Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

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Improved Foot Lathes, Hand Planers, etc. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

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To Ascertain where there will be a demand for new Machinery, mechanics, or manufacturers' supplies, read Boston Commercial Bulletin's, Manufacturing News of the United States. Terms $4.00 year

Examples for the Ladies.

Mr. James Stewart, of Yonkers, N.Y., reports that a Wheeler & Wilson Machine, No. 38, under his charge, has been hat-binding by steam for nearly 17 years, and will now do as much work as any machine, new or old, of any make. From September, 1868, to 1869, it bound 137,088 hats, and the operator earned $654.17. The previous year she earned $507.48.

Burnett's Flavoring Extracts can now be obtained of reliable grocers everywhere.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous 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 must be by volume and page.

PROPORTIONS OF TELESCOPE.—Let E. T. N. query No. 15, Sept. 30,) procure for the object lens, one of about ½ an inch focal distance, another for the amplifying lens, 2½ inches focal length and 1½ inch diameter, and a third glass, 1 inch focal distance, to be placed next the eye. The distances at which these glasses should be placed from each other are as follows: The object glass should be placed at the end of a small tube, next the object, and the aperture or hole that lets in the light should not exceed one tenth of an inch in diameter. At a distance of about 7 inches from this glass, the amplifying should be placed; and the glass next the eye should be placed about 1¾ inch from the amplifying lens; such a microscope, reckoning the combined eye glasses to magnify 6 times, and the object glass 14 times, will produce a magnifying power of 84 times in linear dimensions, and in surface 7,056 times. The stage and its supports may be made of wood, and the tubes of paper or very thin pasteboard.—J. R. B., of Md.

PASTING GLAZED PAPER.—In answer to query No. 5, Oct. 21, if F.S. will mix a little honey in the paste, his object will be accomplished. W. R. J., of Pa.

CLEANSING THE HAIR.—Query No. 14, Oct. 21.—Barbers use carbonate of potash, known as salts of tartar, in water, to shampoo with. It is better to use a tablespoonful or two of common spirits of hartshorn, in a basin of water; then thoroughly wash the scalp and hair until they are clean; then wash with clean water, wipe dry, and apply a little oil or pomade.—W. R. J., of Pa.

FRENCH POLISH.—Let W. B. W. take one ounce of shellac, a quarter of an ounce of gum arabic, and a quarter of an ounce of gum copal; bruise them well, and sift through a piece of muslin; then put them, along with a pint of spirits of wine, into a closely corked vessel; place it in a very warm situation, and shake frequently every day till the gums are dissolved. Then strain through muslin, and keep well corked for use.—D.D., of Ohio.

DIMENSIONS OF CYLINDER.—W. G. N., query 20, Oct. 21, should multiply 231 (the number of cubic inches in a gallon) by the number of gallons, and divide the product by the hight in inches. This gives the area of the cylinder. To find the diameter, divide the area by ·7854, and extract the square root of the quotient. In reply to his second query: Find the area of cylinder by squaring the diameter, and multiplying by ·7854, by which divide the number of cubic inches in the number of gallons, and the quotient will be the hight in inches. To his third question: Divide the area by ·7854, and extract the square root of the quotient. If the answer is in feet and decimal parts of a foot, multiply by twelve for the inches. If the answer is in inches, divide by 12 for feet.—A.B.P., of N.J.

CLEANING POLISHED BRASS.—If G. W. K. will get some tripoli, such as comes in lumps: powder it up fine, and use with oil and a cloth or chamois skin, and then use some more of the powder dry, with another piece of chamois skin, he will be able to make his brasses shine. If the brass be very badly tarnished, he had better use a solution of oxalic acid first, and immediately wash clean with water; then use the tripoli, with water or oil, whichever is the most convenient. The oxalic acid will immediately remove all stain and discoloration, and the tripoli will polish the brass. Most of the lacquers have shellac for a base, consequently heat would ruin them, although there is a kind that will stand heat, that does not contain shellac, but I have forgotten how it is made.—J. F., of Ga.

STEAM HEATING PIPES.—To R. G.—I have been using a heater for three years, and never met with the trouble you speak of. I carry low pressure (two pounds); if you have greater pressure, I would advise you to place a stop cock in your return pipe; then when you shut off the steam with one cock, you can shut off the return with the other cock.—J. A., of Md.

CLEANING POLISHED BRASS.—In answer to G. N. K., query 17, Oct. 14, I will say that I have found lime juice the best thing for cleaning polished brass. Rub the brass with cotton waste, dipped in lime juice, and polish or finish with whiting. This cleans the blackest brass or copper, with scarcely any labor. G. N. R. can try this, and is welcome to the recipe.—I. G. B., of S. A.

CLEANING BRASS.—If G. N. K. will take equal quantities of good vinegar and fine salt, he can clean his brass work easily; but this mixture will not polish it.—S.R.G., of N. J.

Queries.

[*We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.*]

1.—ALUMINUM FROM CLAY.—I wish to know how aluminum is obtained from clay. Will some one let me know the process of manufacturing it, and how much can be obtained from a tun of clay?—J. L. R.

2.—FIREPROOF PAPER.—Can newspapers, intended to be used in walls to protect against cold, be cheaply rendered fireproof?—C. G. A.

3.—FIREPROOF CLOTH.—Can common cotton cloth be made fireproof by any substance that will withstand rain? A double tent of common sheeting, like two tents, one outside the other, is an excellent shelter for a party traveling in cold weather, even when snow is on the ground and ice in the rivers. It is very light, yet keeps out cold, wind, and rain better than duck, besides being cheaper. The sole disadvantage is its liability to catch fire from sparks from the camp fire. Such a misfortune has recently befallen me, and to have one's house thus burned over his head on a frosty night is no joke.—C. G. A.

4.—SPONGY PLATINUM.—How can I make the platinum sponge for Doebereiner's process? And is it possible to restore platinum sponge which has lost its catalytic property?—T. M.

5.—TRANSPARENT CEMENT.—In your last issue I read: "It is a shameful thing to be weary of inquiry, when what we search for is excellent." I have been experimenting lately in making a transparent cement. I have been very successful; only one difficulty is in the way. Will you tell me how I can prevent white sugar from turning into white powder again after it has been melted in water? I want it to dry clear, and prevent it from again becoming granulous, when mixed with gums and other protean bodies.—C. E. E.

6.—SOLUBLE GLASS.—On page 105, Vol. XXV., SCIENTIFIC AMERICAN, I read Professor Bottger's method of preparing cement by mixing different materials with soluble glass. I have tried to obtain soluble glass in San Francisco, but cannot get it. I am told silicate of soda is the same material, and have bought a small quantity to try. It is a hard, dry, jelly-like, colored substance; and, if made irregular on the face, it in course of time fills up and becomes level and smooth on the surface. I have dissolved it in hot water and used the liquid, but it has no more effect than water upon any substance with which it is mixed. When dissolved in water it is just as thin as water. I understand soluble glass should be of the consistency of sirup. It would be an advantage to have it of that thickness, as it would make the material with which it is mixed adhere better. Any information will be thankfully received.—W. J.

W. J., for a reply to his other query, can consult our advertising columns.

7.—ENAMEL FOR IRON.—I am experimenting, trying to make a hard, white enamel for iron, similar to the black plate used for ambrotypes. I shall be glad to have any suggestions as to articles or books from which knowledge on the subject can be obtained. The enamel should not only be hard, but insoluble in ether and alcohol when dry. I have succeeded with a plate made with varnish compounded with zinc white, but it is not sufficiently hard. The black plate is simply or principally asphaltum varnish. It becomes very hard, and still remains pliable. I want a substance soluble in turpentine.—J. S. Y.

8.—PORCELAIN LINED VESSELS.—Can tin vessels be lined with porcelain? What are the processes of fusing porcelain upon tin, and is the art patented?—C. L. S.

9.—DESTRUCTION OF TREES.—Will A. K., of N. Y., page 186, current volume, please tell me how to prepare the concentrated solution of sulphate of iron for killing trees?—J. B. S.

10.—SCALE IN BOILERS.—I wish to know how to prevent the carbonate of lime from forming scale in my boiler.—E. L. F.

11.—INDIA RUBBER BELT UNDER WATER.—Can a gum belt be successfully used in working under water? And, if so, can any and what preparation be applied to preserve the belt?—O. J. H.

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

BOILER EXPLOSIONS.—P.
MATHEMATICAL NOTATIONS.—B. J. B.
MOTION.—G. W. H.
PHOSPHORESCENCE OF THE SEA.—A. P.
PROCURING RAIN.—H. J. S.
ANSWERS TO CORRESPONDENTS.—G. K.—J. P.—R. P. S.
QUERIES.—A. P.—C. C. & Co.—C. T. H.—J. B. B.—J. C. W—T. I. M.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

PIANOFORTE.—Azariah H. Hastings, of New York city.—These improvements, in the construction of the plates and tuning mechanism of upright and other pianofortes, consist in a new manner of forming the upper or back edge of the metal plate, and in a new construction of and fastening for the travelers that hold the upper or back ends of the strings. The metal plate of a pianoforte has in its upper edge oblique grooves. Through these grooves are fitted the screws for holding the ends of the piano strings. The screws for the strings of each key are arranged in one groove, so that there are two or three screws in every groove. By the oblique direction of the grooves, the screws, though collected for the several notes, are, nevertheless, alternated transversely, to provide more room for the keys to work in and permit the use of larger screws. Each screw fits with its lower end into a nut or traveler, which is a prismatic rod, with a neck near, and a head at, the lower end. A funnel shaped cavity is formed in the lower end of the traveler, and an oblique slot cut through one side of the rod to meet such cavity. This slot forms a hook-bearing for the string. The upper end of the string is fitted through an aperture of the traveler, then wound around the neck, and finally put through the slot into the aforesaid cavity of the traveler. In this manner it is securely held, and will be in line with the adjusting or tuning screw, so as to be pulled straight and not twisted. The two or more layers of travelers are placed under flat guide straps, which prevent them from turning and hold them steady on the plate. These guide straps are preferably made of wood. The invention is, in every respect, as applicable to horizontal as to upright pianos.

ELEVATOR BRAKE.—Theodore Thorn, of St. Clair, Pa.—This is an improvement in a safety brake for elevators or platforms used for raising coal or other articles from mines or perpendicularly. It consists in a beveled cage or platform frame and in wedge shape brake blocks and jointed brake bars operating in vertical rabbeted timbers, in such a way that, should the hoisting chain or rope break, the loaded cage would instantly wedge, between the brake blocks, bars acting as knuckle joints to force the brake blocks with their ragged faces against the guide timbers. In use there would be more or less play between the timbers and the brake blocks and between the brake blocks and the cage; but, in case of a break, the cage would act instantly upon knuckle joints and be arrested.

PAN SCRAPER.—Gottlieb Scherer, of South Boston, Mass.—This invention has for its object to furnish an improved pan scraper or metallic dishcloth for scraping and cleaning pans, kettles, etc. It is formed of iron rings interlocked with each other to form a network or cloth. At one end of the scraper is formed one or more loops, also made of iron rings, for convenience in hanging up the scraper when not in use. When it is desired to make a heavier scraper, one half of the rings may be made double—that is to say, formed of two coils of wire. The scraper thus constructed is rubbed over the surface of a pan in the same manner as an ordinary dishcloth, and does its work quickly and thoroughly, leaving the surface clean and smooth.

CULTIVATOR.—John S. Nolen, of Paulsborough, N. J.—This invention relates to an improved implement or machine for agricultural purposes, particularly designed for the use of gardeners. It is so constructed in its several parts as to adapt it to be used at a harrow or mere pulverizer of the soil, and also as a cultivator, which shall lift the vines and throw the earth around the roots or stocks of the plants. Oblong and eight sided shovels, adapted to be reversed or changed in position so as to adapt the implement for use as a harrow or cultivator, are employed, both the form of the shovels and the method of constructing the machine being covered by the patent.

FLOUR BOLT.—Thomas G. Morgan, Murfreesborough, Tenn.—The ribs of the reel have cam rims attached midway between the arms. The roller knockers are arranged to fall upon the cams and impart to them a slight downward motion, by springing the ribs so that their recoil will detach the meal from the clothand the ribs in the most effectual manner. The roller knockers are mounted in the ends of levers pivoted to the frame, and having adjustable weights to vary the force of the blows. By pins provided in the ribs for securing the cloth, tacking is avoided, except on the rib where the two edges of the cloth meet. Nuts on the arms enable the ribs to be adjusted out or in, radially for regulating the tension on the cloth. Clamping strips are placed on the ribs above the cloth to confine it, said ribs being held by nuts screwing down on the arms and having holes for the pins. The ribs are made oval on the inside to facilitate the rolling of the meal down the cloth, which, being kept free by this arrangement of the knockers, will bolt it properly without specking as much as when the meal is carried up by the ribs and let fall, and the cloth will not be worn as much as when so let fall.

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DERRICK.—William M. Howland and George L. Howland, of Topsham, Me.—This invention relates to improvements in derricks, and consists in a combination, with a chain wheel which engages the links of the chain so as to draw it without winding around said wheel, of a chain keeper or guide adapted to prevent the chain from twisting at the under side of the chain when returning to the wheel in letting down the chain after being raised up. The invention also consists in novel arrangements of apparatus for connecting the shores or braces of the derrick to flat railroad cars. It also consists in a novel arrangement of reversing gear for letting out the chain after raising a load, and also in a novel arrangement of a pair of shore braces and a connecting bar, whereby they are connected together and to the derrick, and may be disconnected and folded together for transportation.

CASTERS FOR SEWING MACHINES.—Warren D. Hatch, of Antrim, N. H., assignor to himself, Shepard Russell, of Boston, and Henry O. Goodrich, of Worcester, Mass.—This invention has for its object to furnish an improved caster attachment for sewing machine tables, dentists' chairs, etc., which shall be so constructed and arranged that the weight of the table, chair, or other article, may be thrown upon the casters or upon the feet of the article, according as it is desired to move the article or have it stand immovable; and it consists in long and short adjusting levers of the casters by means of a toggle lever hinged to the upper part of the frame.

HORSE HOLDER FOR SLEIGH.—Henry A. Sprague, of Charlotte, Me.—This invention has for its object to furnish a simple and convenient device for attachment to a sleigh runner, which shall be so constructed that, should the horse start, the sleigh will move forward while the holder remains stationary, thus tightening the reins and stopping the horse. In using the device, it is placed upon the upper end or bend of the runner. The reins are then placed upon an arm or hook, and the device is allowed to slide down said bend. When the horse attempts to start, a calk is drawn beneath the runner, and forced into the snow or ice and held stationary while allowing the runner to move forward or backward through it freely, so that when the sleigh is drawn forward it tightens the reins, and slackens them when the sleigh is backed.

CARRIAGE SPRING ATTACHMENT.—Orrin E. Bennett, of Cannonsville, N. Y.—A short bar is secured to the cross springs with clips. To this bar, about midway between its ends and center, are riveted or otherwise securely attached two eyebolts, the eyes of which are interlocked with the eyes of two other eyebolts, which, in the case of the back spring, are passed through and secured to the spring bar. The eyebolts in the case of the front spring are secured to the head block or platform. The device thus forms a hinged connection between the cross springs and the parts of the carriage body with which they are connected, so that the side springs may be straightened out by the pressure of the load without twisting or breaking the springs or their fastenings.

STEAM BOILER.—E. H. Rümmele, of Glenbeulah, Wis.—This invention consists in an improvement on steam boilers, in the use of which, it is claimed, the heat is well utilized, even that of the cinders that fall through the grate being made available for the production of steam. The boiler can be easily cleaned, and is not liable to get out of order, and is not liable to accidents on account of clogged passages.

HORSE POWER.—James W. Knox, of Winona, Miss.—This invention relates to improvements in horse powers; and it consists in a simple and economical arrangement of the sweep or hitching bars for connecting, so as to apply the power directly to the rim of an overhead power wheel. It is well known that something is gained in power, and that the shaft and arms of the wheel are relieved of considerable strain, by attaching the sweep or drawbar directly to the rim of the wheel, which has been heretofore done; but, as a better, more simple, and economical means of so connecting to the rim than any heretofore employed, this inventor proposes to form the sweep of branching descending metallic arms, the hooked end having a brace, connected to one of the arms near the crotch and extending upward and toward the center of the wheel to one of its arms, while the branches are connected to the rim, one in advance, and the other behind the vertical plane of the hook. Each branch of the sweep, thus composed of these arms, is bolted to the wheel by a single bolt tapped into it. This is claimed to be a much stronger and more durable sweep for this kind of connection than any now in use, while the arrangement is such that it can be very economically constructed.

PIANO STOOL.—Charles A. Schindler, of West Hoboken, N. J.—This invention has for its object to improve the construction of piano stools, to make them stronger and more durable, and at the same time improve their appearance. The top of the stool has attached the upper ends of three or more legs; to its center is attached the upper end of the pedestal. The seat of the stool has attached, to the center of the lower side, a screw, which passes through the center of the top and into the pedestal, which is made hollow to receive it. A metallic band is fitted upon the lower end of the pedestal, and is secured in place by a screw or spike, made with an ornamental head, and screwed or driven into the lower end of the pedestal. Upon this band are cast three or more brace arms, as many as there are legs, which are made of such a length as to reach the legs, to which their outer ends are secured by screws. The brace arms are designed to be made with the same style of ornamentation as the other parts of the stool, and strengthen the legs, making the stool more firm and substantial while greatly improving its appearance.

HORSE HAY FORK.—John C. Lampman, of Baltimore, Md.—This invention has for its object to furnish an improved horse hay fork, strong, durable, simple in construction, and effective in operation, and which shall be so constructed that it may be conveniently repaired, should any of its parts be accidentally broken. The rear end of the central tine is bent and extended upward to serve as the shank or standard of the fork. The side tines have their rear ends bent inward, and are welded or otherwise securely attached to the central tine at or near its bend, the connection being further strengthened by the band that forms the eye, to which the hoisting rope is attached. Upon the upper end of the shank is formed a notch or shoulder, to receive a loop or link attached to the hoisting rope. The trip lever is pivoted to the upper end of the standard, and is curved to serve as a cam to push the link out of the notch, to discharge the load from the fork. The trip rope passes over a guide pulley, pivoted to the shank or standard, so that it may always act in the proper direction upon the trip lever, whatever may be the position from which it is operated.

PRESS FOR STAMPING PANS, DISHES, ETC.—John B. Jones, of Williamsburgh, N. Y.—The die is operated by suitable mechanism, and connected with a piston, working within a reciprocating frame, whose lower face constitutes the pressure plate for holding the sheet metal down upon the counter die. The counter die consists of an outer and an inner portion. The outer portion of the counter die is securely affixed to the frame, and is of annular or other form of about half the depth of the pan or dish to be shaped. The inner portion of the counter die is as large in diameter as the opening in the stationary part of the counter die, and is fitted through the same. A piston, fitting a cylindrical chamber, is affixed to the bottom of the counter die, and is sustained by water or other liquid material, or mechanism. Liquid, when used, is let into the chamber by a pipe, from a reservoir. When the central part of the counter die is lowered, its slanting sides meet those of the outer portion to form a continuation of the same. The die, in descending, bends the metal at once over the edge of the stationary part of the counter die and over the edge of the movable part, as at the beginning of each operation the counter die is elevated so that its upper edge is about in line with the top of the outer part of the counter die. The margin of the plate is kept from crimping by a reciprocating pressure plate. The die gradually descends, and at the same time the inner part of the counter die descends with about half the velocity of the upper movable die. The bottom and upper portion of the pan are thus formed at the same time. The metal is first bent over the edge of the inner part of the counter die, and as the latter gradually descends the lower part of the pan is formed. The metal is subsequently bent over the edge or corner of the outer part of the counter die, and this gradually and not suddenly drawn into the required shape. The movable part of the counter die is elevated by means of a lever, which is actuated by suitable connection with the operating mechanism. The lowering of the inner part of the counter die is regulated by the displacement of the water, controlled by suitable mechanism.

BALANCED SLIDE VALVE.—John Rigby and Joseph Holt, Marquette, Mich.—This invention relates to improvements in the method of balancing slide valves for steam engines. It consists in connecting the valve with a slide which is given an uniform and simultaneous sliding motion with the valve, the steam being admitted between them; and it consists also in a device for raising the valve and slide from their seats, when the engine is not in motion, by the fall of a weighted lever, sustained when the engine is in motion by the pressure of steam on the piston in a small cylinder within the steam chest.

ROTARY ENGINE.—John Stott, Burlington, Iowa.—This is a combination of a piston, toothed ring, hub, and pinion, also a steam gate swinging on its center within a steam chest, in combination with a weighted arm, thereby dividing the pressure of steam and lessening the friction on the piston. The invention is of a nature, not easily explained in a mere verbal description, by which an engine may be caused either to rotate or reciprocate. The device is ingenious, and forms an important attempt at advance in this department of engineering.

HELICAL WIRE BRUSH.—Francis F. Field, Stapleton, N. Y.—This is an improved wire brush for cleaning boiler flues and other uses, the contiguous wires being arranged at right angles with each other at their centers. A tube receives the ends of the binding wires at the base of the brush, and has a screw thread cut upon its outer end for the attachment of the rod by which it is operated. Four binding wires are used, the ends of which are secured in the tube. The brush wires are arranged between the four binding wires (at right angles with each other at their centers), so that each brush wire may project to an equal distance upon the opposite sides of the binding wires; a side view of the brush thus showing a spiral row of brush wires between each coil of the binding wires. If desired, the brush wires may be made small or thin, and two of them used together, the pairs being arranged alternately at right angles with each other, as described. When the brush wires have been arranged, the binding wires are coiled, and their ends secured in the ordinary manner.

CHANDELIER CENTER.—Joseph Kintz, West Meriden, Conn., assignor to himself and P. J. Clark, of same place.—This invention consists in having the chandelier arms connected to the center piece by a shank or tenon, going through the rim or wall of said center piece and receiving a nut, key, or other fastening, the shoulders of said arms having projections fitting in sockets in the outer face of the wall or rim, to prevent turning. The inventor is thus enabled to use the most simple mode of connecting the arms, and by it to hold them securely against turning, which has heretofore prevented the use of such connections.

CHANDELIER CENTER.—John Meah, Meriden, Conn., assignor to Meriden Malleable Iron Company, of same place.—This invention consists in having a vertical socket for each arm of a chandelier on the inner side of the cylindrical part of the center piece, from which the arms radiate, and a pintle on the part of the arm extending to the inside of said ring fitting in the socket, in which it is locked by the cap of the center piece. The ring is of cast metal, forming the cylindrical part of the center piece, with deep notches in its upper edge for the arms to extend into the interior. Vertical sockets are formed on the inside of this ring, one under each notch, and each arm is provided with a pintle on the under side to fit into the socket for it, as shown, for holding the arms with greater security than they can be held by any arrangement now in use.

SAP BUCKET COVER.—A cover for sap buckets is formed of a square piece of board or metal, with one edge rounded out, forming the arc of a circle to nearly correspond with the diameter of the tree. On the other three edges of the cover there is a flange projecting down three inches (more or less), so as to completely cover the top of the bucket and exclude leaves, snow, rain, and all foreign substances. On top of the cover, near the circle, are two screw eyes, which engage with the hooks driven into the tree for supporting that edge of the cover. On the opposite edge is another screw eye, to which a cord is attached, which is tied with a hook in the tree to support the cover in an inclined position. Without some kind of protection, sap buckets are liable to receive whatever may be flying in the atmosphere or drop from the trees, and the sap is thereby frequently rendered nearly useless. With this improved cover the bucket is perfectly protected, and the sap caught therein is preserved pure and fit for use, without reference to the state of the weather, or what may be falling or flying in the air.

FLANGED COLLAR FOR BROOM.—Henry A. Lee, New York city.—This invention pertains to an improvement in metal caps for covering the butts of the corn attached to the broom handle by wire in the ordinary manner; and it consists mainly in forming the cap with corrugations, which enable it to compress or bind the corn somewhat, but to perform the more important functions of holding the lower wire in place.

WATER RAM.—Christopher Hodgkins, Marlborough, N. H.—This invention has for its object to increase the efficiency of hydraulic rams by making them continuous in operation; and consists chiefly in the application to one ram of two force or conducting pipes whose force valves are connected so that the closing of one will cause the opening of the other, and *vice versa*. The invention also consists in a new form of force valves, and manner of applying and making them adjustable. This ram will always start itself whenever water is let on, owing to the absolute obedience of the valves to pressure, which requires less accumulated force for closing said valves than the lowering appliances hitherto necessary. Another advantage claimed is that it cannot be stopped by dirt, since one side will close and wash the dirt out from the other side; and that a change of temperature will not affect it, while ordinary valves must have their weight changed in cold and warm weather.

ENDLESS TRAVELING SIDEWALK.—Alfred Speer, Passaic, N. J.—Mr. Alfred Speer, of Passaic, N. J., has invented an endless traveling sidewalk, as described below: A permanent walk is suspended from the buildings bordering the streets in any suitable way, in which it is proposed to run the endless traveling walk of platform cars, connected together and mounted on rails elevated on posts in any suitable way, so that the top of the platform will be level with the walk. These cars are to be propelled at a suitable rate of speed continuously by stationary engines, or any other means. Awnings are employed to shelter the passengers. To facilitate the getting on and off, small cars will be mounted with the wheels of one side on a rail on the permanent way, and those of the other side on a rail on the movable walk, and each set provided with an independent brake, so that a person, on the stationary walk and wishing to get on the movable one, taking the brake handle for the wheels running on the rail on the stationary walk and forcing the brake down on the wheels, can readily stop the car, as the wheels upon the movable track will simply turn on their axles without moving the car forward. He may then step on the footboard of the car, and, releasing the brake he first set in action and setting the other in action with the wheels on the movable platform, will cause the car to move with the platform, after which he may get off the car, release the last mentioned brakes, and leave the car to the next person wishing to get on or off. For the latter operation the car will be caused, by the brake of the wheels on the traveling walk, to move with the platform until the passenger gets on the foot board. Then it will be stopped as at first, and he will step off upon the permanent way. Any suitable number of these transferring cars will be arranged along the whole route, so as to be at all times at the service of passengers. Many persons may get on and off at the same time, according to the capacity of the transfer cars. These cars may have seats above the foot boards, for persons who are aged or infirm to rest on while they are stopping or starting.

BOTTLE OPENER.—Charles B. Trimble, New York city.—This invention consists in a metallic stirrup or casting attached to the counter, or placed in any convenient position, so constructed that by a slight pressure the yoke is forced from the cork of the bottle, when the gas immediately forces the cork from the neck. When the bottle is filled, and the cork is driven into the neck, the yoke is turned up over it, which securely holds it against the pressure of the gas in the bottle. The pressure of the gas is frequently so great that the end of the yoke is embedded in the end of the cork, rendering it extremely difficult to remove it by simply pressing it with the end of the thumb and fingers. By grasping the bottle and pressing the bars formed on the yoke against lugs formed on the stirrup, the yoke is readily forced off the cork. When this is done, the nose of the bottle will pass between the lugs, and the cork will fly under the counter. By this simple device the cork is removed without straining the thumb or fingers. Much time is saved, and no one is annoyed by the flying cork.

LUBRICATOR.—Erick Ehlin, San Francisco, Cal.—From the oil reservoir descends a tube, which passes through the stopper and is placed in a hole in the cap of the journal box. There is a metallic plate or disk on the inner end of the tube, and also on the outside of the stopper, for keeping the latter in position, although they may be dispensed with. The inner end of the tube is a conical valve seat, fitted with a cone or valve, tapered so as to engage with the valve seat, and provided with a stem which extends down into the tube and upon the lower end of which there may be a screw thread. A spiral wire coil, of about the diameter of the interior of the tube, is attached to the stem, and extends below the lower end of the tube so as to rest upon the journal. The elasticity (laterally) of the spiral wire coil will hold it to the stem sufficiently tight in any position, whether the stem is provided with a screw thread or not. The cone or valve is adjusted by slipping the wire coil up or down on the stem, so as to allow a greater or less quantity of oil to descend through the tube and reach the journal. The jarring of the machinery will cause a slight but constant motion in the wire coil and cone or valve, which serves to feed down the oil uniformly on to the journal and prevent any clogging. The tube may be screwed into the box cap, or it may be connected in any other manner, so as to be supported (with the reservoir) in an upright position.

PROPULSION OF CANAL BOATS.—Owen Coogan, Pittsfield, Mass.—This invention relates to a new mechanism for propelling canal boats, river boats and wheeled vehicles; and consists chiefly in the employment of a propelling rope, which is stretched over the water course or road, and can be wound around a drum on the vehicle, so that the latter, when rotary motion is imparted to said drum, will be propelled by friction with the rope. The invention consists, also, in a means for suspending said rope above the vehicles so that the contact with the drum can be uninterruptedly sustained, and in improvements of the mechanism connected with the drum on the vehicle.

VALVE MOVEMENT.—This is an improved device for operating the valves of steam engines. The valves are operated by flexible metallic plates, or diaphragms, placed on the inside and at the ends of the steam chest connected with the valve stem, and operated by steam in a way that cannot be well described in this notice, the admission of steam to the diaphragms being controlled by an oscillating valve actuated by a crank, the crank being oscillated by a connecting rod from the piston rod. The invention has been patented by Frederick Glassen and William Gilfillan, of Paterson, N. J.

BALANCED SLIDE VALVE.—Charles B. Hutchinson, Concord, N. H.—We would be glad to give our readers an idea of the details of this unique invention. It is, however, of a nature that precludes a mere verbal explanation. The balancing devices may or may not reciprocate with the valve, and either cylinder and piston, or a spring, may be used to effect the balancing, the whole being intended to obviate certain defects in the operation of balanced slide valves, and to effect the desired balance in a superior manner.

STUDS OR BUTTONS.—The invention of William R. Dutemple, of Providence R. I., assignor to himself and J. M. Hopkins, of the same place, provides studs or buttons with a post having wings arranged thereon at right angles, one wing being capable of being turned half way round, when it stands superimposed on the other wing. In this way the wings are easily inserted into the button hole, and then the turned wing, being restored to its original position, engages with a stop that holds it from turning back again, thus holding the stud very securely.

SLEIGH.—Rice Webb, Star Prairie, Wis.—This is a combination of various parts now used in sleigh building into a new, light, tasteful and strong design for cutters or sleighs, one which, we judge, will be much cheaper than the present, while it will be more durable, the raves, runners, knees, and braces being made of wrought bar iron, bent into the required form. Either end of either of the runners is capable, through a peculiarity of construction, of rising to pass any unevenness in the road, while the other runs smoothly, thus making, it is claimed, the sleigh or cutter of much lighter draft than those having rigid runners.

DITCHING MACHINE.—This is the invention of Oscar F. Hale, of Irvington, Iowa. It is a combination of various strong and seemingly effective devices for the purpose specified, which is, to deposit the excavated dirt of open ditches in a ridge at a distance from the edge of the ditch, and place the sod upon the ditch side of the ridge between it and the ditch, to prevent the washing back of the excavated earth.

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120,146.—SCOOP.—N. S. Barnum, Bridgefield, Conn.
120,147.—ROLLER SKATE.—J. L. Boone, San Francisco, Cal.
120,148.—CHAIN LINK.—H. Boyd, East Bridgewater, Mass.
120,149.—BOLT CUTTER.—J. R. Brown, Cambridgeport, Mass.
120,150.—HUB.—J. Y. Burwell, Worthington, Pa.
120,151.—COAL GAS.—D. Davison, New York city.
120,152.—PAPER.—D. D. Foley, J. J. Johnson, Washington, D.C
120,153.—ROOFING MACHINE.—C. L. Fowler, Baltimore, Md.
120,154.—MATTRESS.—H. Gardner, R. Lowe, J. & J. Wood, J Pickering, Manchester, Eng.
120,155.—NAIL MACHINE.—L. Goddu, Boston, Mass.
120,156.—HOOK.—A. J. Goodrich, Wolcottville, Conn.
120,157.—SAW FRAME.—W. Hankin, Williamsburgh, N. Y.
120,158.—STEP LADDER.—W. Huey, Galena, Md.
120,159.—WHEELBARROW.—W. McKibbin, San Francisco, Cal.
120,160.—HAY FORK.—P. J. Moose, J. Kuhn, Dansville, N. Y
120,161.—TURN TABLE, ETC.—W. K. Muir, Hamilton, Can.
120,162.—PUNCH.—R. J. Mullen, Providence, R. I.
120,163.—HAT VENTILATOR.—E. G. Nichols, Beaufort, S. C
120,164.—BRUSH.—J. Pickering, Philadelphia, Pa.
120,165.—FURNACE.—W. Quann, Philadelphia, Pa.
120,166.—SOLDERING IRON.—J. C. Reynolds, Taunton, Mass.
120,167.—THRASHING MACHINE, ETC.—H. Ries, Norwalk, O.
120,168.—CURTAIN FIXTURE.—A. Roelofs, Philadelphia, Pa.
120,169.—STONE DRESSER.—T. Ross, Rutland, Vt.
120,170.—EDGING BOARDS.—J. K. Sanborn, Sandy Hill, N. Y
120,171.—BURIAL CASKET.—J. Scott, Philadelphia, Pa.
120,172.—LAMP.—G. W. Thompson, New York city.
120,173.—RUFFLING DEVICE.—E. J. Toof, Fort Madison, Iowa.
120,174.—RENOVATOR.—J. Wellfare, F. Champagne, Aurora, Ill.
120,175.—WASHER. S. Williams, H. McNeill, Philadelphia, Pa.

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