Scientific American.

76

Application of Compressed Air to Dusting.-Cosmos makes known a new application of compressed air which may be destined to become widely used. In all times it has been customary to blow the breath instinctively upon an object in order to expel the dust from it, and yet no one has hitherto thought of applying this very simple process upon a large scale. Whisk or bristle brushes, feather dusters, etc., are the enemies of furniture, which they ruin, and of bric-a-brac, which they break. A flexible tube provided with a nozzle and connected with a reservoir of compressed air may usefully replace them and perform their duty much more quickly and much better, the air searching out and dislodging the dust from the minutest great in Europe as in India, it is sufficient to give gencrevices in the very body of a fabric. Air under a eral interest in the result of an inquiry into the means pressure of 3.5 atmospheres suffices for this operation. It is employed in precisely the same way that we use water derived from a garden hydrant to wash objects. The extremity of the nozzle is directed toward a piece of furniture, and in an instant the dust and bacteria will have been forced out of it and blown away. Every house that is provided with a motor will be able to connect a compression apparatus with it. In certain cities the supply may be obtained from a compressed air pipe line. Elsewhere the air may be compressed by hand into reservoirs. The cost of the first with a cloth before it has time to penetrate into the installation would not be much and would be fully binding. Dr. George King reports very favorably covered by the saving in manual labor and implements for cleaning and by the preservation of household ob- Royal Botanical Gardens, Sibpore. It consists in jects.

Glass Impermeable to Heat.-Workmen employed in metallurgic or other establishments often suffer greatly when they are obliged to labor near furnaces heated to a high temperature, and it would therefore prove of interest to have a glass through which the close-fitting glass cases with a few ounces of naphthaheat rays could not pass. A glass that supplies such line upon each shelf, with the result that little or no a want is composed, according to Dingler's Polytechnisches Journal, of the following materials:

Sand	parts.
Kaolin	42
Soda	**

After this mixture has been melted, we find by analysis: 74.6 per cent of SiO²; 8.4 per cent of Al²O³; traces of Fe²O³; 15.4 per cent of NaO²; and 0.9 per cent of CaO. A plate of this glass 7.6 mm. in thickness allows but from 11 to 12 per cent of the total heat of a butterfly gas burner to pass.

Cryostase--a New Body.-A German chemist, says Die Natur, has just discovered a new body which, it lead, zinc, and copper which is poured into water, or appears, possesses the remarkable property of solidify-into the ground through a wet broom. In this way cast the rays of their headlights through the gloom.

has received the name of cryostase, is obtained by mixing together equal parts of phenol, camphor and sapoessence of turpentine. Up to the present there has been no product known that possesses this prowarm; for, although certain bodies, such as albumen, harden at a slightly elevated temperature, it is impossible to bring them back to a liquid state, even under the influence of very low temperatures.

struction of books by insects, says Nature, is not so countries. of preservation adopted in Indian museums. In the library of the Revenue and Agricultural Department of the government of India the books are disinfected by pouring a few teaspoonfuls of refined mineral naphtha, or what is known as benzine collas, into the crevices of the binding, and then shutting up the volume for a few days in a close-fitting box to prevent the escape of the fumes. Books so treated have to be afterward sponged over lightly with a very little of the finest kerosene oil, which should be rubbed off upon a system adopted for preserving books in the brushing the books over with a saturated solution of corrosive sublimate made by constantly keeping a few lumps of the poison at the bottom of a jar of alcohol, so that the maximum amount may be absorbed. In the Indian Museum Library the books are kept in damage is caused by insects. It appears that the paste used in binding the Indian Museum books is poisoned by adding about half an ounce of sulphate of copper to each pound of paste, while books already infested are disinfected by shutting them up for four or five days in a close-fitting box of loose naphthaline with as much of this substance as possible between the leaves. Imitation Gold in Russia.-In addition to its large production of genuine gold, says Die Natur, Siberia frequently furnishes commerce with a false gold that sharpers quite easily succeed in palming off upon inexperienced gold seekers. This article is an alloy of

AUGUST 4, 1894.

ing under the influence of heat and of becoming liquid there are formed very small globules which, when again at temperatures below zero. This body, which solid, closely resemble the small pepites that are found in auriferous sand. It is not rare, moreover, to see the defrauders cover these grains with a layer of pure nine, to which is added a slightly smaller quantity of gold in order to more surely deceive their credulous customers. The false pepites thus manufactured are sold at a discount under the pretense that they are perty of liquefying when cold and solidifying when derived from a robbery committed in a neighboring exploitation. The buyer, allured by the relatively low price, allows himself to be persuaded, and purchases these grains, which he mixes with the gold furnished by his exploitation. This imitation gold is often sold Destruction of Books by Insects.-Although the de- not only in Russia, but also in Germany and other

Tea and Coffee,

Professor Schutzenstein has been investigating the effect on processes of digestion produced by these beverages. For this purpose the professor prepared an artificial gastric juice and mixed it with coagulated egg albumen, with and without additions of tea and coffee infusions. The results obtained are extremely instructive, for while the gastric juice by itself was able to digest ninety-four per cent of the egg albumen in the space of eight hours, when tea was added the proportion digested was reduced to sixty-six per cent, while when a decoction of coffee was mixed with the albumen the gastric fluid was only able to digest sixtyone percent, or less than two-thirds of the albumen. The digestive power of the gastric juice appeared to vary with the strength of the infusion, the disturbing effect being less when the solutions of tea and coffee were weakened. The professor is of opinion that the deleterious effect produced is due to the tannin which is extracted during the process of making, and not to the presence of thein and caffein, and he mentions that tea which has not been allowed to stand more than two or three minutes is less injurious because a smaller quantity of this undesirable ingredient, tannin, has been produced than when it is boiled up or left in contact with the leaves for a considerable length of time. But it should be remembered that the weaker infusions, besides containing less tannin, also contain less of all the poisonous properties contained in the tea leaf and coffee berry, and that it is not only the obnoxious tannin which is thus kept in subjection.

THE progress of the illumination of the Dark Continent is indicated by the fact that 700 locomotives

RECENTLY PATENTED INVENTIONS. Engineering.

STEAM JET BLOWER. - David J. Crozier, Brooklyn, N. Y. This inventor has devised an attachment for the ash pit door, with which the steam supply is so connected as to permit the free swinging of the door, while a flap valve seals the draught aperture in the blower casing and affords means to graduate the indow of air. The peculiar formation of the casing and jet producer affords a wide, thin, injected sheet of air and steam, speedily blowing the fire uniformly through out its area, and designed to give much better results than circular jet blowers, while the fire chamber may b completely sealed when the fire is to be banked

WATER POWER MACHINE GUN.-Pardon B. Tyler, Spokane, Washington. This gun has a number of circumferentially arranged barrels, in the rear of which is a feed wheel carrying a cartridge belt and operatively connected with a water wheel, in connection with mechanism for exploding the cartridges. There i little mechanism liable to get out of repair in the gun, which is designed to automatically fire a continuous stream of bullets, and it may also be operated by hand if the water supply fails.

Electrical.

INCANDESCENT LAMP.-William E. Forest, New York City, According to this improvement a compound stopper of two or more elements is inserted in the neck of the globe, one element tightly closing the neck and supporting the leading wires, and the other hermetically sealing the stopper and wires, while a third ele ment may be added to give increased stability, forming a head for holding the lamp in its socket and for protection against breakage, the head acting as a buffer between the glass bulb and socket. The stopper is prefer-

while it is in motion. Any number of springs in suitable drums may be grouped around the drive shaft, by the revolution of which all the springs in the group may be simultaneously wound up, and any number of groupings of drive shafts and springs may be employed, each shaft being in communication with a common power shaft. Great economy of space is obtained by the improvement and the friction is reduced to a minimum

FLOOR JACK.-John L. Kobler, Le Sueur Center, Minn. This device consists of a lever and a clamp having a U-shaped loop at one end, one leg of the loop being extended outwardly, forning a lateral arm to which the lever is shackled near one of its ends. A dog is formed integrally with the lateral arm, joining at its base with the outer end of the arm, the dog being disposed at an acute angle to the arm. With this implement one person may readily secure flooring, sheathing or ceiling boards in place with one hand, driving the nail with the other hand.

Agricultural.

THRASHING MACHINE ATTACHMENT.-William Taylor, Carman, Canada. This is a band cutter and feeder which may be quickly attached to any thrashing machine, the band cutter being readily and positively adjustable to or from the feed belt, as required in different kinds of grain. When the thrasher is not in use the conveyer may be folded down and locked out of the way of the tram. A governor in connection with the attachment automatically stops the machine when the speed drops below a certain degree, thus preventing the clogging of the machine and insuring a uniform feed.

THRASHING MACHINE ATTACHMENT. David Harper, Scott County. Ill. (Post office Neelyville, frearm. Peep holes permit the occupant of the vault or Morgan County, Ill.) This is a self-feeder and band cutter consisting of a shaft tapered in each direction from a middle and provided with a series of threaded knife seats and a like series of knives having threaded openings differing in diameter according to the different locations of the knives on the shaft. As the gavels of straw-bound grain are thrown upon the feed hoard the pivoted teeth of the elevator carry them up to the rotating knives, where the real teeth assist in forcing them along and hold them down on the cutters.

fixed woke near its lower end has side toes adapted to reston a railroad rail, while an inner yoke is pivoted atits lower end to the fixed yoke. A pair of opening and closing spike-pulling jaws are pivoted together, and a series of links connect the jaws with and suspend them from the inner yoke, springs operating to close the jaws. The tool is a most efficient one, the greater the resistance offered by the spike, the firmer being the grip of the

SHADE ROLLER BRACKET. - Charles F. F. Flos, Brooklyn, N. Y. This bracket consists of a base fitted to slide upon a support, a shank projected from the base having its free end adapted to receive the the car is at the landing at which freight is to be untrunnions of a shade roller, while a brake isprojected loaded or passengers discharged, and the arm is so from the outer surface of the shank in direction of the made and connected with a counterbalance that when it base support. These brackets may be quickly adjusted is raised the car or platform will hold it in elevated posito rollers of any length, and need no auxiliary fastening | tion. When the car or platform passes the hatchway, devices when adjusted. They are durable and inexpensive, and do not mar the window frame to which they are applied.

GUARD FOR SLIDES OF REPEATING WATCHES.—George E. Humbert, Brooklyn, N. Y. This invention consists of a segmental bead or beads on the center of the watch casing, to form a guideway or guard for the slide to prevent foreign matter, such as threads and other substances, from passing under or catching on the slide, to bend or otherwise injure it.

SHIELD.-Thomas Keely, Memphis, Tenn. This is a device for use on express cars, vaults, buildings, etc., to enable an occupant to resist attempts at robbery, orffor purposes of defense against an enemy. It consists of a port closure comprising a bearing in which freely turns a carrier supporting the barrel of a safe to view the entire surroundings, and the device facilitates firing in any desired direction.

BAKING POWDER CAN AND MEASURE. Henry R. Brown, Greenville, Tenn. This improvement consists of a horizontal cylindrical body with a bottom outlet closed by a measure, spiral brushes being supported in the body, while a sieve is located at the central outlet opening, whereby the material will be thoroughly mixed and the powder withdrawn without undue exposure of that remaining, the powder being mixed and sifted as discharged.

ELEVATOR HATCHWAY GUARD.-John W. Burdwin, Chicago, Ill. This hatchway inclosure is fitted with an arm adapted to be raised by hand when either up or down, the arm automatically drops to a position to protect the hatchway. The device is more especially designed for hatchways of freight elevators, and is inexpensive and trustworthy.

HEATER.-Harriet C. Cowdrey, New York City. This is a simple form of heater, more espe cially designed for use in halls, etc., where sufficient heat may be obtained with the aid of this improvement by the employment of a lamp, and without vitiating the air. The lamp is supported in the lower part of a sheet metal shell closed at the top, with open hottom and low down side slits, above which is a door with mica panel, while near the top of the lamp chimney is a second row of slits and shields, whereby a portion of the heated air is deflected into the room, the smoke, gases and odors being carried off by a pipe leading either to the chimney or through a window.

HOOF WEIGHT.-Frank D. Scott, Mount Morris, Mich. The block to be secured to the hoof, according to this invention, has a longitudinal re LOGGING SYSTEM.-Richard Lamb, cess in its inner face, in which is a spring latch consist. ing of a plate spring with a lug received by an opening swamps and delivering them for transportation or to a outer face of the body, with a recess in its head into which This invention comprises a bearing cable sup- the end of the plate spring is received. The latch is not ported by a bracket constructed to be easily attached to affected or released by any jar, the parts are all strong moved from the hoof without removing the shoe.

ably of rubber, and in the neck and on the outer surfac of the stopper is a plastic cement.

ELECTRIC RAILWAY.—Henry A. Doty Janesville, Wis. This invention provides a conduit con ductor, mostly insulated, but having thereon projecting uninsulated lugs, while fiexible contact shees are arranged to make sliding contact with both sides of the lugs, thus avoiding sparking and preventing leakage The trolley used with this conductor may be applied to any kind of a car, being adapted to run smoothly in the slot of the conduit, while having such freedom of lateral movement that it always retains its correct position without regard to the rocking of the car or the rounding of curves.

Mechanical.

SPRING MOTOR.-Sigismund B. Wortmann, New York City. This is an improvement on several former patented inventions of the same inventor in a class of motors deriving their power from coiled springs, the design being to concentrate power from a number of springs and transfer it to a power shaft, the springs being

GRAIN DRILL CLEANING ATTACH MENT.-Edward J. Kemper, Hermann, Mo. This inventor has devised a simple and inexpensive attachment whereby the hoes of a grain drill may be quickly and conveniently cleaned from foreign matter, such as weeds or soil adhering thereto. This cleaning is accomplished without trouble by the driver of the machine, by means of foot levers so arranged that any one of the hoes in a drill may be passed in cleaning engagement with its

cleaner, without interfering with any of the other hoes carried by the drill.

Miscellaneous.

SPIKE PULLER.--Linville McC. Shatwound singly or collectively while the shaft is still or tuck, Brookline, N. H. An upright bar or lever with a

New York City. This inventor has designed a tramway especially adapted for handing logs from within woods or in the block, while a releasing lever has a shank in the mill. or removed from a support, a car on the cable having a and durable, and the device is readily applied to or rehanging arm and hanging sheave blocks, while a hauling cable resting in the sheave blocks is attached to the hanging arm of the car. The tramway can be readily put up in any swamp or forest and as readily removed.

GATE.-John F. Ferris and Warren M. Thomas, North English, Iowa. These inventors have devised an improvement in farm gates, providing a gate

which may be opened from either side of the fence by drawing downward upon a handle lever at one side or pushing up the lever at the other side, when a swing lever is swung upon its pivot, and a link connected with the lever draws on the free end of the gate to iff it from the keeper. Although the gate may be readily opened and closed by one passing through, it is a difficult matter for an animal to open the gate.

CASH REGISTER.-Charles J. Passick, Seward, Neb. This is an improvement in a formerly patented invention of the same inventor, perfecting details of construction and particularly the registering mechanism, that the machine may work more positively and efficiently.

TAIL BOARD CATCH FOR DUMPING VEHICLES.—Henry B. McKee, Brooklyn, N. Y. Accord ing to this improvement, a hook journaled on the tail hoard is adapted to be engaged by an oscillating catch journaled on the cart adjacent to the tail board, there being a rod connection between the catch and a stationary portion of the cart. The device seemely holds the tail board closed until the cart is dumped, when the tail

board is automatically released to prevent the escape of the load.

GRIP BLOCK.—George S. Fouts, Aberdeen, Washington. This device is designed to operate as well on a rod or chain as on a cable, and also for drawing bridge rods, etc., together, or for hauling. It has a recess with converging walls, in which fit keys having racks there being roller bearings between the keys and the walls, and pinions, each meshing with one of the racks of the keys and connected to turn together.

SHOE POLISHER. — Herman Parsons. Savannah, Ga. This device consists of a bail-shaped handle having square-sided loops formed on its ends to facilitate retaining a strap under tension. The device is designed to facilitate the polishing of russet, patent leather and enamel shoes.

WATER HEATER AND RANGE .- Isaac N. Hall, Mediapolis, Iowa. This improvement consists of an upper water-distributing chamber, pendent feed pipes bent to form a fuel-holding pot, their ends extending inward to form a grate portion, while a centrally disposed water-heating chamber connects the ends of the grate portions of the pipes. The construction is such that a large quantity of water can be heated and forced up through the pipes with but a small outlay of fuel,

DAMPER FOR STOVES.-Ernest C. Cole, Council Bluffs, Iowa. This invention has especial reference to "air tight" stoves, where the draught openings are to be closed as tightly as possible, and the damper consists of two concentric pipes arranged to form an annular tapering space between them, and having coincident air holes in combination with an adjustable tube section closed at one end and adapted to pass between the concentric pipes to cut off communication between their coincident holes.

DESIGN FOR A CARPET,-Walter B. Brown, Newark, N. J. The body and border of this carpet are decorated with connected leaf scrolls, reversely curved, rosettes and leaf figures.

NOTE .- 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 of this paper.

SCIENTIFIC AMERICAN

BUILDING EDITION AUGUST, 1894.-(No. 106.)

TABLE OF CONTENTS.

- 1. An elegant plate in colors showing a residence at Plainfield, N. J., recently erected for George H. Babcock, Esq. Perspective views and floor plans. A picturesque design. Mr. E. L. Hyde, architect, New York City.
- 2. A residence at Edgewater, Ill., recently erected for Mrs. Eva L. Prescott. Perspective elevations and plate in colors, together with floor plans. An ex cellent design. M. J. L. Silsbee, architect, Chicago, Ill.
- 3. A residence recently completed for J. P. Clarendon, Esq., at Hackensack, N. J. Two perspective elevations and floor plans. Mr. J. E. Turhune, architect, Hackensack, N. J. An attractive design,
- 4. A dwelling at Erie, Pa., erected for William J. Sell, Esq., at a cost of \$4,500 complete. Two perspective elevations and floor plans. Mr. C. F. Dean, architect, Erie, Pa.
- 5. A beautiful residence recently erected at Belle Haven. view, together with floor and ground plans. Mr. C. P. H. Gilbert, architect, New York City. A model design.
- 6. The beautiful residence of E. Einstin, Esq., at Pompton, N.J. Perspective elevation and floor plans.
- G. W. Payne & Son, Carthage, Ill.
- ed dwelling, recently erected for A. N. O'Harra, Esq., at Carthage, Ill. A pleasing design. Cost complete, \$5,500. Architects, Messrs. G. W. Payne & Son, Carthage, Ill.
- ground plan. A unique design. Mr. C. P. H. Gilbert, architect, New York City.
- recently erected at Flatbush, L. I., N. Y. Engravings and floor plans. Messis. Parsett Bros., archi-ter than to wedge in the upper course. tects, Brooklyn, N. Y. A neatdesign in the Colon-(6170) G M B says Tw ial style
- 11. An elegant residence of A. B. Bigelow, Esc., at Cranford, N. J. Perspective elevation and floor plans. Estimated cost, \$6,000. Mr. Manly N. Cutter, architect, New York City.

Business and Personal.

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(6169) F. M. S. writes: Will you please

give me the bestmethod of putting fire brick lining in Conn. Three perspective elevations, one interior an arch? I have a 48 inch tubular boiler 14 feet long, and find it hard to keep the lining in, especially in the front. Is it best to put salt in the fire clay? I also have a 10×15 slide valve engine. It is set about 250 feet from boiler. The valve as it is set at present has no lead. The eccentric stands at 90 inches. Would I save any steam Cost complete about \$20,000. Architect, Mr. Manly or lose any power by advancing the eccentric enough N. Cutter, New York City. 7. A conveniently and economically arranged suburban the best fire brick that can be procured, free from warp cottage recently erected for George W. Payne, and with a sharpmould. Lay the brick as stretchers as Esq., at Carthage, Ill. An attractive and pictur- close as possible, and breaking joints. Use pulverized sque design. Perspective elevation and floor fire brick, which can be purchased from the fire brick plans. Cost \$3,000 complete. Architects, Messrs. makers, or the old brick can be pulverized in a mortar or iron pot as fine as ordinary mortar sand. Sift, to remove 8. Perspective elevation and floor plans of a well arrang- all lumps, mix to a mortar with 1/4 good fire clay and water. Use no salt or other flux, press and rub the bricks as close as possible; the least thickness of mortar joint makes the most durable lining. If there are any old headers running into the outer wall, they should be 9. A stable at Belle Haven, Conn. Perspective view and | used, if in good order, or others inserted at 2 to 3 feet $\stackrel{B}{B}$ above the grate. The closing in at one or two courses be low the lugs should be done by uncovering the top of the 10. The Club House of the Knickerbocker Field Club, wall each side of the lugs, so as to make a good bearing weight on the lining wall at the top. This is much bet-(6170) G. M. B. says: Two dynamos

with the same size pulleys are run by two belts from Car fe Car fe Car fe the same engine pulley, one belt being run over the other; do the two dynamos run at exactly the same speed ? If not, which runs faster? A. The dynamo with the outhalt mone th faster by the difference in the circ Car tra ference of the pulley and the circumference of the enlarge-Cardin ment of the pulley due to the thickness of the inner belt.

revolutions per minute. The pipe should be 16 inches in diameter, giving a velocity of 22 feet per second, with

Guild & Garrison, Brooklyn, N. Y., manufacture steam it is described in SUPPLEMENT, No. 497. Our "Scientific pumps, vacuum pumps, vacuum apparatus, air pumps. American Cyclopedia of Receipts, Notes and Queries " acid blowers, filter press pumps, etc. contains information on this subject.

tion of caustic potash in water.

INI Fo

	SUIL	020,41
	Amalgamating machines, amalgam trough and	
	water supply pipe for, A. W. Robinson	523 4
	water supply pipe for, A. W. Robinson	040,4
	Amalgamating machines, tailings discharge ap-	
	paratus for, A. W. Rebinsen.	523.4
	Amalgamator, Hayward & Robinson	523.4
	Amalgamator screen bearing, A. W. Robinson	523.4
	Amaigamator science in a dilling, it. w. Robinson	202 5
	Awning worker. J. A. Gillin Azle spindle, vehicle, W. M. Barnes	040,0
	AT le spine le, venicle, W. M. Barnes	523,5
	Barrel heater, J. B. & W. H. Stanhope	523,5
	Bars rails, etc., machine for straightening H	
	Wiak Ir	523 4
	Design both ster mach E Adas	502 1
	Basin, bath, etc., wash, F. Adee	525,4
	Wick, Jr. Basin, bath, etc., wash, F. A dee. Battery. See Galvanic battery.	
	Red couch W S Bowie	523.6
	Bed, lounge, C. W. Vogel	593 6
	Ded, louinge, o. H. Concerne	E09 E
•	Bed or crib, M. E. Converse	929,9
	Bed, sofa. Phillips & Feldman Beer carbonating apparatus, C. Barus	523,3
L	Beer carbonating apparatus, C. Barus	523.4
ł.	Bicycle, M. L. Wilcox Bicycle saddle, R. T. Torkelson	523 5
5	Biovolo soddlo P T Torkolson	592.2
L	Dicycle sautic, it. 1. 101 Keison	040,0
1	Bicycle seat, A. L. Girard	525.5
	Bicycle speed indicator, E. Boulier	523.5
	Billiard or nool register Goetze & Knonn	523'4
	Billiard or pool register, Goetze & Knopp Bit. See Bridle bit.	0.0,1
	Diale Constanting black	
	Block. See Stretching block.	
	Blower, C. Rumley	523,5
÷	Blower, C. Rumley Board. See Ironing board.	
i	Boiler. C. L. Seabury	523 4
L	Boilon And gutton E. Dombon	599 9
L	Boiler flue cutter, E. Pember Boot or shoe attachment, J. H. Johnson	020,0
1	Boot or shoe attachment, J. H. Johnson	523,5
	Boot tree. H. L. Lee.	523.5
	Bottle stopper, O. G. Ahlstrom	523 4
	Bottle stoppet L Kalling 599/74	599 4
	Bottles on other class anticles anticles	040,4
	Bottles or other glass articles, apparatus for the	
	manufacture of, J. B. Vernay	523,6
	Bottling machine, H. Wuelfing	523.3
	Box. See Match box.	0.00,0
	Box fastener, L. Leber	509.4
	box rasteller, L. Lever.	020,4
	Brake. See Vehicle brake.	
	Brake mechanism, J. T. McDonald, Jr.	523.3
·	Bridle bit, E. E. Withey	523 f
ı	Buckle, D. F. Dalton	502 4
1	Buckle, P. F. Dalton	040,4
	Buckle, D. L. Smith Buffing machines, abrasive cover for, A. W. Rogers. Buildings_construction of, J. M. Cornell.	523,5
I	Buffing machines, abrasive cover for, A. W.	
I	Rogers.	523.5
i	Buildings construction of I M Cornell	593 4
	Durings, construction of, 5. M. corners	040,3
	Burner. See Vapor burner.	
	Butter moulding and cutting device, L. L.	
	Mivelaz Butter, producing sterilized, G. Muller	523.5
	Butter producing sterilized G Muller	523 5
	Coblomon T & Millon	602 2
	Cableway, T. S. Miller Camera. See Panoramic camera.	040,0
	Camera. See Panoramic camera.	
	Can feeding machine, H. R. Stickney	523.5
	Can feeding machine, H. R. Stickney Can filling machine, H. R. Stickney	523.5
I	Car brake system N Lombard	523 4

and leave the metal clean and in good condition to be	Filter discharging device, G. H. Moore
again coated with japan ? A. Try using a saturated solu- tion of caustic potash in water.	Keeves. 52,495 Fire plug casings, tool for cutting recesses on the inside of, H. Thomson. 52,493 Flood gate, automatic, Milligan & Tomlinson. 523,606 Floor board set, G. A. Stewart. 523,606 Floor cloth, machine for the manufacture of mo- saic, F. Walton. 523,607 Flour mill air bolt, J. S. Dodge. 523,306 Furit cleaning machine, T. H. Bell. 523,304 Furace. See Ore roasting furnace. Roasting
TO INVENTORS,	Floor board set, G. A. Stewart
An experience of forty-four years, and the preparation of more than one nundred thousand applications for pa- tents at home and abroad, enable us to understand the	Flour mill ar bolt, J. S. Dodge
laws and practice on both continents, and to possess un- equaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all	Furnace, E. Jolicard 523,579 Furnace for burning refuse matter T. P. Mabon, 523,478
foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and our ex-	Fuel, composition of matter for artificial, E. Nienstaedt
MUNN & CO., office Scientific American, 361 Broad-	Gauge and finger guard, combined, A. T. Snell
way, New York.	Gas. method of and means for charging and com- bining fermented or unfermented liquids with carbonic acid. Adam & Rehfuss
INDEX OF INVENTIONS	Gate. See Elevator gate. Flood gate.
For which Letters Patent of the United States were Granted	Glove, boxing, • A. Burton
July 24, 1894,	Hanger See Shade hanger
AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]	Hanger, W. & B. Trewhella, Jr
Acid. sodium. sulphate, magnesium sulphate,	Heater, R. H. Laird
etc., obtaining carbonic, E. W. Enequist 523,651 Addressing envelopes and wrappers, machine for,	Illusory apparatus, A. Lake
Amalgamating machine water jet, A. W. Robin- son	Ironing board, Kinley & Shuey 523,355
Amalgamating machines, amalgam trough and water supply pipe for, A. W. Robinson	Journal Jox for dredging or likemachinery, A. W. Robinson
A maigamator screen bearing. A. W. Kobinson 52348	
Awning worker. J. A. Gillin 523,519 Az le spind le, vebicle, W. M. Barnes. 523,505 Barrel heater, J. B. & W. H. Stanhope. 523,552 Bars, rails, etc., machine for straightening. H. 523,552	Kite, E. E. Thayer. 523,490 Lace fastener, E. A. Pumyea 523,377 Lamp, electric incandescent, F. M. F. Cazin 523,441 Lamp holder, adjustable incandescent, S. E. Nut- 523,442 ting 523,482
Bars, rais, etc., machine for straightening, H. Wick, Jr	Lamp, incandescent electric, F. M. F. Cazin 523,46 Lamp, multiple filament, A. L. Clough
Bed, couch, W. S. Bowie	Lantern, dark, V. Groom
Bed, sofa. Phillips & Feldman	Launch, naphtha. C. Gould
Battery. See Galvanic battery. 523.619 Bed, couch, W. S. Bowie. 523.018 Bed, lounge, C. W. Vogel. 523.018 Bed, or or, D. M. E. Converse. 523.514 Bed, sofa. Phillips & Feldman. 523.514 Bed rank C. Barus Bicycle seat, A. L. Wilcox. 523.542 Bicycle seat, A. L. Grard. 523.341 Billiard or pool register, Goetze & Knopp. 523.545 Billiard or pool register, Goetze & Knopp. 523.468 Bit. See Bridle bit. 500.526	Loom warp stackening mechanism, G. F. Hutto- ins
Bit. See Bridle bit. Block. See Stretching block. Blower C. Rumbar. 523,548	G. Walley
Board. See Ironing board. Boiler, C. L. Seabury	Meat mixing machine, J. H. Schaefer
Blower, C. Rumley,	Meter. See Gas meter. Mill. See Windmill. Millstone, M. Ams. Minnow hucket. L. W. & W. H. Hemp. 523,320
Bottle stopper, L. Kalling	Millstone, M. Ams. 523,320 Minnow bucket, L. W. & W. H. Hemp. 523,470 Mould plates, process of and bath for bardening, L. B. Brown. 523,620 Moulding machine, W. W. Doolittle. 523,465
Bottling machine, H. Wuelfing	L. B. Brown. 523,620 Moulding machine, W. W. Doolittle. 523,466 Mosaic, vitreous, L. D. Tournel. 523,387 Music turner, sheet, B. F. Wallace. 523,420 Nail machine feeder, E. J. Smith. 523,643 Needle, ribbon, F. Kohlmann. 523,476 Note indicator, P. @ Carroll. 523,545 Nut lock, E. P. Kendall. 523,545 Nut lock, Schwalbe & Schneider. 523,549
Brake mechanism, J. T. McDonald, Jr 523,362 Bridle bit E E Wither 523 612	Needle, ribbon, F. Kohlmann
Buckle, D. F. Dalton	Nut lock, J. Thinnes
Buildings, construction of, J. M. Cornell	ordnance, device for inserting or removing tubes in, M. Gledhill
Mivelaz	Ordnance, pressure gauge for use on beavy, A. C. Meady
Camera, See Panoramic camera. Can feeding machine, H. R. Stickney	Panoranic camera, F. F. Dumke
Car brake system, N. Lombard	Pattern, trousers, J. G. Nickamp. 523,59 Peach screen, J. P. Wilson. 523,498 Pen fountain J. Janka 523,352
Car coupling, J. T. Lampp. 423, 113 Car fender, C. R. Hall. 523, 527 Car fender, F. S. Høgz. 523, 526	Pencil holder, R. W. Irwin, Jr
Car fender, E. J. Smith	ler. 523,354 Phenograph coin-operated mechanism, G. E. Tewksbury. 523,656 Photography by artificial light, B. M. Clinedinst,
Camera. See Panoramic camera. Can feedung machine, H. R. Stickney. 523,554 Can fulling machine, H. R. Stickney. 523,553 Car brake system. N. Lombard. 523,553 Car coupling, L. T. Backus 523,554 Car coupling, J. T. Dunlap. 527,523 Car coupling, J. T. Lampp. 521,557 Car fender, F. S. Hørg. 523,527 Car fender, F. J. Smith. 523,527 Car fender, S. J. Smith. 523,527 Car replacer, R. C. A. Barrett. 522,527 Car replacer, R. W. Libbey. 522,527 Car replacer, R. E. Alexander. 522,527 Car tendor, Street, C. Saiveter. 522,537 Car beating apparatus, J. F. McElroy. 522,537 Car paine, street, C. Saiveter. 522,537 Car beating apparatus, J. F. McElroy. 522,537 Car beating apparatus, J. F. Wulbor. 523,537 Car beating apparatus, J. F. McElroy. 522,537 Car beating apparatus, J. F. Wulbor. 523,537	Jr
condenser, E. Kay	¹ Planter, corn. J. Selby 523,414
Carpet beating machine, J. L. Leach	Flanters, anchor for checkrow, J. Valentien
Cash recorder and indicator, E. H. Muller	Folded, A. Hox. 523,528 Pneumatic dispatch systems, receiving and dis- patch box for, L. G. Bostedo. 523,457 Department of the system of the s
Chain link, drive, C, E, Hart	Pneumatic dispatch tube, L. G. Bostedo
Chain ink drive, C. E. Hart 523344 Chain shackle oc coupling, R. J. Rae 522441 Chains, rolls for the manufacture of, • Klatte. 52341 Checkrein, A. W. Cox 52346 Christmas tree holder, E. Fruckner 523,371	Power transmitter, J. A. Johnson
Cigar bo yes, match hox and cigar cutter attach.	force of, H. Brunswig. 523.510
ment for, C. Mybre. 523,481 Cigar bunching machine, J. De la Mar. 523,516 Clasp. See Garment clasp. Trousers clasp. Closet. See Dry air closet.	Baum 523.573 Pyrotechnic compound, J. Agostini
Cloth folding machine, J. E. Windle	Railway crossing gate tube, W. L. Dodge
Cloth folding machine, J. E. W indle	Railways, apparatus for automatic fog signaling on, H. F. Clark
Copying, damping apparatus for press, W. S.	Recorder. See Cash recorder.
Coupling. See Car coupling. Pipe coupling. Thill coupling.	Refrigerator car, H. B. Plant 523,374 Refrigerators, cooling, T. Scheffler
Crane, hydraulic, W. L. Scaife	Register. Seé Billiard or pool register. Casb register. Fare register.

523,337 523,597

Crib, folding, F. J. Ebert..... Cultivator tootb, A. V. Ryder.... Cutter. See Boiler flue culter. Deaf mule instruction, apparatus for, G. A.

12. Miscellaneous Contents : The Hayes metallic lathing, illustrated .- Nonsuch Palace .- The Joseph Dixon Crucible Co.-The slate business.-New and old styles of eaves troughs, illustrated.-The Weathered hot water heaters .- Design for mantel and fire -What becomes of all the lumber.-Globe ventilator, illustrated.-An improved sadiron, illustrated.

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(6171) W. J. C., Queensland, writes : I Carnet have a 100 feet head of water which I wish to utilize to place, illustrated.—The "P. & B." sheathing and drive a 10 head stamper battery, requiring say 45 actual insulating papers .- An improved vise, illustrated, horse power. The water to be conveyed through pipes a distance of one thousand yards. What size Pelton wheel and pipes would be suitable? The smallness of pipes being greatest consideration. Would I lose power

by reducing size of pipes near discharge end? What size pipes and wheel would develop 25 actual horse power under same circumstances ? A. For 45 horse power, a wheel 6 feet diameter of the Pelton or other good hurdygurdy type should be used; 398 cubic feet of water will be required per minute giving a wheel velocity of 125 revolutions per minute. With 3,000 feet of 24 inch pipe the water velocity will be 22 feet per second, with a loss of head by friction of five feet, making the working $% \left[{{{\left[{{{{\bf{n}}_{{\rm{c}}}}} \right]}_{{\rm{c}}}}} \right]$

head 95 feet. Pipe may be tapered for a short distance from the nozzles to advantage. The nozzles should be Copying two, each of 234 inch diameter. For 25 horse power, same Coupling the diameter and the line for the control of head and distance, a 4 foot wheel, using 176 cubic feet of water per minute, will be required. Will run at 180 i Crate,