

TO EUROPE IN A BALLOON.
(Concluded from page 38.)

Atlantic may be accomplished with a very large balloon. This question he has discussed with much plausibility in his work on the subject, published in 1850; and having discovered, in his former aerial excursions, a current of air flowing to the east at a certain altitude, he has been led to believe a long voyage to the east could be successfully accomplished. To test this idea, a person was found, in Mr. Gager of Vermont, who had the enterprise and ability to furnish the necessary funds for the undertaking; and for this purpose the monster balloon Atlantic was built by Mr. La Mountain, at Lansingburgh, N. Y., and carried to St. Louis in order to make the experimental voyage from that city to this (New York), prior to making a grand atmospheric journey across the ocean to Europe. We will now describe the results of this attempt:

On the 1st inst., the balloon was inflated with sixty thousand feet of coal gas, the expansive force of which was capable of raising more than fifteen hundred pounds into the atmosphere. It had a common basket car secured to it and a very light and strong life boat slung below. Considerable ballast of sand bags was provided; a screw steering apparatus for changing the direction of the balloon, several philosophical instruments necessary for the voyage, plenty of provisions, and a bag of papers, letters, and small parcels from an express company to their office in this city, composed the freight. At twenty minutes past seven P. M., all things being ready, Mr. Wise ascended into the basket, and Messrs. La Mountain, Gager, and Hyde (the latter of the St. Louis *Republican*), took their places in the life boat. The signal was then given for the stay ropes to be cut, when the mighty mass shot up from St. Louis into the blue ether like a rocket, amid the plaudits of the multitude. Having ascended to an elevation where the thermometer fell to 42° and the barometer to 23", a strong eastward current was met, and away they floated towards New York. At this time Mr. Wise, having been much exhausted with the preliminary duties, resolved to have a nap, and for this purpose he bade his companions below goodnight, rolled himself in his blanket and was soon fast asleep. Near midnight he was awakened through a peculiar incident. Mr. La Mountain, who had charge of the midnight navigation, discovered that they had ascended to a considerable elevation; and the gas being thus relieved from pressure, he hailed Mr. Wise to open the valve, as the balloon had become very tense and the gas was rushing from its neck with a loud noise. Having received no answer, he suspected that Mr. Wise was smothered in the gas, and elicited Mr. Gager to mount into the basket by a rope and see what was the matter. This was done, and the veteran aeronaut was found breathing spasmodically; but a good shaking and the removal of the neck of the balloon from his face soon relieved him. Onward the balloon sped, after this, until daylight dawned, and at five o'clock next morning they were at the upper end of Lake Erie. After some consultation it was resolved to sail over the entire length of its waters, in order to test a notion entertained by some persons that there is a peculiar affinity between balloons and water, which draws the former towards the latter, and prevents them from remaining suspended above it any length of time. For some time they moved along only 590 feet above the lake; then, when near Buffalo, they rose higher, crossed Grand Island, and proceeded towards Lake Ontario. It was here resolved to land at Rochester and let out Messrs. Hyde and Gager, after which Messrs. Wise and La Mountain were to prosecute the voyage, hoping to reach Boston, knowing they were too far north now to reach New York. In order to carry out this conclusion, they gradually descended towards *terra firma*, where they met with a terrific gale of wind, which frustrated all their plans and nearly cost them their lives. This hurricane struck the balloon with great violence, sweeping it downwards towards the water and dashing it along at an awful velocity. All the ballast and everything that could be cast away were thrown out to enable the balloon to rise, but all in vain. Messrs. Hyde and Gager ascended to the basket, but Mr. La Mountain kept his position in the boat, even while it sometimes dashed through the tops of the waves of the lake. Mr. Wise was hopeful that they would be saved, but to every appearance they were all doomed to lose their lives. At last the balloon rose about one hundred feet, but with more apparent danger still, for onward it swept towards the land, and went crushing through the tops of the trees, smashing them like pipe stems, and continued thus for about one mile, until its progress was arrested by a tall oak; and we are happy to state, although the boat, basket, and balloon were much injured, a kind Providence preserved the lives of the daring aerial voyagers, who escaped with only a few bruises.

"Thus ended the longest balloon journey on record; it was commenced at St. Louis on the evening of the 1st inst. at 7:20 P. M., and completed near Adams, in Jefferson county, N. Y., at 2:20 P. M., on the subsequent day. The distance travelled was 1,150 miles; the time occupied 19 hours; a speed compared with which, that of the locomotive is as that of a donkey to a deer. The highest point attained was a little over two miles; and it appeared to be a very pleasant voyage until the parties met with the gale, in which the balloon became perfectly unmanageable.

"Although this aerial voyage is the longest on record, it does not appear to have added to our stock of knowledge in regard to making ballooning safe and practicable."

THE *Liberia Advocate*, of Monrovia, Africa, announces that its publication terms are: "One bushel of unhulled coffee per annum in advance." Money appears to be an unknown article among the printers of the West Coast.

The Atlantic Telegraph Cables.

We chronicled last week the successful laying of the fifth Atlantic telegraph cable by the Great Eastern, and we now give a few additional interesting particulars:

The squadron consisted of the Great Eastern, Captain Halpin, in charge of the expedition; the Hibernia, 3,000 tons, Captain Cato; Edinburgh, 2,300 tons, Captain Manning, and Robert Lowe, 700 tons, Captain Tidmarsh. The last three vessels are all screw steamships, the Great Eastern having both paddles and screw. The electrical staff was in charge of Mr. Laws.

Each of the four ships is fitted up with laying machinery and picking-up apparatus, similar in general character, but with slight variations in details in order to meet special points as regards the build and equipments of the vessels. The arrangements on board the Great Eastern, of course, serve as a type for the other ships.

The cable lies coiled in lengths or divisions in tanks filled with water; and as each length is being laid, it passes along a trough, guided at intervals by horizontal and vertical friction pulleys, to the paying out apparatus in the stern of the vessel.

This consists of a series of six wheels, having V grooves over which the cable passes, each wheel being connected with weighted levers attached to disk wheels working in the V grooves, and acting as brakes. Each of the V wheels is also connected through its shaft with a friction brake. The whole of the lever brakes can be operated simultaneously from one main shaft if necessary. The cable, after passing over this brake apparatus, takes four turns round a drum 6 feet in diameter, connected with a powerful strap brake, and is passed thence to the dynamometer, by which the strain on the cable can be ascertained at any moment of its passage through the apparatus.

From the dynamometer the cable passes over a grooved pulley 5 feet in diameter, which projects over the stern of the ship.

The picking-up apparatus is placed in the bows of the vessel, and consists of grooved pulleys projecting over the stern, and a coiling apparatus having two drums, each six feet in diameter. The coiling apparatus is worked by a small engine which takes steam from one of the main boilers. A dynamometer placed between the bow pulleys and the coiling engine completes the picking-up apparatus, which, no less than the paying out gear, is as perfect as engineering skill, guided by past experience, can render it.

The grappling ropes are of various sizes and strengths, and are adapted for heavy or light work. They are made of wire, the heaviest rope being composed of six strands, each containing six wires, and the lightest having three strands of three wires, there being two intermediate sizes.

The Great Eastern also carries eleven iron buoys of five different sizes, ranging from 11 feet diameter by 15 feet high, to 4 feet 6 inches in diameter by 5 feet high.

It may here be interesting to note the lengths of each of the Atlantic cables. That of 1865, which has recently broken, is 1,896½ miles long, and the cable of 1866 is 1,868½ miles. The French cable of 1869, from Brest to St. Pierre, is 2,557 miles in length; while the line just laid is about the same length as that of 1865. Since the latter cable broke, the French cable parted 208 miles from Brest in about 500 fathoms of water. The accident was repaired by the Hibernia, a length of 100 miles having been cut out and replaced by a similar length of new cable.

A most interesting and important work will be the grappling for the cable of 1865, which broke a few months since. It will prove interesting, inasmuch as it will determine whether the physical condition of a cable which has been submerged for eight years is such as to allow of its being raised, or, in other words, whether the outer covering will have become so deteriorated that it will no longer possess the strength necessary to resist the great strain which will be brought upon it in raising it. Of its being found and grappled there is but little doubt, the same thing having been accomplished before under less favorable circumstances and with more limited experience than in the present instance. The matter derives its importance from the fact that, if the results are successful, it will prove a great commercial gain to the enterprising company to whom it belongs. The cable has parted in about nineteen hundred fathoms of water, and, so far as has been ascertained, the bottom is of a favorable nature for grappling operations. The Great Eastern and her consorts will continue their efforts to recover the cable up to the middle of September, or even longer if necessary, for she is equipped for a four months' voyage. It is, however, to be hoped that her labors will have terminated successfully before that time, and that yet new honors will have been added to the science of submarine telegraphy.

ACCORDING to M. Archheim, by the action of the vapor of bromide of phenylbutylene on lime heated almost to redness, large quantities of naphthaline have been obtained. The reaction is stated as follows: $C^{10}H^{12}Br^2 = 2 H Br + H^2 + C^{10}H^8$.

Inventions Patented in England by Americans.

(Compiled from the Commissioners of Patents' Journal.)
From June 18 to June 19, 1873, inclusive.

- CARBURETER.—H. L. McAvoy, Baltimore, Md.
- HORSE SHOE.—H. & P. Moran, New York city.
- PARING APPLES, ETC.—R. Spurge, New Rochelle, N. Y.
- RAILWAY CAR.—T. R. Timby, Tarrytown, N. Y.
- SHIP'S BERTH, ETC.—B. Welsker, New York city.
- SPIKES, BOLTS, ETC.—G. N. Sanders et al., New York city.
- STEAM TRAP.—L. P. Hawes, New York city.
- TELEGRAPH.—G. Little, Rutherford Park, N. J.
- TELEGRAPH CONDUCTOR.—W. Radde, New York city.
- TELEGRAPH, ETC.—F. H. Greer (of New York city), London, England.

Recent American and Foreign Patents.

Improved Beer Cooler.

Jacob Gimlich, Pittsfield, Mass.—This invention has for its object to furnish an improved apparatus for cooling beer, mineral water, etc., which shall be so constructed as to thoroughly cool the beer without injuring its flavor. In the box beneath the ice chamber is placed a cask to receive the beer from a cask placed in the cellar or other convenient place. The beer is introduced into the cask through a pipe inserted in one of its ends. Three or more wooden tubes pass through the cask from end to end, and are placed at different heights in said cask. The ends of the tubes that project from the heads of the cask are connected alternately by flexible tubes so as to form a continuous pipe. The lower end of a pipe is connected with the end of the lowest tube, and its upper end extends up nearly to the ice chamber. It is made funnel shaped to receive the ice water from the discharge pipe of the said ice chamber. By this arrangement the ice water is introduced into the lowest tube and escapes from the highest, the discharging end of said highest tube being provided with a short elbow pipe so that the said tube may be always full. An air chamber is placed in the box above the cask and below the ice chamber, and is connected with the said cask by a short pipe. The air chamber is designed to receive any excess of gas that may be in the cask and which might prevent the said cask from being readily filled.

Improved Spring Bed Bottom.

Charles Gammel, Utica, N. Y.—This invention consists in improving the construction of bed bottoms. The ends of the wires that form coiled springs, at each end of said springs, are bent to form squares of a little larger diameter than the springs. The springs are arranged in rows and alternately. In the vacant spaces between the squares of the springs are placed squares of wire of such a size that their sides may be parallel with and close to the sides of the other squares. The adjacent sides of all the squares are hinged to each other by pieces of sheet metal bent so as to clasp parallel sides in such a way that the said wires will turn freely in the said clasps or hinges. The end parts of the bed bottom may be turned up over the middle part, thus enabling the bed bottom to be folded into a convenient form for convenience in handling, storage, and transportation without straining the springs. To the lower side of the parts or sections of the bed bottom are secured pieces of Brussels carpet, or other firm thick cloth, to rest upon the slats of the bedstead and thus prevent noise when the bed is being used.

Improved Varnish or Bronze Coating for Articles of Plaster.

Charles Rotter, East Birmingham, Pa.—The object of this invention is to furnish a durable bronze varnish in different colors for coating and protecting plaster of Paris, terra cotta, stucco, wood and iron ornaments, and busts, which may be placed outside, exposed to the weather, or inside, to be cleaned by the use of water, as occasion requires. The brilliant hue and the protecting qualities of this varnish make it specially useful for busts and plaster ornaments. The invention consists in the mixture of "mica silver" and "aurosil" with colloidal, in connection with aniline and other colors to produce different tints.

Improved Heating Stove.

Thomas H. Salmon, Brooklyn, N. Y.—This invention relates to stoves which have a down draft through the fuel, and consists in the arrangement of a plate to form that side of the hanging grate, which is opposite the smoke pipe. Through a hollow standard a pipe passes upwardly into the combustion chamber. In the latter is hung the basket grate that is provided with a removable cover through whose holes the air is drawn to produce the down draft. One side of the basket grate is a broad plate, which comes directly between the smoke pipe and the other part of the grate. By this construction, when there is sufficient heat to create a vacuum in the chimney, a current of air rushes through holes through the fuel in the grate under the plate and into the chimney. In order to moderate the strong draft which is thus produced, slides in the ash pan are moved so as to admit air.

Improved Till Alarm.

John F. Baldwin, Nashua, N. H., assignor to himself and Miles Alarm Till Manufacturing Company, Providence, R. I.—This invention consists of one or more disks setting up in a plane parallel with the drawer front, on pivots, and having notches in the curved upper edges, which have to be brought in the line of a hook on a stationary support above the drawer by the pull rods, to allow the plates to pass the hook to open the drawer without sounding the alarm. The plates have several notches in the edge, and all but one are fitted with removable pieces, which can be shifted from one notch to the other to change the combination. When two plates are used they will swing in opposite directions, and their open notches must coincide with each other as well as the hook, to allow the drawer to be opened. When an attempt is made to open the drawer by one not knowing the adjustment, the hook will push one of the plates against the trip lock of the bell hammer and free it so as to sound the alarm.

Improved Governor.

Elson Towns, Clisne, Ill.—This invention relates to apparatus for governing the speed of machinery, more especially designed for the steam engine. A curved bar is attached to the frame with its curved end hanging over so as to support the top end of the ball spindle. A loose disk or washer moves freely up and down on the spindle, and by means of two pins it rests on the arms of the balls so that when the balls rise or fall the washer follows their motion. An adjustable disk is supported by a forked spring to which it is jointed. This spring is adjusted so that the friction wheel is raised or lowered thereby. The friction between these two wheels retards the motion of the balls. The driving shaft is confined to the stand of the frame upon which shaft is a bevel wheel. A yoke carries another wheel which meshes into the latter. This yoke is connected to a vertical shaft by a pitman. The yoke is so constructed that it turns, with the wheel, on the driving shaft, and when the speed is increased the yoke will raise the shaft and weight, but the increased speed is imparted to the spindle and will raise the balls. If more than the required speed is attained the friction wheels will be brought in contact, which will produce a counteracting effect. The difference between the extremes is the speed required, and is varied by the adjustment of the upper friction wheel. The weight on the lever is raised by an increasing velocity, but the tendency to raise is counteracted by the friction caused by the rising of the balls. The opening the valve, therefore, does not depend upon the action of the balls, as in ordinary governors, but by the positive action of the gearing. The balls simply check or limit the action of the yoke by means of the friction produced.

Improved Flour Mill.

Jeremiah Dean, New Baltimore, Md.—This invention is an improvement in the class of mills the runner of which is provided with scrapers or plate so attached to it as to remove the meal from an annular trough, into which it falls after escaping from between the stones. The improvement consists in a series of straight ribs applied to the under side of the runner so as to be tangential to the shaft, around which their inner ends center, while their outer ends extend beyond its periphery, and are beveled, whereby said ribs will operate to force the meal outward from the center of the stone, and also carry it around to the discharge orifice of the casing.

Improved Dumping Apparatus.

George W. Reed, Middlesex, Pa.—The object of this invention is to construct, for use in collieries, mines, and other purposes, a dumping apparatus by which coal or ore may be conveyed and discharged over the chute by an attendant in a rapid and effective manner. This invention consists, mainly in a platform pivoted into the hoisting frame, to which the loaded car is securely locked and latched, the doors opening and closing by suitable mechanical means. To operate the apparatus the car is secured to the platform by the stops and pin, and tipped over by the slide lever opening its door and discharging the load. The platform is then brought back to the cage, secured to it, and replaced by another, or lowered to be refilled.

Improved Method of Adjusting Circular Saws.

Sanford W. Clemmens, Cleveland, Ohio.—It is proposed to have a loose collar or disk between the saw and the fast collar, with adjusting screws screwing through the fast collar against or into the loose collar to adjust the saw true in case the fast collar is not exactly true, or in case the saw itself is not ground true.