The Spider's Thread.

In a lecture at Boston, Mass., Professor Wood dealt with the phenomena of spider life. The female is larger and much fiercer than the male, who, while paying his addresses, is in constant peril, frequently losing some of his legs. In one tribe the female is 1,300 times as large as the male. The spider's thread is made up of innumerable small threads or fibers, one of these threads being estimated to be one two-millionth of a hair in thickness. Three kinds of thread are spun: One of great strength, for the radiating or spoke lines of the web. The cross lines, or what a sailor might call the ratlines, are finer and are tenacious—that is, they have upon them little specks or globules of a very sticky gum. These specks are put on with even interspaces. They are set quite thickly along the line, and are what, in the first instance, catch and hold the legs or wings of the fly. Once caught in this fashion, the prey is held secure by threads flung over it somewhat in the manner of a lasso. The third kind of silk is that which the spider throws out in a mass of flood, by which it suddenly envelops any prey of which it is somewhat afraid, as, for example, a wasp. A scientific experimenter once drew out from the body of a single spider 3,480 yards of thread or spider silk—a length little short of three miles. Silk may be woven of spider's thread, and it is more glossy and brilliant than that of the silkworm, being of a golden color. An enthusiastic entomologist is said to have secured enough of it for the weaving of a suit of clothes for Louis XIV.

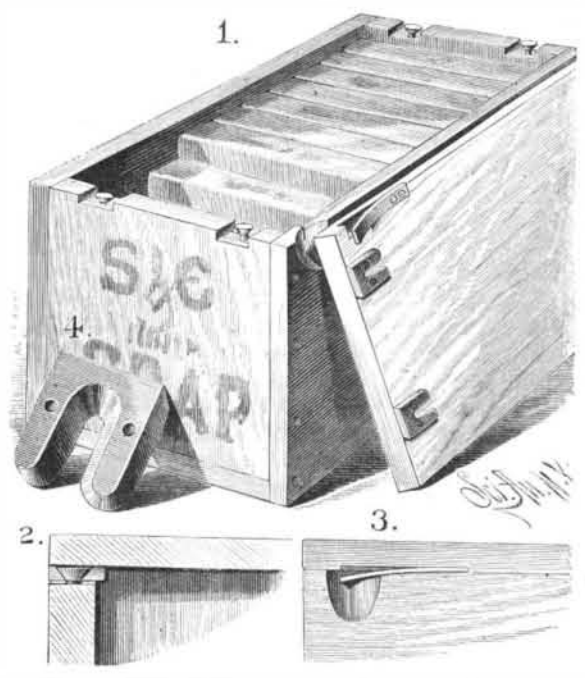
The New French Cruiser Sfax.

This cruiser, which was laid down at Brest eighteen months ago, was launched there recently. The Sfax, which is built of steel with twin screws and watertight compartments, is 290 feet long by 50 feet beam, and draws 23 feet of water, with a total displacement of 4,500 tons. The hull is entirely of steel, with a wood facing and a sheathing of copper. The vital portions of the vessel, such as the engines, boilers, and magazine, are protected by a deck with iron plates 2 inches thick. The Sfax carries six 6 inch guns, ten 5 inch guns on hydraulic carriages, and several revolving guns. Her two screws derive their motive power from two separate engines, which can develop at full pressure 7,500 horse power. The maximum speed is estimated to be 16¼ knots, and the Sfax will carry enough coal for a cruise of 6,200 miles. She has cost so far £153,000, of which about £80,000 has been spent upon the hull, and the remainder upon the engines, etc. If to this is added the expense of arming and equipping her, she will cost about £200,000.

DEVICE FOR SECURING BOX COVERS.

The body of the box is of ordinary construction, except that the end pieces are cut away at their upper edges, and that one of the side pieces is cut away to form the locking shoulder with which the free end of the spring engages for locking the cover in place. The outer surface of the side board is also cut away, to afford access to the spring for lifting it above the offset when the cover is to be removed. In the cutaway places are headed screws with which claw plates (shown detached and enlarged in Fig. 4), secured to the under side of the cover, engage to hold the cover securely upon the body. The screws stand flush with the upper edges of the end boards, so that when the cover is removed they will not interfere with the placing of a glass cover over the box for exhibiting the contents.

The claw plates may be stamped out of sheet metal, and secured to the cover by small nails or screws, or they may be made of cast iron. The spring is fastened to the cover,



SHAW & CHIDLEY'S DEVICE FOR SECURING BOX COVERS.

as shown in Fig. 1, and is so arranged that its free end will drop behind the offset just as the claw plates fairly receive the screws, thereby preventing all backward movement of the cover. The box is especially intended for the use of biscuit and soap manufacturers, who usually charge the boxes to their customers and have them returned to be refilled.

This invention has been patented by Messrs. H. A. Shaw and E. D. Chidley, of 784 Yonge Street, Toronto, Canada.

THE HARDEN HAND-GRENADE FIRE EXTINGUISHER.

Ever since P. T. Barnum, the renowned showman, brought to this country and attempted the general introduction of Phillips Fire Annihilator, about a quarter of a century ago, there have been a number of chemical fire extinguishers introduced, some of which have proved quite successful.

There has been recently introduced a very simple and inexpensive apparatus, called "The Harden Hand-Grenade Fire Extinguisher," and from the result of the numerous

HAND-GRENADE FIRE EXTINGUISHER

tests made before the public in this city, this would seem to fill a want not before obtained.

These little hand grenades extinguish fires on the same principle as the chemical fire engines, which are charged with carbonic acid gas, which by calculation possesses forty times the extinguishing effect upon fire that water has. These grenade extinguishers consist of a glass globe about four inches in diameter that resemble a small jug, and this contains the liquid which produces large volumes of fire extinguishing gas when brought in contact with flames.

The liquid it is said will stand a temperature of fifteen or twenty degrees below zero; thus all danger from its freezing and becoming useless when wanted is avoided.

A representative of the SCIENTIFIC AMERICAN was present at an exhibition trial of this extinguisher a few days ago, and witnessed the following experiments:

A fire was lighted at the side of a pine board fence, some 8 feet high by 15 long, the surface of which was coated with tar, and kindling wood and paper placed against it, the whole having a gallon or so of benzine scattered over it. The blaze sprang up almost instantly, and in less than half a minute the flames shot up twenty or thirty feet. To put out this fire, which it took but a few seconds to accomplish, three of the grenades were flung with enough force to break them and scatter their contents over the fence in the midst of the blaze.

Another trial was also made, in which the grenades were hung against the fence and the fire kindled under them. This time the blaze did not reach the height it attained in the former trial, but the grenades burst by the heat when the temperature had reached about 180° Fah., and the fire was again quickly extinguished. A watchman making the rounds of a factory with one or two of these in his hands would find them vastly more serviceable than a pail of water or a small hose, were either of the latter always on hand, as they so seldom are; and the grenades can be successfully used in cases where it is difficult to exactly locate or get near to a fire. To hang them in places where there is liability to fire, so they will burst before a fire has gained much headway, is one of their obvious uses.

For summer houses and stables, where the materials of construction are usually of an inflammable character and water is seldom at hand, these grenades would prove highly valuable. At the brewery of J. C. G. Hupfel a few days ago a fire broke out which promised to be more or less serious, but it was quickly extinguished by using four of the grenades.

An Ice-water Well.

In digging the well to supply the railroad tanks at Palouse Junction, W. T., the workmen passed through strata of alkali, clay, and finely-broken basalt rock, to a depth of 185 feet, where water of great purity and limitless quantity was found. The water in the well is five feet deep, and a steam pump, actively worked, makes little impression on the quantity. The most curious thing about the well is the fact that in digging the last fifty feet the workmen in the well had to wear heavy clothing and wrap their feet and legs in gunny bags to keep from freezing, while the men in the open air worked in their shirt sleeves. Water left in the bucket in the well over night would freeze. The water in the well does not freeze, because it flows too fast. The new well at Eltopia is seventy-five feet deep, nearly all the distance being through clay. The first twelve feet are through solid white alkali.—*Portland Oregonian.*

Intelligence of the Oriole.

On the western side of Central Park, very near 103d Street and Eighth Avenue, stands a row of elm trees, difficult to approach on account of a heavy growth of syringa bushes around them. On a branch of one of the trees, about sixteen feet from the ground, a pair of Baltimore orioles set to building a nest a few weeks ago. They chose the extreme end of the bough, with evident intention of making it a hazardous experiment for any bird nester to attempt to molest them. But in their excess of caution they appeared not to observe what the few persons whose eyes were keen enough to see the first labors of the little architects saw—that the branch was much too slender to support so large a nest as an oriole builds.

When the nest was about two-thirds finished the birds saw their mistake. The branch had bent so low that it was getting perilously near the grass. Work was at once stopped, and the builders sat close together for a long time, and seemed to be discussing the situation. Finally, they flew side by side to a bough about fifteen inches over the one on which their nest was, and, leaning over, inspected the distance. They seemed to be satisfied, and, though it was growing rapidly dusk, the birds flew away in opposite directions. In the morning it was found that they had firmly secured their habitation, and prevented the branch from bending lower, by passing a piece of white string, which they had found somewhere in the park, over the upper bough, and fastening both ends of it securely to the edges of the nest. The building then went rapidly on, and the orioles are now engaged in hatching their eggs. Very few persons have seen the nest, and there is a fair prospect that their skill and ingenuity will be soon rewarded by a brood of young orioles.

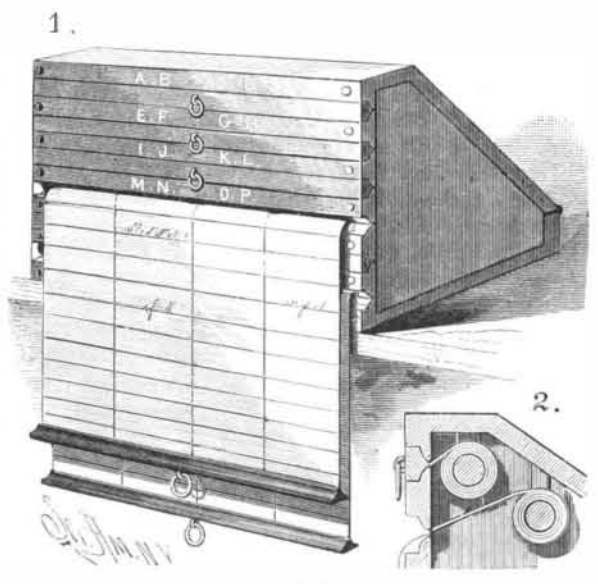
The Baltimore oriole is a very intelligent bird, but a New York ornithologist, who saw the nest, said he had never seen an achievement quite equal to this one before. He says the art of knitting fibers or strings together is well known to many birds. The weaver bird of India builds its nest out of a large, strong leaf, which it stitches together at the edges, making a compact and closely adhering funnel.—*New York Sun.*

Eucalyptus Globulus in Whooping-Cough.

The editor of the *N. E. Medical Monthly* having seen eucalyptus globulus recommended in pertussis, gave it a trial in his practice. He administered it in some twenty-five or thirty cases, and the results were of a very gratifying nature. Its effect was to greatly modify the severity of the paroxysms in every case, and in so abating the symptoms occasionally, that what gave promise of being a very severe attack in its incipiency turned out to be little more than what is known as a sympathetic cough. These results certainly merit for this agent a trial at the hands of other practitioners, for few will be prepared to admit that the best possible remedy for this affection has yet been employed.

INDEX FOR JOURNALS, LETTER FILES, ETC.

An index recently patented by Mr. Thomas C. Brown, of Norborne, Missouri, is conveniently arranged, and contains a great number of names in a very small space. The top of the box is inclined upward from the rear to the front, and is hinged to the back. The front is provided with a series of equidistant longitudinal slots, widened toward the outer surface to form grooves. As many spring rollers as there are slots are journaled in bearings within the case, and on each roller is fastened a sheet of strong paper muslin, to the outer edge of which is attached a slat fitting in the groove. Sheets fastened to the rollers, or pasted on the fabric, are



BROWN'S INDEX FOR JOURNALS, LETTER FILES, ETC.

ruled and divided into vertical columns, on which the names are written, with the corresponding page of the ledger, journal, etc. The initial letters of the names on each sheet are produced on the front of the corresponding slat. By pulling a slat the sheet is drawn outward so that the name and page number can be found; as soon as the sheet is released the spring roller winds it up again in the same manner that a curtain is wound on its roller.