

PLOW FOR LAYING ELECTRIC CABLES.

Electrical communications are constantly multiplying, and this movement is seen every day increasing in rapidity. The invention of the telephone, and its more and more frequent applications, has necessitated the laying of very numerous conductors, and is constantly requiring a greater quantity of them. In such installations air lines will probably be in the majority, since they are economical, easily put up, and readily watched. But on another hand, they are exposed to the inclemency of the seasons and to being tampered with by malicious persons, and are subject to get out of order. It is certain, then, that in many cases subterranean lines will be employed. The principal drawback to these latter is particularly that of their greater cost. The cables need careful insulation, and putting them in place is quite a laborious operation. The latter offers particularly the inconvenience that, in addition to expense, it requires time. In certain cases, in war, for example, a great advantage would accrue from the use of subterranean lines, but it is rarely possible to lay them, since there is no time to do so.

Instruments adopted for facilitating and hastening the operation of laying underground cables have been invented, and these naturally present themselves under a form similar to that of a plow—the principal work being to open a sufficiently deep trench. This is the operation that is really onerous, and it is because of the cost of it that hitherto subterranean lines have been employed only in cases where several of them could be laid in the same trench. At the recent Electrical Exhibition there were shown two types of plows adopted for the purpose just indicated. One of these, in the German section, was light and incapable of reaching much depth. There is reason to believe that it was invented principally for military purposes, and that it was designed to quickly lay a temporary line. Such being the case, the utility of the instrument is not very great, for the chief interest is to have an apparatus capable of laying a permanent line. And such is the object attained by the other plow that the Exhibition has shown us, and which is the invention of a French engineer, Mr. Jules Bourdin. We give a representation of the apparatus in the annexed figures. The manner in which it operates will be readily understood. A lenticular disk precedes the share, cuts the roots, and, in a word, opens the trench. The share is provided behind with a bent tube, and lays the cable at the very bottom of the ditch that the compressing roller in the rear afterwards closes. The machine carries a windlass frame designed for holding the coils of wire, and necessitates the attendance of but few men. The instrument is simple, strong, and well got up, and it ought to give good results. The inventor has taken care to reduce the trench to a minimum in width, while at the same time giving it a depth which, it appears, is about a meter. The circumstances that led Mr. Bourdin to devise the apparatus under consideration are quite curious. A few years ago he had to locate a system of telegraph lines between the different factories and shops that lie scattered over the domains of a wealthy and active Russian property owner, General de Maltzoff. It seems that in that country it is very difficult to preserve aerial wires. The peasants have some respect for lines belonging to the government, as it would cost too dear to touch them; but private lines are constantly being damaged by them, for they do not hesitate to take the wires at any time to mend a broken cart or for any other similar purpose. It becomes absolutely necessary, therefore, to have recourse to underground lines, and it is of the utmost importance to lay them by some means that shall prove as expeditious and as inexpensive as possible. This is why Mr. Bourdin sought to solve the latter problem by the use of his plow, and it was by the aid of this apparatus that he performed the work intrusted to him.

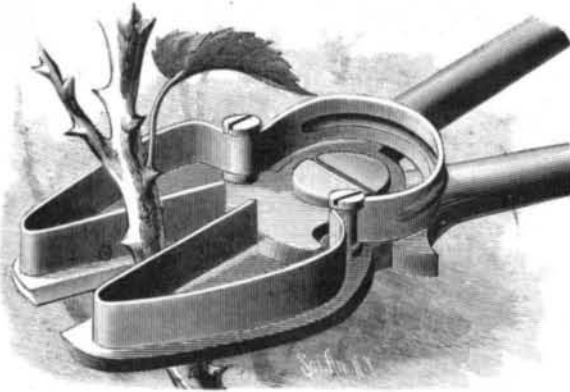
As regards the speed with which cables may be laid by this means, we are enabled to give some account of it from information furnished us by an agriculturist. An ordinary plow, drawn by three horses, and always moving in a straight line, can make, according to his estimate, four kilometers per hour at a maximum, the furrow opened being thirty centimeters in depth. This speed could not be much exceeded even in very mellow soil, since it represents the maximum speed of horses while walking; and it is not possible to plow on a trot. However, by increasing the power of traction, the special arrangements of the wire-laying plow ought to permit the speed to be increased a little and to reach at least five kilometers per hour; and such, in fact, is the speed reached by the inventor during the work done by him in Russia. The difficulty of plowing deep resides especially in the resistance of the subsoil; and the depth of the superficial layer determines the maximum depth of the former. Very often this depth will not have to be very great; but cases will occur in which the laying of subterranean cables will be greatly facilitated by the use of the plow that we have just described.—*La Lumière Electrique.*

The total production of zinc in Europe in 1880 was 203,330 tons. Germany produced 99,405 tons; Belgium, 65,010, England, 22,000; France, 13,715; and Austro-Hungary, 3,200.

NEW PLANT-TRIMMING SHEARS.

The engraving shows an improvement in scissors and shears for cutting flowers, branches, stems of plants, and fruits—such as bunches of grapes, etc. When these are cut with common scissors or shears it is necessary to hold the stem to be cut with one hand while the severance is made by the other. This being an operation compelling the use of both hands, and the stems to be cut being often wet or thorny, the task is often disagreeable and painful.

These shears are provided with a bow spring which reaches to the ends of the blades and turns inward, extending parallel with the cutting edge of the shears. When a twig or



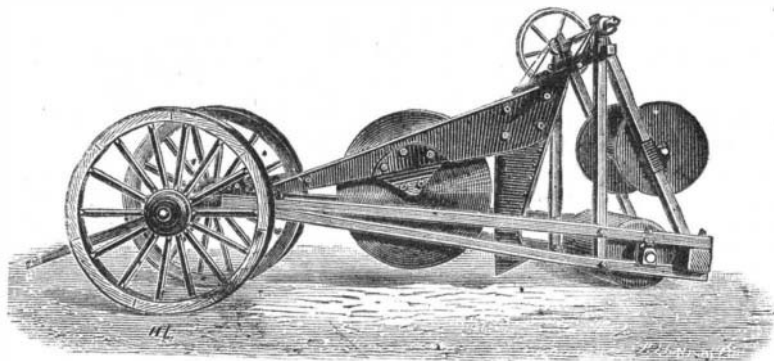
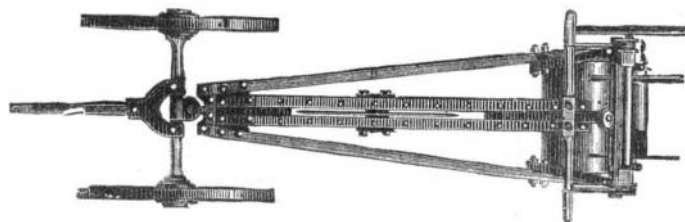
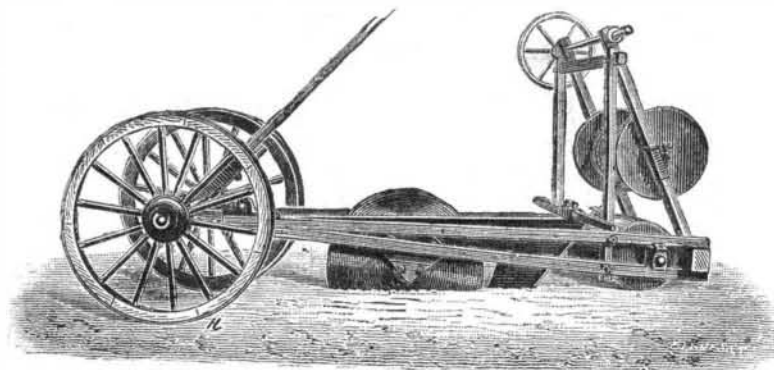
BADIA'S SHEARS FOR CUTTING FLOWERS, FRUITS, ETC.

stem is cut off by the shears it is held between the ends of the spring, as shown in the engraving.

The invention was recently patented by Mr. Joseph S. Badia, of Philadelphia, Pa.

Sixteen Months on a Desert Island.

In the latter part of February the American corvette Marion, Commander Terry, arrived at Cape Town from Heard's Island, bringing the survivors of the crew of the American bark Trinity, thirty-three in number, who were wrecked at Heard's Island in October, 1880. The Trinity, Capt. John L. Williams, sailed from New London, Conn., June 1, 1880, bound on a whaling and sealing voyage in the Southern Ocean, and arrived at Heard's Island October 2, 1880. The bark anchored off the island, which is uninhabited, and is situated in latitude 53° south, longitude 73° east. Until October 17 all went well, but on that day, during a heavy gale, the bark dragged into four fathoms of



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water. The anchors had to be slipped, and the vessel was beached in order to save the lives of the crew. At the time the weather was intensely cold, and while the crew were being landed seven of them had their limbs badly frostbitten. With this exception the landing was effected without accident. The same night the Trinity floated off and was blown to sea, since which time no trace of her has been found. From October 17, 1880, the shipwrecked crew, numbering thirty-five originally, remained on the island until they were rescued. Fortunately, in landing the crew

managed to save some three months' supply of provisions from the wreck. This, supplemented by sea elephant, penguin flesh, and penguin eggs, with some sea cabbage, formed the diet of the crew. On landing the captain and crew found some small wooden huts which had been placed there by various whalers who occasionally visit the place in search of sea elephants. These huts formed a most welcome shelter. During the sixteen months of their enforced captivity the sailors were engaged in hunting sea elephants. In the winter season, and, in fact, during most of the year, the men suffered much from the intense cold, and on January 30, 1881, two of the crew, named Bernard Kelly and George Watson, while out hunting, and when crossing a glacier, were overcome by the cold and were frozen to death. On the 15th of February, about 5 P.M., the forlorn crew sighted a ship standing along the coast. Signals were made to her by means of blankets, and the steamer, which proved to be the Marion, at once made for the anchorage. Early next morning the wrecked mariners were transferred to her. Heard's Island is a bleak island of volcanic origin, and is about thirty miles long by three miles wide.

Causes of Fires.

Of the fires in 1881, in which the Boston Manufacturers' Mutual Fire Insurance Company was interested, the following is a brief tabulation of causes:

Friction	34
Spontaneous	11
Unknown	10
Foreign matter	4
Sparks	3
Gas jets	2
Lamps	2
Lamps falling	2
Electric lights	2
Incendiary	2
Stove	1
Fire-cracker	1
Matches on floor	1
Emery sparks	1
Rocket	1
Lightning	1
Spark from cotton ties	1
Wood-work in contact with chimney	1
Unclassified	4
	84

MISCELLANEOUS INVENTIONS.

An improvement in medical saddle bags has been patented by Mr. George H. Carpenter, of Moorefield, W. Va. This invention is to provide for physicians in country practice, or those combining a country and town practice, an improved form of saddle-bags which may be readily converted into a hand-bag and buggy-chest. The seat piece is attached to the pouches by a hinge joint, and the saddle strap used with it is adapted for detachable connection with the pouches, so as to serve as a handle when it is desired to thus convert the saddle-bags. The pouches are formed of two parts, which are hinged together, one being adapted to stand vertically unsupported and the other to open outward, and when folded to be inclosed on the sides by the wings of the self-supporting part.

Mr. William R. Ostrander, of New York city, has patented an improvement in speaking-tube annunciators, which consists in the combination with the drop valve or cover for the mouth of a speaking tube, of a catch or latch therefor, a trip plate which swings in the speaking tube, and trips the catch for the purpose of automatically releasing the valve.

Mr. Milo L. G. Wheeler, of Oregon City, Oregon, has patented an improvement in force pumps. This is a simple and inexpensive form of pump, which may be used either for lifting or forcing water.

A novel churn dasher, patented by Mr. Robert S. Bridgman, of Charleston, Ark., has a dasher shaft formed in three or more sections, detachably connected together by screw fastenings, to which, near the lower end, are journaled parallel, horizontal, circular dashers, which are free to revolve on the dasher shaft and are detachably connected therewith, so that the dashers may be removed from the dasher shaft when desired. The dasher is formed by first drawing a series of radial lines from near the center of the dasher to near its circumference, at equal distances apart. At the outer extremity of each radial line a cord is drawn at right angles to the radial line, and each blade of the dasher thus formed has one edge bent upwardly and its opposite edge bent downwardly, so that in the downward movement of the dasher in the milk it will be revolved in one direction, and in the upward movement of the dasher it will be revolved in an opposite direction.

Mr. Carl F. Leidholdt, of Neillsville, Wis., has patented an improved artificial stone or brick to be used for building purposes. This composition consists of the following ingredients, combined in the proportions stated: hydraulic lime, one part; clear sharp sand, two parts; leached wood or coal ashes, one-half part; glue water and bone meal in sufficient quantities to give the mass such consistency that it can be molded.