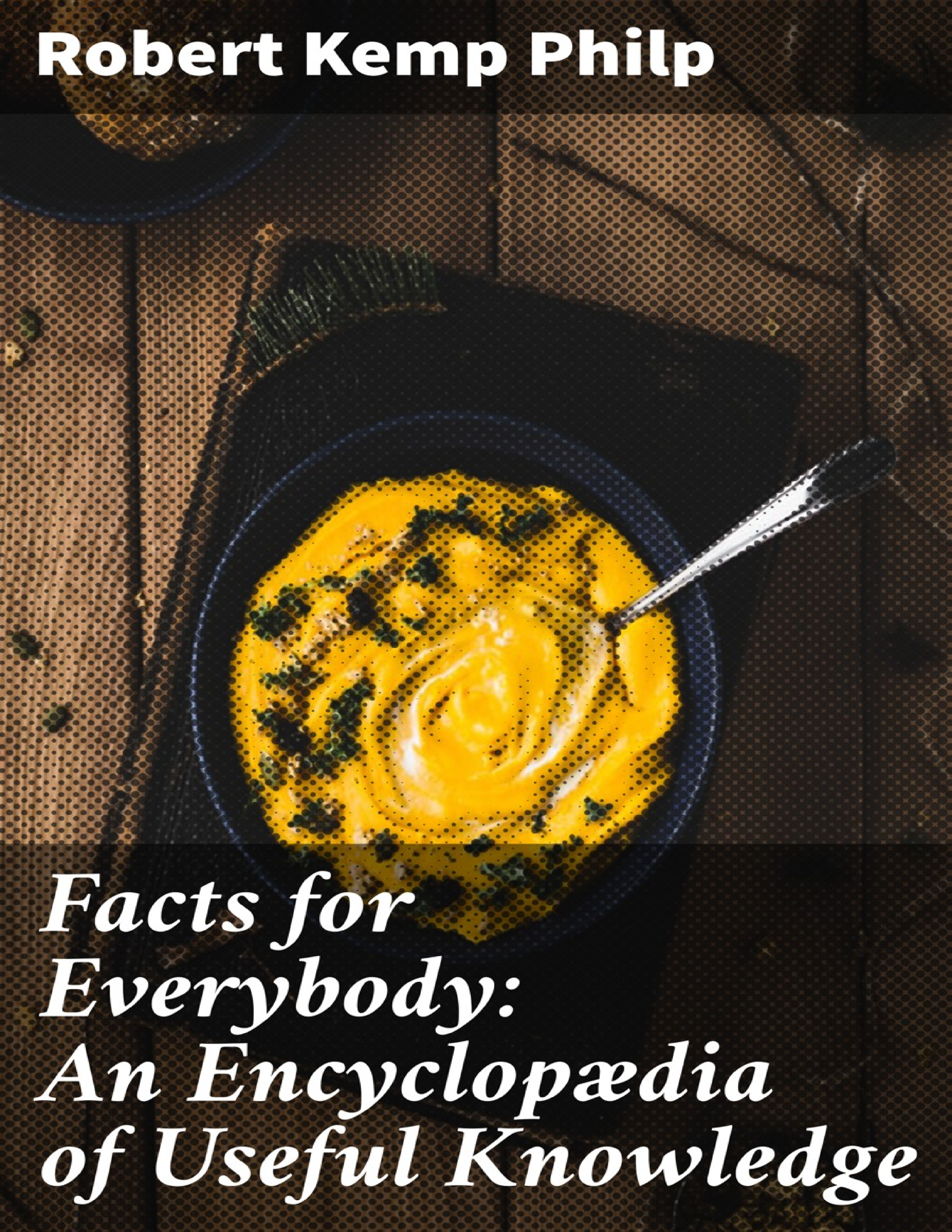
Robert Kemp Philp



Facts for Everybody: An Encyclopædia of Useful Knowledge

Robert Kemp Philip

Facts for Everybody: An Encyclopædia of Useful Knowledge

Published by Good Press, 2022

goodpress@okpublishing.info

EAN 4064066360450

TABLE OF CONTENTS

LONDON:
T. NELSON AND SONS, PATERNOSTER ROW;
Edinburgh; and New York.
1863.

Preface.

Table of Contents

"Is it a Fact?" Such is the question we daily ask of matters occurring or suggested. Is it a truth—a reality—a thing of which our senses or intellect can take firm grasp? Is there no delusion about it? Does it stand out clear of all shadows—a point of actual existence—in short, is it a Fact?

The importance of Facts cannot be overrated. Canning once said that he knew nothing so sublime as a Fact. They constitute our universe—our existence. They comprise all that we are, all that we have, and all that we can hope to be.

Knowledge is nothing more than the comprehension of Fact; well, therefore, may it be said that knowledge is power,—for he who knows the most of what is, must be able to make the best use of it. And knowledge is justly said to be "the solace and delight of the human mind;" for the mind was created for it. By knowledge man stands pre-eminently distinguished amidst creation, and to him alone is given the privilege of viewing all the beautiful varieties of nature, and all the works of human ingenuity and art.

But the realms of Fact are vast and limitless, and those things which conduce most to the usefulness and happiness of man's daily life, are the things which concern him most.

Useful Facts, as they are commonly termed, are, therefore, most properly the demand of the age; and this demand it is the object of the present work to supply.

Besides Facts about the Food we Consume, the Clothes we Wear, and the House we Live in, we have herein—

Facts from Arts, Sciences, and Literature: As,—The Liberal and Mechanical Arts—Philosophical and Musical Instruments—Chronological Divisions—Architectural Orders—Months and Days—Poetical and Literary Terms—Telegraphs and Railways—The Stereoscope and Photography—Drawing, Music, and Oil Painting. Our

Facts from Commerce and Manufactures, deal with Metals, Minerals, Woods and Alkalies—Gems and Precious Stones—Colours and Paints—Curious Trees—Silk, Flax and Cotton, Pottery, Glass, and Paper—Bleaching and Dyeing—Gold Ores and Manufactures—Weights and Measures. While our

Facts from Anatomy and Physiology, relate to the Bones, Muscles, Nerves, Arteries, and Blood—The Laws of Health: How to Preserve and How to Restore it—Ventilation and the Sanitary Laws, &c. We also present

Facts from the Garden and the Field:—As, the Culture and Management of the Favorite Flowers, Weeds, Grasses, Vegetables and Agricultural Operations. We have, indeed, gleaned

Facts from all Subjects and for Everybody; Including Etiquette—The Philosophy of Eating, Drinking, and Cooking—Popular Science of Common Things—Laws of Chess, Draughts, Billiards, Whist, Cribbage, and Cricket—Calendar of the Months—Domestic Natural History—Education—Police Regulations—Railway Signals—Signification of known Christian Names—In short, all those things which have the magic power of metamorphosing “bleak houses” into happy homes. And thus we claim for the work universality of scope as well as utility of aim; and present it, with confidence, as comprising in a pre-eminent degree—“Things not generally known; Things that ought to be known; and Things worth knowing;” the whole collated and condensed with most scrupulous anxiety for accuracy as well as originality.

In the treatment of our book, care has been taken to give the plainest and clearest definitions of whatever is described, or set before the reader, so as to be neither tedious in explanation, nor so compressed as not to be intelligible and practically useful.

FACTS FOR EVERYBODY:

Table of Contents

A Miscellany of Useful Knowledge.

Table of Contents

KNOTS. The most simple purpose for which a knot is required, is the fastening together of two pieces of string or cord: the knot selected for this purpose should possess two important properties;—it should be secure from slipping, and of small size. Nothing is more common than to see two cords attached together in a manner similar to that shown in Fig. 1. It is scarcely possible to imagine a worse knot; it is large and clumsy, and as the cords do not mutually press each other, it is certain to slip if pulled with any great force.

Fig. 1.

In striking contrast to this—the worst of all, we place one of the best; namely, the knot usually employed by netters, and which is called by sailors “the sheet-bend.” It is readily made by bending one of the pieces of cord into a loop (ab, Fig. 2),

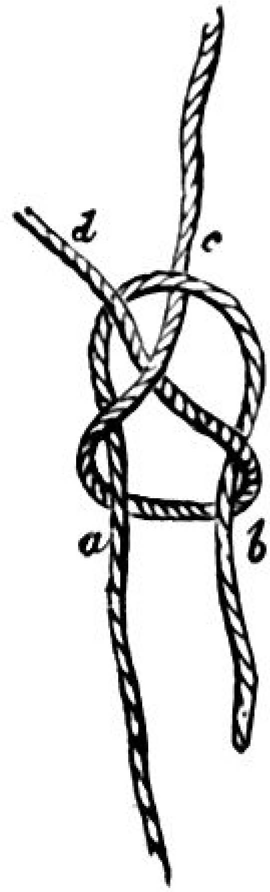


Fig. 2.

which is to be held between the finger and thumb of the left hand; the other cord c is passed through the loop from the farther side, then round behind the two legs of the loop, and lastly, under itself, the loose end coming out at d. In the smallness of its size, and the firmness with which the various parts grip together, this knot surpasses every other: it can, moreover, be tied readily when one of the pieces, viz., ab, is exceedingly short, in common stout twine less than an inch being sufficient to form the loop. Of the knot, Fig. 2 is the simplest method to describe, although not the most rapid in practice; as it may be made in much less time by crossing the two ends of cord (ab, Fig. 3) on the tip of the forefinger of the left hand, and holding them firmly by the left thumb, which covers the crossing; then the part c is to be wound round the thumb in a loop, as shown in the figure, and passed between the two ends, behind a and before b; the knot is completed by turning the end b downwards in front of d, passing it through the loop, securing it under the left thumb, and tightening the whole by pulling d. As formed in this mode, it is more rapidly made than almost any other knot; and, as before stated, it excels all in security and compactness, so firmly do the various turns grip each other, that after having been tightly pulled, it is very difficult to untie.

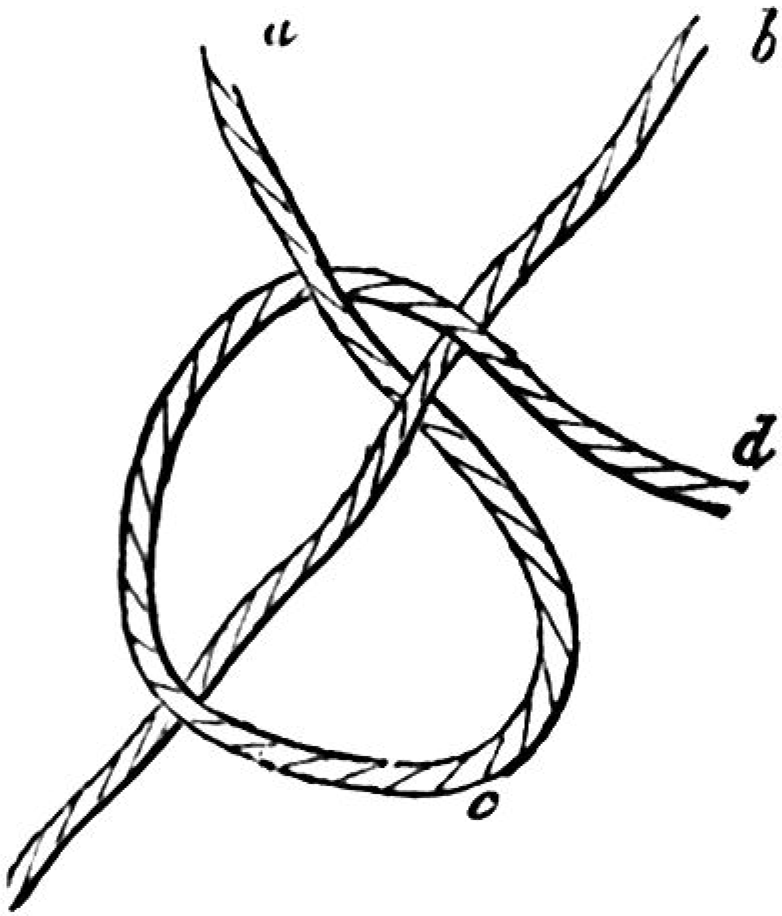


Fig. 3.

Reef-Knots. The only precaution necessary in making a reef-knot is, to observe that the two parts of each string are on the same side of the loop; if they are not, the ends (and the bows, if any are formed) are at right angles to the cords; the knot is less secure, and is termed by sailors a granny-knot. Other knots are occasionally used to connect two cords, but it is unnecessary here to describe them, as every useful purpose may be answered by those already mentioned.

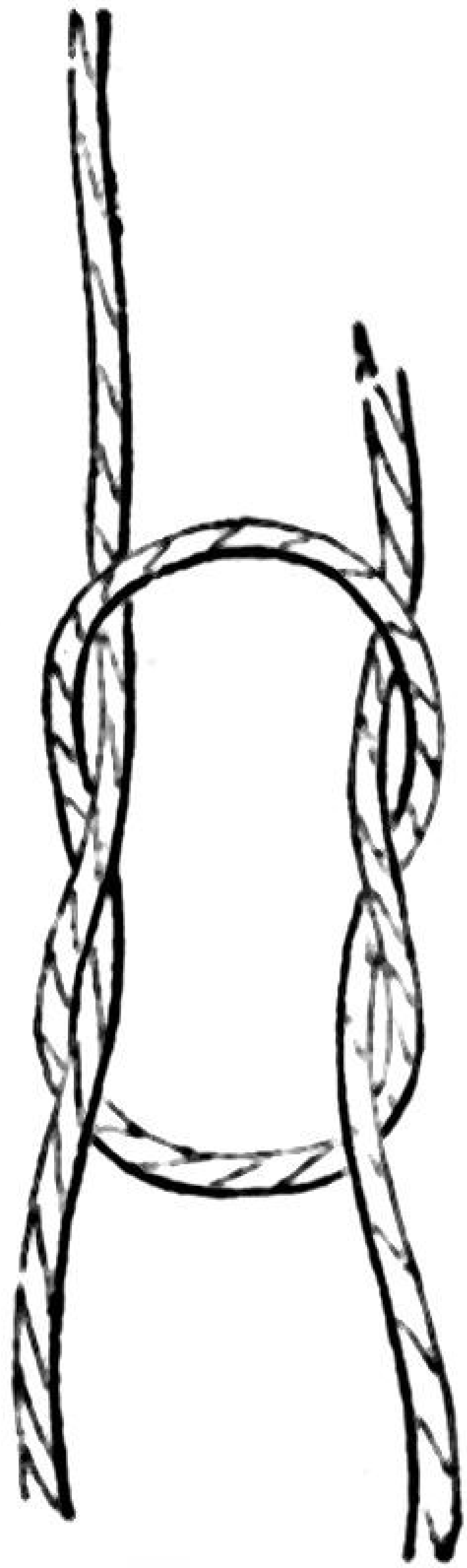


Fig. 4.

The Binding-Knots (Figs. 5 and 6) are exceedingly useful in connecting broken sticks, rods, &c., but some difficulty is often experienced in fastening it at the finish; if, however, the string is placed over the part to be united, as shown in Fig. 5, and the long end b, used to bind around the rod, and finally passed through the loop a, as shown in Fig. 6, it is readily secured by pulling d, when the loop is drawn in, and fastens the end of the cord.

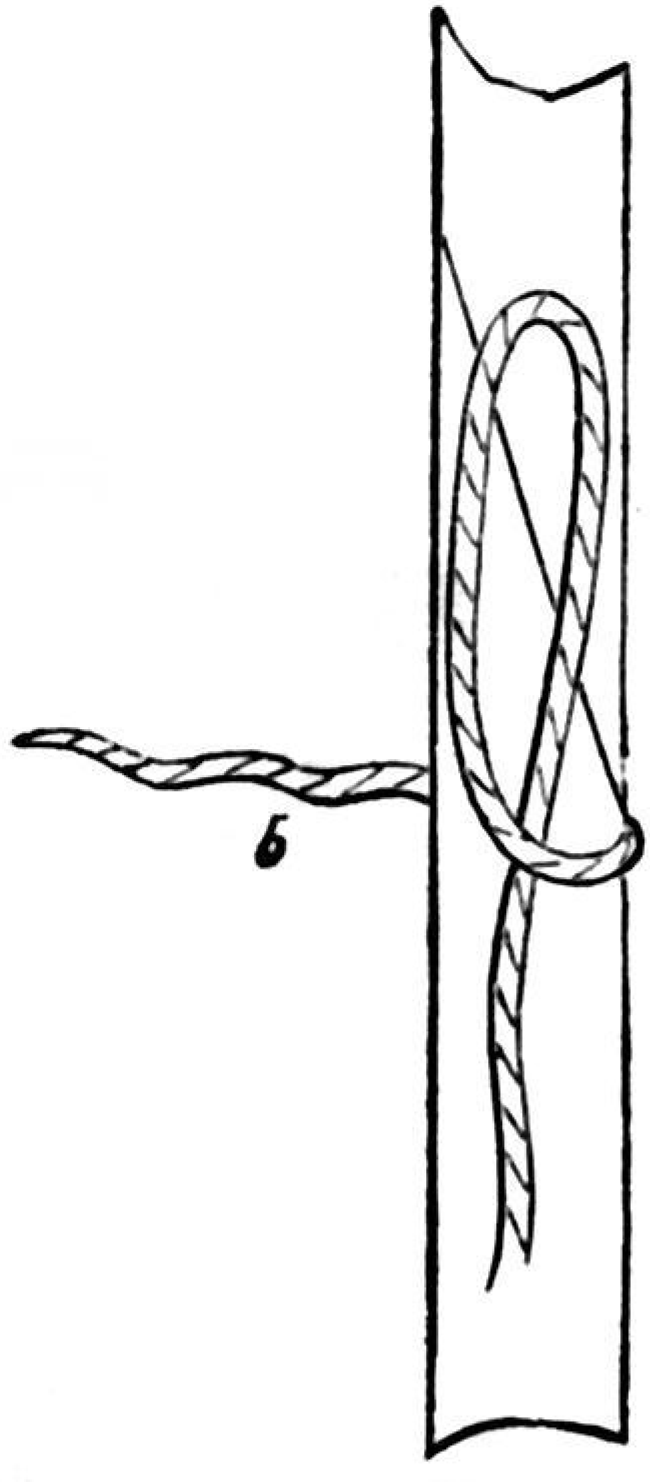


Fig. 5.

Fig. 6.

THE CLOVE-HITCH KNOT. For fastening a cord to any cylindrical object, one of the most useful knots is the clove hitch, which although exceedingly simple and most easily made, is one of the most puzzling knots to the uninitiated. There are several modes of forming it, the most simple being perhaps as follows:—make two loops, precisely similar in every respect as a and b, Fig. 7, then bring b in front of a, so as to make both loops correspond, and pass them over the object to be tied, tightening the ends; if this is properly done, the knot will not slip, although surrounding a tolerably smooth cylindrical object, as a pillar, pole, &c.

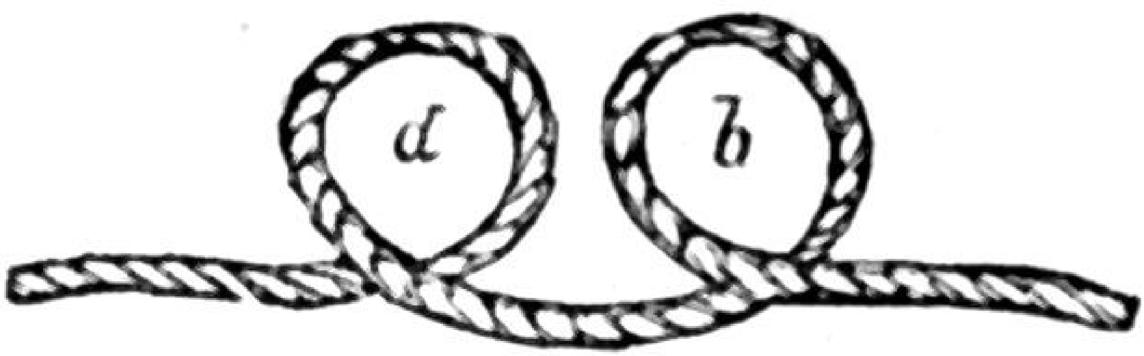


Fig. 7.

This knot is employed by surgeons in reducing dislocations of the last joint of the thumb, and by sailors in great part of the standing rigging. The loop which is formed when a cable is passed around a post or tree to secure a vessel near shore, is fastened by what sailors term two half hitches, which is simply a clove hitch made by the end of the rope which is passed around the post or tree, and then made to describe the clove hitch around that part of itself which is tightly strained.

The Tying Up of Parcels in Paper is an operation which is seldom neatly performed by persons whose occupations have not given them great facilities for constant practice. Whether the paper be wrapped round the objects, as is the case usually when it is much larger than sufficient to enclose them, or merely folded over itself, as is done by druggists, who cut the paper to the required size, it is important that the breadth of the paper should be no longer than sufficient to enable it to be folded over the ends of the object enclosed, without passing over the opposite side. It is impossible to make a neat or close parcel with paper which is too broad; excess in length can be readily disposed of by wrapping it round; the excess of breadth should be cut away. With regard to turning in the ends, the mode adopted by grocers is the best. The most common cause of failure in parcels is their being badly corded. We will therefore (however unnecessary the description of so simple a performance may appear to those already acquainted with it), describe the most readily acquired mode of cording.

Let a single knot be made in the end of the cord, which is then passed round the box or parcel. This knotted end is now tied by a single hitch round the middle of the cord (Fig. 8) and the whole pulled tight. The cord itself is then carried at right angles round the end of the parcel, and where it crosses the transverse cord on the bottom of the box (Fig. 9), it should (if the parcel is heavy and requires to be firmly secured) be passed over the cross cord, then back underneath it, and pulled tightly, then over itself; lastly, under the cross cord, and on around the other end of the box.

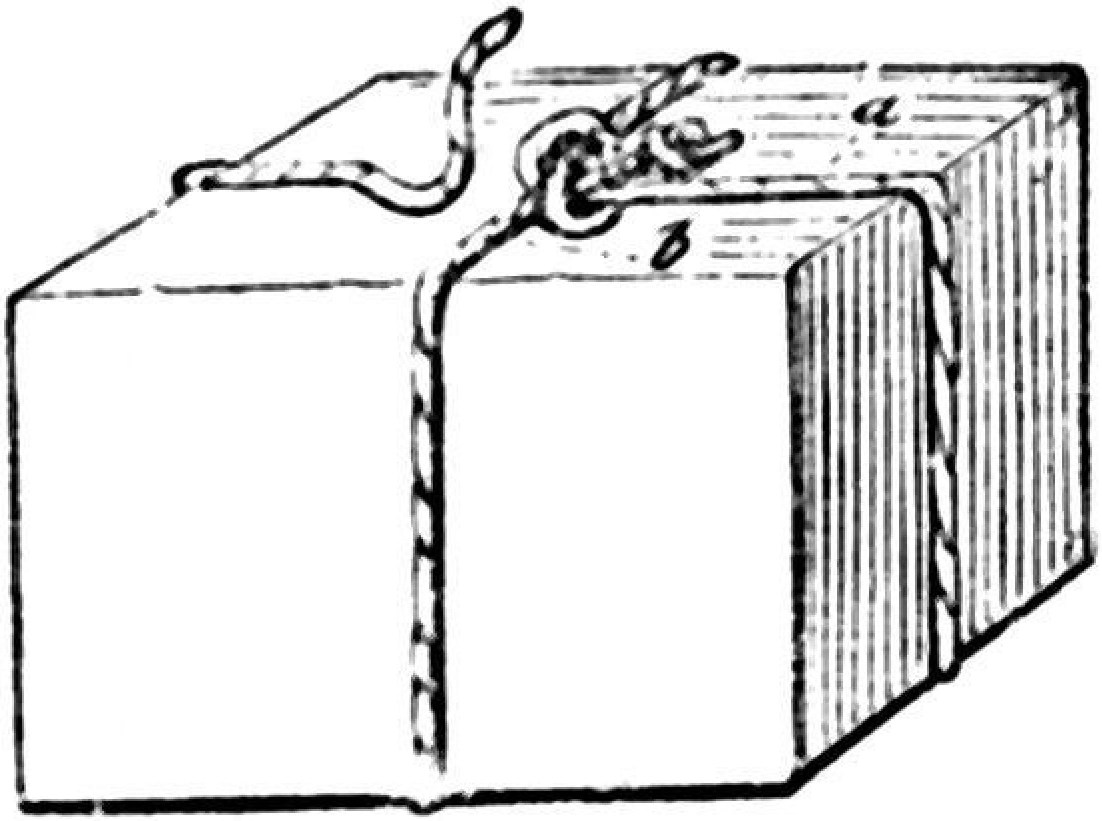


Fig. 8.

When it reaches the top it must be secured by passing it under that part of the cord which runs lengthways (a, Fig. 8) pulling it very tight, and fastening it by two half hitches round itself. The great cause of parcels becoming loose is the fact of the cord being often fastened to one of the transverse parts, (as b, Fig. 8) instead of the piece running lengthways, and in this case it invariably becomes loose.

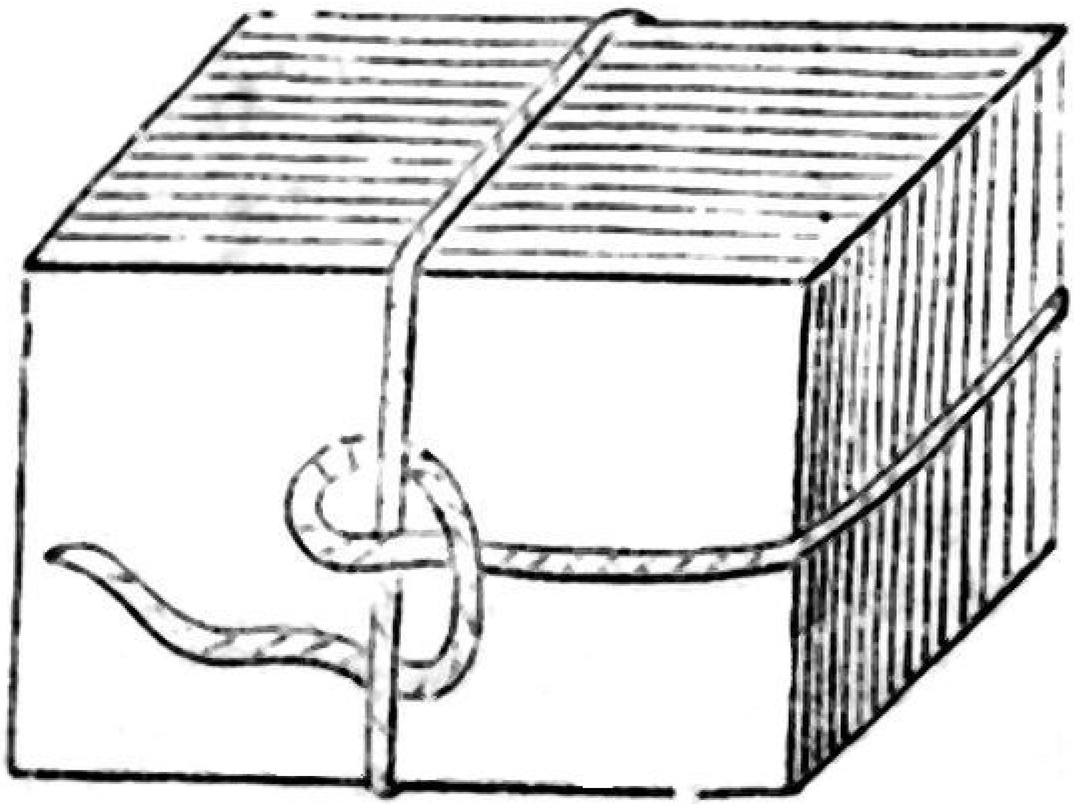
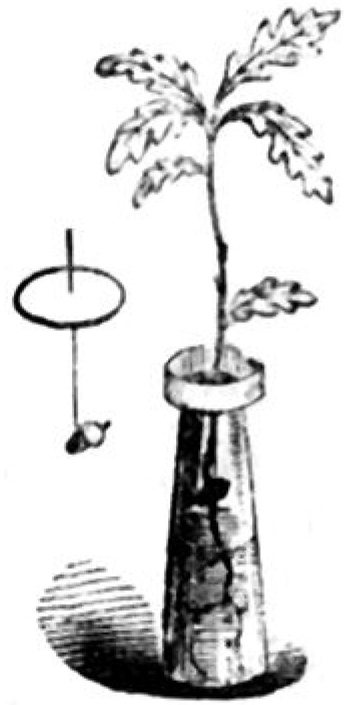


Fig. 9.

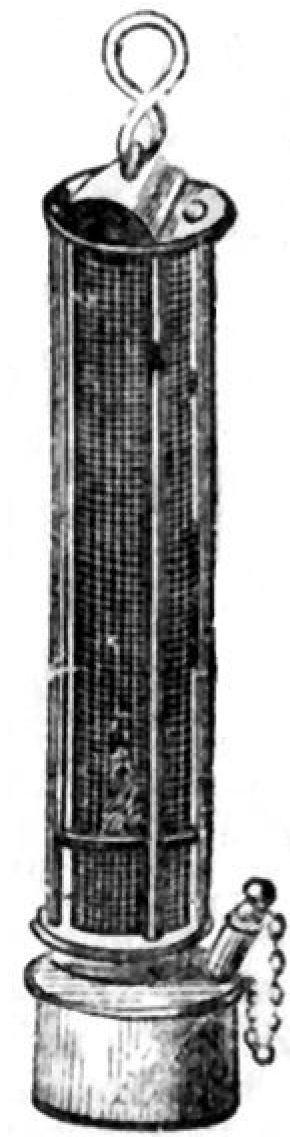
The description may perhaps be rendered clearer by the aid of the figures, which exhibit the top and bottom of a box corded as described. The cords, however, are shown in a loose state to allow their arrangements to be perceived more easily.

GERMINATION OF ACORNS. Take a hyacinth glass, or a broad-mouthed bottle, and fill it about-one-third with water. Cut a piece of stiff cardboard, or tin, to fit closely the opening of the glass or bottle, and from the centre thereof suspend an acorn by a piece of thread just long enough to let the acorn descend nearly to the water. It will be advantageous to drop the acorn until it touches the water, and then to draw it up very gently as far as may be done without overcoming the attraction which holds the water to the base of the acorn.



Keep it now on the mantel-piece over the fire, and in a few weeks the germ will burst the shell, and a little root will appear and descend to the water, where it will become more fully developed. Steep the acorn in water a day before suspending it. Soon afterwards, another germ will be seen to strike upwards until it reaches the covering of the glass, where a contrivance may easily be made for its escape, still keeping the acorn in the same relative position. And thus a sapling oak may be produced—a curiosity for the parlour.

THE SAFETY LAMP was invented by Sir Humphrey Davy, and was constructed so as to burn without any danger in an explosive atmosphere. It is merely a common oil-lamp, the frame of which is enclosed in a cylindrical cage of wire gauze, sometimes made double at the upper part where the hottest portion of the gas collects, and containing about 400 apertures to the square inch. The wick is trimmed by means of a bent wire, passing tightly through the body of the lamp, so that when the lamp has been supplied with oil, the wick may be kept burning for any length of time without unscrewing the cage.



When this lamp is immersed in an explosive mixture of marsh-gas or coal-gas and common air, the gauze cylinder becomes filled with a blue flame, arising from the combustion of the gas within; but the flame does not communicate to the outside, even though the gauze may be heated to less redness.

ABLUTION, or a Washing Away—a religious ceremony, which has been practised more or less by the followers of all creeds. The Mohammedans and Brahmins are very strict in their ablutions; and they occupy an important rank amongst other religions of India. The Ganges is considered by the natives as possessing a power of purification so great even, that if a votary cannot reach that river, and who calls upon it while bathing in another to cleanse him, he will be freed from all his sins.

ELECTRIC TELEGRAPH. In the description of the electric telegraph, we will lay aside all technical and scientific terms, and explain clearly this greatest wonder of our day. The source of the electricity used requires our first attention. This is what is called a voltaic, or galvanic battery; and it is so called from Volta and Galvani, its originators. We can make a very simple battery by means of two tumblers, a little salt and water, two small pieces of zinc, and two of copper, united in the following manner:—A and B are the tumblers, cc the pieces of copper, zz the pieces of zinc; the tumblers being partly filled with the salt and water, the battery is complete.

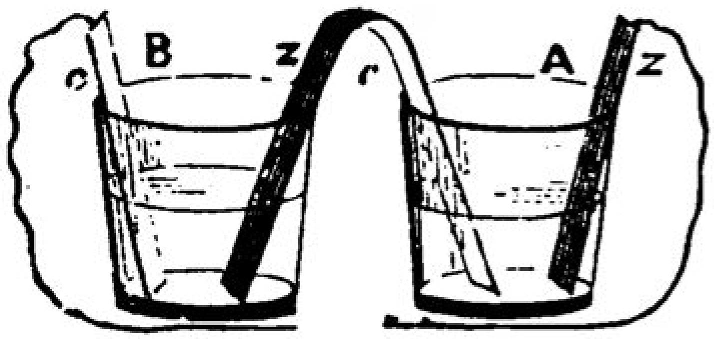


Fig. 1.

It may be observed that the metals used are dissimilar; that a plate of copper and one of zinc unite at e, and that there are wires fixed to the other two plates, which as yet are in no way connected. Whilst things are in this state, nothing will take place; the battery is at rest, and no electricity is evolved by it; but if we join the two wires, a current of electricity will immediately pass, and this current will continue till we again separate the wires. If two plates of metal are placed in a solution which will only dissolve one of them, and their upper edges are brought into contact, whilst the others are kept apart, a current will pass from one to the other through the solution, and, passing also from one to the other at the point of contact, will continue thus circulating, till either the soluble matter is consumed, or the liquid itself is saturated—that is, has dissolved as much metal as it is capable of dissolving. This is always the case; but often the effect is so slight, that it is rarely perceptible. Take a piece of silver, and a piece of zinc the size of a half-crown; place one upon the tip of the tongue, the other under it; bring their edges into contact, and what is called a shock will be perceptible; that is, the saliva acting upon the zinc and not upon the silver, a small battery is made, and the electricity passes from the zinc through the tongue to the silver, thence to the zinc again, and thus circulates till you part the edges of the metals. The shock is very slight, being chiefly known by an acid taste; nor would it be felt at all, but that the tongue is so acutely sensitive. We have called this a small battery, but it is scarcely a correct term; it is a single voltaic pair—a battery, in its proper sense, being made up by a union of two or more such pairs, as in the case of the one above. In practice, a battery consists of twelve or more such pairs; and the following sketch represents one commonly used in working the electric telegraph:—

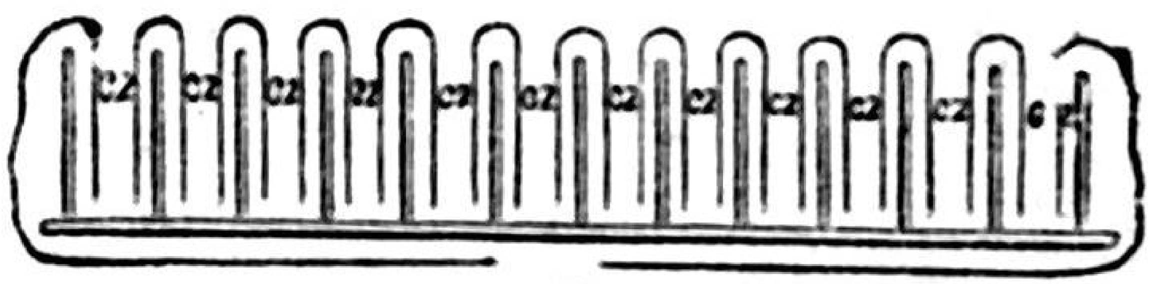


Fig. 2.

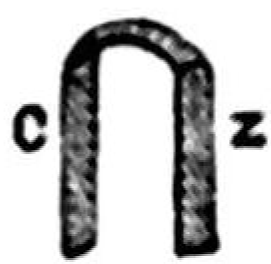


Fig. 3.

It contains twenty-four pairs of zinc and copper plates, about four inches square. Each pair are soldered together by means of a strap of metal, as in Fig. 3. To make it quite clear, we have drawn but twelve pairs in section, and lettered the alternate plates, z standing for zinc, and c for copper. The trough in which they are placed is either made of baked wood, glass, earthenware, or gutta percha; the only requisite being that it is a non-conductor of electricity—that is, such a substance as electricity will not readily pass through. The last plate at one end is zinc, and the other copper, and a wire is soldered to each. If these wires are joined, a current of electricity will pass from the zinc plate to which one is attached, through the exciting liquid, which is here sulphuric acid and water, to the copper plate in the same cell, thence by the metal strap to the zinc of the next cell, and thus through the whole series to the other single plate, whence it passes by the wires to the first zinc plate again. But as each pair of plates produce similar currents, their combined power is very great, and a large quantity of electricity passes through the terminal wires. So much for the battery. We will now go a step further, and learn an extraordinary effect which it is capable of producing. You know what a magnet is, and many of you have, we dare say, seen a mariner’s compass—if not, we must briefly tell you what it is. It consists of a flat piece of steel, of this shape, which is called a needle.

This is suspended on a point, by means of a small hole, or rather conical indention made in its centre. This needle being magnetised, and thus suspended, will always point in the same direction, one end being directed to the north, the other to the south; and it thus enables the sailor to go in any direction he may desire. For if he knows where these points are, he can tell the east and west; and if, as is always done, a card is placed below the needle, with the intermediate points carefully marked upon it, he has no difficulty in steering exactly to any place of which he knows the position; and thus the compass is to the sailor on the pathless deep just what the direction post is to the traveller. Now, if we take such a needle as we have described, and suspend it vertically on an axis passing through its centre, and then, by means of a wire, pass a current from our battery round it thus, the needle will take up a new position at right angles to that which it maintained before, indicated by the dotted lines.

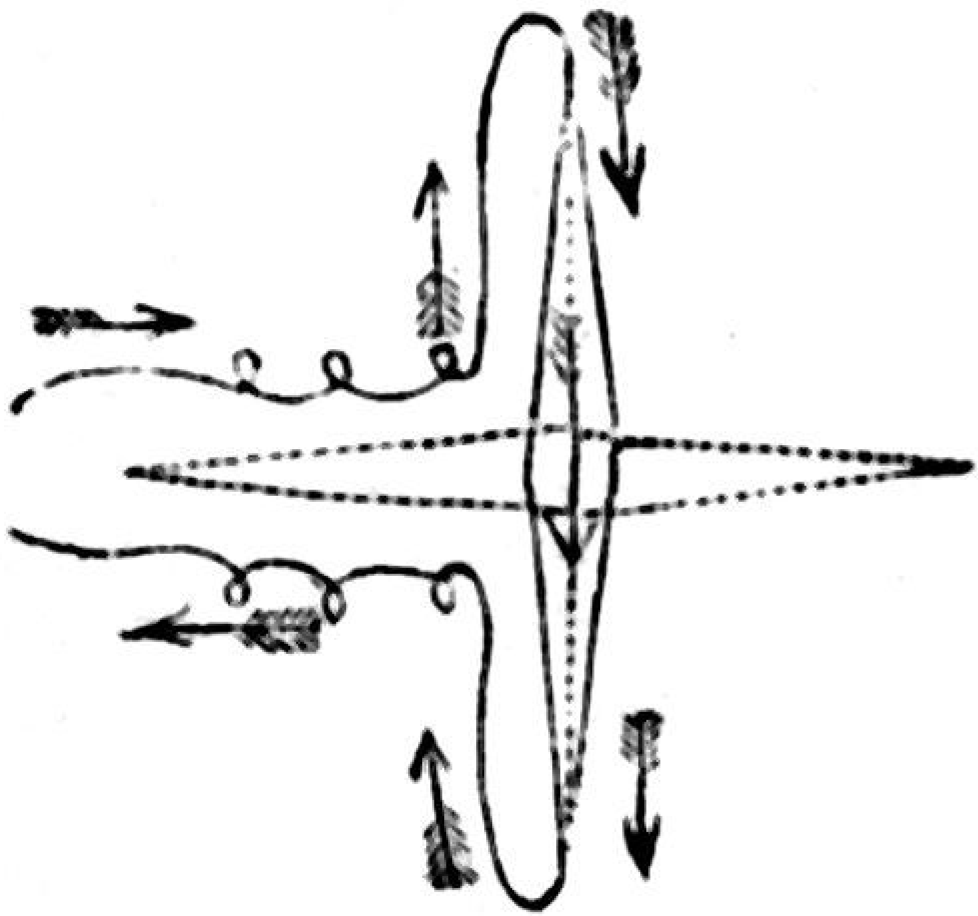


Fig. 5.

Whether the upper point, or north pole, of the needle moves to the right or left in order to attain this position depends on the direction of the current. Thus we have arrived at the principle of an electric telegraph. We have but to agree upon a set of signals that the deflection of the needle shall signify; and if we can contrive to send the current in the direction we wish, so as to move the north pole of the needle to the right or left at will, the apparatus will be complete. But, in practice, it is necessary that we should be able to move, as we please, a similar needle to our own, at the station to which we desire to send the message. In order to accomplish this, we have but to conduct the current from one station to the other by means of an insulated wire. This will be easily understood by the following diagram, where the battery is represented at A, and the different stations at B, at each of which the needles have their north poles upwards; and the wire conveying the current passes in the same direction round all, and lastly returns to the other pole of the battery; thus the current, leaving the battery by the copper or positive end, c, will traverse the wire in the direction of the arrows, deflect the needles in the same direction at the different stations, and return to the zinc or negative end of the battery by the same wire.

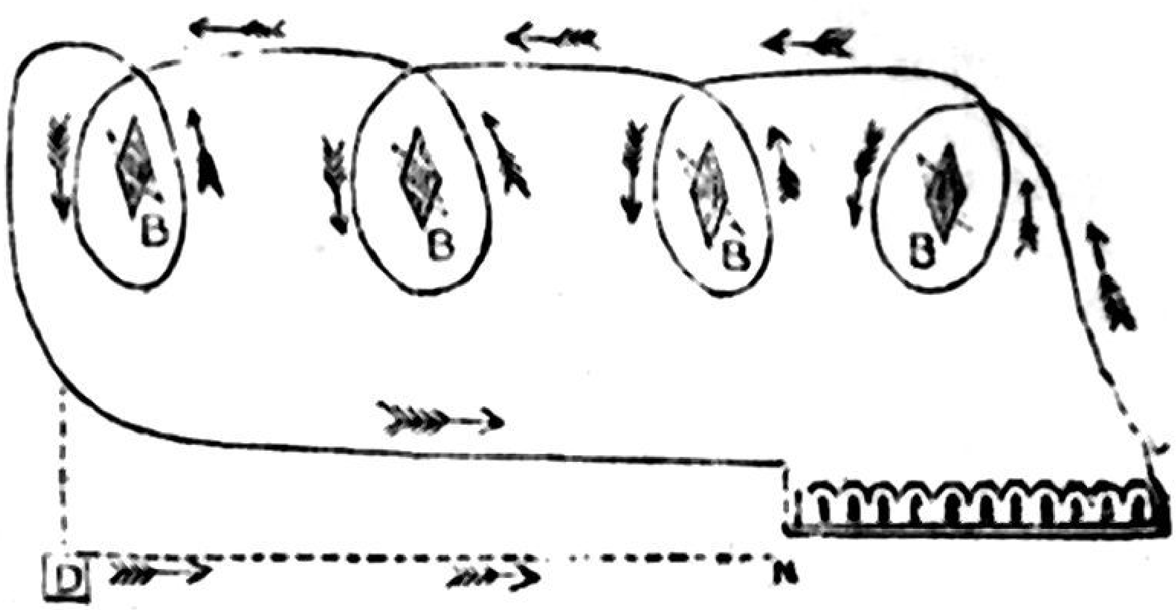


Fig. 6.

We will now tell you a very curious fact about the return of the current. The return wire is not necessary, nor is it now put in practice; for a man named Sternheil proved, in 1837, that if we buried deep in the ground the end of the wire, attaching it to a plate of metal, the earth itself would conduct the current back again, thus saving the cost of a return wire. Thus, in the figure above, we have represented this by dotted lines, and marked the direction of the return current by double arrows, N O being the plates of metal, and having the wires attached to them.

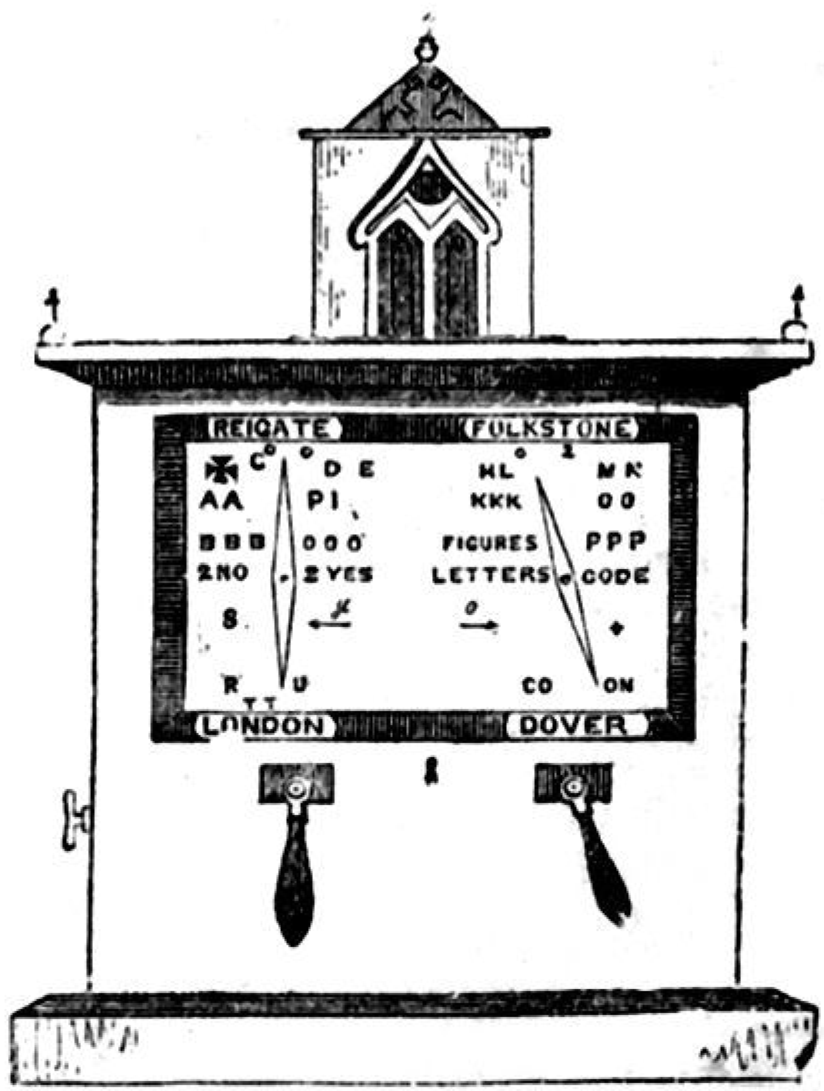


Fig. 7.