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Improved Bee Palace.

No delicacy is more delightful, or acceptable to all palates, than honey made from plants free from strong odors and disagreeable flavors. Bees when well cared for will produce large quantities; but if left to chance, and exposed to the inroads and attacks of moths and other vermin, the quality of the honey is depreciated, and the amount not so great as under more favorable circumstances. Much more attention is now given to the care of bees than formerly, and many persons in different parts of the country make the habits of these insects their especial study. From this intimacy there arises a practical knowledge of the subject, which is greatly to the advantage of those interested in the science of bee-keeping; for the art of rearing these little insects successfully has almost attained to the dignity of a scientific pursuit. Herewith are published several views of the construction and arrangement of Dickinson's bee palace, a full description of which will be found subjoined.

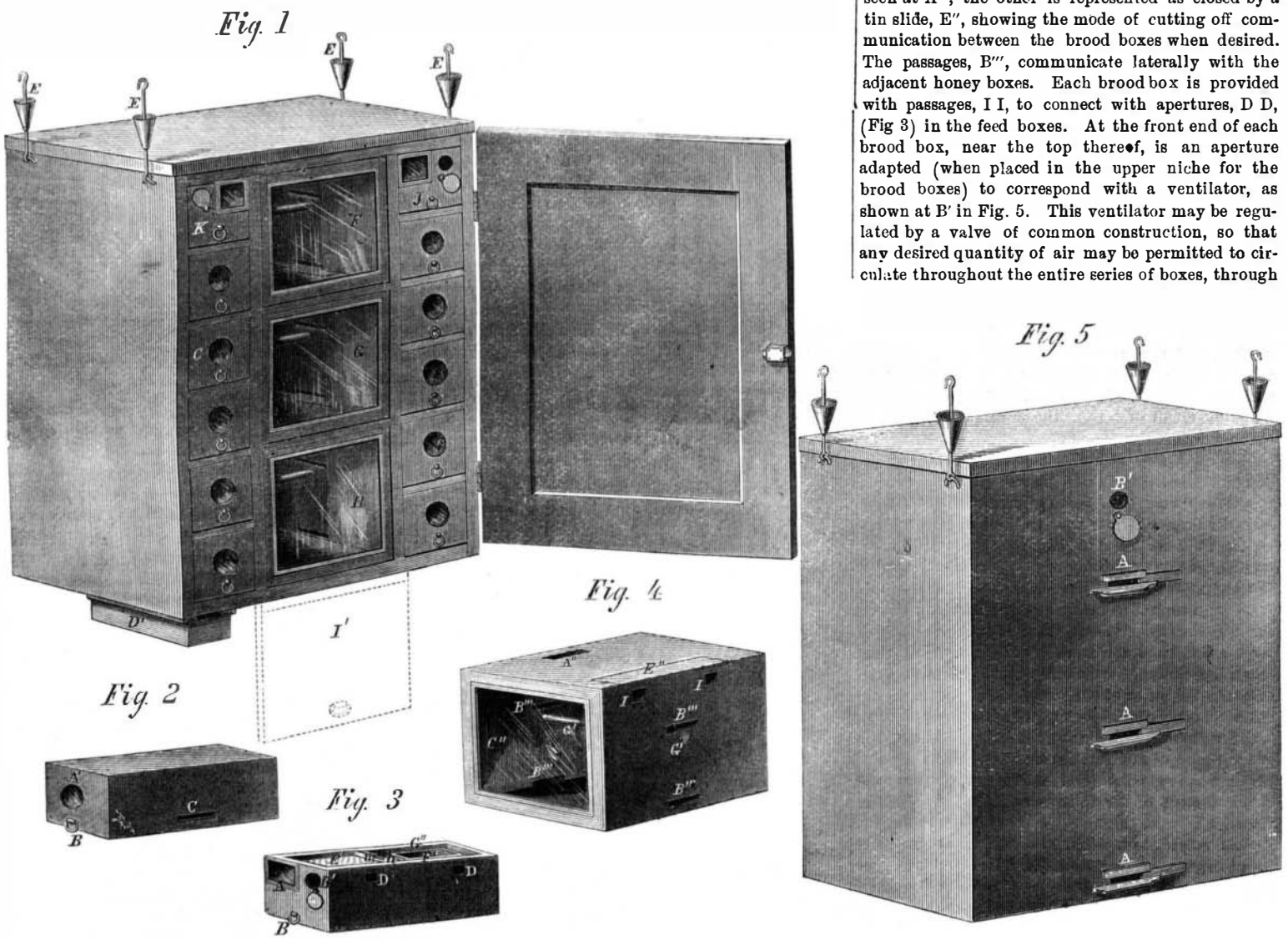
Fig. 1 is a perspective view as seen from the rear side; the door being left open to show the interior arrangement of the brood, honey, and feed-boxes. Fig. 2 is a perspective view of the honey box. Fig. 3 is a view of the feed-box. Fig. 4 shows the brood box. Fig. 5 is the hive, as seen from the front side, showing the main entrances, A, for the bees open.

The invention consists of a rectangular box divided by upright and horizontal partitions, so as to admit the desired number and arrangement of the several brood, honey and feed-boxes, together with a decoy drawer for moths; the whole structure to be suspended by four iron hooks, one at each upper corner of the hive, which are encased by cups in the form of inverted cones. These cups are to be filled with any suitable liquid, for the purpose of excluding and destroying vermin.

The palace, as represented in Fig. 1 is composed of three brood boxes, F G H, ten honey boxes, C, and two feed-boxes, J K, all communicating with each other as hereinafter described. Each honey and brood box is similarly constructed, so that the description of one of each will suffice. In Fig 2, A′ represents a glass of suitable dimensions, C the bee passage, and B a ring or knob whereby the box may be withdrawn from its casing, when desired. This honey box is provided with a bee passage in each side, which communicates with the passages in the brood boxes. The brood box, Fig. 4, is provided with a bee passage in its front end, at the bottom (not shown in the engraving) communicating with an outer bee passage, A, as shown in Fig. 5. The rear end of the brood box is furnished with a pane of glass, C″, which permits the inspection of the brood. At G′ may be seen the comb supporter. The top of the box is provided with two apertures which afford the means of communication with the other brood boxes; one of these apertures can be seen at A″; the other is represented as closed by a tin slide, E″, showing the mode of cutting off communication between the brood boxes when desired. The passages, B‴, communicate laterally with the adjacent honey boxes. Each brood box is provided with passages, I I, to connect with apertures, D D, (Fig 3) in the feed boxes. At the front end of each brood box, near the top thereof, is an aperture adapted (when placed in the upper niche for the brood boxes) to correspond with a ventilator, as shown at B′ in Fig. 5. This ventilator may be regulated by a valve of common construction, so that any desired quantity of air may be permitted to circulate throughout the entire series of boxes, through the medium of their respective apertures or passages.

The brood boxes may be constructed without bottoms, so as to afford ready access to the inside thereof, for the purpose of cleaning, or they may be provided with adjustable bottoms. Fig. 3 is a perspective view of the feed box from the rear, which is shown at J in Fig. 1; it is equally divided by a transverse partition, *m*. The water department, E′, is provided with a perforated float of pine wood or other suitable material, and *h* is a passage communicating from the watering department to the flour box, G″, and salt pan, F″.

The suspension hooks, E E, are provided near their lower ends with cups, the shape of each being that of an inverted cone. When the hive is suspended, these cups are supplied with water, or any



DICKINSON'S PATENT BEE PALACE.

other suitable liquid, for the purpose of destroying and consequently excluding any vermin which may attempt to enter the hive. The door, I', is hinged to the underside of the hive, and closed by a button, whereby the palace may be readily cleaned when desired. The underside of the hive is also provided with a moth decoy drawer, D', which is filled with honey comb. The moth miller will invariably enter this apartment and deposit its larvæ; the apiarist, therefore, is enabled by the existence of this chamber, not only to destroy the germs which have been deposited in the comb, but the moth miller itself; thereby destroying one of the greatest pests which he has to encounter.

The patent for this invention was procured through the Scientific American Patent Agency, on May 26, 1863. Further information can be obtained by addressing the inventor, Mr. Wm. M. Dickinson, Goshen, Elkhart Co., Ind.

NEW BOOKS AND PUBLICATIONS.

Heat Considered as a Mode of Motion; by D. Tyndall, F. R. S., published by D. Appleton & Co., Broadway, New York.

This volume is the product of twelve lectures delivered at the Royal Institution, London, in 1862, and is the most valuable contribution to scientific literature that has been published in many years. The author states that he has endeavored "to bring the rudiments of a new philosophy within the reach of persons of ordinary intelligence." It is certainly a most attractive and instructive book, and fully explains the modern philosophy of force as applied to heat. It is illustrated with a large number of engravings to explain experiments, showing the convertibility of heat into mechanical power, and mechanical power into heat—the correlation of the physical forces. The "new philosophy," so called, is rather an old philosophy, better understood in its details. It was known more than a century ago that heat could produce mechanical motion in the steam engine, and that the latter could develope heat by friction, so that heat and mechanical power were mutually convertible. But to modern investigators belongs the credit of tracing the subtile effects of heat through innumerable operations, and measuring the quantities of force as accurately as weighing grains of gold. Professor Tyndall is very careful in using the term "heat as a mode of motion." We have seen the term "heat is motion," used by scientific writers; but motion means a body changing position or place, while heat is a force. We will now give a few quotations from this remarkable and useful volume, with respect to heat being developed by falling water. He says, "There are friends before me who have stood amid the foam of Niagara. Had they when there, dipped sufficiently sensitive thermometers into the water at the top and the bottom of the cataract, they would have found the latter a little warmer than the former. The sailor's tradition is theoretically correct, that the sea is rendered warmer through the agitation produced by a storm, the mechanical dash of the billows being ultimately converted into heat."

With respect to friction, he says, "Whenever friction is overcome, heat is produced, and the heat produced is the measure of the force expended in overcoming friction. The heat is simply the primitive force in another form, and if we wish to avoid this conversion, we must abolish the friction. It is the object of a railway engineer to urge his train bodily from one place to another, and he wishes to apply the force of his steam, or his furnace, which gives tension to the steam, to this particular purpose. It is not his interest to allow any portion of that force to be converted into another form of force which would not further the attainment of his object. He does not want his axles heated, hence he avoids, as much as possible, expending his power in heating them. In fact he has obtained his force from heat, and it is not his object to reconvert the force thus obtained into its primitive form. For every degree of heat generated by the friction of his axles, a definite amount would be withdrawn from the urging power of his engines. There is no force lost absolutely. Could we gather up all the heat generated by the friction, and could we apply it mechanically, we should by it be able to impart to the train the precise amount of speed which it had lost by friction. A station is approached at the rate of forty miles per hour, the brake is applied, and smoke and sparks issue from the wheel on which it presses. The train is brought to rest. How? simply by converting the entire moving force which it possessed, at the moment the brake was applied, into heat."

"Davy found that when a gunlock with a flint was discharged in vacuo, no sparks were produced; but the small particles of steel struck off, when examined by the microscope, showed signs of fusion." "A bullet in passing through the air is warmed by the friction, and the most probable theory of shooting stars is that they are small planetary bodies, revolving around the sun, which are caused to swerve from their orbits by the attraction of the earth, and are raised to incandescence by friction against our atmosphere."

In 1798, while that eminent American—Count Rumford—was engaged in boring cannon at Munich, he was so forcibly struck by the large amount of heat developed in the process of boring, that he devised a special apparatus to examine the generation of heat by this mode. He made an iron cylinder, into which he fitted a fixed solid plunger which pressed against its bottom. The box which surrounded this cylinder contained 18 lbs. of water, and in this he placed a thermometer. The cylinder was then made to revolve, pressing on the plunger, and in one hour the temperature of the water was raised from 60° to 107° Fah., and in two hours and twenty minutes the water boiled. Persons who were invited to witness the experiment were astonished to see water boiling without fire. Count Rumford was delighted with the results, and he expressed the opinion then, that motion was convertible into heat. The theory elucidated in this work respecting heat, is that heat is a kind of molecular motion; and that by friction, percussion, or compression, this motion may be generated, as well as by combustion. The old material theory of heat may be said to be defunct. The work is written in a charming style, and is the most popular exposition of the dynamical theory of heat that has yet appeared.

Coal Tar Colors; by Professor Dussauce, published by Henry Carey Baird, 406 Walnut street, Philadelphia, price $2.50.

This is a treatise on the history and preparation of those beautiful aniline colors, now so common, and which are manufactured from one of the constituents of coal tar. Such colors are prepared ready-made to the dyer, either dry, in powder, or dissolved in alcohol, for immediate use. They are applied in a dissolved state to color silk and wool, by simply mixing a small quantity of any one of them with water in a warm bath, then handling the fabric in this until it has acquired the desired shade. A very minute quantity of the red color, will dye a pink; and all intermediate shades up to red may be dyed by adding a larger quantity. The purple aniline will dye a lilac, and all intermediate shades up to purple, according to the quantity of coloring matter that is employed. Thus dyeing with such colors has rendered the art a very simple affair, compared with the old modes of dyeing with vegetable extracts. Many dyers have complained to us that they have found it far more difficult to dye aniline blue than any other color. This is noticed in the book, and the mode of dyeing this blue on silk is described in substance as follows. After being cleaned, the silk is first worked in a dilute solution of aniline blue, acidulated with sulphuric acid, until the depth of color desired is obtained. In this operation the bath is kept at a moderate temperature, then raised to the boiling point, after which the silk is taken out and rinsed in cold water. After this it is run through strong soap suds, washed in water, run through a weak bath of sulphuric acid, and afterwards thoroughly washed in water and dried. This described mode of dyeing aniline blue may be useful to some of our dyers.

United States Army and Navy Journal.

This is the title of a new weekly newspaper devoted to the interests of the Army and Navy, to be published by D. Van Nostrand, 192 Broadway, this city; edited by W. C. Church—proprietor—late of the staff of Major-General S. Casey. An ably edited paper of this character seems to be demanded, by the importance which military and naval affairs have now assumed in our country. The editor states that it will be his object to make this serial interesting and reliable in all news relating to military and naval operations, and the discussion of all questions connected with such subjects. It will contain, from week to week, full official lists of all appointments, promotions, changes of station, deaths, resignations, dismissals, and other changes in the *personnel* of the two services: a full and reliable record of all active operations by the Army and Navy: a summary of all official orders proper for publication: a full account of the operations of the Coast Survey, the Revenue Service, and all changes among the officers of these two departments: changes in the medical department of the two services, with matters relating to military hygiene, surgery and the sanitary condition of the Army and Navy: descriptions of inventions and improvements relating to the Art of War, and of experiments and discoveries illustrative of military science in this country and abroad: narratives of military and naval exploits and adventures: correspondence from members of the two services, and answers to questions in regard to difficult or disputed tactical matters, or other subjects suggested by correspondents: an account of important movements of foreign armies and navies, with notices of changes in the *personnel* of the services of foreign nations: criticisms upon current literature and art, of interest to the Army and Navy: articles upon military and naval engineering: stations of naval vessels in commission, reports of Navy Yards, and movements of foreign naval vessels, with editorial discussions upon subjects of interest to our soldiers and sailors: a summary, in short, of whatever occurs in all parts of the world of value to our Army and Navy, and no effort will be spared to make the *Journal* complete in all its parts. It is the aim of the proprietor to make it not only a complete military and naval gazette, but at the same time a high-toned, reliable, lively journal, which will be read with interest by the families and friends of those connected with the public service and by the great body of the intelligent public. The subscription is $5 per annum.

Atlantic Monthly: Ticknor & Fields, Boston, Mass.:

This standard periodical is always a welcome guest upon our table, and the contents never disappoint us. The September number contains, among other interesting matter, a paper, by Professor Agassiz, on the Geological Age of the World, which alone is worth a year's subscription. There is a disquisition on Thomas De Quincey, another on Robert and Clara Schumann, and other articles of greater or lesser importance, with the usual amount of poetry.

Petroleum and Health.

A memorial was lately sent to the Liverpool Health Committee, signed by several hundred citizens, and complaining of the storage of petroleum in their neighborhood as "a nuisance and prejudicial to health." The question was referred to Dr. French, the medical officer of the Board of Health; and, after a very thorough personal examination of the case, he reported that, while he had no hesitation in pronouncing the oil a nuisance on account of its strong offensive smell, his investigation satisfied him that petroleum was not prejudicial to health. In order to make a full investigation, he visited 153 houses in the vicinity of the oil stores, and found no cases of sickness arising from the petroleum. His report says:—

"The medical officer of health particularly observed the condition of the children and young people—first, as being more sensitive to the effects of noxious vapors; second, as being less likely to be sufferers from either intemperance, or those anxieties of life which give to the countenance the aspect of disease. He never remembers to have seen in any district of the town, so many healthy, ruddy-faced children, or more healthy-looking young people."

The introduction of machine-made bags dates subsequent to the Exhibition of 1851, and all branches of trade are now using them. The manufacture of the bags consumes an immense quantity of gray and brown paper. One of the large London works turns out 130,000 bags per day.