New Inventions.

Leather and Moleskin.

A few months since we directed attention to this subject, stating that some useful substitute for leather would be a most valuable invention to the community owing to its scarcity and increasing price. We notice in a late European exchange that prepared moleskin (thick cotton twill, with a nap) has been substituted to a large extent in France for calf-skin leather in the upper of shoes, and this has arrested a further advance in the price of upper leather in that country. In our own markets, the price of leather has till now kept steadily increasing. The principal cause of this, we are told, has been a drain upon hides from our markets to those of France, Germany and England. At present, the tide appears to begin to ebb as regards the price of sole leather, but not of fine calfskins employed for the uppers of boots, nor is it expected that the price will fall, as the demand for it is greater than the supply. We regret this, for the finer kinds of it have almost ceased to be employed in the manufacture of ladies' and children's gaiters, buskins, &c. Sheep-skin leather, half tanned, thin as wrapping paper and almost as tender, has been used as a substitute for it, while coarse paper of a most wretched description is employed for inner soles.

The uppers of *foot clothing* made of such material cannot withstand the action of water; rain penetrates them nearly as freely as through blotting paper, and to use a common but appropriate term, "they have no wear in them." Some substitute for such material would be of great importance, for the cheap shoes of children and youth, especially girls.

The employment of strong moleskin for this purpose, as has been done in France, would be an improvement, and we therefore suggest its use; it is cheap, light, and would prove more durable, we believe, than sheepskin leather.

Excavating and Ditching Machine.

In the accompanying illustrations, figure 1 is a perspective and figure 2 a transverse vertical section of a machine for excavating earth, cutting ditches, &c., and casting the earth to the one side, for which a patent was issued to William Provines, of Columbia, Boone County, Missouri, on the 13th of January last.

As this machine is drawn along, a series of cutters and scoops, revolving crosswise to the direction of its motion, excavate the soil, cutting a trench, and casting the lifted earth to the side.

A represents the frame of the machine, which is supported at the rear end on a pair of wheels, B C, the one (B) is fast on the axle to act as a driving and supporting wheel, the other (C) may be loose to facilitate the turning of the machine. The front part of the frame is supported by braces, D D, to the truck, E, to which the horses are attached. These braces serve as *hounds* to direct the machine. On the axle of wheels B C, is a bevel wheel, F, which gears into and moves another one, G, on a longitudinal shaft, H. On the forward end of this shaft is a wheel, I, which gears into a pinion, J, on another shaft, K, which is the axle of the digging or excavating wheel, L. The axle of this wheel is parallel with the line of the machine's motion. It will therefore be readily understood, that as the machine is drawn along, the digging wheel, L, on shaft K, will revolve in a line at right angles to the line of motion.

Upon the hub of wheel L there are arranged a series of radial arms, M, to which are connected by means of forked brackets, N, a series of scoops, O. (These are shown clearly in the enlarged view, fig. 2.) Each alternate arm preceding a scoop has sharp curved cutting blades, *a a*. The scoops follow close after these cutters, catching and lifting the earth loosened by them. The scoops are pivoted at *c* to the arms of the brackets, also at *e* to the ends of arms, *b*; the other ends of which are attached to springs, *d*.

The lever, P, pivoted at *f*, to the frame, has a friction roller, Q, upon its inner or lower end; this roller strikes the springs, *d*, when they come round, as the scoops rotate and compresses them, changing the position of the scoops to make them carry further or cast their contents quicker.

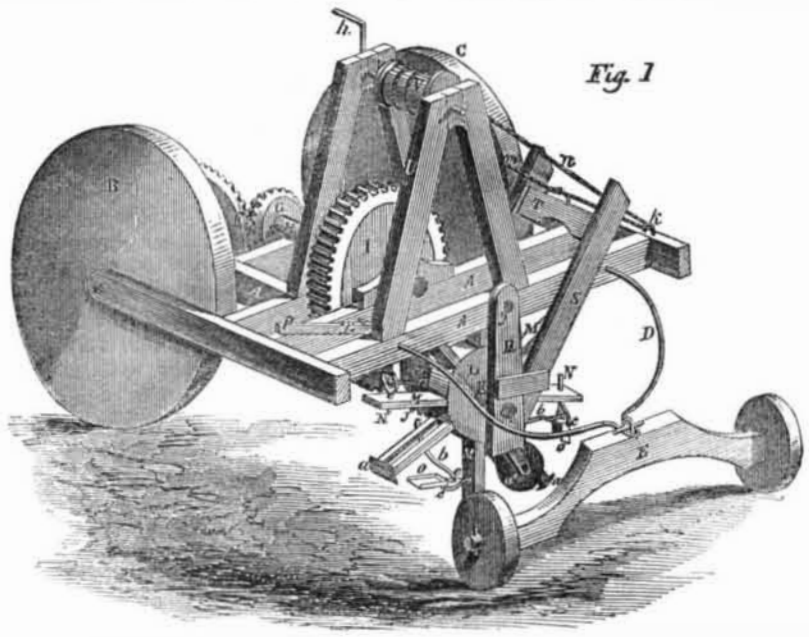
The lever, P, is readily adjusted and within the reach of the attendant, who can regulate it at pleasure to compress the springs, *d*, more or less, thus causing the scoops to carry the earth higher up if desired, before it is cast from them by the momentum of the revolving wheel.

If it is desirable to cast the earth thus excavated into an embankment, the arms, *b*, may be disconnected from springs, *d*, and attached direct to the hub, L, at the points, *i i*. The lever, P, may then be shifted, to throw its roller, Q, (which acts as a trigger) out of action, and the scoops so arranged will cast their contents by the centrifugal action of the excavating wheel in a regular line, as the machine is drawn along. When the lifted earth is to be scattered at the side promiscuously, the scoops have different inclinations to discharge at different points of their circuit.

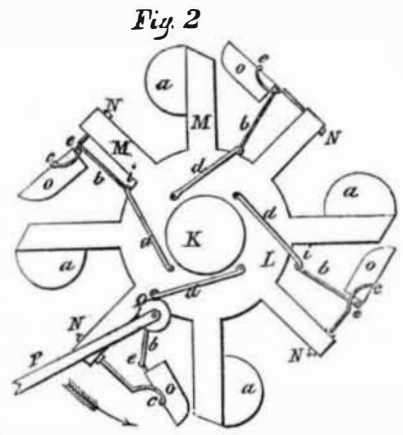
The shaft, K, is secured in standards, R, (one seen) which are pivoted at *g*, to the frame. S S are levers attached to standards, R, and are united at their tops by a cross bar, T. On the frame, A, are triangular pillar blocks, U U, in which is mounted a windlass, V, having a crank lever handle, *h*.

The chain or cord, *m*, passes from the windlass to the cross bar, T, of the levers; the other cord, *n*, passes through loop, *k*, to the windlass. By turning the windlass in one direction, the digging wheel with its scoops can be raised up and out of gear with the wheel, I, while the machine is being transported from place to place; by turning the windlass in the opposite direction the excavating wheel is lowered and brought into action. The strain on the chain, *n*, through the levers, S, holds the pinion, J, and wheel I, in gear, while the machine is operating.

EXCAVATING AND DITCHING MACHINE.



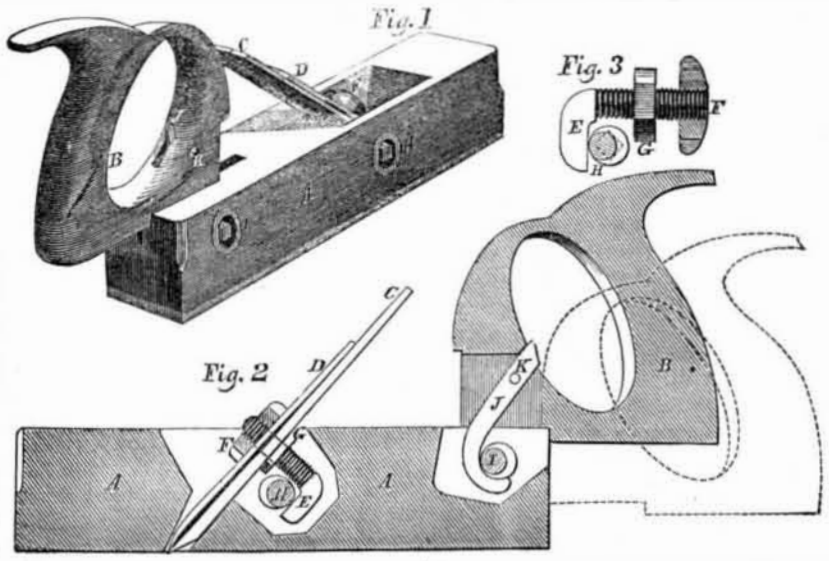
The cutting of the earth to prepare it for the scoops as described, is a correct and good principle of action, enabling the machine to operate with great ease in a stiff soil, or where there are tough vegetable fibres and



roots to be cut through in swampy or meadow land. This machine seems to be an invention much required to ditch and thus reclaim vast tracks of wet and swampy lands, the ditching of which by manual labor is out of the question, on account of its great expense.

More information may be obtained by addressing Mr. Provines, at Columbia, Mo.

NICHOLS' CHANGEABLE PLANE.



Mr. O. Nichols, of Lowell, Mass., is the inventor of the ingenious means here represented for connecting and disconnecting the iron and the stock, and also for so attaching the handle, that it may be readily and firmly adjusted in two positions. The invention was patented March 10, 1857. The securing of plane irons by wedges as usually conducted, is open to several objections, not the least of which are the tendency of the wedge to spring the stock out of truth, and the difficulty of driving the iron down, or again of elevating it without altering the tightness of its hold. This change in the position of the handle allows the tool to be used with the best effect in every situation. In planing floors and many other surfaces, it is of considerable consequence to have the handle high, as represented, but for ordinary bench work the force of the hand is applied to much better advantage by disconnecting the handle and attaching it again in its lower position, that shown by the dotted lines in figure 2.

Figure 1 is a perspective view of the plane complete; figure 2 is a section through the same, and figure 3 represents the hook-headed bolt used to confine the iron. A is the stock, B the handle, K a pin on the latter to which is connected the hooked link, J, taking hold on the cam shaft, I. Turning I, by means of a wrench applied at the side, the eccentric portion tightens or releases the hook as desired.

C is the plane iron, and D the cap, secured together by the nuts, G and F, on the hook-bolt, E, the hook of which latter is confined or released by turning H. The hook of E, is made quite strong and rigid, and the face in contact with the cam shaft is perfectly parallel to C, so that the iron may be started up or down without affecting the tightness of the grasp on the stock.

The whole appears very simple and convenient. It possesses very obvious advantages; and only requiring a very simple wrench to manipulate it, with hardly a chance of getting out of order, it cannot be said to be objectionable on account of its complexity. For further information address the inventor, as above.

Using Machines under an Extended Patent

A correspondent (P. Gilbert, of Alexandria, Ohio,) makes the following inquiry:—"If a machine is bought with the right to use under the original patent, can the inventor, if his patent is extended, prohibit the using of said machine under the extension?"

As other persons besides Mr. Gilbert may be interested in such a question, we answer it thus, instead of by a short personal answer through our correspondents column.

A right to use a machine sold before the original patent has expired, is continued under the extension, until the machine is worn out or destroyed. A decision has been made on this point by the United States Supreme Court in the case of Wilson *vs.* Rousseau. That decision is based upon the clause in Section 18, Patent Act, 1836, which says:—"And the benefit of such renewal shall extend to assignees and grantees of the right to use *the thing* patented to the extent of their several interests therein." This decision is full and unequivocal respecting the right of an assignee to the continued use of *a machine* of which he was in possession and use at the time of the renewal of the patent.

Justice Woodbury made a similar decision in the case of Woodworth *vs.* Curtis, as recorded on page 607 of Robb's Patent Cases.

This right, it will be understood, only refers to the *use* of machines actually in existence, and bought with the exclusive right of use prior—it makes no matter how short the period was—to the extension of the patent. The rights of simple assignees and licencees of patent rights under the original term of the patent, cease with the extension; such rights are abstract, and entirely different from that of property in a purchased machine. An assignment or license ended with the extension of a patent does not take away the use of any tangible property; whereas the prohibition to use a patented machine under an extension would be an act of high injustice, destructive to the established rights of personal property. For example: suppose an inventor were to obtain a patent on a plow, and under it sold a hundred thousand of such implements, and then obtained an extension of his patent. If the power of prohibition to the use of these plows were conferred upon him by the extension, he could stop the use of them all, and thus destroy the personal rights of a hundred thousand men to the extent of the value of the plows, which they had fairly purchased from him previously, and had thus become their tangible property.

The Magnetic Telegraph Company between this city and Washington, D. C., have just laid down two English triple-wire submarine cables across the Susquehanna, opposite Havre de Grace, for the purpose of securing a permanent and uninterrupted connection of the wires at that point.

Lightning conductors are about to be fitted to all the vessels in the French Navy.

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