Scientific American

lights, forbidding them at the same time to look out of their windows or doors, on pain of death, after which, the unfortunate prisoners were conducted, gagged, just behind the upper barracks and hung without ceremony, and there burled by the black Pioneer of the Provost,"

This "dying confession" bears the marks of palpable fabrication, and has been branded as such by cautious writers. So far from having been executed as a forger, Cunningham is said to have died peacefully in a coun-

After the Revolution the "Provost" was promoted in dignity. All common criminals were sent to the Bridewell, and the "Provost," new called the "Debtors' Prison," was reserved for genteel prisoners, who had forgotten to pay their debts.

In 1830, at the urgent request of the Register for a fireproof building in which to house the city records, the "Debtors' Prison" was remodeled. By New Yorkers of a half century ago the structure was considered an uncommonly good reproduction of the temple of Diana of Ephesus.

For the last sixty years the building has remained unchanged, at least so far as its exterior is concerned. The thousands of people that daily climb the stairs leading from City Hall Park to the Brooklyn Bridge probably never realize that the time-worn, insignificant structure which they pass was at one time considered an architectural masterpiece, a building which New York proudly regarded as its most beautiful public edifice.

The First Wireless Message from the United States to England.

On the night of January 18. Marconi succeeded in outdoing himself when he transmitted a message of greeting from President Roosevelt to King Edward directly from the Cape Cod station to Poldhu. England. The distance covered is greater by 600 miles than that over which messages have previously been sent.

The performance is all the more remarkable when it is considered that the message was sent without any previous attempt to establish communication by preliminary signals

It was on Sunday, January 18, that President Roosevelt sent to Marconi, by the ordinary telegraph, a message for King Edward. The message read as fol-

"His Majesty King Edward VII., London, by Marconi Transatlantic Wireless Telegraphy:

"In taking advantage of the wonderful triumph of scientific research and ingenuity which has been achieved in perfecting a system of wireless telegraphy, I extend, on behalf of the American people, most cordial greetings and good wishes to you and to all the people of the British Empire. THEODORE ROOSEVELT.

"Washington, D. C."

Marconi's success came unexpectedly. After having busied himself all day in preparing his sending apparatus, he began to practise sending President Roosevelt's message without calling either the Poldhu or the Glace Bay station, contrary to the arrangements which he had made. Thinking that he might not be able to get the English station for a day or two, he decided to send the President's message by way of the Glace Bay station. Calling up the operator there he gave him the message with instructions to forward it to England. To Marconi's astonishment he received a reply from Glace Bay that the operator had been informed by the station at Poldhu that the message had been received directly from Cape Cod. There was not the slightest hitch in the process of sending. About four minutes were required to transmit the entire message.

King Edward replied to the message which he received from the President by cable as follows:

"SANDRINGHAM, January 19, 1903.

"The President, White House, Washington, D. C., America:

"I thank you most sincerely for the kind message which I have just received from you through Marconi's transatlantic wireless telegraphy. I sincerely reciprocate in the name of the people of the British Empire the cordial greetings and friendly sentiment expressed by you on behalf of the American nation, and I heartily wish you and your country every possible prosperity.

"EDWARD, R. AND I."

The King sent his message by cable for the reason that Marconi was adjusting his instrument for sending tests to England and did not wish to upset his plans by making any attempt at receiving from the other side of the ocean.

Severe and successful tests were recently made by the Fire Department in New York city of the 6-inch standpipe in the new "Flatiron" building in New York. The purpose of the test was to determine if the 6-inch pipe would stand the great pressure of twenty-three stories of water, and to find out how much force could be given to a stream from a hose attached to a standpipe at so great an altitude. Were there no standpipe, the upper stories of the building would be practically unprotected from fire. Two tests were made: First a 11/2-inch nozzle was attached to a 3-inch hose on the roof, and the hose to the standpipe. The roof of the building is 304 feet above the street level. After the connections had been made, the full force of a fire engine in the street was turned on; in two seconds a strong stream spurted from the nozzle on the roof. A gage showed that there was a nozzle pressure of 120 pounds even at that great elevation. The second trial consisted in playing nine streams of water, one from each of the eight floors above the twelfth story and one from the roof; \(\frac{3}{4}\)-inch nozzles were used; a pressure of 200 pounds was obtained upon each. The Chief of the Fire Department of New York considers the test eminently satisfactory.

The Current Supplement.

The current Supplement, No. 1413, contains a great variety of interesting articles. It opens with an account of the making of pins, illustrated by photographic views. Mr. John Joseph Flather continues his discussion of the modern tendencies in the utilization of power. In the present installment of the series of the Naval War Game, by Mr. Fred. T. Jane, an account of an interesting battle off Manila between the German and American fleets is given. The American fleet is crushingly defeated. The present state of wireless telegraphy is made the subject of a good article by Mr. Maurice Solomon. Not so long ago, there was published in the Supplement a full description of Prof. S. P. Langley's aerodrome: Some account of the pterodactyl, the greatest of flying creatures, and therefore the greatest of flying machines, should not be without interest. Valuable comparisons are made between this creature and the modern flying machine and modern products. Mr. E. O. Hovey summarizes the proceedings of the American Geological Society at the convention of the American Association for the Advancement of Science. Mr. James Francis Le Baron discusses a new method of dam construction. Oil as fuel in warships is made the subject of an extensive article.

Ira F. Gilmore, of Bloomington, Ill., has perfected and patented a wireless piano which he has been working on for thirteen years. Being unable to get the reed made satisfactorily in this country, he set about this task himself, and from a piece of steel he fashioned with drill and file a five-octave comb reed from which, it is said, combined with a bridge and sounding board, he secures a fine, sharp tone.

RECENTLY PATENTED INVENTIONS Engineering Improvements.

NOZZLE-TIP FOR LOCOMOTIVES,-D. GRATTAN, Anaconda, Mont. In its general construction Mr. Grattan's nozzle tip tapers inwardly from the bottom and flares at the top-This is secured by means of the inwardly-tapering form of the bore of the nozzle tip and by means of an inverted cone supported concentrically with the tube at the top by V-shaped bridge strips. The strips and cone both to spread the steam and provide a greater area than is secured by the ordinary tip. Consequently the stack is filled at all points with exhaust steam, thus removing the back pressure on the piston head, greatly reducing the consumption of fuel and increasing the power and speed of locomotives by permitting the steam to escape freely to the atmosphere the instant release takes place.

ROTARY ENGINE.-T. W. NEELY, Marshall. Ill. This is an improvement in that class of rotary engines which are supplied with abutments adapted to slide radially in the casconcentrically in this casing, and having a series of radial wings between which and the particularly in the construction and arrangement of the steam-induction valves and their jaws slipping from the work. operating mechanism, the governor and cut off, and the relation of the piston-wings to the abutments for working steam expansively and obtaining regular rotation of the piston.

set, Penn. This contrivance is useful as an vehient means for shearing plate or bar metal engine, pump, or compressor. It involves the into form, as the case may require. An imcombination, with an oval-shaped or elongated proved gage is also employed as a co-acting depiston-chamber or casing, of a piston formed of tail for the shearing device that greatly facilijointed sections so disposed with respect to the tates subdividing the material into pieces of casing that as the piston turns, its parts move equal length when this is required. relatively. Thus it is always in contact with | PERMUTATION-PADLOCK, T. KING, Glenthe inner walls of the casing at a phirality of points. The motive force acting on this to a class of padlocks having rotatable lockingpiston, causes it to turn continuously, and its rings that by adjustment secure the inserted motion is communicated by means of a movable movement is thus transmitted to the shaft of

CUT-OFF-VALVE CONTROLLER. --G. H. CLOVER, Chicago, Ill. This contrivance pertains to compound steam-engines; and the intention of the inventor is to provide a new and improved cut-off-controller arranged to govern the cut-off valve of the low-pressure cylinder according to the load, so that the engine runs with great regularity and without shock or jar. The object of the invention is also to have this simply and durably constructed controller get out of order. Mr. Clover does not limit wrench of the class indicated which embodies a comprises certain novel forms involving a

other purposes.

MOND FORTIER, Kankakee, Ill., This automatic device is an improvement in steam-pressure and horse-power indicators for use steam engines, and has for an especial object to provide improvements upon the construction illustrated in a former patent. In the present invention, the steam-pressure and horse-power indicators are combined to secure an accurate indication upon the same dial of both, and the horse-power indicator is arranged to operate and is there heated by a rod protructing into a the recording device and also to connect with flame from an oil cup. Gas is thus generated the means for operating the horse-power-indlcator devices, by which to show the different points at which steam is cut off in the cylinder.

Hardware.

PIPE-WRENCH .-- L W. Johnson, Jerome, Ariz, Ty. The object of this invention is to fuel. An extremely high heat is thereby proing and with a cylindrical piston arranged provide an improved pipe wrench which is ar duced for use in steam-generation, smelting ranged to permit of conveniently and accurate-iy adjusting the movable jaw relative to the When the furnace is in action all the smoke abutments the steam acts expansively to cause fixed jaw according to the diameter of the work and gases arising from the burning of solid rotation of the piston. The invention consists under treatment, and to securely grip the work or hard fuel in the chamber are completely for turning the same without danger of the

-C. A. CHRISTENSON, Viroqua, Wis. Mr. ('hristenson provides in this invention a readily attachable shearing device of novel construc-ROTARY ENGINE. - E. H. Werner, Somer- tion for an ordinary anvil, thus affording con-

coe. Mich. This permutation-pactlock relates as to buckle outwardly when the boiler becomes leg of a bowed shackle bar within the lockbody and by a proper change of adjustment release the shackle-bar, permitting its withdrawal from the locking-rings. The object of connected to the valve controlling the flow of the improvement, is to provide novel features fuel. The flow of fuel is thus cut off and the that are simple, easy to manufacture, and convenient to manipulate.

WRENCH .- MARTIN MAHLEN, Osakis, Minn. This tool belongs to a class of lever-wrenches Wood, Woodville, Mass. The object of the inemployed to screw or unscrew pipes into or ventors in this contrivance is to insure the from their fittings or bolts and studs which proper engagement of the troiley with the wire, need adjustment by turning their bodies. The notwithstanding that the course may be devireadily applied to the engine and not liable to aim of the inventor is to produce a lever- ous, and the road irregular. The invention

his invention to the particular application of multiple linked chain as an element, the chain improvement to the low-pressure cylinder of the having a roughened surface for engagement Corliss engine. The device may be used for with a pipe or bolt body and also novel coacting forms of construction, which serve to AUTOMATIC HORSE-POWER AND PRESSURE INDICATOR AND RECORDER. - ED- the lever is moved in one direction, and release the chain by an opposite movement of the lever.

Heating and Lighting.

HYDROCARBON BURNER, -F. M. BAKER, Fond du Lac. Wis. The present invention relates to a hydrocarbon burner analogous in some respects to one previously patented by Mr. Baker. In this burner the oil is fed from and flows through a small orifice into the mixing chamber of the burner, where it is ignited.

FURNACE.-II. E. Kent, Buffalo, N. Y. This improved furnace is arranged to insure complete combustion of the fuel and the ex traction of all the heat units contained in the burned. Consequently chimneys and drafttubes are dispensed with. At the same line, SHEARING ATTACHMENT FOR ANVILS. great temperature is developed, which insures a quick generation of steam or smelting of ores and other materials.

Electrical Apparatus.

ELECTRICAL REGULATOR.—C. P. PHIL-BRICK, Wymore, Neb. The present invention relates to pressure-controlled electric mechanism for regulating the flow of fuel to a furnace located beneath the boiler. The boiler is provided with a pressure motor consisting briefly of a diaphragm so held within a casing heated above its normal temperature. plunger to a bell crank which acts to close the circuit of a pair of electro-magnets. These, in turn, attract an armature, which is directly heat of the boiler is gradually checked, causing the pressure to drop to its normal degree.

TROLLEY-HARP,-F. J. CASWELL and C. C.

spring-sustained trolley. An important feature is in the arms allowing the trolley-wheel to make turning movements on the pole, but not great enough to impair the proper engagement of the trolley-wheel with the wire, while at the same time permitting the freedom of movement necessary for the wheel in turning curves and other irregular portions of the road. By this swivel motion a wheel is kept on in very sharp curves and on all curves, with proper tension on top of the car. Another valuable feature is that by means of the construction employed, the trolley-wheel is allowed to move freely within the necessary scope, while other movements are effectively prevented. In these movements the running of the trolley-wheel is designed so as to avoid any marked wear in the groove or the hub. The arms also prevent the trolley-harp from catching against crossing wires, brackets and other obstructions, the device easily riding under.

Mechanical Devices.

LATHE .- C. SEYMOUR, Defiance, Ohio, The invention pertains to woodworking machinery, and more particularly to lathes for turning irregular forms. The purpose of the mechanism is to furnish a new and improved lathe especially designed for turning irregular forms—such as handles used in brushes, tools, and other implements—the lathe being arranged to turn the rough blank from end to end to form the handle complete and oval in cross-section. The design is also to finish the handle with great and symmetrical accuracy, without the

MILL.-G. M. KEMP, Williamsport, Md. The mechanism designed by Mr. Kemp is an improvement in mills, having for its objects, among others, to furnish improvements in the grinding devices, in the means for feeding the material to the grinding-surfaces, and in the means for controlling the grinding by regulating the discharge of the ground material from the grinding surfaces.

WASHING MACHINE .- S. HAYES. Ellensburg. Wash. The novel features of this apparatus were designed to provide a new and improved washing machine, simple and $\operatorname{\textbf{d}} \operatorname{\textbf{u}} \operatorname{\textbf{r}} \operatorname{\textbf{u}} \operatorname{\textbf{r}}$ in construction, very effective in operation. easily manipulated, and arranged to insure a constant turning over of the clothes while the machine is in action to effect a thorough washing of the articles to be cleaned. Very little physical exertion on the part of the worker is called into play while operating this washer.

MECHANICAL MOVEMENT. H. THEISSEN, Davenport, lowa. The improved mechanical movement developed by this invention, through a novel construction, provides for the an oscillating or reciprocating rotary movement. The invention is especially designed for use in apparatus such as washing-machines, where it is desired to give an oscillating movement to a beater or the like for cleaning the clothes. The invention may be used in churns or otherwise wherever desired.

PUMPING APPARATUS .- F. J. DONOT GHE, Gallitzin, Penn. An improved apparatus is provided in this invention for pumping various liquids, and also gases, more especially to force oil to heavy bearings or to raise water or pump air for use in air-compressors. The chief operating agent is a cam-wheel which acts upon devices connected with reciprocating pistons working in cylinders, whereby the liquid or fluid is taken in and ejected alternately. In connection with the apparatus the inventor employs a rotary valve of peculiar construction.

DRILL.-G. W. HAYS, Birmingham, Ala. This contrivance invented by Mr. Havs is an improvement in drills, being in the nature of a hand-drill having its handle-lever provided with pawl-points for operating the drill head or socket, and also furnished with a feed arranged for controlled operation in connection with the hand-lever.

Railway Improvements.

RAILROAD-TRACK SECURER. — J. H. CROWLEY, Duluth, Minn. The design of this invention is to furnish a securer adapted to keep the ralls of a railroad-track from spreading apart or from turning or roiling. In adopting this securer, several advantages are found. namely, in locating spikes so as to minimize the breaking or splitting of ties and in preventing rapid deterioration of the same due to the clustering of spikes; in avoiding danger of spreading ralls, especially around curves; in easily applying the tie-plates of the securer to a track already built; and in cases where it is necessary to shim under the ralls, the shims can be placed under the tie-plates without disturbing the ties.

TIE-PLATE .- J. H. CROWLEY, Duluth, Minn. Mr. Crowley's invention relates to improvements in railway tie-plates or rail-chairs, the object being to supply a tie-plate of simple construction that may be manufactured at a comparatively low cost, and one that may be quickly placed in position, and when in place will be able to prevent spreading or roiling of

Miscellaneous Inventions.

METHOD OF PRODUCING WATER-MARKED PAPER.-E. R. and O. F. BEHREND, Erie, Pa. By an improved method these in ventors secure, first, a genuine and indelible watermark which cannot be impaired or effaced by any test known to the trade, including the severe action of caustic soda, which is sufficient to obliterate the mark made by compression of the fibers on many grades of paper, and, second, the rapid and economic production of such watermarked paper with perfectly and sewer or like conduit. sharply defined marks of any figure or pattern.

BRAKE FOR BABY-CARRIAGES.-W. H. RAMSCAR, Cornwall-on-the-Hudson, N. Y. This device is a simple form of brake which is automatically applied and manually released when the handle-bar is grasped, and, further, the construction of the brake provides for its application to any baby-carriage without weakening the vehicle or impairing its appearance The device may be used equally as well on grocers' push-carts and like wheeled apparatus.

vention consists, essentially, in arranging between the support or backing and the sensitized film, a layer of suitable material capable of giving to the film a certain plasticity and of being readily dissolved out, during the ordinary operations of developing, fixing and washing.

ment to the side of a corset, so that the hose ters and without the aid of clips, thus preventing laceration of the base. From this position the garter is prevented from slipping and the wearer is assured of perfect safety even when the garter is worn comparatively loose.

WAISTBAND .- L. P. KLEIDERER, Louisville, Ky. This invention relates to improvements in waistbands for trousers and other garments and the object is to provide a band with belt straps formed directly thereon. One novel feature is, that the waistband has adjacent parallel slits, between which, material is folded to form a belt-strap; and another, is in the waistband comprising an outer portion, and a lining; the outer portion having parallel slits. the material between them being folded inward to form a box-plait, and the edges of the outer portion being turned against the lining and gate to move to open position. box-plaited inward of the straps.

provement in fasteners for the shields of the invention, and date of this paper.

conversion of continuous rotary movement into neckties which are provided with a bow of some suitable fabric. The fastener is formed of spring wire and so constructed that it is adapted to be held by attachment to the adincent edges of turn-down collars.

> FOOT-REST FOR CAR-SEATS.—L. son, Brooklyn, N. Y. A simple form of footrest for car-seats is provided by the present invention which employs an improved mechanism for hanging the foot-rest between the side frames of the seat in such manner that the foot-rest will be automatically shifted relative to the position of the back and seat through the movement of the back.

CIGARETTE OR CIGAR BOX.—8. GOLD FADEN, Brooklyn, N. Y. The box is so constructed that after being emptied or partly emptied cigarettes or cigars cannot be replaced therein, thus not only protecting the purchaser from buying inferior goods other than those indicated by the box label, but also protecting the manufacturer from false representations of goods contained in the box.

BRUSH.-H. F. EBERT, Brooklyn, N. Y. The invention provides certain useful improvements in brushes whereby the bristles are securely fastened in position in the socket and are not liable to break when the brush is in use. At the same time the cord or flexible binder is prevented from becoming loose or broken, thus Metal Stamping Co., Niagara Falls, N. Y. insuring long life to the brush.

SLIVER-CAN.-J. B. CROUCH, Mayodan, N. C. Mr. Crouch's invention relates to improvements in sliver-cans adapted for use in connection with various kinds of spinning machinery. It provides a novel construction by which waste of the mass in the receptacle is overcome and the sliver remaining in the receptacle after the charge shall have been nearly exhausted may be more readily spliced than heretofore.

FOLDING BOX.-W. E. BURTON. York, N. Y. The object of the invention is to provide an improved folding box made of paper or light material which is simple and durable in construction, very ornamental in appearance, and having its body or cover made from a single piece of paper adapted to be shipped flat to take up little room, and arranged to allow of quick and convenient conversion into the box body or cover without the aid of skilled labor.

LATCH .- J. W. CONNOLLY, Toledo, Ohio. Mr. Connolly's invention relates to door latches, its object being more particularly to produce a simple and efficient latch which can normally be released from only one side of the door, but which can be so arranged that it may be released from either or both sides of the door.

DEVICE FOR REMOVING SNOW .- J. Sul-LIVAN, New York, N. Y. The purpose of the invention is to provide a durable, economic and portable device for removing snow, the device being used in connection with a stream of running water from any convenient source of supply and having its outlet end adapted to enter any opening communicating with a

DESIGN FOR A STOVE-LEG.—G. H. Droege, New York, N. Y. The design consists of a main scroll extending from one side of the leg to the other near the top and enclosing a central ornamentation, a central scroll panel, and intermediate scrolls. The main portion of the leg below the main scroll is decorated with a longitudinal box fluting.

TOY .- H. V. Lough, North Plainfield, N. J. This toy belongs to that class in which a disk is made to revolve alternately in opposite di-MANUFACTURE OF PHOTOGRAPHIC rections by alternately tightening and loosen-FILMS .- L. M. J. ARMANDY, 3 Rue Brantôme, ing a twisted cord. Means are provided for Asnières, Seine, France. In the manufacture carrying two disks on the cord, one mounted of these films for photographic purposes the ob- to turn loosely upon the other, also means ject of the inventor is to provide improved for checking the loosely mounted disk at each means whereby such films may be readily de- revolution. The disks are so constructed that tached from their support or backing. The in-they will rotate spirally with relation to each vention consists, essentially, in arranging be- other, and each disk is differently colored to produce a kaleidoscope effect as the toy is operated.

CALCULATOR .- T. Fregoso, Hermosillo, Mexico. This measuring instrument is more especially designed for surveyors, and is ar-GARTER-SUPPORTER.-MARY L. BUCKAU, ranged to permit of accurately finding, without New York, N. Y. The aim of this invention is calculation, rectangular coordinates to any dis-New York, N. Y. The aim of this invention is calculation, rectangular coördinates to any distribution. Autogas used properly will carry vehicle twice as to furnish a garter to or from which a suptances with any angle in the sexagesimal or far as any other battery of same weight. William port may be quickly and handily attached or centesimal system, to solve right angle tridetached. The support is adapted for attach angles, and oblique angle triangles by giving immediately and accurately three required or may be comfortably held up by means of gar- unknown measurements, and when the other three measurements are known to reduce stadia' distances to the horizon and to find the difference of elevation between any two points.

PENCIL-HOLDER. — E. E. Long, Angeles, Cal. The improved holder will detachably hold a pencil at a given point, so that it will always be accessible for use, as for example, the device may be used in connection with a writing pad or tablet. The holder may be easily attached or removed without injury to the device.

STARTING-GATE.—P. McGINNIS, London, United States. Address Can. The invention relates to improvements in starting gates for racetracks, . the object being to provide a gate of simple construction having a locking means so arranged as to be quickly and positively released to permit the

Note.-Copies of any of these patents will be NECKTIE-FASTENER.-J. H. FRANA, Bal furnished by Munn & Co. for ten cents each. timore, Md. Mr. Franz's invention is an im- Please state the name of the patentee, title of

Business and Personal Wants. INDEX OF INVENTIONS

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Marine Iron Works. Chicago. Catalogue free.

about ten thousand dollars to invest in a brass and iron specialty factory, which has been established seven years, and which has very valuable patents, and is never able to fill orders promptly owing to heavy demand by railroads and power plants all over the

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Bridgeport, Conn.

For which Letters Patent of the United States were Issued for the Week Ending

January 20, 1903,

AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

in the bofformion. In every research it is increase in the bofformion. In every research it is increase. It is not to be a second to the control of the cont Fuse or junction box, electrical, M. H. Johnson 718,632
Fuse or junction box, electrical, M. H. Johnson 718,632
Fuse, safety, J. Sachs 718,797
Game apparatus, Harris & Holmes 718,632
Game apparatus, F. P. de Grandchamp 718,709
Garment clasp, C. H. Reimard 718,794
Gas distributing apparatus, W. H. WigBore 18,941

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