

RECENTLY PATENTED INVENTIONS.
Engineering.

BRIDGE CONSTRUCTION.—Bernard M. Kash, Joplin, Mo. This inventor has provided a method of constructing supports for bridges, consisting of lowering into the water a pile made up of sections, driving the pile into the bed, lowering an anchor over the pile, locking it to an engagement with the bed and with the pile, and driving the anchor to a firm seat in its bed. This foundation may be erected in a quick, convenient and durable manner in deep water, and made capable of upholding a pier.

Railway Appliances.

TRAIN PIPE COUPLING.—Zachariah F. Lightner, Darby, Pa. This invention is intended to provide a coupling for air brake or other train pipes so that the connection may be made without the necessity of going between the cars. A coupling pipe is placed in the coupling head of one of the cars, and this coupling is arranged so as to engage in the coupling head of another car. The momentum of the approaching car causes a bumping of the heads, which are yieldingly mounted so that the parts are not broken, but still the connection between the pipes will be made. Connection between the train pipe and the coupling is made by means of hose.

ELEVATED RAILWAY BRAKE.—Watson L. Reynolds, Jersey City, N. J. The brake shoes, according to this invention, are arranged in pairs, pivotally supported from a common rock shaft and spaced apart to embrace a track rail, with means for rocking the shaft, the rocking of the brake shoe shaft serving to apply and release the brakes. A plate spring bears by its ends on the back of the shoe, affording an improved gripping action on the track rails.

CINDER AND DUST BLIND.—George W. Bohde, New York City. This is a readily applied device, inexpensive, and adapted to fold up in very small compass when desired, or to project outward to any necessary distance to form a perfect shield for the window. It comprises a longitudinally recessed post, a recessed stile, and slats pivoted in the recesses of the stile and post and adapted to lie in such recesses, there being a fastening device to hold the stile and post together.

BRAKE ROD FORK.—George W. Kelly, Marquette, Michigan. This improvement is especially adapted for use in connection with the brake rods of railway or street cars. The fork and stem are passed through body of the fork and headed between the tines. When the fork or jaw is to be used in connection with the top and bottom brake rods, the shank may be held in the fork by means of a rivet.

Mechanical.

WAGON TONGUE SUPPORT.—John F. Tiner, Sutherland Springs, Texas. This novel device consists of a transverse shaft around which a torsion spring is coiled; at either end of the spring is a ratchet wheel connected to the tongue of the wagon. The spring has a tendency to hold up the tongue through the medium of the chain and wheels. This invention does not interfere with the ordinary running gear and takes away considerable of the friction.

GATE.—Jacob E. Knapp, Brownsville, Oregon. The object of this invention is to provide a gate swinging from its center through the manipulation of levers. The gate is lifted vertically at the same time it swings open. After the person has passed through the other lever is depressed and the gate swings back to its normal position. The mechanism can be applied to either a single or double gate.

MOTOR FOR CLOCKS.—Sigismund B. Wortmann, of New York City. This invention is a motor of the gravity type, adapted for the propulsion of clock mechanism without employing the aid of springs, spring drums or like factors. Motion is imparted to the master gear by means of a weighted lever secured to the shaft of the master wheel.

WAGON JACK.—John F. McDaniel, Syracuse, Kan. The object of this invention is to provide a simple durable wagon jack capable of convenient manipulation. A feature of the invention is a locking device for the lifting lever, which will act automatically to hold the lifting bar of the jack in whatever position it may be placed, and further to provide a means whereby the locking device may be readily disengaged from the lift lever whenever required.

LA V D ROLLER.—David A. Grant, Raleigh, Canada. This invention relates to an improvement in hand rollers by which a number of rollers may be coupled together and used as one, the rollers having a common frame. The roller may be used on rough or undulating ground and is also provided with scrapers for the various rollers, the scraper of each set being capable of independent manipulation, the driver of the roller being able to bring all the scrapers into requisition or any one of them, as occasion may demand.

CHUCK FOR SCREW MACHINES.—Edwin E. Saum and Frederick E. Blackman, Stamford, Conn. This is a chuck more especially designed for use in connection with milling machines, to conveniently and rapidly mill pins, screws, etc. The construction is such that the articles to be operated on can be placed very close together, so as to make the cut formed by the cutter practically continuous. The device is very simple and durable in construction.

SPRING LOCKING NUT.—Charles P. Dorr, Ellsworth, Me. This nut has a thickened central body adapted to receive a bolt and reduced spring arms thereon extending laterally and returned on themselves, the returned member extending beyond the plane of one face of the nut. The spring arms are adapted to press against an object through which the bolt of the nut extends, so as to take up all slack and prevent the nut from getting loose.

LIFTING JACK.—Charles W. Ball, Commerce, Texas. This is a wagon jack of simple and durable construction, and one which permits of conveniently raising the rear or front axle without shifting the hoisting lever in the post.

Electrical.

PAPER HOLDER.—William P. Stibbs, Belleville, N. J. The object of this invention is to provide a paper holder adapted to receive papers or small parcels. When the holder is raised slightly and the paper or parcel is about to be inserted, an alarm is sounded by an electric bell connected with the holder. When the arm of the holder is raised sufficiently to allow of the insertion of the paper, the contact is broken and the alarm ceases. Thus the persons in the house are notified when the paper or package is inserted. When it is removed the same action takes place, the bell ringing just before the holder reaches the normal position.

TELEPHONE INVENTIONS.—Eloy Noriega, Mexico, Mex. The first invention is a microphonic telephone transmitter, designed to be used in connection with heavy currents with especial view to working over long distances. It is constructed so that it will remain in adjustment and work uniformly under all conditions. The primary circuit is through carbon bars attached to the diaphragm, and through a series of loose carbon bars having ends reduced in diameter, entering cavities in the bars attached to the diaphragm. These bars are pressed by a spring through the medium of a body of absorbent elastic material. The carbon electrodes used in this instrument are made of a new compound of charcoal, coke, and boric acid—sometimes with the addition of graphite. The second invention is also a transmitter, in which the carbon electrodes are held in contact by the action of a magnet, thus securing a delicate adjustment of the carbons and a more effective action. In this instrument the diaphragm carries two perforated blocks in which are inserted carbon cylinders provided with soft iron armatures. A permanent magnet located near these armatures holds the carbon cylinders in electrical contact with the carbon blocks carried by the diaphragm.

AUTOMATIC TELEPHONE EXCHANGE SYSTEM.—John Serdinko, New Braunfels, Texas. Combined with a number of sending instruments adapted to send positive and negative impulses, a central registering device for each instrument, are a switch, a magnet and a vibrating lever, other novel features of arrangement enabling the instruments to be connected by a single wire, dispensing with the use of an operator at the central station. Automatic means are also provided for registering the messages sent by each subscriber, with an automatic switching device by means of which one subscriber may connect with any other.

SUPPORT FOR TROLLEY WIRE.—James E. Walker, Denver, Col. This support is formed of a longitudinally grooved casting furnished with a screw-threaded socket for attachment to the insulator, and a removable clamping piece attached to the main piece by means of screws. This support can be easily and quickly applied without the use of solder, thereby prolonging the life of the trolley wire, and it is smooth and noiseless.

Agricultural.

CULTIVATOR.—Andreas Mattijetz, Giddings, Texas. In this machine all the plow shanks are adjustable to or from the center line of the frame in order to adapt the cultivator for working different kinds of plants. The lateral adjustability of the plows upon the standards is also provided for, means being provided for maintaining both the standards and the plows in whatever position they may have been placed. The machine is very light, has an easy draught, and is especially adapted for the cultivation of stump fields.

Miscellaneous.

DUST PAN.—George B. Sarchet, Butte, Montana. The frame of this pan has a depressed circular seat, with an inlet leading to and from the seat, in which turns a receptacle having an opening in one side adapted to register with the inlet or the outlet. The construction is simple and durable, and such a dust pan is adapted to readily gather up and retain the sweepings in the pan until it is convenient to discharge them.

SHOW CASE.—Gustave J. Meyer, St. Louis, Mo. This case has sectional glass walls, with a glass door in each section, there being also horizontal partitions secured to the case walls between the sections to form compartments located one above the other. The case is preferably made in pyramidal form, the compartments increasing in size toward the top, and in its hollow base is a drawer.

SHOE FASTENING.—Henry Vachon, Golden, Canada. This is a lace fastening comprising hooks along the edges of the fly, a tongue separate at its edges from and covering the fly and provided on its under side with a central longitudinal series of parallel transverse hooks, each hook comprising oppositely facing parallel members, while the lacing is rove back and forth through the fly and tongue hooks. Each hook is formed of a single piece of wire and has a spring hook. The fastening is quickly made to secure the shoe to the foot, and gives a nice fit over the instep.

HOOK AND EYE.—John D. R. Lamson, Toledo, Ohio. The hook, according to this improvement, has its intumed end adapted to form a snap, and the eye has its end or bow made larger than its sides, the bow being slightly larger and the side slightly smaller in the direction of the plane of the bow than the opening into the hook, whereby the bow of the eye may be snapped into the hook, and its side may be slipped out when the side is turned to position to escape below the point of the hook.

WIRE FENCE.—Oscar C. and Pierce B. Moreland, Henderson, Ky. An economical tie or binder for the several strands of a fence is provided by these inventors, consisting of a single piece of wire having its opposite ends secured to a common strand of the fence by twisting, the portions near the ends being carried beyond the strands on opposite sides and passed rearwardly over, while the middle portion is passed in front of the common strand.

HOOF WEIGHT.—William Hamilton, Bedford, Iowa. This invention provides a toe or side weight which will adjust itself to the inclination of the hoof to which it is applied, and be self-locking, while it

is of simple, durable, and inexpensive construction. In using this improvement a comparatively small portion only of the hoof need be removed, and there is no possibility of the weight leaving the hoof.

FORCEPS.—Michael McNailey, St. Louis, Mo. This is an improvement in implements utilized in veterinary practice for withdrawing teeth of animals, or cutting or trimming them. The two jaws of the forceps may be gradually and equally drawn together to produce a cutting action when required, or they may be quickly closed to effectively clamp the teeth. The implement is very light and easily handled.

LAMP CHIMNEY CLEANER.—Mary F. Hotham, Hillside, Pa. Secured to a handle are two or more U shaped fabric-retaining bars, which are secured at their upper ends by a movable collar. To these retaining bars, pieces of movable cleaning fabric are fastened and new pieces can be easily inserted when they are worn out by disengaging the collar and removing the bars.

CINDER SHOVEL.—Samuel J. Besthoff, New York City. This invention consists of a shovel having U shaped tines composed of wire or metal rods and is adapted to remove cinders from grates, etc. The shovel, by reason of its novel construction, receives the coal and cinders, allowing the dust and ashes to drop from the shovel, leaving the coal and ashes therein and in condition to be assorted if desired.

SIPHON MOTOR.—Frederic Wm. Reinhardt, Memphis, Tenn. This motor is adapted for furnishing small power. The motive power is derived from an overshot water wheel placed in an enlargement of the outlet leg of the siphon. As the water passes from the inlet leg through the outlet leg it causes the wheel to revolve and impart motion to a pump or other piece of machinery.

WATCH BALANCE.—George H. Smith, Lancaster, Ohio. This improvement provides an attachment for balance wheels whereby the rate of vibration will be changed without shifting the screws in the balance. The balance has longitudinally slotted arms in which are placed sliding weights, screws passing through the slots and through holes in the weights to shift the weights along the slots. The changing of the rate of the watch may thus be effected by moving the weights, doing away with the usual method of adjustment by changing the screws in the rim.

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SCIENTIFIC AMERICAN
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TABLE OF CONTENTS.

1. Elegant plate in colors showing a colonial residence at Stamford, Conn., recently erected for C. Cooper Clark, Esq., at a cost of \$9,500 complete. Floor plans and two perspective elevations. An excellent design. Mr. Augustus Howe, architect, New York.
2. Plate in colors showing the residence of Thomas C. Worin, Esq., at Bridgeport, Conn. Two perspective views and floor plans. Cost \$5,000 complete. A very attractive Queen Anne design. Mr. Henry A. Lambert, architect, Bridgeport, Conn.
3. A dwelling erected for Edward W. Ailing, Esq., at New Haven, Conn. Perspective and interior view and floor plans. An excellent design. Cost \$4,500 complete. Messrs. Stilson & Brown, architects, New Haven, Conn.
4. A very attractive residence recently erected for R. Burton, Esq., at Hartford, Conn., at a cost of \$7,800 complete. Floor plans, perspective view, etc. Mr. Henry D. Hooker, architect, New York. An excellent design.
5. Engravings and floor plans of a suburban residence erected for H. McKay, Esq., at Boston, Mass., at a cost of \$2,400 complete. Mr. Austin W. Pease, architect, Boston, Mass. A very attractive design.
6. A dwelling recently erected for P. H. Lucas, Esq., at Chester Hill, Mt. Vernon, N. Y., at a cost of \$7,000. Floor plans and perspective elevation, also an interior view. Mr. Louis H. Lucas, architect, Mt. Vernon, N. Y.
7. A cottage at Mystic, Conn., erected at a cost of \$3,000 complete. Elevation and floor plans and an interior view. Mr. John S. Rathbone, architect, New London, Conn.
8. A dwelling recently completed at Stamford, Conn., at a cost of \$3,500 complete. A picturesque design. Two perspective views and floor plans. Messrs. Munn & Co., architects, New York.
9. Miscellaneous Contents: The education of customers.—How to catch contracts.—Hints to readers.—The latest and best designs for houses.—Labor Day.—Tests of paving materials.—The World's Columbian Exposition, a general view.—The builders' friend.—A durable and ornamental roof, illustrated.—An improved woodworking machine, illustrated.—The Pasteur filter, illustrated.—The Rochester parlor heater and improved oil stove, illustrated.—A stovepipe radiator, illustrated.—An electric passenger elevator at the Exposition, illustrated.—Woodworking machinery at the Fair.—A new building material.—Torsion braided wire mattresses, pillows, cushions, etc., shown at the Exposition, illustrated.

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(5577) J. C. A. asks: 1. What makes the draught in a chimney, and why has a tall one more draught than a short one? A. The difference in the weight or specific gravity of the hot air inside and the cold air outside makes the chimney draw. This is readily illustrated in observing the upward flow of hot air currents around a stovepipe or the ascent of fire balloons. The higher chimney, having the greater volume of heated air and gases, has the stronger draught. 2. A says that a sounding lead will not sink beyond a certain depth, owing to the compression of the water. B says it will sink to the bottom, whatever the depth. Which is right? A. B is correct. Everything that will sink at moderate depths will go to the bottom of the deepest oceans.

(5578) J. E. P. asks for a receipt for case-hardening that will harden about one thirty-second of an inch thick for bicycle bearings. A. Pack the articles to be case-hardened in an iron box or piece of iron pipe with hoof shavings that have been charred and pulverized. Heat at a low red for half an hour or more, then raise to a cherry red and plunge the articles in water.

(5579) L. L. G. and R. S. H. ask: Why is not length a speed factor in steam vessels as well as in sailing vessels? Take for instance the Feiseen and the new cruiser Columbia, both built for speed. Take also the yachts Queen Mab and Valkyrie, built also for speed. As it is possible for the Feiseen to develop as much speed as the Columbia, why is it not possible for the Queen Mab to develop as much as the Valkyrie? A. Length is a speed factor, as it enables greater power to be carried in proportion to the midship area in steam vessels and more sail in sailing vessels, as illustrated in the larger four masted clippers and schooners. In both classes of vessels the conditions of relative dimensions and power are hampered by the required duty other than speed, and with racing yachts length is regulated by yachting rules. The models are now so nearly perfect that for matched boats the difference in speed may be entirely due to eccentricities of the wind.

(5580) R. F. C. writes: 1. Is there any means by which I can produce a thin stream of electric light between two points about one-half inch apart, the light to be steady (not like the spark of an induction coil) with an intense heating power; it is the heat that I wish to use. Also is it impossible for me to use it if it is produced in a vacuum? A. You can do this with the arc. The Bernardes system of welding utilizes the arc as a heating appliance. For this see our SUPPLEMENT, No. 840. We have others on electric welding by other processes. 2. Does the arc light produce an intense heat? A. It produces about the most intense heat that can be produced by man. 3. I built a small direct current. 20 lamp, 16 candlepower, 52 volt dynamo, which we have used some time; several days ago one of the leaves of