

of minute division. After the ware is ornamented, it is inclosed in a muffle furnace, shown in Fig. 10. This consists of an inner box of fire brick, which is so arranged as to be completely surrounded by the products of combustion. After the colors are developed the articles are removed, and hand-burnishing of the metallic portions completes the manufacture.

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Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as Agricultural work for March, Air and smoke, Air, compressed, and steam, etc., with corresponding page numbers.

FROZEN PIPES AND HYDRANTS.

This year the winter has been really one of the kind that are only equaled in the memory of the oldest inhabitants. In some places not far from New York, we hear of the water in mains being frozen, where it was supposed that the pipes were deeper in the ground than the frost ever penetrates.

good deal of inquiry, however, we infer that the plumber reasons somewhat in this manner: "It will cost me thirty or forty dollars, or perhaps a little more, to make a steamer; and if I use it, I can clear a pipe in two or three hours. But if I keep on in the good old way, and build a wood fire around the pipe, I will incur no expense at starting, and will be a day or two about the job."

INCREASE OF POSTAL CHARGES.

The same Congress which rendered itself infamous by the passage of the well known salary grab again looked after its own interests, at the expense of those of the public, during the last hours of the late session, by enacting a law altering the postal rates in order that its own speeches might be enabled to cumber the mails.

That this additional tax upon the people is due, in large measure, to the lobbying influence of the express companies there is very little room for doubt. Cheap postal rates are obviously in opposition to their interests, and it is well known that a strong and constant pressure has been brought to bear on Congress in their behalf during the past session.

There is a large number of persons whom the measure will directly affect in a business point of view. Publishers of books, of pamphlets, in fact of all works other than periodicals, many of which are of great value to the community as disseminators of useful information, will find it necessary to reduce the weight of their packages one half, in order to mail them at the same price as formerly.

rather anomalous state of affairs is caused when a person is charged three cents to send this paper across the river from New York to Brooklyn, and but two cents to forward it over the ocean to London.

The country has very little cause for gratitude to Senator Hamlin, of Maine, for pushing through this ill-advised law. Its prompt and early repeal is a measure which the next Congress will doubtless find is demanded by the people.

MODELS BY MAIL.

We recently advised our readers that, by the provisions of the new postal law, they were at liberty to send models and other matters through the mail, in packets weighing not more than four pounds, at the rate of eight cents a pound; and we dilated a little upon the excellence and great public convenience of this arrangement.

A TRADE MARK REJECTION.

The Commissioner of Patents, on an appeal taken to him in person, has had occasion to set aside a decision of the Trade Mark Examiner, who refused registration to the applicant, because the latter stated in his papers that he had not used, but intended to use, the mark.

The Commissioner of Patents reversed this decision, and at the same time administered to the Examiner a rebuke which, if has any sensibility, he will be likely to remember.

"The language of the statute is made so plain that it would seem impossible for any one to err therein. Yet this plain language the Examiner assumes to criticise as loose, and interprets it exactly contrary to the obvious meaning by an altogether unnecessary inference."

The decision of this Examiner is only one of the many examples of Patent Office errors which are not likely to be eliminated while the present practice is maintained. About one hundred examiners are now employed, chiefly in hunting up objections to the grant of petitions for patents.

PARTNERSHIPS OF ANTS AND PLANTS.

The curious observations of the "Naturalist in Nicaragua," in connection with the ant-supporting plants and plant-protecting ants of tropical America, have been described in these columns. In certain acacias and cecropias, it will be remembered, Mr. Belt found the ants serving as volunteer armies for the defence of the trees against invasion by insect or other enemies, resenting with bites and stings the slightest interference with their charge, while the plant in return provided habitations for the ants, and either special secretions and fruits for their sustenance, or juices for the support of their domestic cattle: the relation between the two being so close that neither could thrive without the other.

It appears from the investigations of Mr. Britten, of the Botanical Department of the British Museum, that this remarkable sort of partnership is not so rare as has been supposed. His attention being called to the matter by Mr. Belt's observations, Mr. Britten has gone over the books and material at his command, and collected the scattered notices of ant-tenanted plants, a resumé of which he gives in a long article in the Popular Science Review, mentioning the following orders and genera as affording known examples, and specifying the parts of the plants which the ants inhabit

- Leguminosæ: Acacia, various species: thorns. Melastomaceæ: Tococa, calophysa, myrridinone, and maieta, various species: petioles and leaf bases. Rubiaceæ: Myrmecodia and hydrophytum: tubers. Remijia, petioles. Gentianaceæ: Tashia Guianensis: stems. Boraginaceæ: Cordia nodosa: base of petioles. Verbenaceæ: Clerodendron: internodes. Poligonaceæ: Triplaris, various species: trunks and branches. Artocarpaceæ: Cecropia peltata: trunks and branches. Orchidaceæ: Schomburgkia tibicinis: pseudo bulbs.

One of the most striking instances of this sort is afforded by myrmecodia tuberosa, to the very existence of which it is essential that the tuber should be tenanted by ants. It was discovered by Rumpf, in Amboy, something over a hundred years ago; but he was uncertain whether the whole was a vegetable or whether the tuber was an ant's nest from which the plant sprung. It presents the form of a large, irregular tuber, from which spring a few thick, fleshy leaves crowded together at the summit. Dr. Beccari, who has lately collected the plant in Borneo, has watched the development of the tube throughout all its stages. The seed is surrounded by a viscid pulp, resembling that of the mistletoe, and readily attaches itself to the branches of trees on which it falls. It is probable that birds aid also in its distribution. The seed soon germinates under favorable conditions and unfolds its cotyledons; the stem develops slightly, then stops until a particular species of ant burrows a small lateral cavity at its base. The wound determines a great development of cellular tissue, as the sting of the cynips causes galls on the