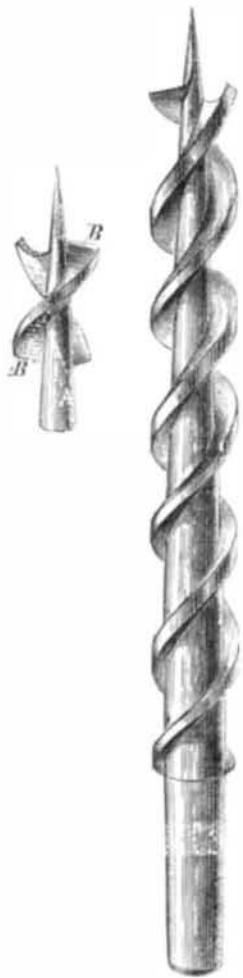


KELLY'S LASTING MACHINE BORING BIT.

We illustrate herewith an improvement calculated to secure a great saving in the expense of bits for machine boring. It will, however, be seen that the principle is capable of extension to bits designed to be used in the brace as well in boring machines.



The ordinary bits for boring machines are capable of being worn only from about one sixteenth to one eighth of an inch, when they become useless, and have to be laid aside. This bit, on the contrary, may be worn four inches or more, before it is thrown aside as useless, according to the length of twist. The advantages of this construction are so obvious that we need not dwell upon them.

The bit is particularly adapted to car-manufacturers' use, and for agricultural implement, furniture, carriage, sash and blind manufactures, etc., and will supply a want long felt.

The bit, it will be seen, consists of a central shaft, A, around which are formed the spiral blades, B. The lower point of the shaft, A, is pointed, as shown, and the opposite end is made to fit and be held by a boring machine chuck. The lower

ends of the spiral blades carry cutting edges essentially like the ordinary center bit, a lip on one and a cutter on the other.

In sharpening, these edges of course retreat, but always maintain their relative distance from each other.

The spiral blades give also much greater rigidity to the bit, so that higher speeds may be employed. Specimens of its work have been shown us, and it is of the most satisfactory character. Patented, May 10, 1870, by Daniel Kelly, whom address at Muskegon, Mich.

Adams' Improved King-Bolt and Whiffletree Plate for Vehicles.

Our readers have had their attention called quite frequently of late to improvements in draft vehicles. Most of these have been real and practical advances over the old style of construction. The one of which we herewith give an engraving also merits attention, and has, we think, the advantages claimed for it by the inventor, of which we give a summary below.

A is the axle tree; B, the bolster; C, the sway-bar; D, the reach; E, the king-bolt; F, brackets through which the king-bolt passes; G, the iron plates on the bolster and axle-tree through projections in which the king-bolt also passes. The plates, G, are secured by clips and parallel ledges which fit against the front and back of the bolster and axle-tree respectively, and the one which is attached to the axle-tree has a semi-circular groove made in its upper surface, in which a corresponding ledge formed upon the plate attached to the bolster fits, so that the draft is sustained by these plates, and the king-bolt is subjected to very little strain.

The king-bolt is placed, as shown, in front of the axle, so that the full strength of the axle is retained, instead of being bored through as in the old method.

The inventor claims that by this construction the plates, G, receive the whole draft, leaving the king-bolt free at all times. The plates are so attached to the axle as not to weaken the wood work. Greater strength and less friction are secured than in any method hitherto employed. The improvement is adapted to all wagons, whether light or heavy.

Patented, through the Scientific American Patent Agency, October 20, 1868, by Levi Adams. Address for further particulars J. Adams & Sons, Amherst, Mass.

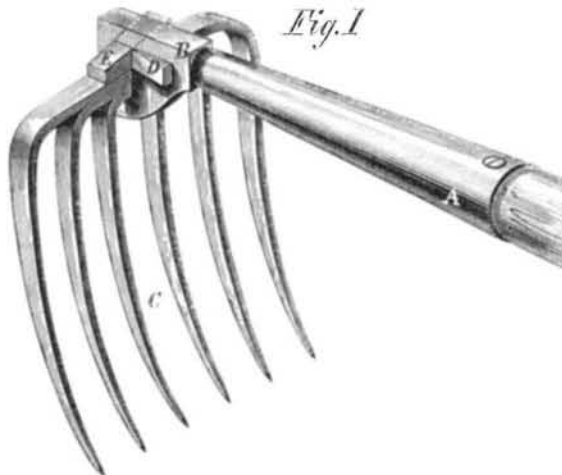
A New Theory of Sleep.

Dr. E. Sommer has contributed to the *Zeitschrift für Rationelle Medicin* for 1869, a paper in which he promulgates the doctrine that sleep is nothing else than the result of a *deoxygenation* of the organism. According to this theory, the blood and the tissues possess the property of storing up the oxygen inhaled, and then supplying it in proportion to the requirements of the economy. When this store of oxygen is exhausted, or even becomes too small, it no longer suffices to

sustain the vital activity of the organs, the brain, nervous system, muscles, etc., and the body falls into that particular state which we call sleep. During the continuance of this deep repose fresh quantities of oxygen are being stored up in the blood, to act as a supply to the awakened vital powers. Rest produces, though in a less degree, the same effect as sleep in reducing the expenditure of oxygen.

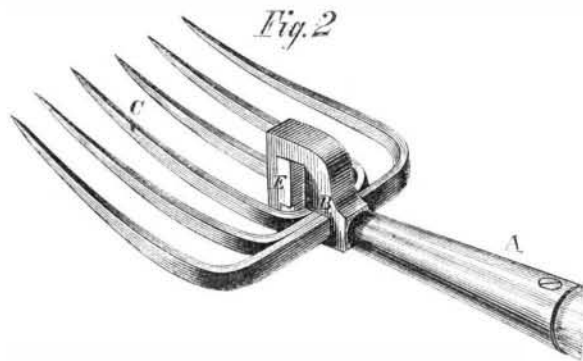
FOSTER'S CONVERTIBLE CULTIVATOR, HOE, FORK, RAKE, AND SPADE.

Our engravings illustrate an improvement by which a single agricultural tool may be made to perform the office of



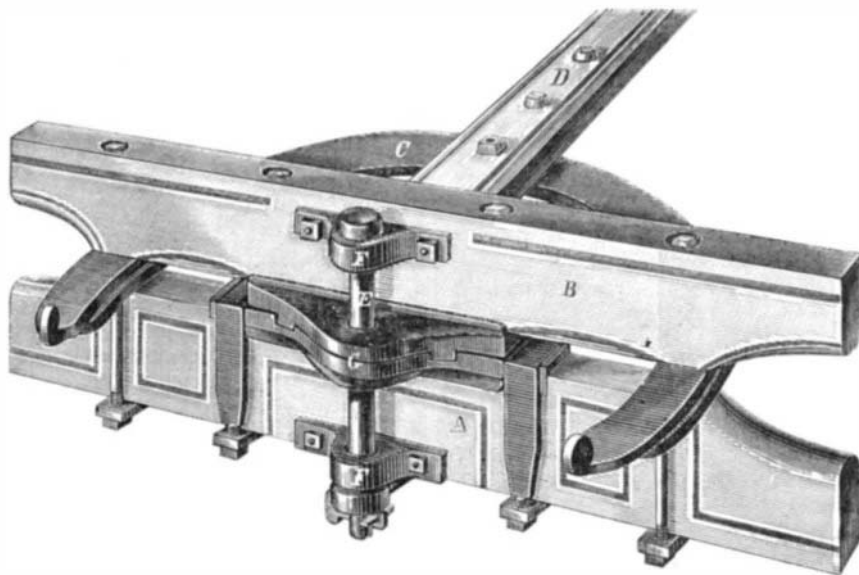
several extensively-used and useful implements—namely, a cultivator, hoe, potato hook or rake, and a fork for handling manure, and for forking or spading up garden beds, etc.

The adjustment by which the transformation is effected is quickly performed, and the construction of the implement is strong and simple.



At the lower end of the handle, A, is formed a head, B, as shown, having an L-shaped slot. The tines, C, are made in pairs; each pair being united in the form of the letter U, but each successive interior pair forming a narrower U than the next pair exterior to it.

The tines being placed in one leg of the L-shaped slot, as shown in Fig. 1, form a cultivator hoe. When placed in the



ADAMS' KING-BOLT AND WHIFFLETREE PLATE.

other leg they form a fork. In either position they are firmly held in place by a metallic block, D, which fills the vacant part of the slot, and a wedge, E, which firmly secures the tines.

This implement was patented, through the Scientific American Patent Agency, August 17, 1869, by John H. Foster, of Charlottesville, Va. Address as above for further information.

Fallacies of Statistics.

Archbishop Whately remarks upon the overrated importance of statistics:

"Increase of a thing is often confounded with our increased knowledge of it. When crimes or accidents are recorded in newspapers more than formerly, some people fancy that they happen more than formerly. But crimes, especially (be it observed) such as are the most remote from the experience of each individual, and therefore strike him as something strange, always furnish interesting articles of intelligence. I have no doubt that a single murder in Great Britain has often fur-

nished matter of discourse to more than twenty times as many persons as any twenty such murders would in Turkey. Some foreign traveler in England is said to have remarked on the perceptible diminution in the number of crimes committed during the sitting of Parliament as a proof of our high reverence for that assembly; the fact being, as we all know, that the space occupied in the newspapers by the debates causes the records of many crimes to be omitted. Men are liable to form an over-estimate of the purity of morals in the country as compared with a town, or in a barren and thinly-peopled as compared with a fertile and populous district. On a given area, it must always be expected that the absolute amount of vice will be greater in a town than in the country, so also will be that of virtue; but the proportion of the two must be computed on quite different principles. A physician of great skill and in high repute, probably loses many more patients than an ordinary practitioner; but this proves nothing till we have ascertained the comparative numbers of their patients. Mistakes such as this (which are very frequent) remind one of the well-known riddle, "What is the reason that white sheep eat more than black ones?"

About Canes.

Since 1851 commerce in ordinary walking sticks has more than quadrupled. In Hamburg, Berlin, and Vienna—the present central depots for export—the manufacture employs many thousands of work people. Its control is in the hands of the Jews. A writer in *Harper's Magazine* for July says that the Meyers, members of one family of German Hebrews, are at its head in Austria and Germany proper, and by management peculiar to their race have absorbed all competition. First gaining ascendancy at home by the style and cheapness of their wares, they next assailed foreign markets. In Bombay they undersold the Chinese dealers. Scattering thin light bamboo rods along the overland route to India, the native productions in Egypt and Arabia gave place to the more convenient Viennese manufacture. The French occupation of Algiers introduced their graceful walking sticks to the Moorish gentry of Northern Africa. Paris began to adopt them. Madrid, Naples, and even London followed. They drove the English canes out of the Brazils, and on the Western coast of South America, where Belgian manufactures had enjoyed immemorial monopoly, they found a demand which it taxed all their resources to supply. Curiously enough, California, in the use of the Viennese walking cane, preceded the Eastern States. Mine explorers and gold diggers of the Sierra Nevada country gave *ton* to fashion in New York and Chicago. The importation of the Meyers' cane at the present time into the United States has swallowed up, like Aaron's serpent, all other. They are found everywhere. No Jew clothes man fails to keep them among his stock of goods. Light French ratans, heavy English crab sticks, curiously carved Brussels thorns, and even the choice Alcasian orange sticks, have disappeared. The Jew specialty always succeeds and the walking stick, manufactured now for thirty years by the Meyers, millionaires, furnishes no exception.

In the present manufacture of canes great quantities and varieties of materials are consumed. There is scarcely grass or shrub, reed or tree, that has not been employed at one time or another. The black thorn and crab, cherry tree and furze-bush, sapling oak and Spanish reed (*Arundo donax*), are the favorites. Then come supple-jacks and pimentoes from the West Indies, ratans and palms from Java, white and black bamboos from Singapore, and stems of the bambusa—the gigantic grass of the tropics—from Borneo. All these must be cut at certain seasons, freed from various appendages, searched to discover defects, assorted into sizes, and thoroughly rid of moisture. A year's seasoning is required for some woods, two for others. Then comes the curious process of manufacture. Twenty different handlings hardly finish the cheapest cane. The bark is to be removed after boiling the stick in water, or to be polished after roasting it in ashes; excrescences are to be manipulated into points of beauty; handles straightened and shanks shaped; forms twisted and heads rasped; tops carved or mounted, surfaces charred and scraped, shanks smoothed or varnished, and bottoms shaped and ferruled. Woods, too, have to be studied, lest chemical applications that beautify one might ruin another kind. Some are improved under subjection to intense heat, others destroyed. Malacca canes have frequently to be colored in parts so that stained and natural surfaces are not distinguishable; heads and hoofs for handles are baked to retain their forms; tortoise shell raspings are conglomerated by pressure into ornamental shapes, and lithographic transfers, done by hand, are extensively used upon walking sticks for the Parisian market.

INSECTS OF MISSOURI.—We are in receipt of the "Second Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri," made to the State Board of Agriculture pursuant to an appropriation for the purpose from the Legislature of the State. The report was prepared by Charles V. Riley, State Entomologist, and is an able and instructive document. We give an extract from the work on another page.

CHOCOLATE BLANC MANGE.—A quarter of a pound of sweet chocolate, two ounces of gelatin, one quart of milk, one teacupful of sugar candy. Put it all into a jug, set it in a saucepan of water, and let it boil an hour. When nearly cold turn it into the mold.