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NEW SERIES

## PARCE'S HOISTING CRANE.

The accompanying engraving represents an improved hoisting crane. The device for bracing the arm against the twist, or torsion strain, will attract the attention of such of our readers as take an interest in mechanical contrivances. To the post, A, which turns on pivots, the main arm, E, is firmly fastened. By means of a hinged joint, the outer arm, F, is connected with the main arm, E; the pin of this hinge is oval in form, and is firmly fastened into the main arm, E, so that it cannot turn, with its largest axis perpendicular to the line of the arm. The jointed arm, F, turns about this pin; the holes in F, through which the pin passes, being round, and fitting the pin loosely. The object of this arrangement is to hold the end of the arm, F, up horizontally when it is turned at right angles to the main arm, E. The rope, G, passes between friction rollers, m, the axes of which are vertical.

The description of the bracing device we copy from the specification: "The main arm, E, is strengthened by means of double diagonal braces, I, which are united by a stay, r, which passes freely through an aperture, S, in the arm, E, without touching any part of the same, and the several arms, t and t', are attached to the arm by means of bolts or rivets, u u' u'' and u''', as clearly represented in Fig. 1; and all the arms, t t', are secured in the center to the stay, r, by means of nuts, v, as represented in Fig. 2."

\* \* "If the weight be brought into a position, as represented in dotted lines in Fig. 2, the strain exerted by the same on the main arm, E, has a tendency to twist the outer end of the same, so as to turn the bolt, u', out (Fig. 1), and the bolt, u, in; but any strain which has a tendency to twist the outer end of the main arm, E, in this direction is brought to bear on the bolts u'' and u''', by means of the arms, t and t', of the brace, I; and, as the stay, r, passes freely through the aperture, S, in the main arm, E, any little motion in the braces, t and t', has no effect on the central part of the arm."

The object of this bracing is to allow the arm to be swung with less power than would be required if it was allowed to twist; and "that the strain exerted by the weight on the arm may be brought to bear on that part of the same where it joins the post." If the bent arm twists with a heavy weight at the end, in swinging the arm out straight, we are obliged to raise the weight, with a useless expenditure of power.

The proprietors of this patent are Messrs. Deland & Parce, Fairport, N. Y., and they will be happy to answer any inquiries in regard to it. The patent on this crane was granted July 26, 1859, to J. Y. Parce.

## WHAT IS THE CAUSE OF HONEY-DEW?

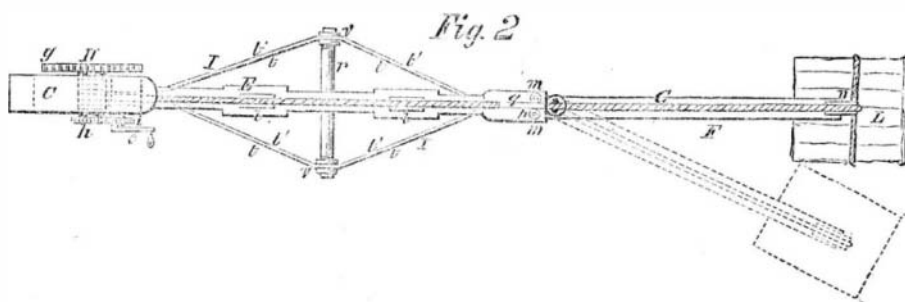
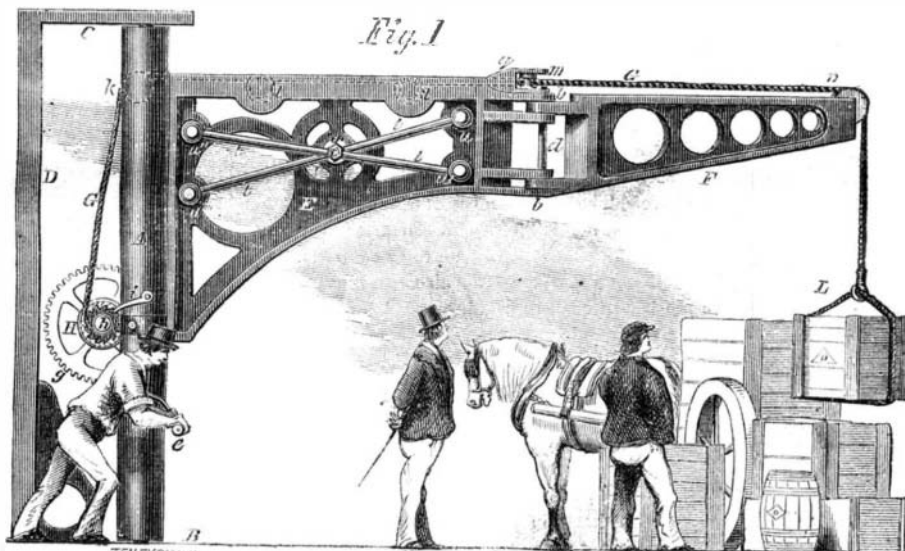
A correspondent presents for our consideration the above inquiry, concerning which little is generally known; in fact it is one of the most curious and interesting subjects which have ever attracted the attention of observers. Honey-dew is a liquid sugar, the excrement of plant lice, called by entomologists, *Aphides*. They cling to the under side of leaves, and drop the excrement down upon the leaf below. The *Aphides*, from a most extraordinary peculiarity of their propagation, have been the object of long, patient, and very close observation on the part of three or four different naturalists, and strange as it may seem, it is fully settled that the young of a brood are all females, and these carefully excluded from the instant of birth in tight vessels, also have young without ever seeing the male. This continues for ten generations. But the tenth generation, wonderful to relate, is composed of both males and females. The un-

for depriving water of this fault have fulfilled the expectations as regards lime, but act very little on the magnesia. The new method of Buff & Versmann allows any water to be freed from lime as well as magnesia. The substances used are of the very cheapest description. Water of any degree of hardness can readily be softened by adding the substances in due proportion, and the salts used are perfectly innocuous in washing the goods as well the persons employed." The substance employed is a mixture of silicate and carbonate of soda, or in place of the latter some compound able to precipitate the lime. The proportion required is found by determining the degree of hardness of the water by Clark's method, taking for each hectoliter three grammes of anhydrous carbonate of soda (or sal soda in proportion) for every degree of hardness indicated, and as much silicate of soda as contains three grammes (46 grains), of silicic acid for each gramme of magnesia contained in the water. After stirring in these compounds the whole is allowed to rest for a day or more, and the clear purified water drawn off.—*Dingler's Polytechnic Journal*.

**THE CROW.**—"Down east" the crow is regarded as a great pest; so great that the genius of invention is taxed to produce all kinds of scare-crows, and yet the *Atlantic Monthly* dares to defend him in the following terms:—"He consumes in the course of the year vast quantities of grubs, worms and noxious vermin; he is a valuable scavenger, and clears the land of offensive masses of decaying animal substances; he hunts the grass fields, and pulls out and devours the underground caterpillars, wherever he perceives the sign of their operations, as evinced by the wilted stalks; he destroys mice, young rats, lizards and serpents; lastly, he is a volunteer sentinel about the farm, and drives the hawk from its enclosures, thus preventing greater mischief than that of which he is himself guilty. It is chiefly during seed time and harvest, that

the depredations of the crow are committed; during the remainder of the year we witness only his services, and so highly are those services appreciated by those who have written of birds, that we cannot name an ornithologist who does not plead in his behalf."

**OUR PINE FORESTS.**—The *Baltimore Exchange* says: "Those persons who have been accustomed to regard the pine forests of the South as of little commercial importance, will be surprised to learn that the annual value of the hewn timbers, the sawed plank, boards, scantling, rosin, pitch, and turpentine, is estimated to be not less in the aggregate, than from twelve to fifteen millions of dollars.



## PARCE'S HOISTING CRANE.

equivocal amours of these have been watched with the most intense interest by M. Bonnet and others, and there seems to be no doubt that the males of one generation render the females fruitful for the next ten generations.

There is another entirely different substance sometimes called honey-dew, which is secreted from the plants on which it is found.

## METHOD FOR PURIFYING HARD WATER.

Buff & Versmann, of England have introduced a substance under the name of "Holland Compound" for the purpose of rendering soft and purifying water. Prof. A. W. Hofman, of London, says of it: "The hardness of water is caused by the lime and magnesia salts contained in it. The various remedies heretofore proposed