk into the bed of the river or creek, or into the bank at the side of the same. The lines being visited at suitable intervals, and the fish, if any, be caught, drawn out of the water, the hooks rebated, and again thrown into the stream or creek. The fish very frequently succeed in taking the bait from the hooks of these set lines without being hooked, on account of the absence of any jerk or pull when they seize the bait; and the object of the present invention is to overcome that objection attending the use of set lines.

SAFETY LOCK FOR HARVESTER.—Stephen Rex, Orefield, Pa.—The object of this invention is to accomplish the instantaneous locking of a reaping or mowing machine, when the driver shall fall therefrom; and thereby prevent any injury to the driver from the cutters or knives of the machine. It consists of a pawl catch and lever for lifting the same from the teeth of the main gear wheel, with other devices perfecting the operation.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratulations or replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1.00 a line, under the head of "Business and Personal."

All reference to back numbers shall be by volume and page.

TO CORRESPONDENTS.—Once more we ask the attention of our correspondents to the necessity of giving their name and address. Many letters require a reply by mail when answers to the inquiry will not probably interest a large number of readers, which we are unable to give when the signature is "Young Mechanic," "Constant Reader," etc. Nor can we direct to "Smithville," when there is no State given and there are fifteen post offices in the country bearing that euphonious title. Careless correspondents need not expect attention paid to their letters. Neither will answers be given when the same inquiry has been replied to in correspondent column recently.

J. B., of Wis.—"I have now a 10 by 24-inch cylinder to my engine running 100 revolutions per minute with 100 lbs steam; have boiler enough to make steam freely. I am putting in a 12 by 24-inch cylinder which I propose to run at 60 revolutions with 75 or 80 lbs. of steam. Some affirm I shall not be able to get steam from the boiler at 75 lbs., and others that if I do get the steam I shall not have the power the old cylinder yielded." Your engine with cylinder 10 by 24 inches at 100 revolutions with a pressure of 100 lbs. on the piston will give 95.2 H. P. The engine 12 by 24 inches at 60 revolutions and 75 lbs. of steam will yield 92.47 H. P. The same cylinder with 80 lbs. on the piston will give 98.64 H. P.

L. D. Y., of N. Y., thinks the proposals for a bridge between New York and Brooklyn cities should be made to the engineers of the whole country, the governments of the respective cities offering a certain sum, etc., for the best plan. We believe that the bridge company advertised for proposals which were open to all to answer, and that the company has already adopted the plan of John A. Roebling, which plan will probably be soon in process of execution.

N. G. G., of Nebraska.—What would be the relative effect of equal weights attached to the periphery of pulleys of unequal diameter connected by a belt, say let one pulley be one foot in diameter and the other two feet? There would be no difference in the power exerted by the weights if there was no slipping of the belt.

E. S. B., of N. Y.—"The best method of applying gold leaf to drawing paper or Bristol board for illuminated lettering." Gold leaf is applied to almost all substances by means of "size," easily obtained at any store for artists' materials.

M. C., of Ky.—The metal used for the body of an electrotype is common type metal. The shell or copper face of an electrotype is precipitated by electricity from a solution of sulphate of copper or blue vitriol, the metallic strength of which is maintained by a bar or plate of pure copper which is suspended in the solution and is connected by a wire with the negative pole of a galvanic battery.

J. McE.—"Is soapstone packing injurious to the piston rod of a steam engine? . . . Where can I get an oil can like those used on locomotive engines?" We have never used soapstone packing, and cannot inform you as to its effect on piston rods. We judge, however, that its use would not be advantageous. Any railway supply store will furnish the oil can.

S. G. M., of N. Y.—Borax for welding or any other purpose is easily dissolved in water. So dissolved it is frequently used for welding iron and steel. As a paste it is as easily applied as when a powder.

C. C. H., of Ky.—In regard to the comparative merits of plowing and spading for agricultural purposes, we believe that practical men prefer the latter because of the better pulverization of the soil.

W. E. B., of Pa.—Sperm oil we consider preferable to other oils for use on an oil stone. We know of no ink in common use not in some measure injurious to steel pens. An acid is a component to the writing fluid generally used, which will attack steel. The best remedy against corrosion of the pen is to clean it as soon as it has been used.

J. R., of Ohio, and J. L. B., of Ky.—You can obtain paraffine (not paraffine oil) to prevent oil from rusting at a petroleum refinery; or, in the form of paraffine candles at a grocery. It is the best substance for the purpose we know of.

T. S., of N. Y.—You will find nothing better for a mold for your brass model than common molder's sand, which you may obtain cheaply at any brass or iron foundry. Common sand will not answer the purpose.

L. B., of Mass., recommends plaster of Paris as a means of "chucking" articles to be turned or bored. The face plate should be slightly rusty and the article properly secured to it by bolts or any other means, and when true and in place, the plaster should be laid around the edge, uniting the piece to the face plate or chuck. It will hold the work firmly.

T. P. N., of Conn., asks "why there is no manufactory in this country for the finer qualities of porcelain ware. We have large deposits of kaolin of excellent quality, etc. Is there any work that shows by diagrams the machinery for this manufacture?" There are deposits of good material in this country for this manufacture, and the reason why they are not used is because they can be made in Europe to better advantage, labor being cheaper than here. The Cartridge Porcelain Works at Greenpoint made beautiful ware some years ago but the enterprise proved unprofitable. We cannot give you the title of such a work as you desire.

W. Y., of Mo.—White wax may be colored red, blue, or any other tint by boiling ordinary dye stuffs in it and decanting the wax while fluid.

A. S., of St. Petersburg, Russia, asks how to deodorize barrels that have contained peninsular (petroleum) kerosene to make them fit for brandy or spirits. We have before replied to a similar question that we know of no effective process.

W. H. B., of S. C.—The advertising columns of the SCIENTIFIC AMERICAN will inform you of roofing paints which claim to make tin roofs water tight.

A. M. S., of Mass., desires to know how to cut small mirrors from the fragments of larger ones without injury to the reflecting amalgam which is invariably shattered on the breaking of the glass after cutting. We think it probable that a solution of albumen or rubber flowed over the amalgam and dried before cutting will be effective.

H. M., of Minn.—"J. W. H., on page 39, current volume asks if it will take more power to grind eight bushels of wheat in the same time on a four feet run of stone than on one of three feet. I think it will take less power to do the work on the four feet run, as the velocity required to make the smaller stone equal in capacity the larger absorbs a large proportion of the power." "Pallett's Miller and Millwright" can be obtained of H. C. Baird, 406 Walnut street, Philadelphia, Pa.

E. E. S., of N. Y.—"What is the easiest and surest way to make ordinary pencil manuscript indelible? Is there any chemical substance, powder, or solution which may be applied by passing a sponge or cloth once or twice over the writing with a certainty of securing the desired result? If so, what is it and where may it be obtained?" See "Answers to Correspondents," "A. F. T., of Wis.," page 231, current volume.

R. L. M., of Me.—Better advertise in our "Business and Personal."

J. A. W., of Ohio, says the feed water of his boiler contains a large proportion of carbonate of lime which incrusts the iron, and he has thrown the sawdust of his mill into the pool from which the boiler is fed, the effect being to change the color of the water and loosening of the scale. He asks if the sawdust (poplar wood) contains an acid injurious to the iron. We think not, or what it has will combine with the lime rather than attack the iron. The use of woods of various kinds to prevent boiler incrustations has long been known. Logwood is extensively employed for this purpose, and forms the basis of some of the popular patented anti-incrustation compounds. The utility of these woods to prevent incrustation is supposed to be due to the presence of pyroligneous acid, which dissolves the carbonate of lime and prevents its deposition. Chestnut, poplar, willow, and alder woods are richer in pyroligneous acid than logwood. Although destructive to iron, this acid is neutralized by the carbonate of lime, so that a boiler will be kept clean and suffer no injury unless too much acid is present. A small quantity of sawdust in a boiler is usually sufficient to keep it clear of carbonate of lime deposits.

T. H., of Ohio.—If you wish to ascertain whether centrifugal motion affects gravity it may be done by suspending two equal weights to the two ends of a cord and tying the middle of the cord to the hook of a spring balance. Weigh the suspended balls when at rest, then twist the cords together tightly and allow the weights to fly apart and while they are performing their circular motion note the variations of the index of the balance.

J. P., of R. I.—We believe no solder has yet been made which will permanently unite pieces of aluminum bronze.

"Subscribers," North Adams.—"Water is brought into this place from a fountain. It is carried in an iron pipe of 6 inch caliber down grade about half a mile, falling say 75 feet, then goes up grade about half as far, rising some 60 feet. Then it goes down again on 20° inclination about 60 feet; then over undulating ground half a mile. At the 60 feet summit the 6-inch pipe stops and one of four inches diameter is laid. Of course it cannot receive the water from the 6-inch pipe. 1st. How far should the 6-inch pipe go over the hill to have the increased velocity of the water so lessen the volumes to have it enter the 4-inch pipe without any obstruction? 2d. How much more water would pass through the 6-inch pipe bypassing around the 60-foot rise than by passing over it? 3d. What would be the difference in the quantity of the water if it were discharged before it began to rise the first hill and the quantity that would pass over the hill?" We apprehend that the difficulty alluded to in the first question

might be overcome by a joint pipe of suitable length, tapering from 6 inches diameter on one end to one of 4 inches on the other extremity. The arrangement proposed in the second question would not affect the obtainable supply at all. The third question you can best answer yourselves bear in mind that the amount of water flowing from an opening will in this case depend on the area of the cross section of the opening, its perpendicular distance from the level of the fountain, and the pressure under which the column of water issues from the fountain.

C. S., of Mass.—Look through a file of the SCIENTIFIC AMERICAN and you will find full particulars about the properties and manufacture of gun cotton. We cannot afford the room to reply to individual inquiries on subjects that have been repeatedly answered in this column.

Business and Personal.

The charge for insertion under this head is one dollar a line.

The surest detective of low and high water, and high steam in boilers yet invented. Springer, Hess & Co., Philadelphia, Pa.

Henry Carey Baird, Industrial Publisher, 406 Walnut street, Philadelphia, Pa., has just published "A Practical Guide for Puddling Iron and Steel." By Ed. Urbain, Engineer. A prize Essay read before the Association of Engineers, graduate of the School of Mines of Liege, Belgium. To which is added a comparison of the resisting properties of iron and steel. By A. Brull. From the French, by A. A. Fesquet. 8vo. \$1. By mail free of postage.

Capital wanted to extend the manufacturing facilities of one of the established best family sewing machines now sold. Address "Proprietors," box 1442, New York Postoffice. Or would contract with a desirable manufacturer.

There are now in actual operation eight thousand of Ashcroft's Low-Water Detectors. John Ashcroft, 50 John st., New York.

Tube Well—Best in Use.—Patented in 1865. State, County, and Town Rights for sale. Send for circular and prices. Address Dutton & Maguire, Port Jervis, N. Y.

Parties wishing to Manufacture the Hollen Knitting Machine on royalty, or who would supply a Company with machines, address Todd & Duncan, Bellefonte, Pa.

Henry Carey Baird, Industrial Publisher, 406 Walnut st., Philadelphia, has just issued a new and much enlarged descriptive Catalogue of Practical and Scientific Books, 56 pages, 8vo, now the largest list of this character, comprising only the Publications of any one house in either the United States or Great Britain. It will be sent free of postage to any one who will favor him with his address. Every reader of the Scientific American is invited to send for it.

Coal-oil Works, revolving retorts and refinery, lately erected, for sale. Address, on the premises, John White, Darlington, Beaver Co. Pa., or C. G. Waterbury, 116 Wall st., New York.

Mill-stone Dressing and Glaziers' Diamonds. Also, for all Mechanical purposes. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

To insure the safety of your steam boilers, property, and life, apply Ashcroft's Low-water detector. John Ashcroft, 50 John st., N. Y.

For Improved Lathe Dogs and Machinists' Clamps, address, for Circular, C. W. Le Count, South Norwalk, Conn.

Bartlett's Reversible Sewing Machines are the lowest priced reliable machines. Are used by hand or foot. 569 Broadway, N. Y.

Black Gypsum—where can it be found in quantities so as to be worked? Parties that can furnish the article address E. E. Hendrick, Carbondale, Pa.

Paper Makers, Tanners, etc., wanting the Best and Cheapest Pump in use will send for Circular to Heald, Sisco & Co., at Baldwinville, N. Y. Agents wanted.

Parties desiring the best Molding Machines in the market, should address H. A. Lee, Worcester, Mass.

Wanted—the address of Plow makers, out of New England, who would like to introduce, without risk or advanced expense, the best Plow in the market. Address Solomon on Mead, New Haven, Conn.

Manufacturers of Iron Pipe and Hydrants please send weight, prices, etc., to G. W. Pearsons, Ogdensburg, N. Y.

For Sale—A Toy Engine with copper boiler. Price \$12. For Photograph and description, send 25c. to Box 597, Gloucester, Mass.

Paper Collar Machine, Improved Style. Also, an improved Machine for plaiting linen and Cotton Bosoms, at the cor. Union and Fulton sts., Troy, N. Y.

Manufacturers of soda water apparatus send circular to box 179, Cape Vincent, N. Y.

Makers of spring movements, for running light machinery, address, stating terms, etc., C. King, 1 King's Place, Albany, N. Y.

C. De P. Field, No. 21 E. 26th st., wishes the address of the maker of the electric lamp recently noticed in these columns.

\$500 will be paid for a method of coating large chill rolls, which, upon trial, will be found to overcome the danger of breakage in casting. Address Lock Box 304, Pittsburgh, Pa.

Inventors or manufacturers of machinery for making wrought flap and strap hinges will please address X. Y. Z., Lock Box No. 236 Providence, R. I.

Wanted—A model shuttle sewing machine, to serve as a model for making a cheap shuttle machine to be run either by hand, or with table and treadle—to be manufactured in a foreign country. Address Amos C. P. Poncier, Boston, Mass., describing machine and stating terms, etc.

Henry Carey Baird, Industrial Publisher, 406 Walnut street, Philadelphia, has just published:—"Painter, Gilder, and Varnisher's Companion: Containing rules and regulations in everything relating to the arts of painting, gilding, varnishing, and glass staining, with directions for gilding, marbling, sign writing, and gilding on glass. To which are added complete instructions for coach painting and varnishing. A new edition 12mo, cloth, \$1.50. By mail free of postage.

EXTENSION NOTICES.

George A. Leighton, of Lawrence, Mass., having petitioned for the extension of a patent granted to him the 11th day of July, 1854, for an improvement in sewing machines, for seven years from the expiration of said patent, which takes place on the 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday the 22d day of June next.

Henry Outcalt, of Wilmington, Ohio, having petitioned for the extension of a patent granted to him the 11th day of July, 1854, for an improvement in mode of constructing metallic roofing, for seven years from the expiration of said patent, which takes place on the 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 22d day of June next.

Jonathan Ball, of Elmira, N. Y., having petitioned for the extension of a patent granted to him the 11th day of July, 1854, for an improvement in mode of connecting water pipes, for seven years from the expiration of said patent, which takes place 11th day of July, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 22d day of June next.