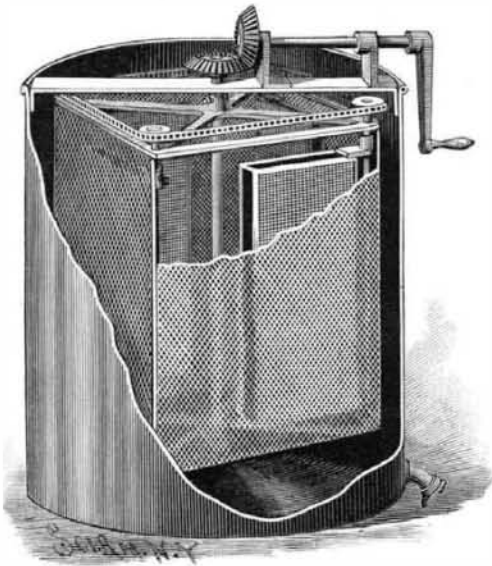


**HONEY EXTRACTOR.**

In the old style honey extractor the honey is thrown from two combs placed in opposite sides of a wire cloth basket, which is rapidly revolved by means of a simple gearing placed at the top. The extractor here shown is revolved in the same way, but instead of throwing the honey from two combs at a time, it may be made to throw from four, six, or eight. The combs are placed in wire cloth pockets, which are free to swing on round steel rods placed vertically at the corners of the basket. On top of each rod is a small wheel, provided with a series of steel pegs in its face. Passing around these wheels is a steel band formed with holes, which engage with the pegs. By slightly pulling on this band, or by grasping one of the pockets, all of the pock-



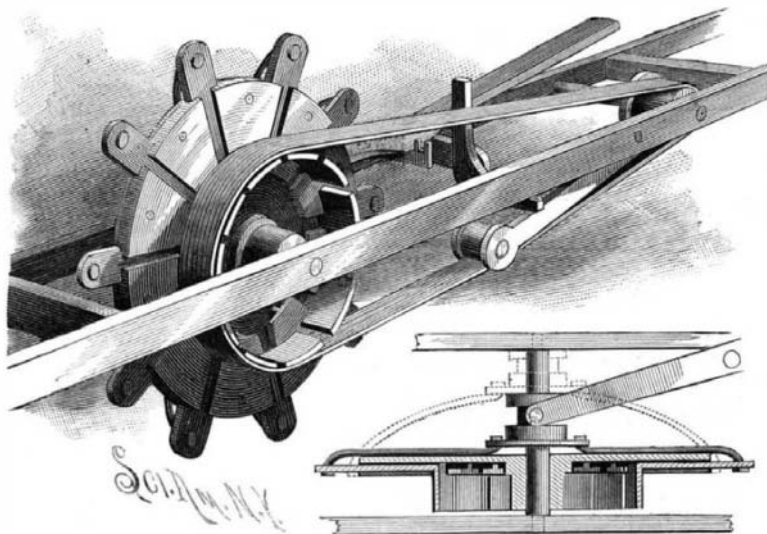
TREADWELL'S HONEY EXTRACTOR.

ets may be turned simultaneously either to the right or left without reversing the motion of the machine. The combs may thus be reversed without raising them from the machine or touching them with the hands. It will be seen that with this extractor the combs may be easily reversed several times before the honey is wholly removed from both sides—an advantage that will be appreciated by beekeepers.

This invention has been patented by Mr. W. B. Treadwell, and the extractors are manufactured by Messrs. Aspinwall & Treadwell, of 16 Thomas Street, New York city.

**EXPANDING PULLEY.**

By means of the mechanism here shown, the speed of a belt-driven pulley may be increased or diminished without shifting the belt or stopping the machine. In the supporting frame there is mounted a driving shaft, secured to which is a disk having a number of plates riveted to it, and formed with flange-like projections, constituting radial ways between the plates. The face of the driving pulley is made up of a number of circular sections, which project at right angles from arms sliding in the grooves. Rods connect the extending ends of the arms with a collar mounted loosely on the shaft. This collar is formed with an annular groove, and is shifted by a lever pivotally connected to the frame, as shown in the sectional view. It will be seen that, by moving the lever to carry the collar up close to the disk, the rods will act to extend the arms, thereby carrying the circular sections away from the shaft, and conse-



HERMAN'S EXPANDING PULLEY.

quently increasing the diameter of the driving pulley; moving the collar away from the disk lessens the diameter of the pulley. In order that a proper tension may always be maintained upon the belt, irrespective of the size of the driving pulley, the apparatus is provided with a tightening pulley, carried by a swinging arm. When the main lever is moved to di-

minish the diameter of the driving pulley, the tightening pulley is depressed by a bell crank lever operated by the main lever, as shown in the perspective view, and the belt is forced downward, so that an equal amount of tension is always maintained upon it. Instead of this method, it will be understood that the driven pulley might also be formed with an expanding peripheral face, that might be made to be adjusted simultaneously with the driving pulley, but in an inversed direction. The main lever is held by a catch in any desired position.

This invention has been patented by Mr. John M. Herman, of Mallard, Iowa.

**California Cream of Tartar.**

Among the various industries and sources of revenue of Los Angeles, California, which are a perfect success so far as they have been well attended to, is the production of argols and the manufacture of cream of tartar from same. A gentleman who has been engaged in the business for some time in Los Angeles has been very successful, although it has been with a great deal of difficulty with his limited means to secure a location adapted to the handling of the wine or producing the argols on a scale that would make it largely a source of profit. He commenced the business some four years ago, and has been compelled to move from one location to another frequently at a great expense and interruption to his enterprise. The argols are obtained by suspending small pieces of rope in casks or vats of wine, like the old process of making dip candles, when the tartar crystals form on the pieces of ropes until the wine is relieved of its acidity and materially aged and improved. When the crystals are taken out, they are put through a refining process and bleached of their reddish brown color, and come out in pure white crystals ready for the mill, where they are ground to an impalpable powder, ready for the market. The crude argols are usually kept for three or four months, when they are shipped to the New York market. The wine from an acre of grapes will produce from thirty to seventy-five pounds of chemically pure cream of tartar, owing, of course, to the yield and the acidity or tartar contained in the wine. The wines from the low, moist, or heavily irrigated vineyards usually contain a greater percentage of tartar. The cream of tartar of Southern California always commands a higher price than that brought from France, and is eagerly sought for by dealers. The use of the wine can be had for from one to three cents a gallon, or the equivalent of the evaporation and waste of wine during the process. Last year seven tons of this valuable product were shipped, and there will probably be shipped three or four times that quantity this season. He is just now building a factory where he will have an abundance of room for handling wines. His furnaces and kettles are in position, as are his tanks and cooperage for conducting his operations on a much larger scale this season than ever before.—*Independent Journal*.

**Does Oxygen Deteriorate Castings?**

The presence of occluded oxygen and of oxides in metals has long been recognized as the cause of deterioration of quality which appears as flaws in casting or in reduced strains. In silver, oxygen causes sprouting; in copper and nickel, oxides produce red-shortness, while in steel they affect the tensile strength; in lead, patches of oxide lead to more rapid corrosion and pitting. The removal of oxides is generally accomplished by adding more readily oxidized substances, like manganese in steel, phosphorus in copper and bronze, and magnesium in nickel.

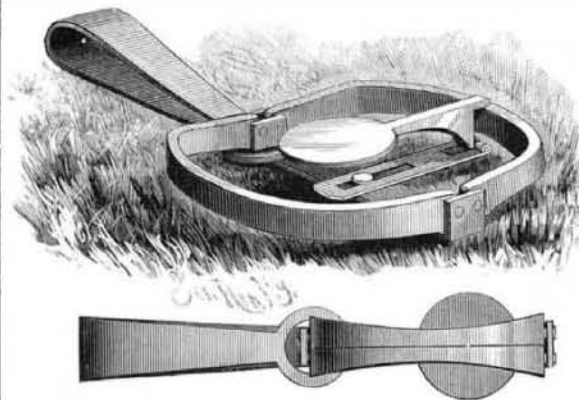
Though long recognized as a source of danger, and provided against in the manner indicated, our chemists have not well succeeded in giving us figures to judge of its magnitude or allow of arriving at conclusions concerning the counteracting methods adopted. Special interest, therefore, attaches to a series of data contained in a paper by Professor Ledebur, of Freiburg, who reports, according to the *London Iron Trade Exchange*, that in different grades of steel, ranging from 0.14 to 0.37 per cent of manganese and 0.12 to 0.32 per cent of carbon, he found from 0.12 to 0.03 per cent of oxygen. The former figure, naturally referring to the milder steel, with a comparatively low percentage of manganese, is, nevertheless, surprisingly large. It has been repeatedly suggested, in discussions on

the quality of steel in the meetings of technical societies, that oxygen, or rather oxides, play a part in affecting mechanical properties the importance of which we do not appreciate as yet. Since the presence of given quantities of phosphorus, sulphur, copper, and possibly arsenic, has failed in many instances to account for mysterious failures, it is possible that, especially with

mild steels, oxygen may be shown to be the bugbear. The subject is one which invites closer study, and the *Iron Trade Exchange* thinks a series of analyses, with accompanying mechanical tests, might lead to very important developments.

**SPRING TRAP.**

The object of this invention—lately patented by Mr. Joseph Vasseur, Jr., of Ontonagon, Mich.—is to simplify the construction of spring traps so that they will be more substantial and convenient, and more reliable in use. The jaws and spring are of the usual construction. On the bottom plate is held a transverse piece by a bolt passing through a longitudinal slot. The outer end of the plate is adapted to receive a hook formed on a downward projection of a catch lever, on the inner end of which a pan is formed. On the outer end of the lever is a lug, to be passed over the upper edge of one jaw, and thus

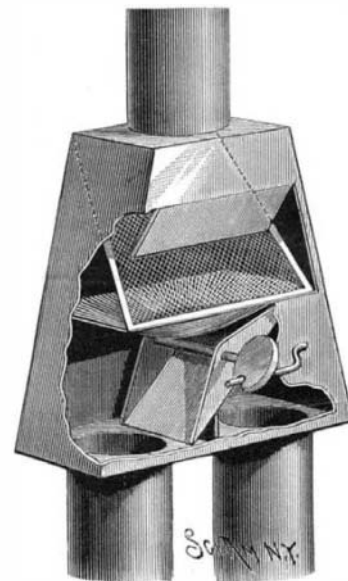


VASSEUR'S SPRING TRAP.

hold the jaws open. The animal steps upon the pan, presses it down and thereby causes the lug to release the jaws, which are thrown against each other by the spring. When the trap is to spring easily, the cross-piece is moved toward the middle of the bottom plate, so that the lug projects less over the jaw; the trap, of course, can be made to spring with more difficulty by making the lug project farther over the jaw. When the trap is not in use, the cross piece is swung parallel with and over the bottom plate, so that the trap will occupy less space, and can be packed and stored in a smaller place, as shown in the lower figure.

**STRAINER AND CUT-OFF.**

This device is employed to strain and direct the flow of water from the house-top, the first or dirty portion passing to the sewer, and the next or clean portion passing to the cistern. The casing is provided with an inlet pipe and two outlets, one of which connects with the sewer and the other with the cistern. The strainer consists of a wire gauze mounted diagonally across the path of the inlet pipe and extending from the upper corner of one side to about the middle of the opposite side, a part of the lower portion of which is bent within the casing to form a deflecting plate, by which the water, if it should spread on leaving the pipe, would be thrown back upon the strainer. Just below a horizontal central partition having a central opening is pivotally mounted a deflecting plate, that can be securely held, so as to guide the water either to the



HOUGH &amp; HOFFMAN'S STRAINER AND CUT-OFF.

sewer or cistern pipe. The first water from the roof is sent into the sewer; the plate is then shifted to send the clean water into the cistern. The strainer intercepts any debris of appreciable size that may come from the roof.

This invention has been patented by Messrs. W. W. Hough and H. C. Hoffman, of Mound City, Ill.