

Vegetable Digestive Ferment.

MM. Dacomo and Tommasi have studied the action of *Anagallis arvensis*, which they find possesses the property of destroying rapidly and without pain fleshy growths and even horny warts. They assumed that the plant contained a ferment, analogous in its action to pepsin and pancreatin, and instituted some experiments to decide the point. Some fresh meat and fibrin were placed in contact with a small quantity of the fresh plant reduced to powder, and, after being maintained at a temperature of 40° C. for four to five hours, they were found to be considerably softened, being dissociated almost completely in about thirty-six hours, during which the temperature did not exceed 45°. The presence of a ferment was thus regarded as established, and the authors are stated to have succeeded in isolating it under the form of a white amorphous substance, easily soluble in water. It is said to have no action upon starch, and further details as to possible practical applications of the ferment are promised upon the completion of continued researches. —*Rev. de Therap.*

THE DESTRUCTION OF SANGUIR.

The island of Sanguir is 25 miles long and 15 broad, situated in the great Malay Archipelago, which extends between the Indian and Pacific Oceans, or between China and Australia, corresponding geographically to the group of the Celebes, discovered in 1521 by Magellan, and occupied successively by the Portuguese, Spaniards, and the Hollanders, to whom it has belonged since the middle of the seventeenth century.

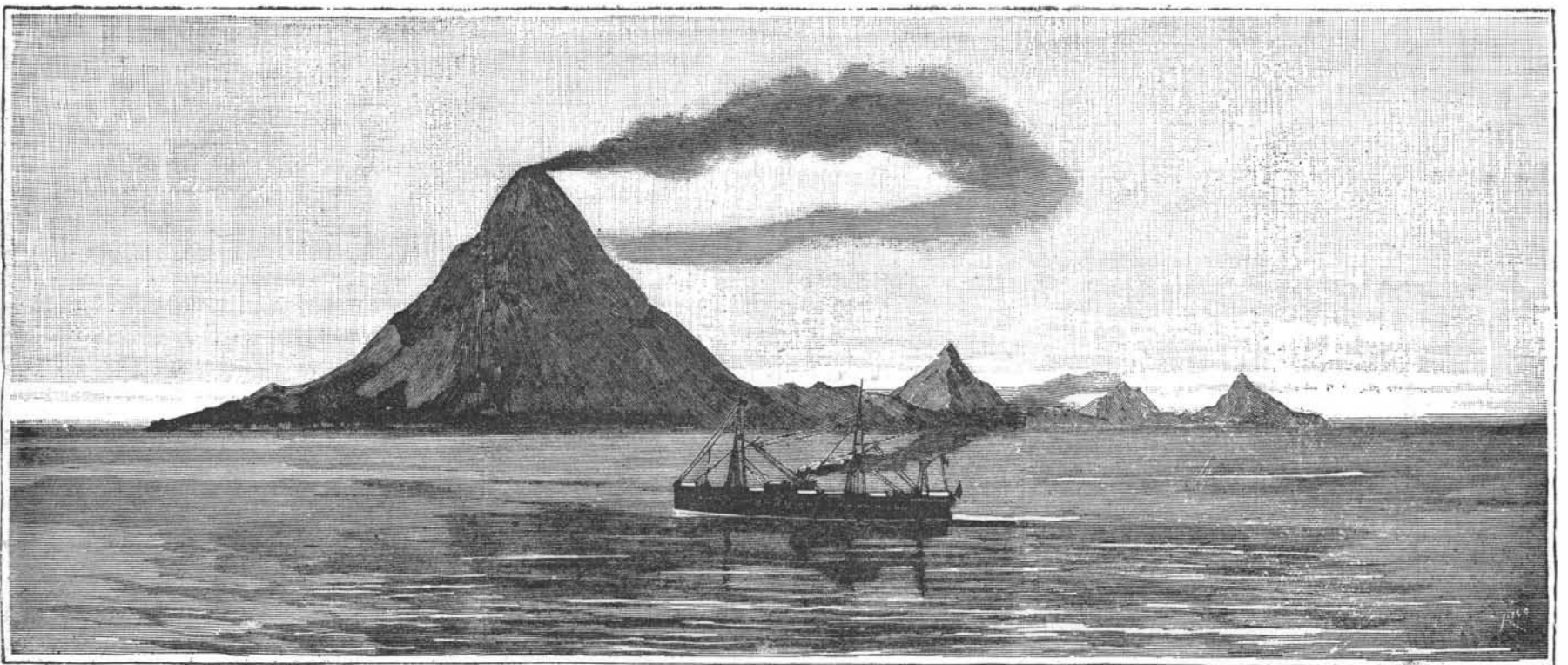
On the 7th of June last, the island of Sanguir was

pursuit of his crops instead of waiting for them to come to him; and it is a curious fact that after man has circled the globe in pursuit of wealth or amusement, he comes back to the culture of his own acres as the most dignified and satisfactory ending of his career, the only one which is not an anti-climax. Contented and not inglorious, Cincinnatus returns to his plow, Washington to Mount Vernon, Jefferson to Monticello, and Mr. Gladstone to Hawarden. The spectacle of Mr. Pitt, happy in a three years' release from political life, and enthusiastic in the culture of his garden, is one unfamiliar to the world, which scarcely disconnects him from the great arena in which he was the central figure, but is gratifying as an evidence of the humanness of that great statesman, and of that solid wisdom of which he gave perpetual proof in his public career.

Poets and philosophers alike have rejoiced in rural shades, in the charm of pleasant labor among their flowers and trees. Gardening is the delight of royalty and the comfort of the cottager. The greatest ladies in England have taken pride in designing their own parterres, while the gamekeeper's daughter rejoices in her little square of flowers. It is an occupation for the very rich, a solace for the very poor. It can occupy acres of territory, it can be carried on within the limits of a grocery box. It is the priceless heritage of man, this right to till the soil, this joy in its accomplishment. Whether the results be utilitarian or æsthetic, the satisfaction is common to all, there is no monopoly of this privilege. In this great half occupied country of ours, it is easily possible for a man to possess a morsel of territory for his own cabbage or marigold. There

the lost Paradise. The idea is common to all—the expression varies in each individual. If originality inspires the owner, the garden will be original; if the conventionalities be dear to him, you will find formality in the arrangement of his flower beds; the artist will interweave it with his taste and fancy, the poet will seek in it to embody his dream, the practical man will turn it into a potato field, the speculator will plant it with wheat, a sentimentalist will fill it with roses and lilies, an æsthetic with sunflowers. And from whatever clime you come you will read the man in his garden, nor need an interpreter to explain him to you.

There is no region where man's effort to reclaim the soil does not possess an interest for all other men. No tale of the march of conquering hordes captivates like the story of the founding of a state, and the state's foundations are laid by its plowshares. In Egypt the great river has been harnessed for the service of man, in Holland he has fought the sea to win a foothold for his sturdy independence, a garden for his bulbs. With the Romans marched the culture of Europe, in the wake of their great armies sprang up the cereals and the trees of the forest. Cæsar was no less a conqueror of the soil than of opposing armies. He carried in one hand the sword, in the other the life-giving grain. To him, first of all, Britain owes the planting of her barren acres with fruit trees, with the lime, the chestnut and the plane, possibly with the elm itself, though Dr. Walker thinks that noble tree may have been brought there by a crusader. And strange fact in the history of man, his triumph is the triumph also of the garden—its seeds and nuts, its grains and flowers



THE VOLCANO AND ISLAND OF SANGUIR, PRIOR TO ITS DESTRUCTION.

suddenly and violently shaken by the eruption of its only volcano, that of Gunona-Avu, by which the island was almost entirely destroyed, and 12,000 inhabitants met with death. The particulars were brought to the government of Holland by the captains of the merchant steamers Harlem and Cattertum. The volcano after its frightful eruption, which devastated the entire vicinity, sank down into the sea, together with all the northeast portion of the island. The opposite part, where the principal European ships were anchored, was saved.

Gardening a Human Bond.

If there is one pursuit that forms a link between human beings of different stations and habits, gardening is certainly that occupation, for whether it be the vocation or the avocation of man or woman, it appeals to so fundamental a taste that it makes a common ground upon which all can meet with interest and sympathy. It is the primal occupation of man, the final result and joy of his highest civilization. From the clod we come, to the clod we return, actually and figuratively, our fashioning from the dust of the earth pointing plainly to the fact that man was a graminivorous creation, deriving his sustenance from the grains he rescued from the tropic sands where he originated. It is a theory of the historical philosophers that man first developed into civilization in some rainless and unchanging region like Egypt, or the western slope of the Andes, and that there, under unvarying conditions of climate, he first established communities, and tilled the soil—hence, possibly, this old idea of his evolution from the dust of the earth.

As the animal with forethought to plant and dig was an advance upon his predecessors, so the agriculturist is a higher development than the nomad who goes in

comes a period in the lives of most when this primal desire demands accomplishment. Then upon his fragment of the earth's surface a man sits down, and content begins. Not idle content, certainly, since only by the sweat of his brow can man overcome nature, but that discounted content which is the human substitute for happiness.

Results may disappoint in detail, but the aggregate produces a certain mental well-being which peer and peasant alike share. The triumph of the harvest is for all, and though there may be years when harvests fail, they are the exception. There may be a harvest of the spirit, even if the crops fall short, a gain in health and knowledge from the hours of labor that are a balancing gain for disappointment. It is not only material results we gather in, but the harvest of experience, the gain of wisdom, the science for the coming years, and in these human benefits there are no hampering trusts. The planter may sell his crops a year or two ahead, and find himself short of the market, but there is no corner in experience which confines it to a chosen few, and of this gain the gardener, be he high or low, may be sure, so that his labor can never be a dead loss.

Moreover, he who loves his garden is in touch with his kind whether he find himself in Columbia or Cathay, for on this topic all may meet, the Russian mujik and the Czar, the Egyptian fellah and the Bey, the American traveler and the Daimio of Japan. There are gardens from Babylon to the Golden Gate which have delighted the heart of man from Eden until this day. To be cast out from a garden was the curse of Adam, and the struggle of fallen man ever since has been to repair that primal disaster. A hankering for an Eden is at the bottom of our wandering souls, and we are ever striving to fashion it to our conception of

springing up in the footsteps of Alexander and Xerxes, of crusader and Spanish don, to flourish and comfort long after the mailed hand that brought them was dust.

Thus in the path of the oppressor came a blessing, "out of the strong came forth sweetness." Here again that human touch links us with the old warrior of the past, bringing home from Damascus a rose slip to gladden the garden of his sweetheart, a sprig of vine to commemorate the hills of Palestine on the borders of some English lake. It is pleasant to think how the memory of his own garden made the Macedonian bring home to Greece the flowers that his master wrested from Darius. The rose from Persia, the lily of the farther East, are a bond of common interest between the old and the new; between the mailed past and prosperous present. The lotus of the Pharaohs is the glory of a Jersey mill pond, the peony of the Hoang-Ho is the ornament of a dooryard by the Charles, our very weeds bind us together to fight a common enemy, and thus the love and care of a garden brings man into fellowship with all the sons of Adam.—*Garden and Forest.*

Artificial Gum Arabic.

For the preparation of a so-called artificial gum arabic the *Rev. de chim. indust.* (through *Nouv. Remèdes*, 1892, No. 13 suppl.) gives the following process: 10 kilogrammes linseed are boiled with 80 kilogrammes sulphuric acid and 100 liters of water for three or four hours. The liquid is then filtered and four times its volume of alcohol is added. The precipitate is collected, washed and dried. The product is amorphous, colorless, insipid, and gives with water a thick mucilage.

Electrical Gleanings.*

BY PROF. W. W. JACQUES.

Electricity as a science dates back for centuries. Electricity as an art has been developed within the memory of men still living. The study of electricity as a science, that is, the study of electric phenomena and laws for their own sake, independent of the uses to which they may be put, began when Stephen Gray, nearly 200 years ago, divided bodies into conductors and non-conductors, and thus made the conception of an electric current possible.

For 150 years after that investigators in the field of electrical science, working largely in the laboratories of the grand old German universities, were busy finding out how electricity might be produced, what were its laws of action, how it could be measured and what it was capable of doing. Thus was the science of electricity built up.

One evening, not many weeks ago, I was invited to witness some experiments in sending photographs over a wire by means of electricity. You may imagine that I went with a good deal of interest to the laboratory of my friend. The laboratory consisted of two rooms. In one was an ordinary photographic camera, a small developing closet, and on a table in the middle of the room a cubical box, in one side of which was a slit of sufficient size to receive a postal card.

From this box two wires stretched across the room to the partition wall, and, passing through this, extended to a similar cubical box standing on a table in the middle of the adjoining room.

I was given an ordinary postal card and asked to write a short note upon it, and wrote "Good morning! How do you do?" My friend then took the card and placed it about six inches in front of the camera, where it was well illuminated by an electric lamp. Then he pressed the button of the camera, then took the plate holder to the developing closet, and presently reappeared with a hastily made negative, which he dropped

* Abstract of a lecture delivered before the German Technical Society of Boston, October 6, 1892.

into the slit in the cubical box on the table in the middle of the room. I then went into the adjoining room, and there, issuing from the corresponding box on the table in the middle of the room, was a piece of thin paper the size of a postal card, on which appeared in *facsimile* the words I had written, "Good morning! How do you do?" There would seem to be no reason why the sending and receiving boxes, instead of being in adjoining rooms, should not be placed one at one end of the wires in Boston and the other at the other end in New York; and thus letters written in one city could be instantaneously photographed to the other, and beat the United States mail by six or seven hours.

Another experiment, in which I have taken part only this last week, was to sit in my Boston office and talk by long distance telephone with friends in Chicago, more than a thousand miles away. And this, too, as easily as if my friends had been sitting with me in the same room.

During the Centennial Exhibition in Philadelphia, Professor Bell exhibited his then undeveloped telephone, which, though it only whispered feebly and imperfectly, was declared by Sir Wm. Thomson to be "the greatest marvel hitherto achieved by the electric telegraph."

At the Columbian Exhibition, soon to be held in Chicago, we shall see that invention grown so big that it will talk loudly and clearly between that city and New York.

Another invention that must soon come—an invention whose underlying principles have been already worked out—an invention that is only waiting for some ingenious inventor to make, is a good method of electrical signaling between two vessels approaching each other in the midst of a thick fog at sea.

Let us imagine such a device applied to two ocean greyhounds approaching each other with a combined velocity of 40 miles an hour through a heavy fog in a dark night. The lights are useless, for even an electric search light will not be visible a mile away. The

steamer's whistle is useless, for the fog soon absorbs the sound; and yet these two vessels may be rushing immediately toward each other with a force and velocity that, in case they meet, shall mean total annihilation.

And yet there is no need of such danger. Means of producing electrical signals on the one vessel already exist. The ocean is an excellent medium for conducting these signals to another vessel many miles away, and means, on the second vessel, for detecting and recognizing such signals may easily be contrived.

Let us see how electricity steps in and points out a simple way by which such collisions may be avoided.

Suppose each vessel to be equipped with an insulated wire running from bow to stern, but dipping into the ocean at each end. Suppose one vessel to have included in this wire means for producing strong and rapidly alternating currents of electricity. Suppose the second vessel to have connected to its wire an ordinary listening telephone.

Electrical undulations will be radiated from the first vessel through the water in all directions until, reaching the second vessel many miles away, they will be heard in the listening telephone.

By equipping each vessel both with means for sending out electrical undulations and for listening for any that might be received, each vessel would be made aware of the approach of the other and the danger of collision avoided.

But the greatest electrical harvest to be gleaned in the near future will come when some inventor or engineer devises a method of converting the energy stored up in coal directly into electrical energy.

Potsdam Sandstone.

We are indebted to the Potsdam (N. Y.) Red Sandstone Company for specimens from their quarry. This remarkable stone has shown a resistance of more than 42,804 pounds crushing weight, while the strongest granites will stand only 19,750 pounds, and other stones still less. The color of the Potsdam product is soft light reddish. For building purposes it has no equal.

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM BOILER FURNACE.—Micheal E. Herbert, St. Joseph, Mo. This is an improvement on formerly patented inventions of the same inventor, providing a fire box which can be arranged in connection with an ordinary horizontal boiler without alterations to either the fire box or boiler, and dispensing entirely with fire brick, the smoke nuisance being also abated without the use of complicated devices, and the steaming capacity of the ordinary boiler being increased. The firebox is composed of four water legs, essentially independent of the boiler, the end legs being concaved at their upper sides, adapted to receive and support the boiler, while tubular grate bars connect the end legs.

Railway Appliances.

CAR SEAT.—Conrad H. Matthiessen, Odell, Ill. This is a simple and inexpensive seat in the form of a readily reversible chair, which may be easily adjusted to rest at any desired inclination, has a convenient foot rest, and the seat is not likely to get out of repair. The chair is designed to be very convenient for both day and night use, being well adapted for a sleeping chair, and it has the advantage of having the arm rests stationary and the seat movable, as desired, the arms being straightened out when a person has tipped back in position for comfortable sleep.

RAILROAD SIGNAL.—Eugene Urbain, Brooklyn, N. Y. This is a signal to be automatically operated by a passing train, indicating when a train is approaching, front or rear, or has passed a given point. It is an electric signal comprising a series of lights and bells arranged alongside the track, circuit-closing contacts connected therewith being placed adjacent to the track rail, while vertically and longitudinally movable levers arranged in pairs are placed near the track in the path of the car wheels, the levers having oppositely extending inclined upper faces, with means for operating the circuit-closing contacts by the movement of the levers. The lights are intended to operate at night and the bells in the daytime, and the signal is operated during the time taken by the train in passing the levers.

Mechanical Appliances.

RATCHET DRILL BRACE.—William P. Nolan, San Francisco, Cal. This is a simple and durable implement, arranged to revolve the drilling tool at a high rate of speed in either direction. Its construction is simple, and it can be readily taken apart to be examined. The crank arm has spring-pressed pawls alternately engaging a ratchet wheel carried by a disk turning in a casing, a series of gear wheels journaled in the disk being in mesh with an internal gear wheel, while a shaft journaled in the disk carries a gear wheel in mesh with the series of gear wheels. The speed to be attained may be increased or diminished by changing the relative proportions of the gear wheels.

AUTOMATIC SPRINKLER.—John Kane, Philadelphia, Pa. This is an improvement in devices used in factories, machine shops, etc., where the sprinkler is caused to operate when a certain degree of heat is reached, as by the starting of a fire, a fusible connection then being melted. The prime feature of the invention consists in the location and construction of the "distributor," or that portion of the device whereby the stream of water is deflected and made to pass downward or upward from the deflector and out from its sides.

FLOUR MILL FEED REGULATOR.—Marcus A. Swing, Washington, Ind. This is an im-

provement on a former patented invention of the same inventor, to simplify the feeder, and more entirely prevent any clogging or sticking of the grain, all the parts of the device being easily removable and adjustable. In combination with the hopper is a feed board reciprocated by spring wire rocking arms, the arms being operated by a vertically adjustable revoluble shaft, upon which is a friction roller contacting with a grinding roll, the invention also embodying other novel features.

Miscellaneous.

TELESCOPE SIGHT FOR CANNON.—Valentine Berberich, Frankfort, Ky. This is a sight instrument supported alongside the gun and conveniently detachable from it, so it can be taken off after sighting to prevent injury to the instrument by vibrations. It consists of a telescope adjustably supported upon a frame, which also supports a sight in the range of the telescope, and adjustable independently of the telescope, the frame also having a number of lateral openings receiving rods projected from the side of the gun, and so arranged that the instrument will be parallel with the bore of the gun.

DENTAL INSTRUMENT.—John C. Blair, Louisville, Ky. This is an instrument for treating dead teeth preparatory to filling, by injecting a vapor or gas into the pulp cavity and root canals, to disinfect them and destroy poisonous matter. The instrument consists of a small tube on which is a wooden casing forming a handle, and a short cylindrical receiver or gas generator, to hold medicinal substance while being vaporized. A hollow needle is screwed on one end of the tube, and a rubber tube is connected with a compressible bulb attached to its other end.

WHEEL GUARD.—Patrick J. Connell, College Point, N. Y. This is a device to be placed temporarily upon a portion of a carriage wheel to prevent one from soiling the clothes in getting into or out of a carriage. It consists of two hinged sections having depending sides and adapted to lie one within the other, a spring normally holding the sections extended, and a spring clasp embracing the top and sides of one of the sections. This guard may be conveniently carried beneath the seat, and may be put on or removed from the wheel without soiling the hands.

FOLDING CHAIR.—Herman A. J. Rieckert, New York City. This chair has two sides, each formed of two legs connected by bars, the rear legs being semicircular and hinged together, and one of the legs being extended to form a back, while a seat hinged to the top bar of one side rests, when open, on the top bar of the other side, the seat folding down on the outside of one side when the chair is folded.

LAMP EXTINGUISHER.—Max Goetze, Sturgis, South Dakota. A safety device for hand and stand lamps is provided by this invention, one which will automatically cover the top of a flat wick tube and extinguish the lighted wick if the lamp is overturned or dropped and its chimney displaced or broken. Two pivotally supported and weighted gates inclose the upper end of the wick tube, a bowed arm being adapted to lift the gates and close them, while a lever normally holds the arm away from the gates.

BUCKSAW.—Peter Woodring, Oelwein, Iowa. This invention relates especially to the frames of bucksaws in which braces cross each other diagonally between the handle and forward end, and, in connection with the adjustable stretcher, stiffen and support the frame. This improvement, while providing every facility for adjustment, affords a more rigid support to the frame, prevents it from getting out of shape or becoming racked, removes the strain largely

from the stretcher while the saw is being used, and holds the saw effectually at its strain or stretch.

STOVE.—Olof Nilson, Salt Lake City, Utah Ter. The prime object of this invention is to so construct the stove that every portion of it likely to receive dust or soot may be cleaned without soiling the hands, carpet, or floor, all of the dust or soot loosened being carried to one receptacle in the stove and readily removable therefrom. The oven is also so located that the heat and products of combustion circulate entirely around it, insuring uniform baking in all parts.

SHOE FASTENER.—Joseph H. Hamill and Paul J. Johnson, Globe, Arizona Ter. Attached to the outer flap is a receiving section, comprising a cylindrical cap above a round hollow base having attached locking flanges, while attached to the under flap is a locking section comprising a stud with a head extended at an angle beyond one of its sides, the head entering and passing through the hollow base of the receiving section. The device is intended as a substitute for ordinary buttons and laces, being much more conveniently manipulated, and affording an absolutely secure fastening.

CUFF HOLDER.—Lewis S. Sampson, New York City. This device comprises a bar to be attached at one end to the sleeve, and having at its other end a swinging member, at the opposite ends of which are fastenings, so that the bar may be made to engage one or two button holes of a cuff. The device is designed to facilitate the use of the ordinary reversible cuff as a link cuff, the holder being applicable in both ways.

ADVERTISING DEVICE.—Paul Herrmann, New York City. This is a novelty to be used upon a desk, table, etc., as a call bell, a different advertisement appearing at openings in the casing of the device each time the bell is rung. A revolving cylinder in the casing carries the advertisements to be displayed, and the casing may be fitted up to contain a cigar cutter, to receive salt cellars, or for various other uses.

ANIMAL TETHER.—Ralph E. Robison, Atoka, Tenn. This is a simple device which any one can readily carry into the field and fix in position to attach thereto one end of a cord or rope, so that an animal attached to the other end of the rope cannot pass beyond a prescribed limit. A post, tapered at one end to be conveniently forced into the ground, has at its upper end a bore forming a socket, in which is inserted a standard having a jointed upper extension, to an outer bent end of which the rope is attached. Near the joint is a spring, held in a novel manner to allow flexure of the joint, permitting the standard under strain to incline nearer the ground.

SMOKING TOY.—Joseph T. Craw, Jersey City, N. J. This is a novel suction device for smoking a cigarette, including a head with eyes arranged to be rocked and turned by the vibrations occurring as a flexible box-like structure at the rear is compressed and released from pressure, the cigarette held in position between the simulated teeth being simultaneously consumed, by the aid of the suction thus produced.

BADGE DESIGN.—William Connolly and Alvin A. Sealy, Brooklyn, N. Y. This is a political campaign badge, the leading feature of which is a representation of the White House, for which figures simulating horses with jockeys on their backs are heading.

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

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2. Plate in colors showing an elegant residence at Montclair, N. J. Perspective view and floor plans. Cost \$7,000 complete. Mr. E. T. Hapgood, architect, New York. An excellent design.
3. A house at Montclair, N. J. Two perspective views and floor plans. Cost \$4,750 complete. E. T. Hapgood, architect, New York.
4. A Queen Anne cottage recently erected on Chester Hill, Mount Vernon, N. Y., at a cost of \$5,000. Floor plans, perspective elevation, etc.
5. A house for two families erected on Armory Hill at Springfield, Mass., at a cost of \$7,000 complete. Mr. F. R. Richmond, architect, Springfield, Mass. An excellent design. Floor plans and perspective.
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