

THE SONG OF THE LARK.

Since ancient times men have been trying to imitate the songs of birds by means of words and tones. The learned Jesuit, Athanasius Kircher, published in 1650 a work called "Musurgia Universalis," that treats, among other things, of the songs of birds, trying to give them by means of notes. These attempts have often been repeated, and have been most successful with the song of the lark and the nightingale, for it seems to be impossible to catch the songs of other birds in this way.

There has been much discussion as to which of these little singers deserves the palm; but that is entirely a matter of taste. It can, however, be said in favor of the lark that it begins to sing much earlier than the nightingale, often as early as February, its song ceases much later, and it is spread over a much larger region than the other. The lark breeds as far north as the 68° of latitude, on the Lofoden Islands, and lives high up on mountains, for instance, at the source of the Elbe. On the other hand, the nightingale is seldom found as far north as the southern part of Sweden, and only single birds are found in mountainous regions. In Germany it never goes higher than about 3,000 feet. Besides, the song of the lark is much longer than that of the nightingale, being, in fact, the longest bird song. The nightingale is the only bird that sings at night, and the lark the only one that sings while flying. The little lark is an untiring singer, and can often be heard after it is lost to sight. Lenau says that it "climbs on high on its golden song," but it certainly does not climb straight, rather in a very steep, narrow spiral.

There are other fine singers besides the nightingale that inhabit the forests, groves and gardens, but in the fields the lark reigns alone, for the monotonous chirping and calling of other field birds cannot be called a song. The lark is a useful rather than a harmful bird, the harm that it does by stealing a few kernels of grain spring and fall being more than counterbalanced by the good done by the consumption of seeds of weeds, insects and young snails. Therefore let us protect the singer of the fields, the lark.—Illustrirte Zeitung.

Explosive Mixtures.

Potassium Chlorate.—The British Druggist says: This is probably more often the cause of explosion than any other chemical which is handled by pharmacists. It should never be mixed in the powdered state with organic substances; even in very small traces in "saline" it is apt, after a time, if all the ingredients and the containing bottle are not absolutely dry, to burst the bottle and violently scatter the contents. It should never be mixed dry with tannin. Occasionally a gargle is ordered containing these ingredients; they should always be dissolved separately. Hypophosphites and chlorate similarly explode when mixed in the dry state. Chlorate of potassium and glycerin alone should never be dispensed, nor should it be combined with sulphur or the metallic sulphides.

Permanganate of potassium is another source of danger, for the same reason as chlorate—it so readily gives up its oxygen; consequently, it should not be mixed with any organic bodies, such as sugar or glycerin, nor with spirit of wine or spirituous preparations. When ordered in the form of pills, it should be massed with kaolin and petrolatum.

Glycerin, in addition to the cases above mentioned, should not be combined with chromic acid; nor with borax together with alkaline carbonates.

Turpentine and volatile oils containing terpenes should not be combined with strong mineral acids, nor with iodine or bromine.

Iodine should never be mixed in the free state with any preparations containing free ammonia, especially when combined with fatty matter.

Oxide of silver, sometimes ordered in the pilular form, should be massed with kaolin and petrolatum, and no chloride combined with it.

Spirit of nitrous ether frequently becomes very acid in keeping; in this state, when mixed with carbonates or bicarbonates, it liberates carbonic anhydride, and, if tightly corked, the bottle is frequently burst. Such a mixture should not be corked immediately after mixing. Excess of acid in the niter may be removed by keeping a large crystal of sodium bicarbonate in the stock bottle, occasionally easing the stopper.

THE discovery of anæsthesia is due to Dr. Crawford W. Long, of Georgia, who in 1842 performed a surgical operation upon James M. Venable, Dr. Long having first rendered the patient insensible to pain by the application of ether. Two or three years later Messrs. Wells, Jackson, and Morton began their experiments, after which the anæsthetic properties of ether and chloroform rapidly became known.

Jealousy of Wealth.

The August number of the Engineering Magazine contains an interesting article on this subject by William Nelson Black, in which he says: There is a popular impression that men get their wealth by taking something out of the hands of other men and appropriating it to their own uses. There could hardly be a greater misconception. The accumulation of wealth by all the honest processes of production, or by buying and selling, is really the creation of wealth; the production of something that would absolutely have had no being had it not been for the personal exertions of its creator. Yet this fact is only dimly comprehended by most men who bother their heads with social problems. Sometimes it is not comprehended at all. Men seem to go upon the assumption that there is just so much wealth in the world, and that life is a struggle to see who shall make the largest grab. But as a matter of fact the fortune of every man who earns money by lawful means is simply his part contributed to the total of the national or social wealth.

Take the career of George M. Pullman, just now a conspicuous target for the abuse of addle-headed labor leaders and Populist cranks and "reformers." Starting as a poor boy, through sheer force of inventive genius and masterful business capacity he has amassed an enormous fortune. But every dollar represents new wealth, and no man has ever dared to cast a suspicion upon the character or methods of the man. In fact, William T. Stead, the sensational English editor and reformer, who lately had so much to say in favor of the poor and against the rich and the corrupt elements of Chicago society, when it came to Mr. Pullman, found it necessary to say this:

"The first Pullman car which he constructed and put on the rails cost \$18,000 to build, as against \$4,000, which was the price of the ordinary sleeper. Railway

cars, 313 sleeping cars, 626 passenger cars and 939 street cars."

Now all this enormous accumulation, representing millions in value, affording profitable employment for thousands of people, and conferring grateful comfort upon millions of travelers—all this had no existence when Mr. Pullman began, and it has all been created under his immediate personal direction. To say that his employees did it, or that it would have been done by some one else, is equivalent to saying that Napoleon was not necessary to his work, or that electricity would have reached its present practical development without the aid of Morse and Edison and Bell!

Or take the case of Jay Gould. This much-abused millionaire left a fortune estimated at \$70,000,000, the product of a life of great activity in planning and executing works of public utility which continuously employed whole armies of men. But will any man doubt that he contributed the full total of \$70,000,000 to the national wealth? Will any man doubt, indeed, that he contributed several times the amount of his own fortune to the total? Consider the wilderness reclaimed, the new towns that have grown into importance along his lines of railway, with their increase in the values of real estate, the manufactures promoted, the contractors enriched, and the various other incidental profits that follow upon the prosecution of great works. Were it said that Jay Gould contributed \$500,000,000 to the national wealth during the forty years of his active career, the estimate would not be excessive.

What is said of Jay Gould could be said in different terms of Commodore Vanderbilt, whose fortune, now enlarged in the hands of his family, causes so much jealousy. He contributed to the total of wealth vastly more than he secured for himself, and it is reasonable to presume, much more than his entire family of the

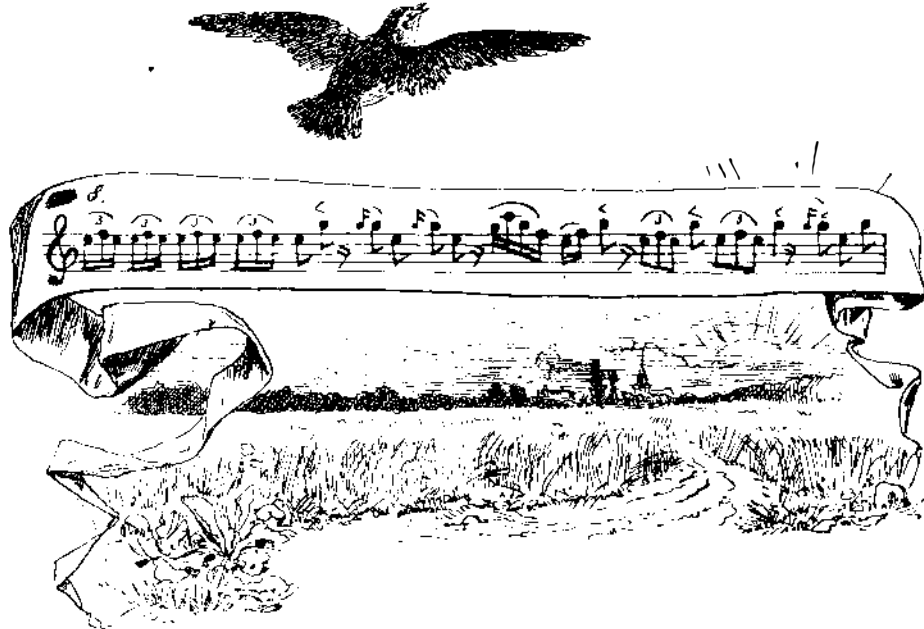
third generation now holds in its possession. So with many other men of his kind, and in this field of research examples crowd upon us. The Bell Telephone Company, the electric light companies, and the electric railway companies are all very recent representatives of a wealth that would have been non-existent but for the inventive talents and enterprise of their promoters. But even here, too, we must make large estimates for an incidental increase in values. The electric railways are penetrating the suburbs of all our large cities, and by making them more accessible they are adding incalculably to suburban wealth. Yet not a dollar is taken from the public for which an equivalent is not given, either in the form of greater convenience or in actual profits.

The first thing that every man is forced to do when he sets out to make a fortune is to employ somebody to help him; and the more ambitious he gets, the larger and larger becomes the number of his assistants.

Some are directly engaged in the promotion of his plans, and draw their compensation directly from his pay rolls; but by far the larger number are indirectly engaged, and remain invisible to all except the economic analyst. The wholesale merchant, for example, seems to employ only a few quilldrivers and truckmen; but his employees are sometimes scattered all over the world, and it is due to his thirst for wealth, and the thirst of other men in kindred pursuits, that these distant employes can find a market for their labor. It will be seen, therefore, that no man can pursue wealth exclusively in his own interest, however selfish he may be; and when one sees how little there is beyond the reach of men of modest but competent income that the man of large fortune can enjoy, he is led to wonder sometimes at the assiduity of the pursuit. But habit has a great deal to do with it, and the needs and aspirations of a family impel the richest man to further exertion. In this country men rarely retire from business until they die, and it is fortunate for the community that this is true.

From the material point of view these men are the most useful members of the community, and the man is either a public enemy, a fool, or both who seeks to obstruct their operations. The writer could not write, the painter could not paint, and the laborer would literally be forced to go fishing were it not for the forces which the wealth seekers put in operation. The very genius of progress, under the free institutions that we enjoy, rests upon the principle of great rewards to those who accomplish great works; and whatever else may be wrong in our social and economic system, we cannot afford to discourage, much less dispense with, the great "captains of industry" who marshal the forces of labor and lead us on toward the golden age that will see the race emancipated from poverty.

ICELAND is one of the few countries that has a smaller population now than it had twenty years ago.



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men shrugged their shoulders. It was magnificent, they said, but it was not business. A palace sleeping car at \$18,000 could not possibly pay. Mr. Pullman refused to be discouraged. 'Let the traveling public decide,' was all he asked; 'run your old sleepers and the new ones together; I will charge half a dollar more for a berth in the Pullman, and see which holds the field.' The verdict of the public was instant and decisive; every one preferred the Pullman at the extra price, and the success of the inventive car builder was assured. He has gone on step by step, from car to car, until at the present moment he is said to have a fleet, as he calls it, of nearly 2,000 sleepers, which are operated by the Pullman Company. They have besides 58 dining cars and 650 buffet cars. Altogether the cars which the company operates number 2,573. Other competitors have come into the field, but Mr. Pullman deserves the distinction of having placed every railway traveler under an obligation by acting as pioneer of commodious, luxurious, and safe railway traveling.

"After building his cars in various parts, Mr. Pullman decided finally to centralize in the center of the American continent. Carrying out his decision, he naturally fixed upon Chicago as the site for his works. The Pullman Company was incorporated with a capital of \$30,000,000, the quotation for which in the market today is twice that amount. He took up an estate of over three thousand acres round Lake Calumet, which is fourteen miles from the center of Chicago, and which was at that time far outside the city limits. There, following the example of Messrs. Krupp at Essen, he set to work to construct a model city in his own image. The car works were, of course, the center and nucleus of all. In these gigantic factories, where 14,000 employes work up 50,000,000 feet of lumber every year, and 85,000 tons of iron, they have a productive capacity of 100 miles of cars per annum. Their annual output, when they are working at full stretch, is 12,500 freight

The Teredo Navalis in Boston Harbor.

At the meeting of the Boston Society of Civil Engineers, reported in the Journal of the Association of Engineering Societies, Mr. Henry Manley said: The Eastern Dredging Company had two large scows built last season in Bath, Me., of pine, which were brought to Boston, where they were measured. They were taken down to the mouth of the harbor, beyond Boston Light, on or about May 27, for dredging, and were used there during the summer. In October, or early in November, they began to leak; but by that time the owners had begun to suspect that something serious was the matter, and the one in the worst condition was brought up the harbor. It was found pretty thoroughly bored through by teredo navalis, and had to be practically replanked. Another scow was then brought up, and was found riddled through, though not so badly, by the teredo. The teredo has for a long time existed on the southern coast of New England; but our harbor, on account of the difference in the temperature of the water, was supposed to be exempt. This case is almost the first in which they have been found so far north, and is the first in which they have done any appreciable harm. There are some curious features in the life and nature of the teredo. The full grown animal sometimes attains a length of two or three feet. It enters the wood through a very small hole, and after that passes its life inside, penetrating the wood as it grows; but living, in one sense, a solitary life, as the openings never communicate with each other. The eggs are formed in the interior of the animal in position, and are fertilized there. They are hatched in the water. While the animal is in the water it passes through two or three different stages of growth, in each of which it assumes a different form. In one stage it is able to swim. In a later stage it has a foot that enables it to cling to any object and to move about to a limited extent. It enters the wood when about as large as the head of a pin. After it makes its entrance into the wood its progress is quite rapid. The four or five inch plank shown has been torn to pieces during one summer. The teredo does not eat the wood, but simply bores it out for a habitation. It has two flues or passages running the whole length of its body and opening out into the salt water. Through one passage it takes in the salt water with the infusoria, etc., which constitute its food, and through the other tube the chips, its own excreta, and everything else it wishes to get rid of, are passed out into the water. The animal is technically a bivalvular mollusk. Its boring apparatus is a very

curious one. The two large shells are not firmly hinged together. Indeed, in the specimen shown they seem to be quite loose from each other; but judging from the amount of work it can do in one season they must, in the living animal, be connected by very powerful muscles. The instance recorded may be an isolated one, or it may be the beginning of a terrible pest that will cause great trouble for all time to come to those who have charge of submarine woodwork in this harbor. Among the preventives in common use, covering with copper and creosoting are the most effectual. Creosoting is valuable only for a certain number of years.

Navy Steam Launches.

In the report made upon the 39 foot Herreshoff steam barge belonging to the Chicago, by Captain A. S. Barker, U. S. N., commanding the U. S. S. Philadelphia, it is stated that "The steam turnabout launch, which is a lifeboat, is an excellent, buoyant, and seaworthy boat, her maneuvering qualities being exceptionally good, excelling in this respect all the steam launches in the fleet, for which reason alone she commends herself to the service. The boat has been in constant use since we have had her, and has done excellent work. . . . Where two steam launches are supplied to a man-of-war, I would recommend that one of them be of this type, on account of her safety and maneuvering qualities."

In the tests made by the Board in November, 1892, with a crew of eight men, and allowance of coal and water (making a total weight of 1,673 pounds) this boat showed a freeboard of 45 inches forward, 28 inches aft, and 22 inches amidships. With 35 men seated and supplementing the above weight, a freeboard of 44 inches forward, 21 inches aft, and 19 inches amidships was maintained; and with 50 men in addition to the above 1,673 pounds, the steamer turned and speeded in the East River (wind and water moderate), preserving a freeboard of 36½ inches forward, 22 inches aft, and 17 inches amidships.

So far as seaworthiness goes, three members of the board who have tried her under conditions which tested this quality fairly have no hesitation in declaring she is far more seaworthy than any other steamer of her length they have ever seen. In these trials she was run at a high speed through the most confused sea (made both by wind and the tumbled crosswakes of passing ferryboats) which could be found in the East River, and at no time did she ship the least water. All these tests were made under circumstances when

every other steamer of her length known to them would have become so wet and so much in danger of shipping water as to have necessitated an immediate and large reduction of speed.

Under a test for life-saving qualities, very satisfactory and unusual results were secured. The machinery and passenger spaces were filled with fresh water up to the level of the rail, so high indeed that it flowed with force through the scuppers in the wash strake, and then as an appreciable freeboard still existed, over 2,200 pounds of weight (15 men) were added without submerging the boat.

These results have been partly secured by making her not a nominal, but an actual lifeboat. Under the rail, on each side, two cylindrical air tanks extend for a distance of 13 feet, and in the bow and stern two airtight compartments are disposed. The square shape given to the stern affords room for one of these airtight chambers, and thus utilizes space which generally is wasted upon a mistaken theory as to what is good appearance. Three complete water-tight bulkheads subdivide the boat and add large margin to an already secured factor of safety.

An Aluminum War Boat.

An aluminum boat, the Jules Davoust, which has been sent out to the Niger by the French government for hydrographic purposes, is reported to be an entirely successful experiment. It weighs about 4,400 pounds, and has a capacity of 11 tons, with a draught of about 15 inches. It is about 40 feet long, 6 feet wide, and 2½ feet deep. There are three masts and a deck cabin, as well as a movable deck tent, or pavilion. The sails are of the lateen order and easily managed. Two Hotchkiss quick-firing guns are mounted amidships. The vessel was built by Lefebvre, of Paris, who has already furnished several dismountable vehicles of this metal for the use of the French troops in the Soudan and Tonquin. The lightness of the material makes it valuable for such uses in wild and unexplored countries, as boats or vehicles made of it can be easily carried through the bush. Word comes, also, from France of the use of aluminum for cabs in Paris, where the company L'Urbaine, who own the largest number of hacks in the French capital, are about to use the metal in their construction. The company are now using tin plate for the bodies of their cabs. It is reckoned that an ordinary coupe weighs about 1,000 pounds. This weight, it is expected, will be greatly reduced if it is found that the aluminum cabs are a practical success.

RECENTLY PATENTED INVENTIONS.**Engineering.**

BOILER FURNACE.—Zenas E. Moon, Schuyler, Neb. This invention provides a furnace and attachments, applicable to any ordinary horizontal boilers, of such construction that the atmospheric air may be taken from the ash pit and delivered in a heated condition into the fire box, and also into the furnace behind the bridge wall, the air mingling with the unconsumed gases to promote more complete combustion. It is also provided that the heat may be more evenly distributed upon the heating surface of the boiler, for the quick generation of steam and prolonging the life of the boiler.

DREDGER.—Samuel P. Hedges, Greenport, N. Y. This is an improvement upon a formerly patented invention of the same inventor, providing a simple device for holding back, lowering and controlling the outward movement of the dipper handle. The dipper is allowed to enter the soil without a sudden jar or drop, and the position of the lower end of the dipper arm may be controlled, to fall either perpendicularly or with any desired inward inclination, the manipulation of the dipper being under the complete control of the operator.

CENTRIFUGAL BLOWER.—William H. Harrison, Newark, N. J. This blower provides an outlet for the air from the fan wheel that is designed to prevent undue compression of the air in the wheel, and consequent friction and loss of power. The invention consists of a fan wheel having a series of plane radial main vanes forming a passage for the air from the central opening of the wheel to its periphery, while a set of parallel auxiliary vanes is arranged for each main vane, extending from the periphery of the wheel to within a short distance of the next following main vane.

Electrical.

BUSHING FOR ARC LAMPS.—Thomas J. Houck, Baltimore, Md. This is a detachable and adjustable bushing for carbon holder guides, and one which may be tightened or adjusted from time to time to take up wear and always hold the upper carbon holder and its carbon in true vertical alignment, at the same time avoiding the necessity and expense of throwing away the old guides and replacing them with new ones. The improved bushing has longitudinal slits forming spring tongues, and has on its exterior a tapering screw thread adapted to compress the spring tongues when screwed into a socket.

AUTOMATIC LINE DISCHARGER.—Jacinto F. Ganduxer, Gracia, Spain. According to this invention an electro-magnet, an armature lever carrying an armature and prolonged between a pair of electrical contacts, a retractile spring for holding the armature lever normally against the back contact spring, and line and ground connections, are combined in an automatic device for insertion in electrical lines, to discharge the lines when an abnormal current passes, as when lightning strikes a telegraph, telephone, or electric light wire, or

when a conductor carrying a heavy current crosses a telephone or telegraph line.

GALVANIC ELEMENT.—Albrecht Heil, Crumbach, Germany. A silver electrode attached to a lead support is sealed through the cover and embedded in a mixture of carbon and peroxide of manganese, enclosed in a linen bag, a felt cylinder or diaphragm surrounding the same, and adapted to be saturated with a suitable liquid. It is designed to render the element proof against oxidation of the binding screws, small and convenient in shape, with relatively powerful action, hermetically closed to prevent evaporation, cleanly and nice in appearance, and easy to make.

Mechanical.

SAND BLAST MACHINE.—John A. Shoemaker, Rochester, N. Y. This inventor has devised improvements in machines adapted to produce non-lustrous surfaces on previously polished buttons and other small articles, or for general use. Means are afforded to rapidly and perfectly sand blast a considerable number of buttons at one time, the machine being adapted for continuous operation, the articles operated upon being readily placed and removed, while the operator is enabled to gauge the force of impact of the sand blast and graduate the amount of sand pervading the air current used to effect the blast.

NUT LOCK.—Elmer J. Bickell, Jersey Shore, Pa. Combined with a longitudinally grooved bolt, and a nut having a circumferential groove near its lower side, is a locking piece comprising an annular plate having an integral key formed at the edge of its center hole, and fitting in the groove of the bolt, in connection with two sets of inclined spring fingers, one set projecting up to interlock key notches at corners of the nut and the other set extending down to be seated on material penetrated by the bolt.

LIFTING JACK.—Allan A. Smith, Grand Island, Neb. This jack has an elongated body or base, with which is connected a lifting device, while a ring slidable vertically on the base has a lateral flange adapted to engage the rim of a car wheel, the jack being designed particularly for railroad use in lifting the journal boxes of cars to enable the brasses to be removed, although it may be used for ordinary lifting purposes.

Miscellaneous.

SEWING MACHINE ATTACHMENT.—Ferdinand B. Almy, Providence, R. I. This invention relates to a presser foot attachment similar to a former patented invention of the same inventor. The improved attachment is capable of being secured to presser feet of various widths and thicknesses. The invention consists principally of an adjustable clamping device whereby the attachment may be secured to a presser foot, and a toe which is adjustably connected with the clamping device.

PROPELLING CAROUSELS, ETC.—Charles Braaf, New York City. This inventor has devised a propelling mechanism for each car, of such construction that the occupant or occupants cause the supports from which the carriages are suspended to revolve, thus dispensing with the usual motor. There is also provided a wind motor for each carriage, in the shape of a series of sails or a winged wheel, the sails opening and closing of themselves at proper intervals. The carousel may also be used for exercising purposes.

CHAIR COT.—Colin C. McPhee and Ivor E. Brock, Chatham, Canada. This is a simple and durable construction which may be quickly changed into a comfortable and portable cot, with pillow attachment, or into a reclining chair having a back adjustable to any desired angle, and a leg rest that adapts itself simultaneously to the changed position of the chair. The covering material, of any approved character, is conveniently attached to the chair frame.

LEVEL.—Harry Hughes, Alliance, Neb. This invention consists principally of a balance lever, fulcrumed at its middle in the stock and having at its ends adjustable weights, the fulcrum pin of the lever being provided with pointers indicating on dials fixed on the stock. The balance lever is locked in position when desired, and the friction between the lever and the stock may be regulated to take up wear, the implement quickly indicating an angle when placed in an inclined position, and being of very simple and durable construction.

DRAWING INSTRUMENT.—Edmund L. Sanborn, Waltham, Mass. This is a new and improved adjustable triangle, comprising a straight edge and a blade pivoted thereon. It is of simple and durable construction, and arranged to permit of conveniently drawing lines at angle to the T-square, and also lines perpendicular to each other.

TOBACCO CASING MACHINE.—David R. Fraley, Winston, N. C. This is a machine designed to facilitate the moistening or flavoring of tobacco preparatory to its being made into plugs, more thoroughly atomizing the flavoring, and more thoroughly and uniformly agitating and distributing the leaves to receive the flavoring liquid. The machine also cleans the tobacco of all trash and dirt, and is economical of the flavoring, the sprayer having an atomizer which can be readily adjusted in relation to the character of the tobacco. The tobacco, as it is agitated and fed forward to receive the spray, is first wound in one direction, then unwound at the spraying point and rewound in a reverse direction, whereby both sides of the leaves receive the spraying uniformly.

SHELL FUSE.—Dawson Conekin, Charleston, S. C. For exploding shells in pneumatic guns, and also for exploding torpedoes, this inventor has devised a simple and economic fuse to be fired by impact at its forward end with any object it may strike, or with the water. The fuse has a spring-controlled hammer, a sectional firing shaft whose sections are separable by concussion, and a trigger connection between the firing shaft and the hammer. A safety latch provides against premature explosion, but it is so constructed that after the shell leaves the mortar or gun the rotary movement of the shell causes the latch to be automatically carried out of the way of the firing hammer.

ANIMAL CLIP OR SHEARER.—Charles and Harry Burgon, Malin Bridge, near Sheffield, England. In this implement it is the design of the inventors to relieve the part of the mechanism by which reciprocating motion is imparted to the cutters of the duty of giving to the cutters the necessary cutting pressure, thus improving the work and requiring less strength. Combined with the oscillating cutter-driving lever is a pressure lever, loosely connected to the cutter-driving lever and oscillating with it about the same axis, while having an upward bearing against an abutment, a downward bearing upon the cutter, and a downward moving bearing at its rear end upon the machine frame.

CIGAR HOLDER.—Frederick D. Van Wickel, Corona, N. Y. The drawing tube of this holder is smaller externally than usual, and extends a little distance under the end of the cigar, to which it is attached by a hinged band, the cigar also resting in a forward semicircular supporting band on the holder. A hollow point or pin projects upward from the drawing tube, upon which is pressed the end of the cigar as it is placed in the holder, and just beneath this point is a small cup-like offset to receive nicotine, and adapted to be closed by a screw cap.

HAIR PIN.—Louisa Ousey, South Wimbledon, England. This pin is formed of thin, flexible wire, with serrated edges, the parallel wires of the body of the pin being slightly curved in the form of an arc, to better fit the shape of the head than the ordinary straight pins, while the points and the loop end are each slightly bent outward, or in a reverse direction.

BOTTLE NECK.—Leonard A. Pells and Louis Steiner, Brooklyn, N. Y. According to this invention a collar held in the neck of the bottle has a seat on its outer side on which is supported a flap valve adapted to close against the seat, there being in the outer end of the neck a stopper plug having a central bore extending partially through it, side ports connecting with the bore. The arrangement is such that liquid can be poured freely from the bottle, but no liquid can be forced into it, thus preventing the fraudulent refilling of labeled bottles.

AWNING WORKER.—John A. Gillin, Chicago, Ill. This inventor has designed a cheap and simple working mechanism whereby the awning may be instantly collapsed and thrown up out of the way, or as easily lowered into position for use. The mechanism is so arranged that the awning may be operated from the interior of the building, although protected from being tampered with by unauthorized persons.

BOTTLE FILLING MACHINE.—Samuel B. Smallwood, Long Island City, N. Y. Combined with a revolving tank containing the liquid is a series of filling tubes sliding in the tank, and a series of platforms in a circle in line with the filling tubes, the platforms supporting the bottles to be filled and moving with the tubes and tank. The construction permits the ready escape of the air from the bottle during the filling. A further patent has also been granted this inventor, under the same title, for an improvement designed to be