

days before the expiration thereof; and notice of the day set for the hearing of the case shall be published, as now required by law, for at least sixty days.

The existing law touching abandonment, as we have before remarked, covers the whole ground, gives satisfaction, is well understood, insures justice, and needs no change. The proposed change of time on extension notices from 60 to 90 days, amounts to a deprivation of one month to the inventor. It is an unnecessary alteration, and its effects would sometimes be to debar a meritorious applicant from obtaining an extension, which the law, as it stands, would readily grant him.

Sec. 13. *And be it further enacted*, That in all cases where an article is made or vended by any person under the protection of Letters Patent, it shall be the duty of such person to give sufficient notice to the public that such article is so patented, either by stamping thereon the word patented, together with the day and year the patent was granted; or when, from the character of the article patented, that may be impracticable, in the judgment of the Commissioner of Patents, by enveloping one or more of said articles, and affixing a label to the package, or otherwise attaching thereto a label on which the notice, with the date is printed; on failure of which, in any suit for the infringement of Letters Patent by the party failing so to label or stamp the article the right to which is infringed upon, no damage shall be recovered by the plaintiff, except on proof that the defendant was duly notified of the infringement, and continued after such notice to make or vend the article patented. And the sixth section of the act entitled "An act in addition to an act to promote the progress of the useful arts" and so forth, approved the twenty-ninth day of August, eighteen hundred and forty-two, be, and the same is hereby, repealed.

This is intended as a substitute for that section of the existing law which fines a patentee \$100 for each patented article that he vends without having stamped the date of the patent upon the article. The change proposed is a good one.

Sec. 14. *And be it further enacted*, That every caveat filed in the Patent Office shall, from and after the expiration of the time in which the caveat is protected thereby, become a part of the public records of said office.

This proviso throws open to the public all expired caveats. At present they are preserved in the secret archives of the Patent Office.

Sec. 15. *And be it further enacted*, That all acts and parts of acts heretofore passed which are inconsistent with the provisions of this act be, and the same are hereby, repealed.

EARLY VEGETABLES.

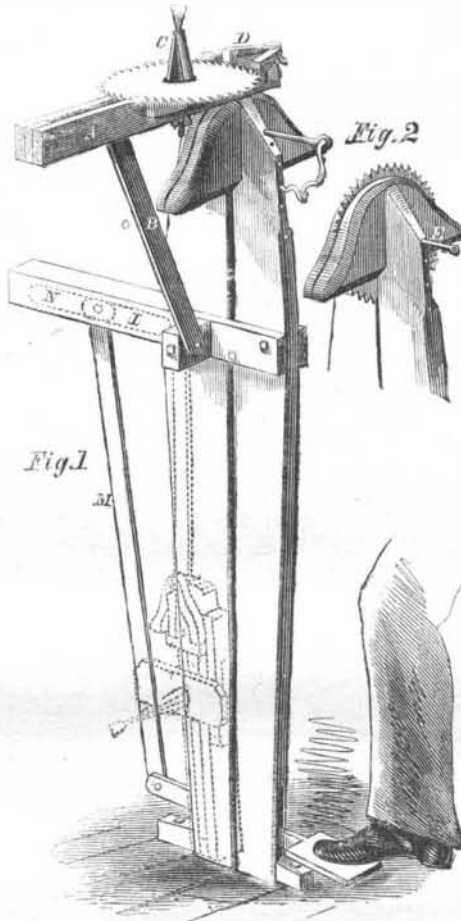
Many farmers are deterred from attempting to produce very early vegetables, by an erroneous idea that the making of a hot-bed is a complicated and difficult operation while it is just as simple as making a hill of corn. Every man who has a garden of whatever size, if he will once try the experiment of making a hot-bed, will, we venture to predict, find the task so easy and the result so satisfactory, that he will never forego the luxury afterwards. All that is necessary is to make a pile of horse manure 2½ feet deep, with the top level or sloping a little to the South, then set a rough frame made of four boards nailed together at the corners upon the bed of manure, fill the frame with 6 inches of garden soil and cover with a window of glass. Any old window will answer the purpose, but it is better to have the bars of the sash run only one way, and to have the glass laid in the manner of shingles.

The best plants to force are tomatoes and cabbages which may be transplanted from the hot-bed to the open ground without any trouble. We have removed tomatoes when they were in blossom, and had them all live. If melons or cucumbers are forced, they should be planted in flower-pots, and in transplanting them you turn the pot over upon your open hand and give it a gentle thump, when the earth comes out in a solid lump and the roots are not disturbed in the least. While the plants are growing, they should be watered frequently, and in warm days the sash should be raised a few inches to give the plants air. We have found the growing of plants under glass, from a small hot-bed, 4 feet by 6, up to a large grapery for raising the black Hamburg and Frontignac grapes, the most satisfactory of all horticultural operations. Having the control of the climate both in heat and moisture, the plants can be made to grow with a vigor which they rarely if ever exhibit in the open air. A hot-bed should be made from four to six weeks before the time for planting corn.

COMBINED VICE AND SAW SET.

The accompanying engravings represent an implement which, from its convenience, is being introduced into the shops for working wood, and is well worthy the attention of those who have saws to file and set.

Fig. 1 represents the setting apparatus arranged for use, and Fig. 2 the vice jaws for holding circular saws to be filed. In the former, the horizontal bar, A, is supported at one end by the brace, B, and at the other by a vertical iron plate, which is fastened rigidly to the bar and grasped by the jaws of the vice. This apparatus is for setting circular saws, the cone, *e*, holding the saw in place by passing through the hole in the center, and being readily adjustable to different sized holes by being raised or lowered by means of the strews at its top and bottom. For saws of different sizes, this cone is placed at the proper point in the slot in the bar, B, to bring the tooth



of the saw exactly over the angle in the anvil. For setting straight saws the ends of the teeth are placed against the brass guides, *d d*, which open at a greater or less angle, and thus permit the tooth to project a greater or less distance past the angle in the anvil.

Fig. 2 shows the manner of holding circular saws to be filed. For this purpose the setting apparatus is removed from the vice (hanging down by the side as shown by the dotted lines), and the saw is grasped between the jaws as shown; the pin, *e*, passing through the arbor hole, several holes being made in the vice to receive the pin with saws of different sizes. The jaws slide into the levers of the vice in dovetail grooves, and for use in filing straight saws the position of the jaws is reversed with their straight edges upward.

The levers of the vice are pressed together by a toggle joint remarkably adapted to this purpose. The two levers, *i* and *n*, connected by a joint in the middle, are acted upon by the treadle through the rod, *m*. When this rod is pressed upward, the toggle forces the jaws together and, being carried a very little past the straight line, holds the jaws in place, the moving lever of the vice being made of wood and somewhat elastic. The jaws are opened by pressing the treadle upward with the top of the foot. Thus the saws are inserted or removed in the shortest possible time, and the implement is exceedingly convenient in use.

A working model is now on exhibition at the Inventor's Exchange of S. A. Heath & Co., No. 37 Park-row, this city. The patent was granted, through the Scientific American Agency, Dec. 27, 1859, and persons desiring further information in relation to the matter, will please address the inventor, Norman Allen, at Unionville, Conn.

DISCOVERIES AND INVENTIONS ABROAD.

Copper Tubes made by Galvanic Process.—Our Parisian cotemporary, *Le Génie Industriel*, publishes the details of a process for making copper tubes without soldering, which consists simply in depositing copper upon lead patterns by the galvanic battery, and then melting out the lead. It is said to work perfectly, and, of course, tubes could be made of any desired form—straight, curved or right-angled. This suggests the idea of forming tubes in the same manner with cores of wax or clay. The clay may be forced into the size of the pipe through a draw plate, then allowed to harden slightly, when it may be covered with plumbago and an electro deposit of copper made upon it with a galvanic battery. When the copper is deposited in sufficient thickness the clay may be removed from the interior by boiling the pipe in water. To conduct this manufacture it would require long depositing troughs, and the expense would probably be too great for making straight copper tubes; but for curved tubes, such as the worms of stills, it would perhaps pay. Curved copper tubes are commonly made by filling straight tubes with hot resin, then twisting the entire tube into its curved form. When the resin becomes cool it is driven out by striking the pipe, which breaks the resin core into small pieces.

Waterproof Varnishes.—Take one pound of flowers of sulphur and one gallon of linseed oil, and boil them together until they are thoroughly combined. This forms a good varnish for waterproof textile fabrics. Another is made with 4 lbs. oxyd of lead, 2 lbs. of lampblack, 5 oz. of sulphur and 10 lbs. of india-rubber dissolved in turpentine. These substances, in such proportions, are boiled together until they are thoroughly combined. A patent has been secured for the application of such varnishes to waterproof fabrics, by N. S. Dodge, of London. Coloring matters may be mixed with them. Twilled cotton may be rendered waterproof by the application of the oil sulphur varnish. It should be applied at two or three different times, and dried after each operation.

Restoring Old India-rubber.—Mr. Dodge has also obtained a patent for restoring old india-rubber to a condition fit for re-manufacture by the application of dry heat. He reduces the material by machinery, in the first place, to a powdery state; then he subjects this, in a suitable oven, to about 300° Fah., and continues the heat until the mass assumes the plastic condition. Superheated steam has been found most convenient to use for the purpose of heating; and by using a double cylinder, with the steam in the outside one and the india-rubber placed inside, the best results have been secured. As gases arise from the india-rubber while it is being heated, these must be permitted to escape by a tube. Superheated steam may also be applied direct to the ground india-rubber. When reduced to a proper plastic state, it is fit for being used to manufacture various articles. It may be combined with 3 lbs. of white lead, 5 oz. of sulphur, 4 lbs. of oxyd of zinc, and half a pound of carbonate of magnesia or lime (chalk) to 10 lbs. of the plastic india-rubber. These are thoroughly kneaded together, and molded or struck by dies into the form of the articles desired, then submitted to the heat of 230° Fah. in an oven to produce the vulcanizing effect.

Gas Regulators.—It has thus far baffled all efforts to obtain a gas regulator that will prevent the jet of light from flickering. Hundreds of devices, we believe, have been tried to secure such a result, and yet our gas lights all flicker in the old-fashioned manner. A new gas regulator has been patented by Samuel Wright, of Sudbury, England (a gas engineer), by which the pressure is governed by passing the gas through a woven texture of linen, cotton, silk or hair into a chamber or chambers to which the burner is attached, the pressure of the gas at the jet of the burner being thereby governed as required. These woven fabrics are stretched in a small chamber (to which the gas is admitted in its passage to the burner) in the form of a diaphragm, through which it must pass before escaping. Instead of one diaphragm of woven fabric, one or two may be interposed, as required. The gas thus constrained to pass through the meshes of the material is diffused and equalized in its pressure, causing, it is stated, the flame to burn steadily and without flickering, thereby effecting a great saving of gas and producing a better light than can be obtained without such governing or regulating, which it effects in a much higher degree than can be secured by other regulators. The regulating diaphragm can be readily cleaned by washing, or a new material may be introduced when required.