RECENTLY PATENTED INVENTIONS.

Heating.

SMOKE-CONSUMING FURNACE.—J. B. HARRIS, Nashville, Tenn. The invention relates to smoke-consuming furnaces such as shown and described in the prior Letters Patent granted to Mr. Harris. The object of this invention is to provide a furnace arranged to insure a complete combustion of the fuel in the fire-box and combustion-chamber by the introduction of heated air into the front top portion of the fire-box and into the combustion-chamber at the bridge-wall.

Machines and Mechanical Devices.

CENTRIFUGAL MACHINE.—J. H. OSTRANDER, Ticonderoga, N. Y. This machine is designed for use in sulfite, pulp, paper, and chemical fiber mills. The invention relates to improvements in centrifugals particularly adapted for use in pulp or chemical fiber mills for separating liquor from pulp, an object being to provide a centrifugal of simple construction and by means of which the work may be quickly and thoroughly done.

BENDING-MACHINE.—W. VANDERLINDEN, Lansing, Ill. The intention in this case is to provide a hand-machine for bending iron rods or bars to form eyes or angles of any degree in a very simple and effective manner, the machine being durable in construction, easily adjusted for different work, and adapted for hand use on an anvil or other support.

MACHINE FOR STAMPING SOAP, ETC.—L. L. CONWAY, Louisville, Ky. In this patent the improvement relates to an apparatus for stamping a name or device on soap simultaneously or practically simultaneously with the operation of cutting the soap into cakes or bars. The soap may be stamped at any desired interval on the same table and by practically the same apparatus that cuts the soap into bars.

HAT-SHAPING MACHINE.—M. A. CUMING, New York, N. Y. In the present instance the invention relates to improvements in machines for shaping or forming hats of felt, straw, or other fabric, the object claimed by the inventor being the provision of a machine by means of which bell-crown hats may be rapidly and uniformly shaped.

GUIDE FOR SEWING-MACHINE HEMMERS.—H. BLASKOPF, New York, N. Y. Mr. Blaskopf's invention relates to an improved means for guiding and simultaneously curling a piece of fabric as it is drawn into a hemmer or feller so that after the fabric is once inserted into the machine the services of an attendant are not required, the device being to this extent automatic.

MACHINE FOR REPAIRING DRILLS.—J. J. BROSSOIT, Granite, Mont. Briefly stated, this invention comprises means for cutting and shaping the bit of the drill so as to repair any break therein and to sharpen the dulled cutting edges. By means of the apparatus involved these operations may be performed on the drill accurately and quickly by machine-power, and thus a decided advantage over hand-work is attained.

Of Interest to Farmers.

CORN-CUTTER.—T. J. LOVE, Lincoln, Ill. Mr. Love's aim is to provide a construction adapted to operate between two standing rows of corn and provided with means for cutting the corn, for holding it as cut, and constructed to admit the adjustment of the cutting devices out of position for use when it is desired to pass by the shock of corn without cutting the gallas-hill, by which is meant the four hills not cut, but are tied together to set the shock against.

COTTON-CHOPPER. — C. H. WALTERS, Springfield, Mo. In this case the object is to provide a machine that can be driven along a field having rows of cotton-plants or the like and which will have one or more rotary choppers that are rotated from the wheels of the machine and which will effectually sever the plants along the row or rows at or below the surface of the ground either at regular intervals in the rows, leaving the desired number of plants standing, or remove the plants entirely along the row or rows.

Railways and Their Accessories.

RAIL.—L. STEINBERGER, New York, N. Y. Mr. Steinberger's invention relates to improvements in rails, and more particularly to third rails employed for the purpose of distributing electric currents to moving vehicles of various kinds. It relates to several distinct means, and more particularly to certain features whereby the rail is made free to move relatively to its supports.

TRACK STRUCTURE. — L. STEINBERGER, New York, N. Y. This structure is particularly adapted for use for distributing electric current in the capacity of a so-called "third rail." The more special object is to produce a rocker to be applied upon a rail-section, so as to allow the section to rock in a lateral direction and to reduce to a minimum the bearing surface upon the rail rests, lessening the friction of the rail on its supports, and in consequence providing a means for the easy movement of the rail longitudinally and transversely during expansion and contraction of the rails.

Steam Engineering.

STRAINER.—F. G. BROWN, Sheffield, Ala. The object of the present invention is to provide a strainer, more especially designed for use on vertical water-feed pipes for locomotives and other machines and devices and arranged to properly strain the water or other liquid flowing through the feed-pipe and to allow of readily cleaning the strainer of accumulated trash or other impurities. The invention relates to strainers such as shown and described in a former application for Letters Patent of the United States, by this inventor.

Of General Interest.

FOLDABLE CONVEYER.—J. H. TORNEY, Buffalo, N. Y. This conveyer is designed to expedite the handling of freight and reduce the manual labor of handling; to enable the cargo of a vessel to be loaded or unloaded through the upper-deck hatches, thus saving in transporting freight through gangways; to minimize the liability of damage to the freight, particularly frail packages; to compensate for the draft of the vessel during loading and unloading, and to provide for folding the apparatus in compact relation to a warehouse when not in service.

DRILL-CHUCK.—E. R. SMITH, Oneida, N. Y. This invention relates to chucks in which a pair of jaws are mounted to slide toward or from each other on the operator turning a screw-rod having a right and left hand thread in mesh with the jaws. The object is to provide a chuck having a supplementary device for engaging the gripping-jaws to insure an exceedingly strong and firm grip of the jaws on the drill or other tool to be held in the chuck.

GAS-ENGINE COOLER.—C. E. SHAMBAUGH, Lafayette, Indiana. Mr. Shambaugh's invention relates to gas-engine coolers, more definitely stated, improved means whereby increased radiation of heat is effected. The construction comprises radially-disposed plates seated in longitudinally-arranged grooves in the cylinder, the said plates being grooved lengthwise thereof on opposite sides, the ribs between the grooves having series of transverse projections formed by struck-up portions.

BOTTLE-SEAL.—A. R. ROBERTSON, Pass Christian, Miss. To prevent tampering with the contents of a bottle, the device embodies the combination, with the neck which is adapted to receive a cork and formed with two annular beads on its outer surface, of a frangible cap, and a corrugated locking-spring adapted to lie between the beads on the neck and within the cap, so as to contact, thus holding the cap in place. Once seated, the cap can only be removed by breaking it away, and it is purposed forming the cap with an annular weakened portion to facilitate its fracture.

MANUFACTURING ORE BRICKS.—J. KOENIGER, 25 Aachenerstrasse, Cologne, Germany. The process in this invention comprises manufacturing weather-proof bricks for smelting purposes from sandy ores or ore-dust, ore residues, tunnel-dust, burnt iron and copper pyrite residues and from similar material, which consists in mixing materials which are to be submitted to the process in a dry condition with lime, magnesia, and borax and intimately mixing the resultant mass with dilute crude sulfuric acid, then pressing and molding the mixture and drying the resultant bricks. A smelting-brick consisting of ore material, lime, magnesia, borax, and diluted sulfuric acid, is a new article of manufacture.

MANUFACTURE OF DEXTRIN.—G. REYNAUD, 5 Rue Salneuve, Paris, France. Mr. Reynaud's process consists, essentially, in diluting the material to be treated in twice its weight of water and in heating the resultant mass under pressure in a digester at a temperature of 160 deg. to 220 deg. centigrade for an hour and a half. In this heat the cellulose and the amylaceous matters of the peat treated become converted into dextrin or achroodextrin, which is capable of advantageously replacing ordinary dextrin in its industrial applications by reason of its lower density.

BINDER.—J. MONTGOMERY, Fort Worth, Texas. One of the principal objects of the present invention is to provide a device which will securely bind and retain a number of loose leaves, the structure of such a binder enabling it to be readily attached to and removed from the packet of leaves. It appertains particularly to a temporary binder for order-books, cash-books, diaries, etc., capable of being rolled or folded and carried in the pocket.

ELEVATOR.—D. E. CONDON, San Francisco, Cal. The invention relates to spiral elevators as shown and described in the former Letters Patent granted to Mr. Condon. The object is to provide an elevator for use in all classes of modern business buildings in which large crowds of people (and freight, etc.) have to be carried to, from, and between floors in the safest and most expeditious manner, the elevator being arranged for continuous travel of the cars from one floor to another, and enabling the passengers to readily leave or enter cars at any floor.

BEARING FOR ELEVATOR-CARRIAGE ROLLERS.—J. BARRETT, New York, N. Y. The object in view in this instance is to provide a construction which minimizes friction on the engaging surfaces, thus preventing bending and cutting of parts. A further object is to so construct the parts as to produce a strong and light structure, owing to the fact that it is not necessary to cut away the stiles of the elevator-carriage to any material extent in order to mount the rollers thereon.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

Business and Personal Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. **In every case it is necessary to give the number of the inquiry.**

MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 5346.—For firms having for sale crankshaft lathes for machining small crankshafts from 2 feet 8 inches throw.

AUTOS.—Duryea Power Co., Reading, Pa.

Inquiry No. 5347.—For parties making thin cork discs about 2¼ inches in diameter to be placed in the tops of screw top cans to make the top liquid tight.

"U. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 5348.—For primary closed circuit batteries.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 5349.—For a heavy spring motor with governor to run a light machine.

American inventions negotiated in Europe. Wenzel & Hamburger. Equitable Building, Berlin, Germany.

Inquiry No. 5350.—For makers of forges, drills, drilling machines, rubber valves, pulleys, Fairbank scales, garden hooks and forks, etc.

The owner of a valuable invention desires to dispose a part interest to a practical man. Address Sanford Weeks. Patchogue, L. I.

Inquiry No. 5351.—For makers of advertising novelties in large quantities.

☞ Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway New York. Free on application

Inquiry No. 5352.—For an electric plant of about 1000-light capacity.

Fine machine work of all kinds. Electrical instruments a specialty. Models built to order. Page Machine Co., 812 Greenwich Street, New York.

Inquiry No. 5353.—For a naphtha or gasoline launch, to hold 10 to 12 persons.

The largest manufacturer in the world of merry-go-rounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker, Abilene, Kan.

Inquiry No. 5354.—For makers of modern windmills for drainage and irrigation purposes.

We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc., Metal Novelty Works, 43 Canal Street, Chicago.

Inquiry No. 5355.—For makers of machinery for a milk sterilizing plant.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

Inquiry No. 5356.—For makers of time detectors with 6 keys, also with 12 keys.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 5357.—For makers of cutlery or parties doing such job work.

WORTH INVESTIGATING.

"An inventor who can improve on a small metal article for wearing apparel for ladies and men by a responsible firm. W. A. C.,
1009 New York Life Building, Chicago.

Inquiry No. 5358.—For makers of furniture, such as iron bedsteads, chairs, rockers, tables, etc.

"The Household Sewing Machine Co., Providence, R. I., is prepared to take on contracts for the manufacture of high grade mechanical apparatus, requiring accurate workmanship, in either machine shop, cabinet work, or foundry lines. Expert mechanics, designers and tool makers. Facilities unexcelled. Estimates furnished on application."

Inquiry No. 5359.—For makers of composition billiard and pool balls.

Inquiry No. 5360.—For parties engaged in raising skunks.

Inquiry No. 5361.—For makers of small papier maché articles.

Inquiry No. 5362.—For a new or second-hand small gas balloon, capable of lifting about ten pounds.

Inquiry No. 5363.—For makers of fans, buzz fans operated by water power.

Inquiry No. 5364.—For makers of pleasure launches (gasoline) 17 or 20 feet.

Inquiry No. 5365.—For makers of tin toys.

Inquiry No. 5366.—For makers of advertising novelties of every description, of celluloid, enamelled iron, stamped tin, founded brass name plates, etc.

Inquiry No. 5367.—For makers of or dealers in siphon pumps.

Inquiry No. 5368.—For a small family ice machine which makes 100 pounds of ice.

Inquiry No. 5369.—For small castings for boat engines and motors, of 2 to 5 h. p.

Inquiry No. 5370.—For makers of metal and cloth button machinery.

Inquiry No. 5371.—For makers of carrousels or riding galleries.

Inquiry No. 5372.—For an outfit of archery court.

Inquiry No. 5373.—For makers of small articles suitable for canvassing.

Inquiry No. 5374.—For manufacturers of card embossing and card beveling machines.

Inquiry No. 5375.—For manufacturers of pneumatic goods.

Inquiry No. 5376.—For makers of gas engine castings.

Inquiry No. 5377.—For makers of headless steel hat pins.

Inquiry No. 5378.—For makers of castings of every description.

Inquiry No. 5379.—For the maker of a machine for producing quartered figures on plain oak lumber.

Inquiry No. 5380.—For makers of gasoline or hot air engines of about ½ h. p.

Notes and Queries.

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(9353) A. T. J. says: 1. We say: "The man is *up* in a tree." "The boy is *down* in a well." Does this not mean to say (and is it not really positively correct), "The man is outwardly, in a tree"? "The boy is inwardly, in a well"? I mean there are no such terms as "up" and "down," only as we use the terms to express away from the earth's center and toward it. Am I correct? If "up" and "down" are correct, then to one on the equator at noon the sun would be directly "up" ("above;" and there is no such thing, likewise, as "above") and then at midnight the sun would be "down" ("below;" and there is no such thing, likewise, as "below"); and this would mean to say that the earth passed over and around the sun each 24 hours, or thereabouts. A. The words "up" and "down" refer strictly to the horizon about us, and to nothing else. Up is along a line drawn through the center of the earth and the point on the surface of the earth to which the matter refers. Up and down as you use the words referring to a tree and a well are used correctly. The sun at noon, to a person on the equator, is directly up from the surface of the earth above the head of a man standing at that point, and at midnight the sun is directly down beneath the man's feet. We see nothing wrong in this use of words, nor is the use of them necessary, since other words can be used to express the fact. 2. Is there any proof that the earth travels around the sun as a man would walk around a tree, or that it passes around the sun as a rider "loops-the-loop"? Is not the sun simply "away" from the earth, or the two "separated," without respect to "up" or "down"? A. The earth revolves around the sun in a year; that is, it occupies every point on the plane of its orbit in that time. 3. Can this and similar problems be worked out by any rule? Given a section of a circle, say 13 feet from point to point along the curved line, and the curvature such that a straight line from point to point would measure 10 feet 9¾ inches: required, the diameter of the circle if completed. A. We do not have at hand the solution of the problem concerning the chord and arc of a circle which you request. It can no doubt be solved, but it is not the policy of this paper to devote space to mathematical problems, unless they present some unusual features or are novel. 4. What proof have we that the reason the seas are salty is the emptying of streams into the oceans and seas from inland and no outlet, and not that there are vast salt mines whose uppermost (or outermost) surfaces as washed by the seas' and oceans' bottoms supply the saltiness? A. The proof that the salt of the ocean came from the land is briefly that the land contains large beds of salt, and that bodies of water which have no outlet are salt. There may be beds of salt under the ocean as you suggest, but it is not necessary to suppose them to be there. The saltness of the sea water can be accounted for without this supposition, and if not necessary why make it a part of the hypothesis anyway? No larger suppositions should be made than are necessary in any argument.

(9354) P. S. asks: Will you kindly inform me whether a fish when put into a tub of water will increase the weight of the water as much as the fish weighs or not, and if not, what fraction of the weight of the fish will it increase the weight of the water? A. If a fish is put into a tub containing water, and no water runs over, the weight of the whole is increased as much as the weight of the fish. The water takes the weight of the fish and carries it. The water rests on the bottom of the tub, and the weight of the fish is thus transferred to the bottom of the tub, and the scales, on which the tub may rest. If the tub is brimfull of water, and water overflows as the fish is put in, the weight is not changed by putting the fish into the water. The fish weighs the same as the water it displaces, as may be seen by the fish lying at rest in the water at any depth.

(9355) E. S. L. asks: Why does ice occupy more space than the same amount of water? What is the explanation of globular lightning? Why is the internal resistance of several cells diminished by joining them in parallel? Why is not the E.M.F. increased? A. It is not known why water expands in