

**RECENTLY PATENTED INVENTIONS.**  
**Pertaining to Apparel.**

**TROUSERS-SUPPORT.**—R. F. PARRIS, Bath, Maine. One purpose of this invention is to provide a supporting device for trousers which may remain an integral portion of the waist-band-section of the trousers and which may be hygienic, supporting the weight of the trousers from the hips solely and not from the waist, which is customary when the belt is employed. Suspenders are dispensed with.

**GARTER.**—D. BROADBELT, New York, N. Y. In Mr. Broadbelt's patent the invention relates to garters and the like, his more particular object being to produce a type of garter in which there is a laterally-resilient portion which may be extended or contracted at will, and provided with a longitudinally-resilient elastic portion which may be extended and of itself returns to its original shape.

**Electrical Devices.**

**MAIN-LINE SOUNDER.**—J. H. KIDNEY, Lisle, Mo. The more particular object in this improvement is to produce a type of sounder adapted for use directly upon the main line and taking the place of both relay and local circuit. To this end the invention relates to improvements in construction whereby comparatively delicate currents upon the main line may cause the instrument to produce comparatively loud sounds.

**Of Interest to Farmers.**

**FOLDING DRAFT-TREE.**—G. W. WALKER, Bushnell, Ill. A folding draft-tree is provided for sectional harrows so constructed that when in use it will be as strong as the ordinary single-piece draft-tree and so that in a short time and but with little trouble the end sections may be folded up above the central section and in direction of each other, reducing the longer tree to such simple dimensions and compactness that it can be taken through an ordinary farm-gate.

**FERTILIZER-DISTRIBUTER.**—J. K. GOURDIN, Pineville, S. C. This distributor is adapted for discharging the fertilizer broadcast and in varying quantities. The invention is embodied in an improved construction and combination of a grooved and ribbed drum which revolves with the axle and adjustable feed-regulating slides which coast with the drum.

**Of General Interest.**

**AUXILIARY RUDDER.**—W. M. TAYLOR, Mecklenburg County, Va. Means are provided by this inventor that bring the vane in parallelism with the direction of movement of the water, so that there is no resistance thereon, and the vane may be swung inwardly into its recess, retaining it in parallelism with the side of the hull and with the direction of the force of the water. Means incline the vane so that the force of the water acts upon the outer side thereof, thus assisting in the closing of the same.

**BOTTLE.**—E. M. SMITH, JR., Canton, Miss. In this invention the object is to provide a bottle with means adapted to prevent it being refilled. Under this construction when a bottle has been once opened, it cannot be again refilled and placed upon the market without bearing evidence of the fact that it has been so refilled and offered for sale a second time.

**METHOD OF EXTRACTING GUTTA-PERCHA.**—E. C. LARSEN, Singapore, Straits Settlements, India. The invention refers to a system or process of extracting gutta-percha contained in the raw state in leaves and buds of the isonondra tree and other varieties, vines, and creepers capable of yielding gum. This system treats the substances named in order to extract gutta-percha by a mechanical method without the use or without the extensive use of oil, salt, or other chemicals.

**FIRE-ESCAPE.**—R. LITTLE, Afton, Ohio. It is the principal object of this improvement to provide for efficiently and rapidly elevating a mast and to provide connections with the mast in such a manner that a cage can be readily elevated and let down, so that several persons can be quickly removed from the building and, furthermore, with hose quickly elevated into a position to fight a fire.

**COMB-CLEANER.**—A. B. HUGHES and A. ROSE, Cedarville, Cal. The cleaner is made up either in the form of a razor-strop or comb-case provided with a series of wires strung in a novel manner, which when the comb is intermeshed with them and drawn back and forth yieldingly press on the teeth at each side, thereby completely sawing out and dispelling accumulated dirt and dandruff.

**DISK-RECORD HOLDER.**—X. CUKIER, New York, N. Y. This invention pertains to a device the purpose of which is to hold a plurality of disk-records, such as used on phonographs, the object being to produce a device of this class which will hold the records together in a body and in such a way that any record may be readily selected and removed from the holder.

**COLUMN.**—E. W. CHAMBERS, Toledo, Ohio. The invention is an improvement in columns of that class provided with an inner core of wood coated with plaster or plastic material. The column will not be affected by the swelling and shrinking of the wooden core within it. Generally stated, the column consists of a

series of wooden staves so arranged as to form an annular body, said staves being secured at their ends and spirally wound with a binding material, all of which is covered with a plaster or plastic coating. The staves of the column are interiorly supported at suitable points of their length and at each end where they are connected to an ornamental base and cap-piece of any desired contour.

**GAS-GENERATOR.**—C. L. GERRARD, Columbus, Neb. The present application is a division of a former application filed by Mr. Gerrard. The invention has reference to certain peculiar features of construction and arrangement of parts concerned with an apparatus for generating nitric oxide or other gas. It is especially for use in connection with the treatment of wheat or flour wherein the nitric oxide or other gas is mixed with air and the mixture brought into intimate association with many. The aim is to lighten the work of the nascent condition.

**Machines and Mechanical Devices.**

**CIGARETTE-MACHINE.**—J. M. MARTINEZ, Guanajay, Cuba. The underlying object of the present invention is to construct an organized cigarette-making machine by means of which the fibred tobacco may, in a continuous operation, be fed uniformly, molded into a stick or cigarette form, enveloped and sealed in paper or other wrapper, cut into the requisite lengths, and discharged finished from the machine.

**GEAR-CUTTER.**—J. VOSS, Woodburn, Ore. In operation the gear-wheel is secured in place upon a pin and the pin inserted in the chuck. The pin of a plate-spring is inserted in a perforation of the series corresponding in spacing to the distance desired between the teeth of the wheel. The cutter being put in rotation, it is moved longitudinally on the bed until it engages the wheel. Upon the retraction of the cutter the pin is disengaged from its perforation and inserted in the next of the series, after which the operation is repeated.

**RAZOR-STROPPING MACHINE.**—E. G. KAUFMAN, Yonkers, N. Y. The object of the inventor is to provide a new and improved razor-stropping machine which is simple and durable in construction, composed of comparatively few parts, and arranged to permit an easy movement of the strop to hold the cutting edge of the razor-blade in proper contact with the runs of the strop.

**CANDY-MACHINE.**—T. ALLATT, Portland, Ore. Time and labor are saved in the use of this machine, since long exposure of the candy is not necessary to cool it nor is it necessary to size the strips. Every portion of the candy is utilized, there being no waste. The strips are also of uniform size throughout, and since they are cut at regular intervals the completed product is in the most convenient form for wrapping by the automatic wrapping-machine.

**Prime Movers and Their Accessories.**

**VALVE-OPERATING MECHANISM FOR STEAM-ENGINES.**—H. LENTZ, Berlin, Germany. The aim is to lighten the work of the valve-motion of reversible engines, and to secure their management by employing a wheel instead of one or more connecting-rods. This wheel, being caused to rock by the driving mechanism, will move as directly as possible the cylinder valves by its rim. This invention also renders possible the reversing by hand, obviating the need of special reversing-engine. The rocking wheel moves directly all the inlet and outlet valves of the cylinder by means of its curved cams.

**ENGINE-STARTER.**—G. F. BRANDHUBER, Pierre, S. D. The invention relates to a device intended particularly for starting internal-combustion engines; and the object is to provide an easier and safer means for starting the engine than the ordinary starting-crank and to enable the starting-gear to be placed in reach of a person seated in an automobile, so as to avoid the necessity of the automobile-driver alighting each time the machine is started.

**Railways and Their Accessories.**

**STATION-INDICATOR.**—I. C. BANBMAN, New York, N. Y. Means are provided whereby when the gate or door is opened or closed a movement is given to certain parts of the device so as to change the sign displayed; also to provide for announcing the stations in regular order, forward or backward; according to direction or motion of train, and means for shifting the operating mechanism in such a way as to change the direction of motion of the sheet bearing the names of the stations.

**STAKE AND STRAP APPLIANCE FOR FLAT-CARS.**—A. S. BEVILLE, Jacksonville, Fla. One purpose of the inventor is to provide an attachment to flat-cars by means of which stakes will be locked to the car in such manner that they may be quickly fitted to their pockets or removed therefrom and whereby when removed and permitted to drop they will yet remain connected with the car, thus avoiding losing the stakes, which otherwise frequently happens.

**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. 8506.**—Wanted, machinery for the manufacture of alcohol from apples, molasses and sugar.

For logging engines. J. S. Mundy, Newark, N. J.  
**Inquiry No. 8507.**—Wanted, a musical alarm clock, 7 feet high by 5 feet wide, nickel-plate brass frame with glass sides, visible works, retail price \$248; wanted to purchase same by wholesale.

"U. S." Metal Polish. Indianapolis. Samples free.  
**Inquiry No. 8508.**—Wanted, a machine for pointing meat skewers in large quantities, such as 50,000 skewers a day.

Pattern Letters. Knight & Son, Seneca Falls, N. Y.  
**Inquiry No. 8509.**—Wanted, machinery for drilling vegetable ivory buttons.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.  
**Inquiry No. 8510.**—Wanted, makers of portable sanitary closets.

Metal Novelty Works Co., manufacturers of all kinds of light Metal Goods, Dies and Metal Stampings our Specialty. 43-47 S. Canal Street, Chicago.

**Inquiry No. 8511.**—Wanted, name and address of the makers of the Perplexity Puzzle recently sold by the Union News Co.

The celebrated "Hornby-Akroyd" safety oil engine. Koerting gas engine and producer. Ice machines. Built by De La Vergne Mch. Co., Ft. E. 138th St. N. Y. C.

**Inquiry No. 8512.**—Wanted, name and address of wholesale dealers in galvanized corrugated iron and galvanized iron roofing.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machine work and special size washers. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

**Inquiry No. 8513.**—Wanted, manufacturers of the following: trunk board, lamp colors, sheet aluminum, coal-oil burner without chimney.

**Inquiry No. 8514.**—Wanted, the address of a German firm which manufactures souvenir post cards and one which makes prism field glasses.

**Inquiry No. 8515.**—Wanted, the manufacturers of the Osmium Incandescent lamp.

**Inquiry No. 8516.**—Wanted, makers of small magnifying glasses, such as are found in watch charms

**Inquiry No. 8517.**—Wanted, makers of the following: plater mulling; sluice plates, reefs for same; tom hooks, tom plates, shovels for digging earth, criminals, cutlasses with iron handles, and battes.



**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.

(10247) B. A. T. asks: 1. How many ampere hours will a Fuller battery give? A. About 68 ampere hours. 2. Does a Fuller battery give the same voltage after it has been charged some time as it does when it is freshly charged? A. No. 3. Does a porous cup that is used in batteries wear out? A. No. 4. Does battery carbon wear out? A. No.

(10248) 1. S. W. asks: 1. At what temperature does frost form? A. At 32 deg. Fahr. 2. In magnetizing a piece of iron or steel with a permanent magnet, does the permanent magnet lose any of its magnetism? A. No. On the contrary it tends to strengthen the magnet. 3. What horse power engine is required to run the 8-lamp dynamo of SUPPLEMENT No. 600? A. Three-fourths horse-power. Also what horse-power to run the 110-volt dynamo of SUPPLEMENT No. 865? A. About one horse-power. 4. How is the horse-power of a windmill calculated? A. Approximately by multiplying the area of the slats in the plane of revolution by the cube of the velocity of the wind in feet per second, and divide the product by 4,000,000.

(10249) E. H. H. writes: I wish to break an electrical circuit a certain number of times in a second by means of a spring and electro-magnet, something like the electric tuning fork, but only using one leg of the fork. What number of vibrations (double vibrations) is it possible to attain? C of the treble clef has 517.3 double vibrations in a second. Would it be possible to attain four octaves above that = 8,276.8 double vibrations; that is, break the circuit that number of times? A. With that number of breaks per second the current would be apparently continuous. A dynamo making 1,800 turns per minute makes 30 turns per second, and if there are 24 coils on the armature, there are only 720 impulses of the E. M. F. per second. We call such a current continuous, and it has not a tenth of the impulses you name.

**THE PROGRESS OF THE HOLLOW CONCRETE BLOCK INDUSTRY.**

Like all other new industries, the hollow concrete building block has had its vicissitudes, perhaps to a greater degree than almost any other.

The fact that it has gone nearly over the entire world in the short space of three years is proof that it has come to stay, and its increasing popularity is evidence of its undoubted merit. Every trade paper of note in this as well as foreign countries has devoted much space to discussions relative to the material, its adaptability to building construction, its sanitary qualities, cheapness, and durability, which, together with its superiority as a substitute for the rapidly-decreasing lumber, has attracted the attention of all classes of readers. That this has had a most beneficial effect no one can deny. The rapidity of its introduction compelled haste in securing a practical education which in turn was not slow to discern the qualities necessary to success in both blocks and the machine for their manufacture. Of all the two or three hundred patents which have been granted for machines and blocks, there is less than one dozen which have proved so successful as to require a factory to make the machine, while scores have come to light for a few weeks and then dropped from sight.

The readers of the Scientific American will remember in the issue of August 29, 1903, an article on this subject by a representative of this paper, sent especially to investigate this new building material and method used to make it practical. This was the first extended illustrated article on this subject in this or any country. The illustrations then given were photographs taken by our artist at a building being erected by the original inventor, Harmon S. Palmer, Washington, D. C. Previous to this time there were but few machine-made hollow concrete block houses in the world, and every one had been constructed under his system and personal supervision with one of his machines. The publicity given at that time had the effect of stimulating the general public to an unusual degree in this direction, with the result as above stated. But out of all devices which come to light, not one has departed from the original conception and fundamental principle, that of a machine with movable sides and cores and a removable bottom plate, on which the block is molded by tamping and on which it is carried away from the machine. Many have endeavored to substitute other means, and thousands of dollars have been spent by early inventors in trying to produce good blocks without tamping. Some have resorted to the slush system, others to filling the mold from an elevation, while others have lost fortunes in trying to perfect some sort of press, but failure has been the general result. Concrete will not flow like wet clay under a press, and it is impossible to deposit it in a mold so evenly that all places will be pressed alike, thus causing porous spots in the stone; and again, the confined air will ex-



pand on removal from the press, doing great harm to the block; then again the numerous shapes and sizes of blocks required renders complicated machinery utterly impractical.

However, various improvements have been added, which in practice have been found desirable in their manufacture. The greatest of these is flexibility in the machine, so as to make different sizes of blocks as well as different shapes and thicknesses. The machines of to-day are so admirably adapted to these changes that the most intricate designs of the architect are easily carried out with scarcely any effort of the machine operator. Many architects have taken up this branch of construction almost exclusively, and in connection with the machine manufacturer are surely developing a class of buildings that will be a pride to our country, inasmuch as they will require neither paint nor repairs, are dry and sanitary, durable, and cheap; and if the floors and roofs are properly constructed with the same material, fire insurance, that industrial cancer, will be entirely unnecessary unless the dwelling stands in the midst of many other inflammable buildings. This may seem a bold assertion, but it is not too strong, and the time will come when it will be considered a crime to erect a dwelling that can burn.

The accompanying illustration is one of the latest machines of the above type, just patented by the original inventor, called the "Multiple Automatic." Its points of excellence are its adaptability to innumerable changes. There is no design which an architect is likely to call for that this machine cannot make, and the co-operation is so perfect and so easily understood by the architect, that the machine is almost a necessary adjunct of his office and plans. Its flexibility is so great that one, two, three, or more blocks can be made at one time, of any shape, size, or thickness, with any number of air spaces in the block and in any location—which is impossible with complicated machines or presses. One movement of one lever opens and closes the machine, saving enough time to add one hundred per cent to the usual output. Owing to the interest which many of the devotees are taking in the development of this new industry, five or six of the largest and most progressive companies in this line have just been practically merged into one called the "United Cement Machinery Manufacturing Company," with Harmon S. Palmer, president of the Palmer Company, of Washington, D. C., as president; James F. Angell, president of the Winget Machine Company, of Columbus, Ohio, as first vice-president; James W. Sanderson, president of the Cement Machinery Manufacturing Company, of Burlington, Iowa, second vice-president; James M. McDowell, of Columbus, Ohio, as secretary; and Howard C. Black, general counsel. With the experience of these promoters and the number of factories and offices, together with the numerous patents which they control, this company should be a powerful factor in the hollow-block and cement industry of this country.