## RECENTLY PATENTED INVENTIONS. Engineering.

STOPPING AND STEERING BOATS. Henry A. Sheldon, Arcadia, R. I. Wings which may be laterally projected from the boat at opposite points not far back from the bow are provided by this inventor, in connection with a novel operating mechanism, in which steam power is applied through curved cylinders, actuating a curved piston rod, to move either one or both the wings to an outward positon, at right angles to the hull, or to an inner position in line with the side of the hull. The motor mechanism is controllable from the pilot house, and affords means for conveniently adjusting the wings as may be desired.

#### Railway Appliances.

CAR FENDER. - William A. Morris, Brooklyn, N. Y. Under each platform is a frame with outwardly and downwardly extending curved guideways. to receive the side bars of a fender covered with a suit able netting, and having at its front end wheels or shoes adapted to travel on the track rail. The side bars have each a rail to prevent a person picked up from falling off the fender. Centrally on the inner end of the fender is an eye adapted to connect with a bolt sliding on the under side of the platform, the motorman or gripman, by simply pressing with his foot upon a stud, disengaging the bolt from the eye and permitting the fender to slide downward and forward, in position to readily pick up a human being. When the fender is not desired for use, it is moved upward on its guideways and held in withdrawn position under the platform by the engage ment of the eye with the bolt.

SWITCH LOCK.-John W. Tew, Rome, Ga., and John D. Riggs, Selma, Ala. This is an automatic safety lock to prevent the interference of unau thorized persons with a switch. It is an improvement on a formerly patented invention of the same inventors, and comprises a lock projection or bolt normally in position at the side of one of the movable switch sections, to lock such section and its mate from movement, tripping plates being so connected with the operating devices that the weight of a passing locomotive withdraws the bolt and permits the switch to be thrown by hand or in any other manner. The construction is simple, having no parts likely to get out of order, and this invention relates particularly to improvements in the devices for operating the bolt.

NUT LOCK.—David C. Wetsel, Carrollton, Pa. This is a device especially adapted for locking nuts on fish plate bolts of railroad tracks. The nut has a shoulder adapted to fit against a shouldered locking block with a radial wing at each side, a fish plate recessed on one side near the bolt receiving one of the wings. The improvement affords convenient means for quickly locking the nut on a bolt, permitting the nut also to be partly or entirely removed from the bolt.

CAR BELL RINGER.—Samuel A. White and Augustus M. Glover, Savannah, Ga. This is an improvement in bell-ringer attachments operated from the axle of a car. A hinged bar is arranged near projections revolving with the axle and connected with two springs of different tension acting in opposite directions, the springs being also connected with a rod beneath the car to which tension may be applied to overcome the stronger spring, allowing the weaker one to throw the bar into contact with the projections on the axle, thus working an alarm. The attachment includes a suitable operative connection with a foot piece on the car platform, by pressing upon which the alarm will be sounded, but will cease as soon as the foot pressure is removed.

MAIL BAG HANGER.—George M. Patterson, Gertrude, Ga. This improvement comprises a standard with an upper and a lower arm, the arms being provided with bag-retaining devices, each having a number of hooks or cleats to which a mail bag may be attached, the devices being adapted for complete rotation and to be automatically placed in position for use by the movement imparted when the bag is removed. When the bag is caught by the gathering arm of the mail car it may be readily drawn from its support.

# Electrical.

SIGNAL SYSTEM.—Webster Gillette, New York City, and Alexander S. Williams, Long Island City, N. Y. This improvement comprises a closed conductor connecting two stations, a battery arranged for cutting into the closed conductor for signaling, and a telephone support with switch contacts for completing the local and line circuits. The system may be used in connection with the existing wiring of hotels, factories small telephone exchanges, or with smaller wiring arranged specially for use under this improved system. While the conductors are all closed, the circuits of the batteries are open, and the conductors are always in condition for sending and receiving signals and for use for telephonic communication.

SHIP'S LOG AND COURSE INDICATOR. John P. Rogers, Moncton, Canada. This invention includes a log to be towed as usual, and printing and registering mechanism carried on the vessel to matically record the distances, so printing the mileage figures that the deviation of the ship from a prescribed course will be indicated. Electrically operated means are provided for controlling the printing and registering mechanism, and affording a reliable circuit breaker in the log proper to make and break the circuits and set the controlling mechanism in operation. A wind-indicating device is connected with the apparatus to indicate lecway in the same manner as the current indicator, the effect of the wind on the log line being counteracted by the disk of the wind indicator and its electrical con-

# Mechanical.

FORGE.—Aaron Rice, Northport, Ala. The hearth of this forge has a water compartment under its basin, connected by pipes with the lower end of a boiler, the pipes being preferably one above another to establish a circulation. The boiler drives an engine which operates a blower with a blast pipe projecting simple and inexpensive method is thus afforded of

over the basin of the hearth, a water jacket on the front securing the runners of wire fences from vertical move of the boiler surrounding the blast pipe.

MACHINE FOR CURLING HAT BRIMS. Joseph Ives, Newburg, N. Y. The machine has a wheel with concave flange, a small wheel or button with convex face being adapted to press the hat brim against the flanged wheel, while a shoe made concave in the direction of its length has a concave groove in the edge. A gage is provided for guiding the hat, springs for pressing the button against the brim, a cam for withdrawing the button, and means for heating the shoe, flanged wheel and button. As the hat is passed between the revolving flanged wheel and button, under the application of heat, the brim is given the proper curvature, being received and prepared for curling by the shoe, and also preserved in such curl as it leaves the wheel and button.

#### Agricultural.

CUTTER FOR HARVESTERS, ETC.-Frederick Friesz, Shenandoah, Iowa. According to this invention the cutters of reapers, harvesters, and similar machines are made in stellated form, to rotate individually upon their own axis, and collectively around a guide of predetermined construction, the cutters presenting themselves successively in position for cutting. They are designed to be operated by means of an endless chain belt with the least possible friction, the cutters clearing themselves from the grass or grain cut, preventing clogging.

HEDGE AND LAWN EDGER.-Myles Y. Warren, Philadelphia, Pa. This is a simple, inexpensive and light machine for trimming lawns and hedges by being pushed along the borders. Its wheel-supported rame has one straight side with blades at its front edge. the opposite side near the front being inclined toward the straight side, and the bottom of the frame extending outward beyond the inclined side and having at its front a scraper. On the shaft, on the inner face of the straight side of the frame, are radial arms which press the twigs, grass, etc., against the blades, in advance of which, near the ground, is a small circular cutter.

### Miscellaneous

RECOIL OPERATED AUTOMATIC ORD-NANCE.—Alfred A. McKnight, Wilmington, Ohio. Ac cording to this invention a frame in which the barrel is supported and movable has separated abutments, a lever pivoted to and movable with the barrel having an arm connected with and operating the breech block, while a second arm extends between and is operated by the eparated abutments. The hammer is pivoted to and the trigger supported on the framing, the reciprocating barrel having portions by which to cock the hammer and pull the trigger. The several moving parts are de signed to be operated, after the first firing, by the force of the recoil, or by springs acting in opposition thereto, the gun barrel being moved rearwardly, the hammer cocked, the breech block lowered, the cartridge thrown out and a new one inserted, the barrel moved forward the breech block readjusted, and the hammer cocked and the gun fired.

SWORD SCABBARD.—Henry O. Weller, Butte, Montana. This scabbard has an opening in one of its walls at the mouth, and the sword hilt has a lug shaped to enter and fill the opening. The construction of the scabbard is such that the sword may be guided therein more quickly and conveniently than in the ordinary scabbard, a beveled recess in its upper end serving as a guide to direct the sword to the mouth of the scabbard.

VOTING MACHINE.—Frank H. Gilbert, Ridgefield, Washington. This machine provides a sheet or tape to be passed between punch bars with apertures corresponding to the candidates to be voted for, means for puncturing the sheet or tape, and a concealing slide, whereby neither the following voter nor the inspector may discover who was voted for. Its construction is designed to facilitate voting without mistake by an ignorant person, and when each vote is cast an alarm is sounded, when the official in charge may place the recording material in position to receive the next vote, means being also provided for making a duplicate record, one of the records to be removed from the machine without allow ing access to the other record.

CARBON HOLDER FOR BLANK BOOKS. Lewis A. Lipman, New York City. The book, according to this invention, has at its back a thickened leaf of greater length than the other leaves, the leaf being folded in at the edge of the book, and thus constituting a holder of great simplicity and cheapness for the carbon sheets which may be readily removed as desired.

INK WELL.-Joseph Morton, New York City. As an improved article of manufacture, this inventor has devised an ink well designed to prevent the ink from marting the beauty of the crystal effect of the well body. The body is of glass or crystal, and removably fitted in its central recess is an exteriorly cup-shaped ink well, of metal, adapted to r flect the light and add greatly to the appearance of the entire ink well, the ink being invisible through the sides of the well body.

SASH BALANCE. - Joseph H. Bane. Barre, Mass. According to this improvement a pinton loosely mounted on a spindle is adapted to engage a rack on a sash, there being a pawl and ratchet connection be tween the pinion and spindle, and a brake engaging the spindle. The improvement may be applied to an old as well as a new window, and its action is not interfered with by warping of the window frame or sash, the window being raised and lowered as conveniently as if the old balance were employed. The locking device is at one side of the sash and roller bearings at the opposite

LOCK AND STAY FOR WIRE FENCES. Cyrus M. Suter, Ashton, Iil. This improvement consists of a locking plate with longitudinal slots extending from the ends inwardly to within a short distance of the center of the plate, and forming two jaws at each end of the plate, which is to be used in connection with a link of wire adapted to extend across a runner, the wire having a loop at each end and being bent near its center. A

CART.—Amasa L. Smith, Carnes, Iowa The axle of this cart has an integral voke-like body, and the running gear is so constructed that it is adapted to receive a dumping body or a barrel-like receptacle which may be quickly taken up from the ground by the manipulation of the running gear without being touched by the operator, and may also be gently dropped upon the ground. It is especially adapted for use as a slop

Horse Weight.-David B. Maconachie, Toronto, Canada. This is a hollow weight block with bail-like handle, and in the block is a spring-con trolled strap roller to which is attached a self-wrapping halter that may be extended from the weight as desired, automatically returning within the weight when the animal is detached from the halter and the weight is placed in the vehicle.

GARMENT HANGER.-Edgar W. Horner, Connellsville, Pa. This is a device to support trousers with the waistband hanging downward, to move hagginess at the knee. The trousers may be clamped in the hanger without marking them at the point of contact, and the device is also adapted to serve

as a support for a coat and vest, or other garments.

CLOTHES HANGER.—John H. J. Ronner, New York City. This device consists of separable jaws with opposite clamping faces and a suspending hook extended between them, forming a simple and inexpensive means of holding an entire suit of men's clothes, while also adapted to support other garments. The clothes are so held as to prevent their becoming creased or losing their shape.

Nore.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date

# SCIENTIFIC AMERICAN

# BUILDING EDITION

# APRIL, 1895.-(No. 114.)

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- Two perspective elevations and floor plans, showing a residence recently completed for George N. Tyner, Esq., at Holyoke, Mass. An elegant de sign in the Romanesque style of architecture. Mr. H. H. Gridley, Springfield, Mass., architect.
- A cottage at Nutley, N. J., erected at a cost of about \$4,000. Perspective elevation and floor plans. Architect. Mr. E. R. Silton, N. Y. A simple but taateful design.
- 4. A Colonial residence at Orange, N. J., recently erected for John Hammond Bradshaw, M.D. A pure example of modern Colonial architecture. Two perspective elevations and floor plans. Messrs. Rossiter & Wright, New York City, N. Y.,
- 5. An attractive residence at Indiana, Pa., recently erected for Mr. Harry McCreary, at a cost of \$4,350 complete. Perspective elevation and floor plans. Architect and builder, Mr. E. M. Lockard, Indiana
- Two perspective elevations and floor plans of a handsome residence erected for Samuel S. McClure, at Armour Villa Park, Bronxville, N. Y. A good example of a square rigged house. Cost \$8,000 complete. Mr. Henry S. Rapelyea, architect Mount Vernon, New York.
- cottage at Glen Ridge, N. J. An attractive residence in the Elizabethan style. Two perspective elevations and floor plans.
- 8. A carriage house at Orange, N. J., recently crected for John Hammond Bradshaw, M.D. The design is treated in the modern Colonial style to correspond with the architecture of his residence Ground plan and perspective elevation. Messrs. Rossiter & Wright, architects, New York.
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- house at Park Hill, N. Y., recently erected for Messrs. Loreni & Morrow, at a cost of \$6,500 complete. Perspective elevation and floor plans. Mr. Edmund J. Maurer, architect, New York,
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(6471) G. E. M. says: Please give a eceipt for a paste for pasting the labels on tin cans. A. Make a paste by dissolving rye flour in a solution of caustic soda, dilute with water, stirring all the time. Add to this paste Venetian turpentine-a few drops for each 1/2 pound flour. Adheres firmly to all metals, tin foil,

(6472) P. J. R. says: Kindly tell me now mushrooms are canned? A. Choose freshly gathered mushrooms, white, full, and firm; cut away the gritty part near the stalk, and throw the mushicoms into a basin of cold water; wash them quickly and drain them on a cloth. Put in a stew pan the juice of a lemon, an equal quantity of water, and a pinch of salt. The above quantities are calculated for 2 pounds of mushrooms. Turn each mushroom, put them into the stew pan containing the lemon juice, and toss them to impregnate them with the liquid. Cover the stew pan, put it over a brisk fire, and boil the mushrooms for four minutes, tossing them occasionally; and pour the whole into a basin. When cold, put the mushrooms in quart tins, cover them entirely with the liquor in which they have ocen boiled, filling up the tins with cold water, previously boiled if the fiquor is insufficient. Solder on the covers and boil the tins in water for two hours.

(6473) E. H. says: Can you give me the ngredients and proper mixture of Angostura bitters? A. Four ounces gentian root: 10 ounces each calisava bark, Canada snake root, Virginia snake root, licorice root, yellow bark, allspice, dandelion root, and Angostura] bark; 6 ounces cardamom seeds; 4 ounces each balsam of tolu, orangetis. Turkey rhubarb, and galanga; 1 pound] orange peel; 1 pound alkanet root; 1½ ounce caraway seed; 1½ ounce cinnamon; ½ ounce cloves: 2 ounces each! nutmegs, coriander seed, catechu and wormwood; 1 ounce mace; 11/4 pound red sanders wood and 8 ounces turmeric. Pound these ingredients and steep them for fifteen days in 50 gallons proof spirit; before filtering, add 30 pounds honey.

(6474) M. D. H. asks: 1. Can a No. 10 teel wire can be used to run around an iron pulley, and what size pulley and groove? A. Yes; pulley should be 3 feet diameter with V groove rounded at bottom to fit the wire. 2. And also size of pulley that a % inch wire hoisting rope will wind around and be serviceable? A. A 20 inch to 2 foot drum or pulley for the wire rope, according to the flexibility of the rope.

(6475) L. E. D. writes: 1. I have a storage cell of 8 volts and 40 ampere hours which I charge with 6 gravity Crowfoot cells  $(6\times8)$  connected in series. They do not charge it more than one-third. When connected in multiple series, they do not charge it at all. Can you tell me where the trouble is? A. You need for proper charging at least nine Crowfoot batteries in series, to obtain sufficient voltage. 2. Please give formula for calculating voltage and amperage of several cells of primary battery when the voltage and amperage of one cell is known. A. These calculations are made by Ohm's law. The amperage depends on the resistance of the entire circuit, the voltage on the number of cells in series.

See Sloane's "Arithmetic of Electricity," \$1 by mail. 3. Please tell me if it is proper to say amperage or ampage. I have heard the word pronounced both ways. A. Amperage.

(6476) J. F. B. writes: Will you give me the approximate diameter of a windmill that will develop about one horse power with a twenty mile per hour breeze? Also what would be the increase in power power. The increase of power will be a

(6477) A. C. M. asks if two of the simple electric motors described in "Experimental Science" can be put on one shaft, and what horse power they would develop together at full capacity, also how many volts and amperes would the two motors require at full 1893. load, and whether each motor should be connected separately. A. You can connect as described, and get nearly two-tenths horse power at eight volts and eight or nine amperes.

(6478) W. B. asks: What is the best way to produce the greatest amount of heat by electricity? If possible, give several ways of producing heat by electricity, and state which is the best to create the greatest amount of heat. A. All methods of producing heat by electricity are based on the arc or on plain incandescence of a conductor. For examples of the first we refer you to our SUPPLEMENT, Nos. 904, 905, 901, 986, 610, 840, 635; for the latter method, used on the large scale in electric welding, we refer you to our SUPPLE-MENT, Nos. 582, 682, 768, 892.

(6479) D. J. F., Newfoundland, writes: 1. What is a ship's metacenter, and how is the same found? A. The metacenter of a vessel is the point of intersection of the vertical line passing through the center of gravity of the vessel, when in its position of equilibrium, and a vertical line through the center of gravity of the water displaced when the body is careened or heeled over through any given angle, as of a vessel rolling in a sea. It is found by computing the center of gravity of the vessel as it floats when at rest, and the center of gravity of the mass of water displaced at any angle at which the vessel may be careened. The point of meeting of a vertical line from this last point at the angle of careening and the central line of the vessel is the metacenter. The height of this point above the center of gravity of the vessel is the measure of its stability. See Haswell's "Engineer's Pocket Book" for examples, \$4 by mail. 2. rosemary, 1 drachm. Melt together. Glycerine may be How is the contour of the keel of a ship found, when the substituted in part for the oil and rose water. From our same is not straight, as is very often the case in wooden "Cyclopedia of Receipts, Notes and Queries," price \$5, vessels? Is it found from the keelson? If so, how? which contains several hundred formulas for cosmetics. And provided the ship be laden, how is it found? A. | perfumery, toilet preparations, etc. Irregularities in keel alignment can be approximated by examination of the lines of the keelson. When irregularities are suspected, the keel blocks are made adjustable to bring them to a bearing. With a loaded vessel the problem becomes complex and may require the service of a diver. 3. How is the dead rise, which governs the height of the bilge blocks which support a ship in dry dock, found? A. The bilge blocks should be adjustable in height and angle and also be movable to their proper bearing when the keel touches the keel blocks. The dead rise must also be found by examination inside or outside. 4. Is any treatise or book published giving directions for dry-docking ships? If so, please give the name, price, and where procurable? A. There is no work on dry-docking of ships. We have one copy of Stuart's "Naval Dry Docks of the United States," now out of print, price \$6.00.

(6480) G. D. asks: Could you tell me why a permanent magnet was used in a telephone? thought it was to give tension to the diaphragm. A. It is far more sensitive than an unpolarized core.

(6481) C. W. C. asks: 1. Is the large plunge battery, Fig. 394, in "Experimental Science," sufficient to run a one horse power motor? A. No. 2. Is the dynamo described in SUPPLEMENT, No. 600, with proportions and directions given, suitable for a motor? And if so, could it be driven with above battery, and what power would it have? A. It makes a good motor and can be run with about three times this battery, and would give about 1/4 horse power for a short time only. of wave to be produced, p=any whole number. By taking The power would soon diminish. 3. How long would the battery run at full power on one charge? A. It would depend on the current taken from it. It would decrease rapidly after the first half hour.

horse power will it take to equal 1 kilowatt, or what is of the diatonic scale. Thus I is expressed in feet or a the relation between 1 horse power and 1 kilowatt? A. 'fraction of a foot. When the ratio of diameter: length 1 horse power is equal to 0.7459 kilowatts. 2. You give a receipt for cleaning clothes, in Scientific American, 'formula must be used. Consult Ganot's "Physics.' of March 16, page 166. Does it make any difference how this should be mixed? If so, which should be mixed A. It makes little or no difference how the ingredients are mixed. 3. In your columns you advertise the "Kombi." Is it a success? How long will one last, and what will be expense of having negatives finished? A. Address the advertisers. They will give you all the information desired.

(6483) C. A. C. asks: 1. Which will work on the longest line (the line being metallic circuit) a Blake or a Hunning transmitter? A. We cannot undertake to pronounce upon the relative merits of the two transmitters. Both are good. The Hunning's transmitter is described in the Scientific American, vol. 64, No. 4. 2. What is the internal resistance of ordinary gravity batteries? A. Two to four ohms. 3. Some of the Scientific Americans tell how to make storage batteries. A. See Scientific American, vol. 62 No. 10; vol. 65, No. 22; vol. 68, No. 9; vol. 69, No. 20; and our Supplement, Nos. 838, 845, and 997. 4. What is a two phase alternating dynamo? A. A dynamo of the simple alternating current type produces a single phase current. By special connections it may be made to give polyphase currents. In Walmsley's "Electric Current," \$3 by mail, page 458 et seq. the production of polyphase currents is very well explained. A two phase dynamo gives a two phase current.

(6484) A. L. asks: 1. How is it that a INDEX OF INVENTIONS Flushing drain pipes of sinks, washbasins, etc. 15 candle power incandescent lamp, as well as a 16 can dle power lamp, can be bought, the first one needing only about 15 volts to make it give the proper light, and the second one will require some 50, 75, it give the proper light? See E. S. Greeley's Catalogue N. Y. A. The low voltage lamps are of proportionally lower resistance; hence they pass more current, so that with additional wind pressure, say of five and ten per the watts per candle power are the same in all. The cent? A. An 18 foot mill should be equal to 1 horse watts is the unit of rate of work—the volt is merely the unit of electric pressure. 2. How is the aluminum the ratio of the velocity of the wind. Thus 10 per cent | iodine battery made, what are the elements and charging the ratio of the velocity of the control of the velocity of the velo water; the depolarizer is iodine sulphide or a mixture of iodine and mercuric oxide. The battery proved unsatisfactory on the time test. The voltage was 1.4 to 1 65. An illustrated paper on the subject appeared in the Journal of the Franklin Institute for March and April,

> (6485) E. A. Le S. asks: Where can I find the results of a complete analysis of common sea water? A. The following is of sea water from the British

Water	963:745		
Sodium chloride	28:059		
Potassium chloride	0.766		
Magnesium chloride	3.666		
Magnesium bromide	0.029		
Magnesium sulphate	2:296		
Calcium sulphate	1.406		
Calcium carbonate	0.033		
	—Schweitzer.		

(6486) P. C. S. asks: How can a Leyden jar be disruptively discharged so you can get a current vibrating with extreme rapidity? If a two quart jar were charged by a battery and then discharged as above, would the current be dangerous, or will it run one of Tesla'scoils? A. The ordinary discharge of a Leyden jar is of the character you describe, but as the entire duration of the discharge is very short, it cannot be used for a Tesla coil.

(6487) J. M. B. says: Will you have the kindness to give a receipt for making camphor ice? Also do you publish a book on manufacturing perfumery and cosmetics? A. 1. Oil of sweet almonds, 2 ounces; spermaceti, 4 ounces; white wax, 2 ounces; camphor 1/2 ounce; melt them over a water bath, run ir moulds of proper size and form. 2. Expressed oil of almonds and rose water, each 1 pound. White wax and spermaceti, each, 1 ounce. Camphor, 2 ounces. Oil of

(6488) C. H. asks: How many B. T. U. (or heat units) are there in one gallon of alcohol as compared to one gallon of coal oil? A. For a pound of alcohol the thermal units are 12,929; for a pound of petroleum, 27,531: You may take refined coal oil as of about twice the heating power of alcohol.

(6489) A. C. asks: 1. Of what number of wire and what size must I make an induction coil to lift one-third of a pound, and how much battery will be required to operate six of them at once? A. The size depends on the current you propose using. A core of one-quarter inch area must be charged with about 9,000 lines of force per square inch of section to have the desired traction, requiring perhaps twenty or thirty ampere turns. The question of leakage so complicates solenoid and straight bar calculations as to affect considerably their reliability. The ampere turns can be given by low potential batteries with low resistance coils or vice versa 2. How large and at what distance apart shall I make noles in a tube 9-16 inch in diameter to make notes of a diatonic scale, the same to be made like a small boy's cane whistle? A. Arrange them on the principle that the undulations of the note vary with the length of the pipe as determined by the position of the holes. For narrow

(1:12) stopped pipes the formula is  $L=(2p+1)^{-1}$  and for

open pipes  $L=\frac{p}{2}$ ; in which L=length of pipe, l=length p=1 you will get the length for the fundamental, and the other values of p will give the harmonics; 1 is obtained

by the formula  $l = \frac{1120}{n}$  in which n =the number of vi-

(6482) H. K. M. asks: 1. How many brations per second, which you can take from any table :: 1:12 ceases to exist or to be exceeded, an arbitrary

> Query No. 6406. — In your answer to R. K.B., February 23, 1895, No. 6406, I am inclined to think his trouble does not lie with dirty contacts, but with an improper adjustment. I have frequently met with the same trouble, and bell would ring when several pushes were given successively. The successive pushes I believe give an accumulative series of vibrations to the bell hammer, and if synchronized properly will finally set the bell ringing. In such cases I generally investigate the adjustment screw and find it a little too far from the contact on the spring of the vibrating armature. Thos. D. Giliespie, Pittsburg.

# TO INVENTORS.

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# For which Letters Patent of the United States were Granted

#### April 2, 1895,

AND	BACH	BEAR	ring '	THAT	DA'	rb.
				s of these		10
Advert Advert	sing and v	rending m ce, P. C. T	achine,	F. M. Arch	er 5	— 36,713 36,709
Air fore Amalga Automa	cing devic mator, N. atic coupii	e, G. W. I L. Raber ing, J. Em	d erson	• • • • • • • • • • • • • • • • • • • •	5 5	36,332 36,893 36,861
Baling   Banjo, Battery	press, P. C O. H. Oles 7. See Ele	C. Southwi sen sctric bati	ery.		5	36,765 ( 36,649 (
Bedster Bleycie Bievele	ad, P. F. M , W. C. Nic pedal toe	lorphy chois cliu. F. K	. Ненве	•••••••	64	36,644   ( 36,647 36,723   ]
Billiard Billiard	support, j cue, N. B	portable, lognann.	H. C. Kru	c., tempor	6	36,835 ] 36,596 ]
Boe Binder,	ing & Stor temporar	y, G. Bon	nell	nlth	5	36,798   1 36,913   1 36,834
Block 8	ignal, elec ignal, elec	tric, N. O	. Goldsm	lth	6	36,872   1 36,764   1
Gold Blower,	damith	essure, P.	Erb		6	36,871   1 36,925   1
Boiler of	case, besti furnace. M	ng, D. F.	Morgan. & Houze	L. Fritz	5	36,733   1 36,733   1 36,884   1 36,988   1
Book ic	ck, E. E. Demorand	Rogers um, T. Mo	Dowell.	gberek, Jre	5	36,659 1 36,646 1
Bottle Bottle	filling mad hand prote stopper an	chine, W. ector, J. I id mount,	E. Galla Ingeboed W. Pear	gber ck, Jr rce	5 5	36,989   1 36,928   1 36,700   1
Box. S Tra Brace.				Novelty 1	oox.	[ ]
Rrake.	See Weg	OD brake.	ering ap	paratus, F	5 5	36,680
Far Burial vey	caskets,	making c	ompositio	paratus, F	6 }ar~ 5	36,864   ] 36,749   ]
Burial Burner Button	derrick, R . See Hyd . coff. R. F	. R. Rich drocarbor I. Lewis	mond burner.		6	36,938 36,836
Button Caliper Camers	, separable s, microme . See Ma	e. W. E. M eter, M. V gazine ca	iartin Vilcox mera.		5	36,961 36,676
Can. S	ee Sheet i	metal can	ing oil,	etc., and i	p <b>r</b> o-	38 017
Car bra	as, H. F. S trollers. s	chroder,	Jrstreet, 6	. Valley	5	36,7 <b>62</b> 36,795
Car cor	pling, R.	J. Edwar	ds	••••••••••••••••••••••••••••••••••••••	<u>5</u>	36,860 1 36,619
Car cou	ipling, Ki ipling, H, ipling, L. (	L. Renne S. Strepe	а <b>д ег</b> 7	••••••••••••••••••••••••••••••••••••••	5 6	36,894 36,741 36,852 36,708
Car fer Car fer Car fer	ider, O. Cu ider, C. P. ider, <u>C.</u> B.	Stimpson Stimpson Stuart	• • • • • • • • • • • • • • • • • • • •		6 6	OO,004   .
Car fee   Car ver   Cars, se	ider, W. B itilator, M ifeguard :	. Thomas i. D. Muga for cable	or elec	tric, G. Ri	6 scb-	36,665 36,885
						36,704 36,855
Cars. t W. Carbon	rolley su: Reichel dioxide, ;	pport for process of	electric and app	raliway, f raliway, f ar atus for J. Darlin, M. Fry	i, B, 5 ex-	36,967
pell   Carous   Carriar	ing, A. M ci and pan e curtain	ueller oramic aj hanging (	paratus levice, S	J. Darlin	6 3 6	36,642   ] 36,853 36,868
Cart, ro	ad, A. Broge beit, W	obmann 7. C. Brow 7 machine	n	roshv	5	36,776 36,598   1 36,695   1
Case. Chain, Chair	See S bow sprocket,	case. C. E. Fan	ning		5	36,863
Checkr Checkr	ein, E. E. ein bolder	Brown	Count.	ckolsetson	6 6	36,597 36,635 36,888
Cigar s Cigaret	tamping a	pparatus, ie, H. Jer	C.T.St	etson	5	36,843 36,630
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Clock	winding of	nechanisi	o, electri	eubergerocking, F.	e & 5	36,926
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Conque L. I Con ver	ctors, term Richards ter bott on	nnai atta n, M. L. V	coment i Villiams.	G. Berg. r, C. E. Du for prepa	, w . 5	36,655 36,904
Convey	ring appar ring appar g fried cal	atus, J. C atus, ove kes, imple	head. Wement fo	, G. Berg. r, C. E. Du	6 Dlap 6	36,731 36,910 36,986
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Cover o   Crate ,     Cultive	or stopper popltry, H itor, J. H.	for milk lunsinger Hoober	cans, etc. & Ensmi	., G. M. We inger	eks. 6	36,903   36,954 36,929
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Cutter Cycles, who	har, D. D. means for sels to ped	Dorney r securing	cranks	and spro	cket	36,924 36,694
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Dredgi Drier,	ng appara F. G. Wise	tus, C. Mo	er	ins. therington	5	36,756 36,677
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				director, o cElroy rush holde		36,816 36,963
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l	Furnace, C. R. Meres. Furnace, W. W. Walnright. Carment supporter G. N. Ruck	536,837 536,902 536,599
I	Gas and air mixer, A. L. Avery	636,945
	Cas machine, hydrogen, H. W. & H. W. Neal Gas pressure governing apparatus, W. W. Laing	636,681 536,759 636,728
ļ	Gas regulator, Hughes & Smith	536,853
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	Glue and making same, J. A. Just	636,633 <b>5</b> 36,991
	Grain drying apparatus, W. Griesser.  Grain drying apparatus, W. Griesser.  Grill fret work, extension, E. T. A. Akass.  Gultar, J. G. Bates  Guns, apparatus for filling cartridge feed betts  for mach ine, F. E. D. A cland et al.  Guns, ejector mechanism for breakdown, D. M.  & C. F. Lefever.  Hair straightener, A. Harris.  Hamme hook, F. P. White.  Hammer, drop, J. L. Peck  Hammock supporting frame, W. L. Parmelee.  Handle for freirons and implements, C. L. Day-  tou.	636,698 636,785
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}	Handle for freirons and implements, C. L. Day- tou.  Harvester binder, J. A. McMaster. Heat supplying apparatus, S. Turner. Heaters See Feedwater heater. Heaters with hot water, apparatus for supplying railway storage, J. F. McElroy. Heating apparatus, W. E. Gallagher. Hols ting apparatus, N. Newman. Hook. See Hame book. Lacing book. Hop pleking machine, J. A. Whiney. Horse driver and governor, H. A. & C. S. Arnold. Horse less protector, A. D. Headley. Hose coupling, A. L. Balley. Hose coupling, J. F. McElroy. Hur istemming and sorting machine, N. H. Til- den. Hydrant, wall, J. Gaghan.	536,788 536,667
1	Heaters with hot water, apparatus for supplying railway storage, J. F. McElroy	536.838
	Heating apparatus, W. E. Gallagher	536,719 <b>536,789</b>
	Hop picking machine, J. A. Whitney	536,675 536,714
	Hose coupling, A. L. Bailey	536,625 536,774 536,962
i	Hurl stemming and sorting machine, N. H. Tilden.	536,972 556,801
	Hydrocarbon burner, L. T. Corneli. Incubator, F. Frey. Ingo t pusher, Forter & Hemphill Injector, J. Desmond Insect powder blower, S. Meren. Insectlede distributer, P. W. Berridge.	536,783 536,922 586,732
j	Insecticide distributer, P. W. Berridge. Instrument of penetrating darkness, baze, or fog. C. A Potter. Insulation of electric conductors, means for the,	000,022
	fog, C. A. Potter	536,759 536,857
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	Lock. See Book lock. Combination lock. Knob lock. Raliway switch lock. Seal lock. Lock, B. Klein. Locomotive, W. A. Haughton	536,957 536,623
	Log carrier, A. W. Tisdaie Loom, W. F. Draper	536,745 536,948
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;	for pipe. Votey & Wood. Organs, electro magnet for pipe, E. S. Votey et al.	
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į	Ovens, automaticg as or light regulating attachment for bake, A. Stephan. Packing machine, C. O. Allee. Packing, steam, A. W. Chesterton.	536,662 536,772
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ļ	Pump, self-megauring oil, J. H. Welch. Pumpins, apparatus, F. M. Her. Radiator, W. P. & R. P. Thompson. Rail brace, E. C. Carter.	536,807 536,768 536,916 536,611
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í	Refrigerator car, J. M. Gilstrap	536,721 536,877
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	Sash fastener, O. G. Cates, Jr	536,602 536,692
1	Saw gage device, B. Potter.	536,651 536,822
8	- SAW. BCFOIL J. L. W 1180D	036,980