Process of Separating Pith from the Rind of Cane and Stalks.

Sorghum, sugar cane, cotton stalks, corn stalks, ramie, and cane in general contain a pith which is especially valuable for making pulp in the manufacture of fine grades of paper. But few systematic efforts have been made to separate this pith from the rind. In a recent patent taken out by Mr. Andrew J. Adamson, of Chicago, an intelligent attempt is described to separate the pith from the rind, so that the natural juices as well as the rind can be collected and utilized, and the pith or core reduced to a condition particularly adapting it for use in the making of paper pulp.

The material is first roasted or subjected to heat at about the temperature of boiling water. Green fibrous material, such as sugar or sorghum, is thus heated until the material is softened and the pith is loosened from the rind. A gummy substance, containing the impurities and injurious bacteria, exudes from the cane and is burned off or evaporated. This result is obtained in about ten minutes. The impurities are thus removed with a portion of the natural juices; the bacteria and other noxious matter are destroyed; about 50 per cent of the water contained in the juices is evaporated, and the core or pith is loosened from the rind. After the material has been heated, it is subjected to pressure and crushed so as to squeeze out the remaining liquid or juices. During the application of the pressure the rind is crushed or broken up, without, however, injuring the pith. The pith being in a heated and softened condition, is flattened into thin strips. The pressure also serves to effect a further detachment from the rind.

The material after having been subjected to pressure is thoroughly dried, in order to evaporate any remaining moisture. During this reheating and drying, the pith, which is of a spongy nature and which has been flattened into strips, expands, thereby aiding in severing the crushed rind. While being dried, the material is suitably agitated or beaten in order thoroughly to break up and comminute the rind and to disrupt any remaining ligaments which might otherwise cause adherence of the particles of the rind. The pith remains in long strips, unbroken by the process to which the rind has been subjected. The pith thus produced and separated is collected, and forms an excellent material for making paper pulp.

If sorghum or sugar cane be used, the natural juices expressed after the roasting operation can be collected and evaporated in the ordinary manner to obtain sirup, sugar, or vinegar.

TREATING FRUIT-TREES FOR SCALE.

There is probably no more deadly pest known to fruit-growers than the scale which infests many of the finest orchards of California. Innumerable efforts have been made to rid the trees of their destroyers; but the success which has been attained has not always been noteworthy. Mr. Isaac M. Clark, a fruit-grower of Lompoc, Cal., has invented a process which seems to be all that can be claimed for it. The accompanying reproduction of a photograph showing trees treated and untreated certainly demonstrates how efficient is this process.

The substances which are used in the process by which the trees are freed of scale comprise essentially any mineral oil, caustic alkali, and water. The mineral oil is sprayed upon the trees by means of a pump. The oil-spraying is then followed by the caustic alkali solution, applied in the same manner. The oil is intended to kill and destroy the scale and insects that infest the trees—a result achieved in from three to eight minutes. The caustic alkali solution serves the purpose of neutralizing the oil after the desired end has been attained; for without such neutralization the oil would destroy the fiber and foliage of the tree. The oil and alkali, it is found, form a paste of a soapy consistency, which paste is a fertilizer eminently advantageous to the life and growth of the tree.

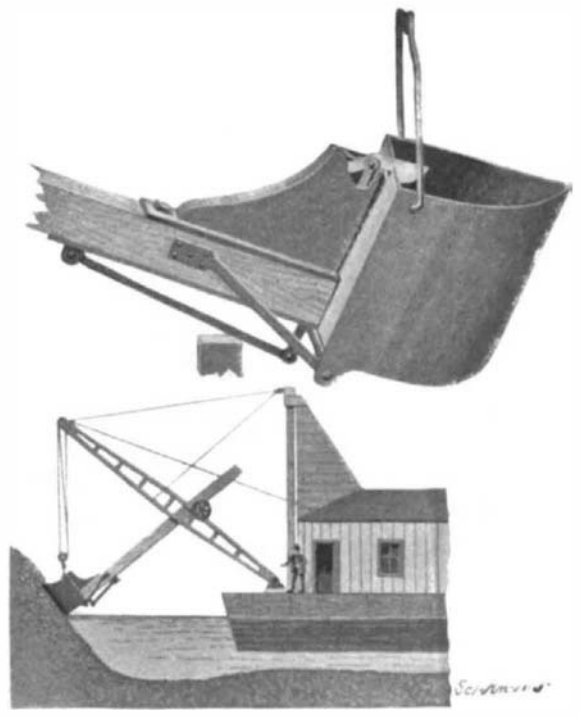
TWO ROWS OF FRUIT-TREES, THE ONE TREATED FOR SCALE, THE OTHER UNTREATED.

A Phonograph Telephone-Repeater.

A telephone-repeater in which a phonograph is used is the subject of an invention patented by Harry I. Rhodes, of Denver, Colo. By means of a solenoid-actuated recording-tool a record is made on the phonograph, the recording-tool taking the place of the receiver or a repeating-coil. A tracing-tool impinging on the record transmits its motion by means of a multiplying-lever to a microphone. An ingenious arrangement of coils in circuit, to provide each line circuit with its respective recording and tracing apparatus to the repeating station, forms a feature of the invention.

IMPROVEMENT IN DREDGE SHOVELS.

The shovels ordinarily used in connection with dredging and ditching machines open at the bottom, and for that reason invariably leak. A considerable loss of the shovel-load is occasioned in traversing the distance from the point of excavation to the point of discharge. A new form of shovel which, when working in water, will not spill any portion of its load until the dumping point is reached, is the invention of Mr. Hiram Head, of Helena, Mont. Mr. Head's shovel is in the form of a can, open at its upper end and closed at all of its sides. The shovel is pivoted on the dredge beam by a pin, braces being employed to strengthen the pin and the beam. At the upper side of the dredge beam a bracket is secured, comprising two parallel cheek pieces between which a spring-pressed dog is pivoted. The dog serves to engage the upper edge of the shovel, holding it in the position shown in our illustration. The dog is operated by a tripping mechanism, comprising a rod, the lower end of which extends below the beam and which is joined to an arm pivoted on the underside of the beam. By pressing upon this second arm, the rod is raised, the dog lifted and the bucket allowed to tilt into its dumping position.



IMPROVEMENT IN DREDGE SHOVELS.

The beam with the shovel attached is operated in the usual manner. At the dumping point a post is located upon which the beam is lowered, so that the tripping arm beneath the beam may be pressed upwardly to release the dog and to permit the shovel to drop. The load when once in the shovel cannot possibly leak out and can be discharged only by the releasing dog. The shovel is particularly serviceable in collecting precious metals; for in the ordinary shovel, where there is a leakage at the bottom, much of the metal is lost, since by its weight it gravitates to the leaky bottom.

A great memorial will be erected in Europe to the memory of Eads, the engineer.

Brief Notes Concerning Patents.

According to a recent bulletin of the Census Office, there was one patent taken out in Connecticut in 1900 for each 100 persons. In 1890 the figures were one for each 796 persons.

William J. Gordon, an inventor of note, died recently at his home, No. 2450 North Broad Street, Philadelphia. He was born in that city in 1835, and during his business career he took out sixty-five patents for different mechanical contrivances covering principally the manufacture of tin and sheet metal ware. The corrugated rain spouts and awnings were his invention. He is said to have taken out the first patent covering the riveting of buttons on clothing.

A ten million dollar company has been organized at Trenton for the purpose of engaging in the business of making rubber shoes with the machine recently patented by Joseph Oliver Stokes. The entire operation is done by the machine, and the shoe is said to be turned out in a manner superior to those made by hand. The finish on the outside surface is so fine that it is not necessary to put the piece through the varnishing process, heretofore essential.

A kite for signaling from a wrecked vessel, and also to be used as a means of sending a line ashore, has been invented by Capt. Brossard de Corbigny, of the French Naval Reserve. It is collapsible and readily packed when not needed for use. When flown in the air it can be deflected at an angle of forty-five degrees from the direction of the wind. By this means a line may be flown over almost any desired spot. The line is dropped by sending aloft a little cutting device, which travels along the cord and is put into operation automatically when it touches the kite.

The diamond drill has added millions of dollars to the mineral wealth of the world. Its inventor, Ashel J. Severance, recently died poor at Denver, Col. In 1870 he and his associates sold the patent on the diamond drill for one hundred thousand dollars and Severance lost his part of the proceeds by ill-advised investment. At the time of his death he was about to realize considerable money on the sale of a patent for the manufacture of Damascus steel which he secured a long time ago, but on account of the great number of persons who have claimed to rediscover this secret, he found difficulty in interesting anyone in his process.

The American Consul-General at Vienna, Carl Bailey Hurst, reports that a committee composed of the leading manufacturers, members of the Vienna Chamber of Commerce and representatives of prominent corporations has held a meeting at which the idea of an International Exposition of invention and novelties to take place in Vienna, 1903, was discussed. The programme outlined has been enthusiastically received, and the scheme is well on the road to realization. All kinds of technical inventions, and in particular those already practically introduced, are to be exhibited. There will possibly be an inventors' gallery where workshops will be opened for public inspection.

John O'Neill, chief of the second battalion of the Detroit, Mich., fire department, has devised an invention to do away with the necessity of sending men up the ladders where it is desired to manipulate a stream from the top of an aerial truck, as is often necessary when working on fires on high buildings. This invention renders the ordinary aerial truck available for the work of the water tower, which is a very expensive apparatus. The invention consists of a ring set on a swivel and fastened to the rung of the ladder next to the top. The ring supports the hose nozzle by a clamp, and the ladder is swung up beside the burning building with the hose attached. By means of a rope and the ordinary adjustments of the ladder, the stream is under the absolute control of the firemen on the ground. It is possible to get closer to a burning building than would be otherwise possible. The device has been in very successful use for some time on the trucks of the Detroit fire department.

C. E. Havens, foreman of the Baltimore and Ohio shops at Zanesville, Ohio, has invented an adjustable side bearing to be used on railway cars, and by the use of this improvement a car has a greater clearance in rounding curves and less friction between the bolsters. It is therefore possible to place from six to eight more cars on a train. The value of this device has been demonstrated by practical tests.

The very latest invention of Cornelius Vanderbilt is a tank car which is especially adapted for the carriage of grain and oil. It is announced that a Western company is filling an order of five hundred of these cars for several railroads. They are built on the same principle as Mr. Vanderbilt's locomotive tender, which was exhibited at the Pan-American Exposition.