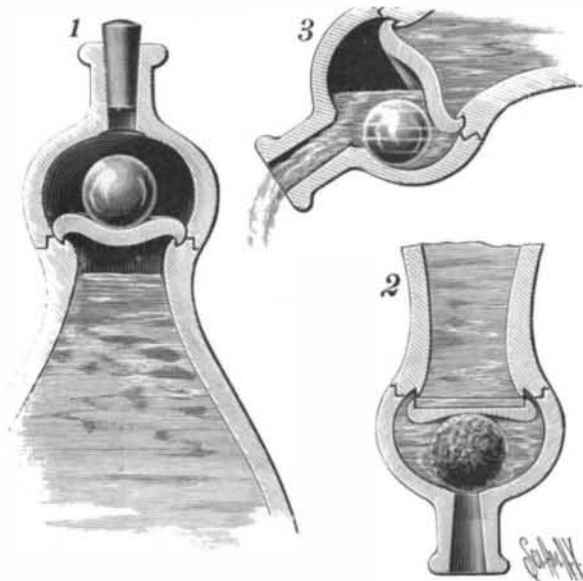


A BOTTLE STOPPER AND MEASURING DEVICE.

A valve stopper designed to prevent the refilling of a bottle after it has been emptied, and one with which the contents of the bottle may be discharged in measured quantities, is shown in the accompanying illustration. The improvement has been patented by Cornelius E. Wyckoff, of No. 365 State Street, Brooklyn, N. Y. Fig. 1 represents the stopper in a bottle, the latter being in upright position; Fig. 2 shows the bottle inverted, its contents then filling a measuring space, and Fig. 3 shows the position of the parts as the measured quantity is being discharged. The cap piece is secured on the bottle by cementing or in other



WYCKOFF'S BOTTLE STOPPER.

desired manner, after the bottle has been filled, the interior wall of the cap piece being substantially hemispherical, and having a contracted outlet to be fitted by a cork. About where the cap piece is fitted on the bottle is an annular groove forming a seat for an annular flange of a plate valve, on which rests a spherical body serving as a valve stopper for the inverted bottle, as shown in Fig. 2, while also allowing the plate valve to fall sufficiently away from its seat for the passage of material into the measuring device. When the bottle is tilted to the position shown in Fig. 3, the spherical body rolls to the lower side and forces the plate valve to its seat, thus preventing a further discharge of the contents of the bottle to the interior of the cap, while permitting that which is in the cap to be poured out. Where a continuous flow is desired from an inverted bottle, the spherical body is made with interstices or hemispherical depressions in its surface.

ISAFJORD, ICELAND.

We present an engraving, for which we are indebted to L'Illustration, of Isafjord, Iceland, which is one of the principal seats of the whalebone industry. The scenery here is magnificent, the country presenting the appearance of the fjords of Norway and Sweden. The snow remains on the mountains until the middle of summer. Tourists have had some thrilling adventures in climbing the mountains back of the little village. The bay is capable of holding the largest navy in the world. There are three whalebone fisheries near this place.

Whalebone has become very scarce and it now commands a large price. The name whalebone, under which the baleen plates of the right whale are popularly known, is a misnomer and the trade name of whale fin is equally inaccurate. Of the three kinds of whalebone which are found in commerce, that obtained from the Greenland whale, *Balaena mysticetus*, is the most valuable, and was one of the great staples of northern countries when the whale fishery was a large industry. To prepare whalebone for the market, the blades or plates are boiled for about twelve hours till the substance is quite soft. In this state it can be cut into narrow strips or into small filaments, according



ISAFJORD ICELAND.

to the use to which it is to be put. Whalebone possesses many unique properties which render it of great value. It is light, tough, flexible, and fibrous. The fibers run parallel with each other without intertwinning. The use of whalebone dates from 1808, when Samuel Crackles patented its use for brush making. Various special machines have since been devised for cutting the material into filaments. Whalebone was formerly used in the manufacture of umbrellas, but steel has now taken its place for this purpose. Whalebone is now principally used by dressmakers, milliners, and brushmakers.

Carpet Moths and Beetles.

In last week's SCIENTIFIC AMERICAN directions were given for preserving clothing and furs from the depredation of moths. We now copy from the Carpet and Upholstery Trade Review directions for protecting carpets and upholstery from moths and beetles. In the good old days, when camphor was sold at a reasonable price, it was the first resource of most housekeepers in their struggles against these villainous vermin, but in view of the extremely high cost of camphor nowadays and the ridiculously low price of carpets, it seems advisable to select some less precious article as a protection against those insects whose appetites work such havoc among woolen floor coverings. Moreover, camphor, however liberally used, is not regarded as a certain protection. Among the substitutes for camphor, which are less expensive and more efficacious, are: Benzine, corrosive sublimate, kerosene oil and carbolic acid. It is said that corrosive sublimate is the only sure defense against the buffalo carpet beetle. In utilizing this drug, take a wide mouthed earthen jar, pour into it two quarts of boiling water and dissolve in this one teaspoonful of corrosive sublimate. As the solution is poisonous, the jar should be plainly labeled and kept carefully covered. When possible it should be used out of doors, and applied with a small whisk brush kept for this purpose only. Gloves should be worn in using it, and care taken to prevent any of it touching the face or eyes. In applying it to rugs or carpets the best method is to hang them over a line, then dip the whisk into the liquid, shaking it nearly all off against the inside of the jar; then carefully brush the rug over both the right and wrong sides, without using enough of the solution to make the fabric wet. It is sufficient to slightly dampen the outside. The liquid will not injure any textile fabric, however delicate.

Benzine or kerosene oil will always kill the insects, if it can be brought into contact with them, and the mere odor of the benzine will kill the larvæ. When it is evident that a house has become infested, the carpets should be taken up and all the cracks and crevices in the floor and under the baseboard filled with benzine, a hand atomizer being used for the purpose. The carpets should also be beaten and then lightly sprayed with benzine. The cracks should then be filled with a mixture of plaster of Paris and water, which will soon set and form a hard substance which the insects cannot enter. In the case of a stock of carpets the benzine spray alone is generally sufficient to kill the insects. The benzine evaporates quickly and leaves no odor, but one should remember that it is very

inflammable and that no light should be brought near it.

A NEW BICYCLE BELL.

The illustration represents a bell for use with bicycles, the bell being rung with a continuous electric alarm effect by simply pressing on a lever on the handle bar. The improvement has been patented by Harry B. Breckwedel, of No. 315 West Forty-eighth Street, New York City. In clamps which may be readily secured to the rear braces of any bicycle is journaled a spring-pressed shaft carrying a swinging bell frame, the springs normally holding the outer end



BRECKWEDEL'S BICYCLE BELL.

of the bell frame up from the tire, as indicated by the dotted lines. The bell frame carries, at its outer end, rubber-faced rollers adapted to engage the tire, and on the shaft to which the rollers are secured is a stud adapted to be engaged at each revolution of the rollers, by an arm projecting forward from the hammer, as shown in the small figure, a spring holding the hammer normally out of operative position. From the other end of the bell frame a fine steel wire extends through guides to a lever pivoted on the handle bar, where it may be conveniently engaged by the hand of the user. By pressing with the thumb upon this lever, the hands being in the ordinary position on the handle bar, the outer end of the bell frame is depressed and its wheels are consequently rotated by the tire of the bicycle, each revolution of the small wheels causing a blow to be struck upon the bell and the ringing being automatic as long as the pressure is continued.

Lantern Slides.

A method of making slides for the lantern other than in the ordinary way is described by Dwight Lathrop Elmendorf, who says that, finding the lantern slide was a very useful piece of apparatus in teaching, he cast about for some method of quickly and inexpensively making a slide. Making a transfer one day, the idea was suggested that it might be used on glass.

So he placed on a suitable glass a piece of black carbon transfer paper, a drawing being placed on the top and traced upon the glass. When thrown upon the screen the effect was like a charcoal drawing, and answered fully the experimenter's hopes. Unless it is desired to specially preserve the slide, no cover glasses are necessary. He points out that old plates—ordinary or for slides—may be fixed, then washed, and the designs drawn upon them for colored subjects. The method is so handy that it may be practiced before a class.—Photography.

OBSERVATIONS made on the pendulum of the Paris Observatory, which is kept ninety feet under ground, with a temperature that varies one-hundredth part of a degree at most during the year, show that it is not quite proof against the variations of atmospheric pressure. It makes an error of one-third of an oscillation in twelve million, and it is proposed to remedy this error.

Science Notes.

Hajak, of Vienna, says that smokers are less liable to diphtheria and other throat diseases than non-smokers in the ratio of one to twenty-eight, says the Medical Age. Schiff remarks that smoking should be positively forbidden in bacteriological laboratories, because it tends to hinder the development of the bacteria.

Russia was declared free from cholera on February 24 for the first time since the year 1888.

Scrupox is a new disease to which football has given rise in England, says the Medical Record. It is a pustular eruption, coming indirectly from dirty jerseys and affecting especially the forwards in Rugby football, who have to shove in scrimmages. It has been proved to be contagious. Bacterioscopic examination has shown the presence of the staphylococcus pyogenes aureus.

The work on Herr Andrée's balloon is proceeding rapidly. A balloon house is to be erected in Spitzbergen. It will be octagonal in shape, 25 meters high and 37 meters broad. The walls and floors will be lined with felt at such points where the balloon will be liable to touch them. The roof will be covered with cotton cloth and the windows will be of gelatine in place of glass. The steamer on which the expedition will set out for Spitzbergen will carry about 35 tons of sulphuric acid to generate the hydrogen.

The St. Louis Observatory at St. Helier, in the island of Jersey, contains some interesting instruments. The observatory is situated on a small, open plateau, above the Jesuit College. It has a tower of the Eiffel type, about 170 feet high; access to the top is obtained by a spiral staircase. A number of instruments at the top are connected by a cable of electric wires with recording apparatus in the observatory proper. Among the special features of the apparatus used is an anemometer of special design. A T-shaped support with orientating arrangement bears on one arm an anemometer with half cylinders instead of the usual cups, being thus made sensitive, it is claimed, to horizontal components and horizontal currents only; while a helical fan on the other arm takes care of the vertical components. It is a curious fact, says Nature, that at this station, as at the Eiffel Tower at Paris, the diurnal variation of wind velocity shows an opposite character near the ground and at the top of the tower; in the former case the velocity reaches its maximum about midday and in the latter about midnight.

In a recent communication to the French Academy of Sciences, says the American Shipbuilder, an explanation is given of some of the curious phenomena pertaining to fog horns. It has been found that, with acoustic signals or sirens, they are surrounded by a neutral zone, in which the sound is not heard at the sea level. This zone is more or less distant, according to the height of the siren on the coast, and it has a main width of about 8,400 feet. On the nearer side of this zone the sound is heard perfectly. But when it is traversed, the sound weakens gradually until it becomes almost imperceptible, when it increases again, and, on the zone being finally left behind, the sound resumes its full intensity. Experiments have been made with a vessel by causing it to approach and recede from a lightship in various directions in a straight line. In each course the sound was deadened almost completely in a zone whose central line was about 15,000 feet from the siren.

Some interesting experiments, by Plateau, in insect vision are recorded in the Bulletin of the Belgium Academy. In a bed of bright colored dahlias he concealed from search the highly colored rays of some of the flowers, exposing only the disk, and in a second series of experiments the disk also, but independently, either by means of colored papers or by green leaves secured in place by pins. Butterflies and bees sought these flowers with the same avidity and frequency as the fully exposed flowers in the patch, the bees particularly pushing their way by the obstacles to reach them. From this M. Plateau concludes that they are guided far more by their perception of odors than by their vision of bright and contrasted colors. In the second communication, says Psyche, Plateau gives the details of another set of experiments to determine whether a wide meshed net presents any obstacle to the passage of a flying insect which could easily pass in flight through the interstices. He found that while such nets do not absolutely prevent passage on the wing, insects almost invariably act as if they could not distinguish the aperture, frequently ending by alighting on the net and crawling through. He reasons that through the lack of distinct and sharp vision, the threads of the net produce the illusion of a continuous surface, seen at a distance.

Preparations are being made for an unusual kind of transatlantic trip for a party of American physicians, who intend to start about July 1. The party will be limited to one hundred. Each member must be a physician in actual practice and a graduate of an American university. They will inspect the principal health resorts of Europe. It is expected that various cities will entertain the party officially, and it is be-

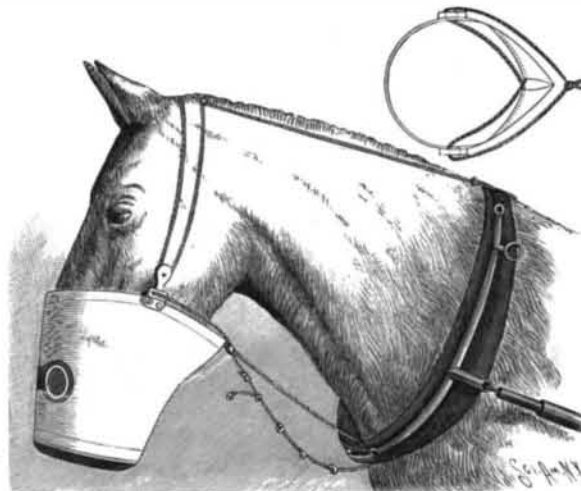
lieved that they will be received with the greatest courtesy by prominent surgeons and physicians.

The will of Benjamin Franklin was allowed in the Probate Court of Suffolk County, at Boston, on March 26, on the petition of Mayor Quincy, as a foreign will, having been probated in the Orphans' Court in Philadelphia. The probate of the will in Boston was deemed necessary in view of the legal disposition of the "Franklin Fund," which was created by the will of Benjamin Franklin, and which now amounts to several hundred thousand dollars.

The bill to provide for a director-in-chief of the scientific bureaus of the agricultural department has been reported favorably by the Senate committee on agriculture.

FEED SAVING NOSE BAG.

The illustration represents a nose or feed bag adapted to be so applied to the head of a horse that the latter will be prevented from throwing the feed out of the bag by tossing his head. The improvement has been patented by Clement E. Burbank, of No. 31 Eighth Avenue, New York City. At opposite sides of the top of the bag are pulleys through which is passed a cord to form double loops over the head of the horse, and the rear loop is connected by an extension of the cord to the check hook, so that when the horse lowers his head to reach the feed at the bottom of the bag the latter is raised slightly to bring the feed within easy reach. On the inside upper rear edge of the bag are side extensions of somewhat triangular form, which fold over to form pockets, in the edges of which are drawstrings, as indicated by the small figure. Each cord or drawstring passes across the interior of the feed bag at the rear and around a pulley, extensions of the cords being carried back and knotted, to be engaged by a hook secured to the breast collar of the harness. When the horse tosses his head these cords are tight-



BURBANK'S NOSE BAG.

ened, drawing the pocketlike extensions in the rear of the bag close against the under side of the horse's jaw, and thus preventing any waste of feed. In taking off the feed bag, these cords are disconnected from the collar and secured around the bag itself, one of the cords passing through a loop on the front of the bag.

Botanical Notes.

The Candle Tree.—The genus *Parmentiera* (named after Aug. Parmentier, who did much for economic botany) embraces two American species, the fleshy, cylindrical fruit of one of which may be compared to a cucumber and that of the other to a wax candle. Indeed, in the Isthmus of Panama, the latter (*P. cereifera*) is termed the candle tree or Palo de Velas, because its fruits, often four feet long, have a striking resemblance to yellow wax candles, and a person entering the forests which are composed of this tree might almost fancy himself in a candle factory, for these fruits are suspended from all the stems and older branches. They have a peculiar applelike odor, which communicates itself in some degree to the cattle fattened upon them, but which disappears if, a few days previous to killing, the food be changed.

The Shoe-black Plant.—*Hibiscus Rosa-Sinensis*, a well known greenhouse plant, is a native of India, China, and other parts of Asia. In its native countries it is a tree of twenty or thirty feet in height, and bears flowers that are very variable—double, single, red, purple, white, or variegated, according to the particular variety. These flowers contain a quantity of astringent juice, and when bruised rapidly turn black or deep purple. They are used by the Chinese women for dyeing their hair and eyebrows, and in Java for blacking shoes, whence the plant is called the shoe-black plant.

The Toothbrush Plant.—The genus *Gouania* embraces upward of twenty species of climbing shrubs, most of which inhabit the forests of tropical America. The most interesting of these is the *G. domingensis*, a common creeper in the West Indies and Brazil. In Jamaica it is called chaw stick, on account of its thin,

flexible stems being chewed as an agreeable stomachic. Toothbrushes are also made by cutting pieces of chaw stick to a convenient length and fraying out the ends, and a tooth powder to accompany the use of the brush is prepared by pulverizing the dried stems.

Toothpick Plants.—*Ammi Visnaga*, an umbelliferous plant, is called the toothpick bishop-weed on account of the use made in Spain of the rays or stalks of the main umbel. These, after flowering, shrink and become so hard that they form convenient toothpicks. After they have fulfilled this purpose they are chewed, and are supposed to be of service in strengthening the gums. The spines of *Echinocactus Visnaga* are in common use among the Mexicans for the same purpose. The number of these spines upon a single plant is something enormous. A comparatively small plant in Kew Gardens was estimated to have 17,600, and a large specimen at the same place could not have less than 51,000.

The Hand Flower Tree.—This tree, the English name of which is a literal translation of *Macpalxochiquahuitl*, the somewhat cumbersome name by which it was known to the Aztecs, is the sole species of the genus *Cheirosteman*. The arrangement of the stamens in the flower of this plant is most remarkable. They are of a bright red, and are united for about a third of their length (four inches), when they separate into five curved clawlike rays, and thus bear some resemblance to a human hand. A solitary specimen of this tree was first discovered growing near the town of Toluco, in Mexico. It was of great age and an object of veneration among the Indians, both on account of the remarkable structure of its flowers, and because they supposed no other tree of the kind existed elsewhere; but forests of it have since been discovered near the city of Guatemala.

The Sack Tree.—From a species of *Antiaris* (the genus which includes the celebrated upas tree) sacks are made in Western India by the following singular process. A branch is cut corresponding to the length and diameter of the sack wanted. It is soaked a little, and then beaten with clubs till the fiber separates from the wood. This done, the sack formed of the bark is turned inside out and pulled down till the wood is sawed off, with the exception of a small piece left to form the bottom of the sack. These sacks are in general use in Western India.

The Lace Bark Tree.—The tree producing the well-known lace bark of Jamaica is called in that island by the name of *Lagetto*. The inner bark of this tree (the scientific name of which is *Lagetta lintearia*) consists of numerous concentric layers of fibers which interlace in all directions, and thus present a great degree of resemblance to lace. It is said that Charles II received as a present, from the governor of Jamaica, a cravat, frill and pair of ruffles made of this material, and it is to this day used for bonnets, collars and other articles of apparel by Creole ladies.

Seeds as Weights.—The beautiful black spotted scarlet seeds called love pease (*Abrus precatorius*), which are much used for necklaces and other ornamental purposes, are employed in India as a standard of weight under the name of "rati." The weight of the famous Koh-i-noor diamond is known to have been ascertained in this way. The seeds of the carob tree (*Ceratonia Siliqua*) are said to have been the original carat weights of the jewelers.

The Clearing Nut.—Notwithstanding the venomous nature of the species of *strychnos* whence the drug nux vomica is derived, the seeds of another species (*S. potatorum*) are used in India for clearing muddy water. The natives never drink clear well water, if they can get pond or river water, which is almost always impure, according to circumstances. One of the seeds of the clearing nut tree is well rubbed for a minute or two around the inside of the vessel (generally an unglazed earthen one) containing the water, which is then left to settle. In a very short time, the impurities fall to the bottom, leaving the water clear. Bitter almonds, by the way, are said to be employed for the same purpose in Egypt, and those of kola or *sterculia* in Sierra Leone. Dr. Pereira states that the efficacy of the clearing nuts depends upon their albumen and casein, which act as fining agents, like those employed for wine or beer.

Whisky Root.—A plant belonging to the genus *Anhalonium*, of the order *Cactaceæ*, which has long been known by the name of whisky root, from its effects on the system, which resemble those produced by alcoholic drinks, has recently attracted some attention as a stimulant and nerve tonic new to materia medica. The part of the plant used is what is popularly called the "button." This is sliced by the Indians of Southern Texas, and the small pieces being chewed and the juice swallowed, the intoxicating effects follow, it is said, in about the same time as would those of a drink of whisky. The Indians sit for hours enjoying the beautiful visions of color and other manifestations caused by the intoxication. There are several species of the genus, one of which was known to the Aztecs as *peyotl*, and the intoxicating effects of which are briefly described by Sahagun.—Hist. Universal de las Cosas de Nueva España.