

G. L. H.—What will be the best practical method to decompose water into oxygen and hydrogen, filling separate vessels respectively? Answer: The most convenient method of decomposing water is by means of the galvanic battery. Place the ends of the two wires in water, near each other, and over each wire a collecting jar or tube. The two gases will then rise, hydrogen in one, oxygen in the other.

R. H. D. says: You might add to your article on paper hanging: Cover your table with newspapers and renew when soiled, instead of cleaning the table so often, and use sizing of vinegar and water before pasting the walls.

A Subscriber asks if tea made of burdock root will purify the blood without thinning it too much? Answer: This root is considered excellent for disorders of the blood, but we advise you to consult a physician in respect to its use.

W. C. Van N. says: I am troubled with rheumatism in my feet. Will some one state a remedy? I have heard that lemons are good. How many must I eat a day, and at what hours? Answer: Fifteen lemons a day, eating one every hour, will probably quiet your rheumatism, and all other troubles, in a short time. But if you wish to live for a while longer, let the lemons alone and consult a first-rate physician.

W. D., of N. C., sends us a mineral specimen, asks what it is, and says he has leased for ten years the land where it is found. Answer: The mineral is quartz rock, colored red by oxide of iron. The silvery particles in it are mica, and of no value.

F. D. H. asks: Can iron be plated with copper by the means employed to plate metals with silver, using a solution of sulphate of copper instead of the silver solution? Answer: Yes.

F. D. H. asks: How can I remove mercury from the surface of brass, which has become coated by accident, without injury to the same? Answer: By heating the article. Look out that you do not inhale the mercurial fumes.

E. H. asks in what way galvanized iron can be treated to resist the action of salt. Answer: You can protect the iron by means of varnish. You do not state, however, the circumstances under which the iron is used.

F. H. N. requests us to inform him whether the report of one gun can be heard as far as the report of two, fired simultaneously, the guns to be of the same size, charged the same, etc. The question arose thus: A. claimed that the solos sung at the Boston Jubilee could be heard just as far as the choruses, provided the voices were all of the same power. Certainly the report of two guns will make a louder noise, then it consequently would transmit the sound farther. Answer: Your conclusion is correct. The report of two guns will be louder than one, and will consequently be heard further. A. is wrong about the Jubilee singers. One voice could not be heard at so great a distance as several voices of the same power.

Professor Ott writes as follows: In your issue of November 9, I find it stated among the answers to correspondents that the process of Mallet for manufacturing oxygen has not as yet come into practical use. Permit me to inform you that the same has been in use in Frankfort-on-Main for about two years, the oxygen being employed for Phillips' new system of illumination, which has also been patented in the United States. The experiments made with the first apparatus of Mallet yielded a gas consisting of 973 volumes of oxygen and 27 of nitrogen, an amount which for all technical purposes is of no consequence whatever.

In answer to A. F. S., asking how to clean stove pipes of soot, I would recommend the following: Place a piece of newspaper with a spoonful of gunpowder enclosed, beneath the entrance to the stove pipe, removing the tops on the back near the pipe. Let the paper have a long end; light it and then retire after replacing the tops. The explosion of the powder will bring the soot down.—H. B.

W. K. L., query 2, page 281, will find that silicate of soda is soluble in water after becoming hard. The trouble is that people generally do not understand the difference between silicate of soda and water glass. The makers of this useful article decline to sell it at retail; where can it be procured in small quantities?—T. E. L.

In a recent issue you suggest to artists and draftsmen the use of "ordinary collodion, sold by all dealers in photographic materials" as a protection to pencil and crayon drawings. Would it not be best to use plain or unsensitized collodion, as the free iodine in ordinary collodion, for photographic use, would seriously stain or tint a delicate drawing? The solution should contain less cotton than for ordinary use. The following is a good formula: Sulphuric ether, 1 oz., alcohol (95 per cent), 1 oz., soluble gun cotton, 4 grains. I have used it with excellent results.—G. G. R., of N. Y.

To A. T. M., query 6, page 314. Dissolve about 60 grains of carbonate of ammonia in the water used for mixing with 1 pound of flour. Knead well, and bake immediately; all the ammonia will volatilize. Or mix dry, with each pound of flour, about 36 grains tartaric acid and 42 grains carbonate of soda, add water, etc. Knead quickly, place in tins and bake. Bread also used to be made by using carbonate of soda and muriatic acid; but the introduction of the large quantity of common salt so formed was considered injurious to the health.—E. H. H., of Mass.

To O. S., query 11, page 314. Ozone papers are made by dipping unsized paper into a solution of 1 part iodide of potassium, 10 parts wheat starch and 100 parts distilled water. Dry rapidly, cut into slips, and keep in a well stoppered bottle in the dark. To use: moisten a slip and hang in a cage of wire gauze, when the effect of any ozone will be indicated by the depth of color produced.—E. H. H., of Mass.

To D. R. W., query 12, page 314. There is nothing dangerous about the processes named for silvering glass.—E. H. H., of Mass.

To O. S., query 21, page 314. Saturate the outside of your vats—especially the bottoms—with a solution of corrosive sublimate, and, when dry, coat well with paint. You need not fear any ill effect from the sublimate on the contents. It will be also well for you to see that there is some ventilation underneath. The corrosive sublimate is about the best preservative of wood against decay known.—E. H. H., of Mass.

To T. J. S., query 26, page 314. Steep, for a while, in a dilute solution of permanganate of potash; the broom corn will become brown. Place then in a hot dilute mixture of muriatic acid, and it will be quite white.—E. H. H., of Mass.

To O. S., query 11, page 314. Boil common starch into a weak solution of iodide of potassium, to make a solution of any convenient consistency. Brush this evenly over any good paper; druggists' white wrapping is good. Dry and preserve. To use it, moisten the slips and expose. Free ozone will, if present, decompose the iodide of potassium, coloring the starch a deep blue, forming iodide of starch.—S., of N. Y.

To E. E., of R., India, query 5, page 314. Such a machine as an ordinary hay cutter answers very well for cutting leaves. Have four or more blades, instead of two, and so cut the leaves to the width you want.—E. H. H., of Mass.

To E. E., of R., India, query 9, page 314. The senna leaves after drying on sieves by currents of air or in a stove, are prepared for the market by picking out the leaflets, stalks, pods, and the leaves of weeds or other herbs, etc., thus being sure that it is free from argel leaves, with which it frequently is largely adulterated.—E. H. H., of Mass.

W. B. N., query 5, page 298, will want 40 horse power to drive sixteen 30 inch 12 gauge circular saws through 6 inch to 10 inch stocks, and he will require two rubber belts, 12 inches wide, 5 ply thick.—J. H. M., of P. Q.

To J. H. L., page 314. A very good way to imitate ground glass is to take a ball of fresh putty, as large as a small apple, and press it to the inside of the glass, repeating the operation until the whole is sufficiently coated. It will require a practical eye to distinguish the result from ground glass.—A. B., of U. S.

To A. P. C., query 23, page 314. All parts of the circumference of a locomotive wheel travel around the axle at the same rate. But one point rests upon the rail, not moving forward for the time being. All the other points are moving forward with varying rates, the top point moving most rapidly. Thus every point of the wheel describes a cycloid but, being in different parts of the cycloid at the same time, advance accordingly.—Le R. F. G., of Mass.

To E. E., of R., India, query 28, page 314. There is no plan so reliable as the tasting of an infusion made of definite strength, by weighing the quantity of tea and measuring the quantity of water. An extract of tea can be made, but the result would be useless, as the fine aroma would be dissipated during the necessary evaporation. Tea contains the principle called theine, similar to caffeine in coffee, and possessed of the same therapeutic properties. Heat, if too great, will volatilize it, as is done daily in the roasting of coffee. Tea can be analyzed and its constituents separated.—E. H. H., of Mass.

J. F. S., query 29, page 314, can prepare litmus paper by taking druggists' white wrapping paper and brushing over one side with a solution of 1 part litmus to 4 parts water. This will make blue paper, to detect acids. For red paper, redden the above solution, carefully, with an acid and use as above. I prefer to take blue litmus paper and hold it over the fumes of nitric or acetic acids, and thus redden it. This avoids all excess of acid, and the paper is more delicate. Any vegetable blue will answer in place of litmus, if you can get a color deep enough.—S., of N. Y.

To J. F. S., query 29, page 314. Make an infusion of litmus in water and a very little alcohol. Use unsized paper. Put the infusion in a flat dish or saucer, and draw slips of the paper through it. If common blotting paper is used, it probably will be an advantage to add a few drops of ammonia to the litmus solution. This will make the blue papers. For red: proceed as before, but add a drop or two of acetic, or dilute sulphuric acid.—E. H. H., of Mass.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On the Dangers of Car Couplings.—By J. E. S.
- On the Force of Steam and the Theory of Heat.—By J. C.
- On the August Meteors.—By W. L. D.
- On Methods of Ascertaining the Dew Point.—By R. H. A.
- Experiments and Suggestions Concerning Automatic Fire Alarm Devices.—By H. M. S.
- On the Prognostication of the Weather by Animals.—By J. P. H.
- On Sheet Lightning.—By J. H. P.
- On a Recent Boiler Explosion.—By J. A. W.
- On the Rotation of Movable Wheels.—By J. H. P.
- On the Properties of the Concentrated Solar Rays.—By G. R.
- On Milk Sickness.—By A. G. P.
- On Canal Boat Propulsion.—By L. M. H.
- On Car Couplings.—By T. E. B.
- On Cylindrical Steam Boilers.—By L. C. S.
- On Thunder and Lightning.—By A. E. D.
- On Scientific and Mechanical Possibilities.—By J. E. E.

Recent American and Foreign Patents.

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

ROTARY STEAM ENGINE.—Andrew Philp, New York city.—In this invention the cylinder has two long circular recesses in the inner periphery, at opposite sides of the axis, with inclined abutments, said recesses being as wide as the length of the cylinder, and as deep as it is designed that the piston plates, that the steam acts upon, shall project from the disk, which fits in the cylinder as close as it can and revolve freely, and carries the said piston plates in radial slots. The said plates are fitted therein so as to slide out and in and yet not allow steam to escape by passing around them in the slots. The said disk is provided with steam way grooves on one side, and on the other in the corners between the plates, by which live steam is admitted to the recesses behind the plates for propelling the disks. The steam is admitted to these steam ways by the ports on one side and on the other, from the annular steam chests in the disks, attached to the plates which inclose the cylinder at the ends, and to which said chests the steam is admitted by a cock which can be shifted to admit it to either, as required. Steam is also admitted from these steam chambers through the small ports on one side and on the other to the radial slots behind the plates for throwing them out against the walls of recesses. The arrangement of the ports, relative to the recesses, is reversed for the different sides of the engine, the object being to run the engine in opposite directions thereby. There is an exhaust port at each end of the recesses, with a cock for opening and closing them, as required. All discharge into an annular space. The steam, admitted to the radial notches for forcing the plates out into recesses for taking steam therein, exhausts through the small ports, which are arranged equidistant between the ends of recesses, so that they exhaust the said notches, whether the engine runs one way or the other. The inner ends of the plates have little grooves to admit the steam, although the said ends rest on the bottom of the notches. The ports are arranged so that the steam will always enter the notches and recesses when they come to the ports, which are always open and will be cut off when they pass beyond said ports. The steam ways are so arranged, relatively to said recesses, that steam is admitted behind the plates as soon as the said rear corners have arrived at the bottoms of said inclines; and the steam ways will be made any length short of the exhausts, according to the extent it may be desired to work the steam expansively. The exhausts will be alternately opened and closed, according to the direction in which the engine is required to run.

CARPENTER'S WORK BENCH.—Edward Andre and William H. Andre, of Tiffin, Ohio.—The object of this invention is to construct a work bench for joiners, house finishers, and others, which can be much more easily moved and transported from place to place than work benches of ordinary construction; and it consists in a bench that folds up.

FIRE KINDLING COMPOUND.—John S. Carroll, of Covington, Ga., assignor to himself and J. W. Rogers, of same place.—This invention relates to a new composition which is to be applied to wood, coal, or other devices to be ignited, and which can also be used for illuminating purposes on torches or similar articles. The invention consists in combining the following ingredients: plaster of Paris, lard or swine oil, kerosene oil, and Spanish brown or other coloring matter.

CHURN.—Roger Williams, of Yonkers, N. Y.—The invention consists in operating two open frame dashers in the same direction in an oval churn. The two dashers stand with their faces at right angles and always remain so during operation, as they revolve in the same direction with equal velocity. They thereby prevent a continuous current of the cream along the walls of the churn. A faucet for the discharge of milk is applied to the lower part of the churn.

FLYING APPARATUS.—Watson F. Quinby, Wilmington, Del.—This invention relates to a new apparatus for enabling men to fly with the use of side and dorsal wings, which are connected with the extremities for operation. The chief object of the present invention is to support the flying apparatus entirely on the body of the operator, and remove all weight from the arms and legs, so that they will be free to give their entire strength to the operation. The invention consists in a new arrangement of belt and rigid braces for supporting the apparatus on the body; in a new system of stay cords in the several wings; novel method of uniting the wings in front and making them adjustable, and in a new arrangement of cords for connecting the wings with the extremities or exposing them to the action of the same. By grasping certain cords with the hands, and pushing forward and upward, the wings are raised, not fully at once, but gradually, the forward part first, and thence backward, the same as can be observed in the movement of winged animals. By means of the feet, the operator can draw the wings exactly in a reverse to the effect on the same by the hands. The system of upper and lower cords on each side wing is divided into two parts, whence branched cords extend to the uniting rings, thus forming two points of attachment whereby the canting or rolling of the wings will be prevented and a steady motion insured. The rods and branches are principally strained in the direction of their lengths, and can, therefore, be comparatively light. The apparatus is easy to put on, and can, when not in use, be folded together into a comparatively small compass. The weight of the whole machine need not exceed fifteen pounds. The points are the same as those of the bat's wing, except that in the bat the three rods projecting backward are not branched. The rods are then secured in position and the stay cords and covering attached to them. The waist ring may be composed of fellee, like a light wheel, or of thin metal curved so as to combine strength with lightness. The main rods may be composed of bamboo, branches of reeds, or wood, not exceeding an inch and a half in the thickest part, and tapering to a half inch. The small rods are in proportion. The covering (which may be composed of oiled silk or gummed cloth) is secured to the cord which extends all around and connects the points of the rods and stay cords. It is intended to start from the ground. In order to make a beginning, one foot is disengaged from the stirrup, when, by raising the other foot and pushing the hands upward and forward, as in swimming, the wings are raised. Then, by suddenly depressing the wings, by means of the elevated leg, the former are intended to elevate the body by their action on the air. This alternate elevation and depression of the wings is continued as long as flight is desired. After rising from the ground, the other foot may be inserted in its stirrup and both legs used. The actions are intended to be natural, resembling those of swimming in water.

COMBINED WARDROBE AND BEDSTEAD.—Robert M. Austin, of Philadelphia, Pa.—This invention has for its object to improve the construction of the combined wardrobe and bedstead patented June 4, 1872. Suitable appliances hold the side boards from rocking or turning when extended, and at the same time, allow the said side boards to be turned up into a vertical position. To the outer side of the inner end of each of the side boards is pivoted a grooved pulley, which rolls up and down in a groove formed for that purpose upon the inner surface of the sides of the case, the said groove being made dovetailed to keep the said pulley in place while moving up and down. To the inner end of each side board is attached the end of a rope or cord which passes up and is attached to a drum, attached to a shaft, which is pivoted to the upper part of the case. One of the drums is made double, and to its other part is attached a cord, which is weighted, and passes over a guide pulley or pulleys, to bring it into such a position that it may be conveniently reached and operated to raise the side boards. To the inner ends of the side boards are attached the ends of another pair of ropes, which pass over guide pulleys to bring them into such a position as to be easily reached and operated to draw the side boards downward, and thus extend the bedstead. When it is desired to close the bedstead the spring slats are pushed along into grooves, and when the bedstead is opened the said spring slats are drawn out of one set of grooves and into others.

ICE CUTTER.—Louis Townsend, of Terre Haute, Ind.—This invention has for its object to furnish an improved machine for cutting ice for packing and for opening a passage for vessels. The frame work which carries the saws is made in T form. A set of circular saws, attached to a shaft, is intended to take the place of ice plows in crossmarking the ice, but they are not intended to cut through the ice. The ends of the shaft revolve in bearings in bars and may be raised out of contact with the ice, or lowered to cut the ice to any required depth, by moving the rear ends of the bars up or down upon screws. The saws for cutting the ice are held forward against the ice by weights connected with the upper parts of the saw by cords. To the under side of the bars of the frame, that run in the direction in which the cutter moves, are attached runners, some of which may be grooved longitudinally to enable them to take a firm hold upon the ice and prevent lateral slip. The cutter frame may be connected with either end of the frame to enable the return cuts to be made without turning the power. To the under side of the longitudinal bars of the frame are attached runners upon which the power moves. Cross runners are pivoted eccentrically to the side bars of the frame so that, when turned in one direction, the said runners may be held free from the ice, and when turned in another direction their faces may project below the runners to support the frame and enable it to be moved laterally to adjust it to make a return trip. The construction enables the power to be placed at a considerable distance from the edge of the ice, and at any desired distance in front of the cutters, so that there may be no danger of breaking through.

MACHINE FOR CROZING AND DRESSING THE INSIDES OF PAILS, ETC.—Richard W. How and Clarence E. Patterson, Brooklyn, N. Y.—This invention has for its object to furnish an improved turning out slide of pail and keg lathe, which shall be easily adjusted for different sized pails and kegs. By turning a shaft in one direction, the crozing heads will both be moved forward into a working position; and by turning the said shaft in the other direction, the said crozing heads will both be drawn back to allow the slide to be withdrawn from the pail or keg. A stop arm projects into such a position that the ends of the staves of the pail or keg, when the slides moved forward into the said pail or keg, will strike against it and stop the said slide in the proper position for the crozing knives to operate upon the staves, the adjustable crozing heads having been previously adjusted in proper position.

TUB WASHER FRAME.—Butler R. Platt, Plainwell, Mich.—The invention consists in the tub washer frames, which rest upon the top of the tub, to allow of which the tub is grooved to admit the crank shaft. Pins in the bottom of the frame, four inches, more or less, in length, are so arranged that they bear against the outside of the tub to hold it in place. The side and end pieces of the frame are returned, to allow the water to drain off from the frame, and give the same a finished and workmanlike appearance. By means of the pins arranged to inclose the tub, the machine is kept steady and in its proper position when in operation.

PNEUMATIC FIRE ENGINE AND LAWN SPRINKLER.—Henry C. Neer, Park Ridge, N. J.—This invention consists of a stationary or portable tank of sheet metal, adapted to bear great internal pressure, with two pumps arranged within it, and adapted for compressing air, also for injecting water in some cases; the pumps being worked by a foot treadle connection, which is also adapted for the application of a hand crank. The tank is also provided with a funnel with a stop cock for being filled by pouring water in when the air pressure is off, in case it is not convenient to introduce the water by the pumps. The object is to provide a machine which may be kept charged with water and compressed air for use in shops, factories, etc., ready for instantaneous use for extinguishing fires in their early stages, when a small quantity of water will suffice if quickly applied. It is also designed to afford a apparatus, to be moved about on wheels, much better and more convenient for sprinkling lawns than those in which the water is expelled by a pump.

CHAIR, ROCKER, AND LOUNGE, COMBINED.—Henry Haidt, New York city.—This invention consists of a chair in which the back and seat are arranged on a stand or frame so as to rock, or be made fast for either a rocker or easy chair, and the back turns down and unfolds by a joint at the top to form the body of a lounge while the seat turns up to form the head, constituting an easy chair, rocker, and lounge.

COFFIN HANDLE.—Nehemiah Hayden, Essex, Conn.—This invention has for its object to furnish an improved coffin handle, neat, tasteful, and beautiful in appearance, that can be manufactured at small expense; and it consists in the joint formed by the combination of the tube and tips with the ear and end of the arm that supports the hand piece.

[OFFICIAL.]

Index of Inventions

For which Letters Patent of the United States were granted.

FOR THE WEEK ENDING OCTOBER 29, 1872, AND EACH BEARING THAT DATE.

SCHEDULE OF PATENT FEES:

Table listing patent fees: On each caveat \$10, On each Trade-Mark \$25, On filing each application for a Patent (seventeen years) \$15, etc.

Main index table listing inventions and their patent numbers, including: Annealing and hardening metals, Auger, earth, J. Wilson, Awning, slide, J. Boyle, etc.

Continuation of the main index table listing inventions and their patent numbers, including: Pavements, laying wood, E. P. Morong, Pavements, form for laying brick, S. C. Brewer, etc.

POCKET FOR TRAVELING BAG.—Daniel Read, of New York city.—This invention has for its object to furnish traveling bags provided with an improved outside pocket, designed especially for small traveling or belt bags for ladies' use, but which may be applied with advantage to other styles of bags, and which will add greatly to the beauty of the bag; and it consists in the outside pocket provided with an elastic mouth applied to the outer surface of the bag.

DRIP PIPE TRAP FOR REFRIGERATORS.—Charles Durant, of Jersey City, N. J.—This invention has for its object to furnish an improved trap for the drip or drain pipe of a refrigerator, which shall be so constructed that it may be tilted to clear it of any sediment or other matter that may collect in it, and unless removed obstruct it; and it consists in the combination of a tilting trap with the drain pipe; in the construction of the trap; in the combination, with the drain pipe, of a U-shaped supporting and stop bar; in the combination with the trap of a cross bar or plate; in the combination of a trip rod with the tilting trap; and in the combination of hook hinges with the trap and its supporting bar.

STEAM HEATER.—James J. Smith and Samuel R. Wood, of Cleveland, O.—This invention has for its object to improve the construction of steam heaters. It consists in rectangular cast iron boxes, into which the steam is introduced, and by contact with which the air is heated. In the lower part of the opposite sides of the boxes, near one end, are formed holes, in which are inserted short pipes having a screw thread cut in their inner surfaces. Any desired number of the boxes are placed side by side and at a short distance apart, and are connected together by short pipes, which are screwed into the small first mentioned pipes of two adjacent boxes. The space between each two boxes is inclosed with a case, which has an opening in its bottom near the pipes for the entrance of the air, and an opening in its top, directly over the other orifice, for the escape of the air. A horizontal partition extends longitudinally through the middle part of the space between each two boxes, from the end of the case at or near which the openings are formed nearly to the other end of said box, thus forming a flue and compelling the air to pass twice along the sides of the steam boxes before it escapes. The heater should be surrounded with a box or case fitting closely to it at the sides and ends, but leaving spaces or compartments at the bottom and top. The steam is introduced into the pipe at one side of the boxes, and it and the water of condensation escape through the pipe at the other side.

BACK LASH SPRING FOR MACHINERY.—Hiram W. Bachman, of McLean, Ill.—This invention consists in the employment of two back lash springs for connecting the spindle and pinion of mill gearing or other gearing. The said springs are connected to the collar on the spindle and to the pinion on opposite sides, so as to equalize the bearing of the collar and pinion on the spindle. They thus prevent the wearing of the parts in the localities where the bearings come when one spring is used, which very soon makes such looseness as to cause the pinion and collar to wobble, thus creating back lash even with a spring connection, and making it necessary to frequently re-set the spindle pinion and collar.

MODE OF LUBRICATING MACHINERY.—Alexander P. Gross, of Vallejo, Cal.—This invention relates to the application of the principle of the hydrostatic press in the lubrication of journal or shaft bearings of every description. A suction and force pump of ordinary or suitable construction, is connected with the bearings, and its piston rod is curved inward at its outer end so as to enter and work in a cam groove in a circular collar, which is secured on the shaft. The lubricant is contained in a chamber, from which a pipe leads to the pump. To operate the apparatus, the chamber is supplied with oil or other preferred lubricant and the shaft set in motion, which causes the reciprocation of the pump piston through the medium of the grooved collar and the piston rod. By this means the oil is received into the pump cylinder and forced out, whence it spreads laterally beneath the shaft into grooves and returns to the reservoir or passes directly into the said reservoir, according as the shaft is horizontal or vertical.

METHOD OF FORMING SHEET METAL MEASURES.—Jacob Coover, of Chambersburg, Pa.—This invention relates to a "new way" of constructing dies so as to graduate the form of a standard measure, not only to an aggregate cubical quantity, but also to aliquot parts thereof, and it consists in a conical male die, having a lower section of a cone, the solid contents of which equal one gill; then a horizontal projecting shoulder formed by another sectional cone resting thereon, whose solid contents also equal one gill, but together with the preceding are equal to one half pint; the next section of a cone is equal in solid contents to one pint; and so on, according to the desired aggregate size of the vessel. A female die, correspondingly constructed, allows it to fit nicely therein. A conical tube is then formed of suitable size, placed the female die, and staved up. The bottom is then applied thereto and the top finished in the usual manner.

WASTE PIPE TRAP.—Thomas Smith, New York city.—This invention is an improvement on the waste pipe trap for which a patent was granted to the above inventor June 18, 1872, No. 128,077, which said trap consists of a box with a hinged valve or gate in it, introduced between two sections of the pipe, so that the waste passes under the free end of the valve to the escape pipe, the said valve being to stop the wind gusts which sometimes blow up from the sewers and blow the water out of the water traps above, so that the gases from the sewers escape into the houses. The said trap is designed to be used as auxiliary to the water trap. The inventor now proposes by having the waste pipe leading into the trap enter at the bottom instead of the top, as heretofore, so that its mouth will always be submerged, which was not so before, to make this a water trap, also to effectually shut off the gases from the sewers, as well as a gate or valve trap, to stop the aforesaid wind blasts, which gases leak or escape through the joints of the valve above the water in the trap.

WROUGHT IRON PIER FOR BRIDGES.—Theodore B. Mills, Iola, Kansas.—This invention consists in the construction of piers, columns, or abutments of iron for bridge supports, etc., of four double T bars stepped in metal pockets or foot rests on the foundation, at suitable distances apart at the bottom, and converging upward toward a common center for bracing properly with a metal cap, to which all are connected at the top; said cap being also a seat for the bridge shoe, to which cap the posts or bars are connected in a novel manner. They are also braced at suitable intervals between the top and bottom with horizontal and diagonal braces. The posts are arranged with their greatest transverse diameter in lines radiating from the center, toward which they converge in the upper part for having the greatest strength in the direction of the greatest pressure. Two of these columns or piers are used for one abutment, being placed side by side at a suitable distance for supporting the sides of the bridge, and connected together at the top. The sides are covered with planks extending horizontally between the posts or bars, fitted into the grooves between the flanges, and secured binding plates or bars running lengthwise of the posts and bolts.

CASTER FOR TABLES.—Henry A. Hiestand, Hellam, Pa.—This invention consists of a pair of bars for each side of the table or other article, on which two of the casters with long shanks are mounted, so as to have an ascending and descending motion. The bars have hooks with adjusting nuts, so arranged as to be readily detachably connected to the legs of the table. On the upper bar a pair of levers is pivoted and arranged for lifting the table by bearing on the caster spindles at one end when the other end is raised. The latter ends of each pair are connected with a yoke, pivoted to a crank or eccentric disk on a shaft mounted on the underside of the table top and extending from one side to the other for operating the levers at both sides at once. When the table is raised off its legs and thrown on the casters, the point of connection of the yoke with the disk passes beyond the vertical line of the axis of the shaft and brings the yoke to bear against the shaft in such manner as to be self fastening. The table is thus held on the casters, so that no time or labor is lost in fastening and unfastening the apparatus.

SCISSORS.—Charles Gudehus, of Hoboken, N. J.—This invention consists of a lever and spring combined with a shears in such manner that, as the blades close in cutting and the point of resistance shifts toward the points of the blades and increases by moving from the fulcrum, the force will be transmitted from the handle directly to or nearly to the point of the upper blade through the said lever and spring, so as to greatly lessen the labor of cutting through several layers of cloth. The arrangement is also such that, as soon as the force of the hand by the blades are forced together is relaxed at the handles, the spring will throw the blades open again, and thus greatly relieve the hand of the operator of a difficult part of the labor.

APPLICATIONS FOR EXTENSIONS.

Applications have been duly filed and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter named. 22,775.—COTTON PRESS.—Z. Atkinson. January 15, 1873. 22,786.—HARVESTER.—C. G. Dickinson. January 15, 1873. 22,787.—STOVE.—P. Dodge. January 15, 1873. 22,792.—MACHINE FOR MAKING WOODEN TROUGH.—S. T. Field. Jan. 15, 1873. 22,802.—MILL FOR GRINDING CANE, ETC.—I. A. Hedges. January 15, 1873. 22,809.—BAKER'S OVEN.—G. C. Jennison. January 15, 1873. 22,841.—HARNESS SADDLE TREE.—S. E. Tompkins, J. Maclure. January 15, 1873. 23,001.—ELASTIC TOY.—L. P. Porter. January 29, 1873.

EXTENSIONS GRANTED.

13,897.—GIMLET.—C. C. Tolman. 16,814.—CIRCULAR SAWING MACHINE.—C. P. S. Wardwell. 21,828.—FURNACE FOR TEMPERING STEEL.—P. G. Gardiner. 21,917.—HULL OF STEAM VESSEL.—R. and T. Winans.

DISCLAIMER.

16,814.—CIRCULAR SAW MACHINE.—C. P. S. Wardwell. 1872.

DESIGNS PATENTED.

6,220 & 6,221.—CARPETS.—T. Barclay, Lowell, Mass. 6,222 to 6,225.—CARPETS.—R. R. Campbell, Lowell, Mass. 6,226.—CARPETS.—J. M. Christie, Brooklyn, N. Y. 6,227.—CARPETS.—J. Hamer, Lowell, Mass. 6,228.—COFFIN HANDLE EARS.—N. Hayden, Essex, Conn. 6,229.—PENCIL CASE.—E. S. Johnson, Jersey City, N. J. 6,230.—CARPETS.—D. McNair, Lowell, Mass. 6,231 to 6,234.—CARPETS.—E. Perrin, Kidderminster, England.

TRADEMARKS REGISTERED.

1,040.—MEDICINE.—J. S. Coleman, San Francisco, Cal. 1,041.—SMOKING TOBACCO.—C. R. Messinger, Toledo, O. 1,042.—PREPARED PLUMBAGO.—Morse Brothers, Canton, Mass. 1,043 to 1,045.—CORSETS.—Ottenheimer, Rothschild & Co., New York. 1,046.—TAGS AND LABELS.—C. S. Schenck, New York city. 1,047.—EMERY WHEELS, ETC.—The Tanite Company, Stroudsburg, Pa.