A NOVEL MOTOR.

The engraving shows a means of imparting motion to vehicles and machinery by the employment of soft tubing beneath a flexible bearing surface for traction wheels. The tubing and flexible bearing, under the influence of steam, water, air, or other expansible or compressible fluid forced into it, will form a wedge-shaped or inclined wall or abutment in the rear of the tangential bearing of the wheel, and propel it with greater or less speed according to the pressure of the propelling medium.

Fig. 1 shows the application of the principle to a rotary steam or air engine. Fig. 2 shows the rotary engine in a horizontal position adapted to running a millstone. Fig. 3 shows the device applied to the propulsion of wagons or cars, and Figs. 4, 5, and 6 show the application of the motor to elevated railroads.

The annular casing of the rotary engine is divided into two compartments, C C, in each of which is placed a very strong flexible hose connected at one end with the branched supply pipe, A, and at the other end with the branched exhaust pipe, B. These pipes, although designated as supply and exhaust, may be employed for either, as the motor is capable of running equally well in either direction. The hose in the compartments, C C, are provided with a flexible metallic bearing plate, which may be of steel or other suitable material, and upon these plates the wheels, D, press so as to bring the interior surfaces of the flexible hose into contact at that point. These wheels are supported by arms connected with the engine shaft, and when steam is admitted by either of the pipes, A B, and allowed to escape by the other, an inclined abutment is formed behind the wheels, which push them forward with greater or less force depending on the pressure of the steam, air, or water used in the motor.

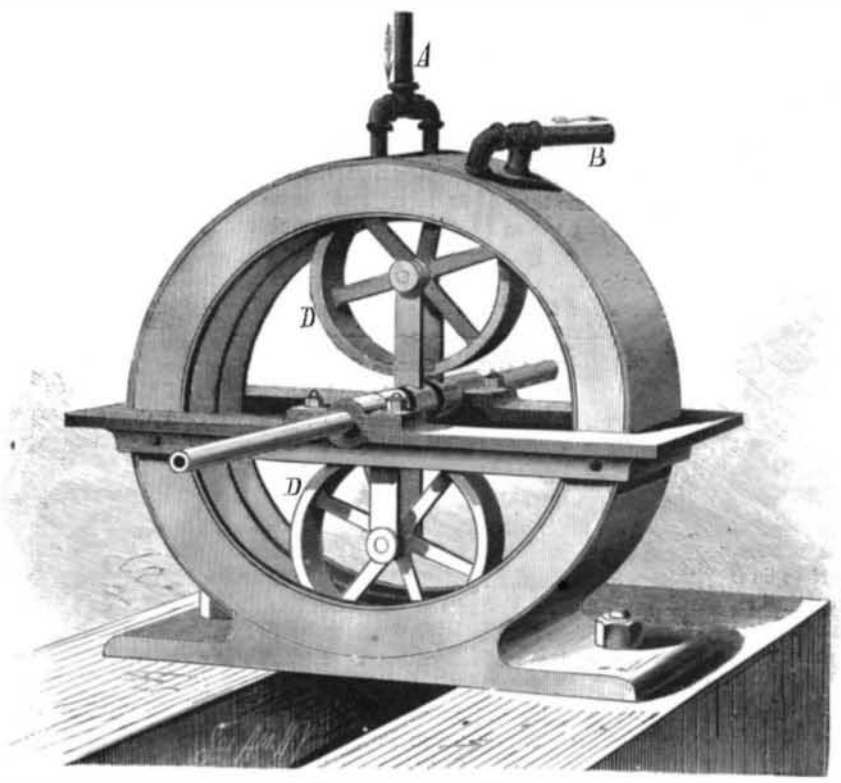
We are informed that these motors are capable of running at a very high velocity, and that they are efficient and may be applied to a large number of uses where the ordinary steam engine would be impracticable. Certainly nothing could be more simple, no piston, no valves, no stuffing-boxes being required. The position in which this motor is placed is immaterial. It is shown in Fig. 2 placed in a horizontal position and adapted to the driving of millstones and vertical shafts. In this view the engine is shown in section, and the relative position of the flexible hose, C, its metallic covering, and the wheels, D, is clearly shown.

When the device is applied to railways the flexible tube or hose, E, is laid in a grooved track, F, and is protected by a straight ribbon of steel, upon which the wheels of the vehicle roll. This arrangement is adapted to light traffic, and for many purposes will answer admirably, but where the traffic is great the car is supported upon wheels running on an ordinary rail, while the driving wheel presses upon the hose with only enough force to bring the hose together, steam, water, or air tight, immediately beneath the driving wheel.

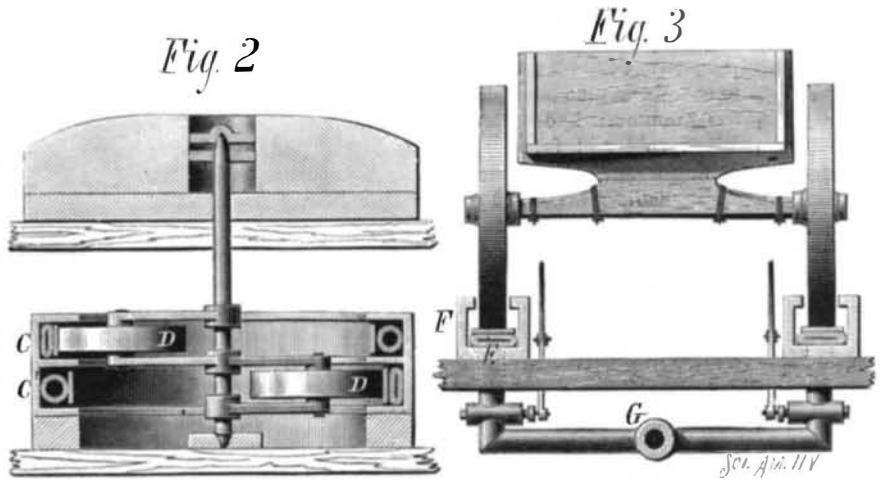
The hose is divided up into sections of fifty feet or more each, and each section is supplied by air from a main supply pipe, G, running below the track and connected with the air compressing station. At suitable intervals lateral pipes lead to valves at the sides of the track, with which the hose is directly connected. At this point there is a valve connected with the lever, H, and at the ends of the car there are levers which may be thrown out to engage the lever, H, and operate the valve so as to admit air to the section of hose upon which the car is just entering. The auxiliary lever at the side of the lever, H, is connected with the lever at the end of the filled section of hose, and as the driving wheel is leaving the filled section the lever carried by the car trips the auxiliary lever, moving the remote lever, H, and almost immediately touching the lever, H, of the section just entered.

It will be seen that by this arrangement collision is avoided, as the car on any particular section of the road has absolute control of that section. This system permits of running cars as frequently as may be desired, avoids all smoke and noise incident to steam propulsion, and is of necessity cheaper, both in respect to the road, propelling power, and rolling stock than any of the existing systems.

This invention was recently patented by Mr. M. M. Conger, of Wellsville, Mo. Further information may be obtained by addressing Messrs. Conger & Bro. as above.



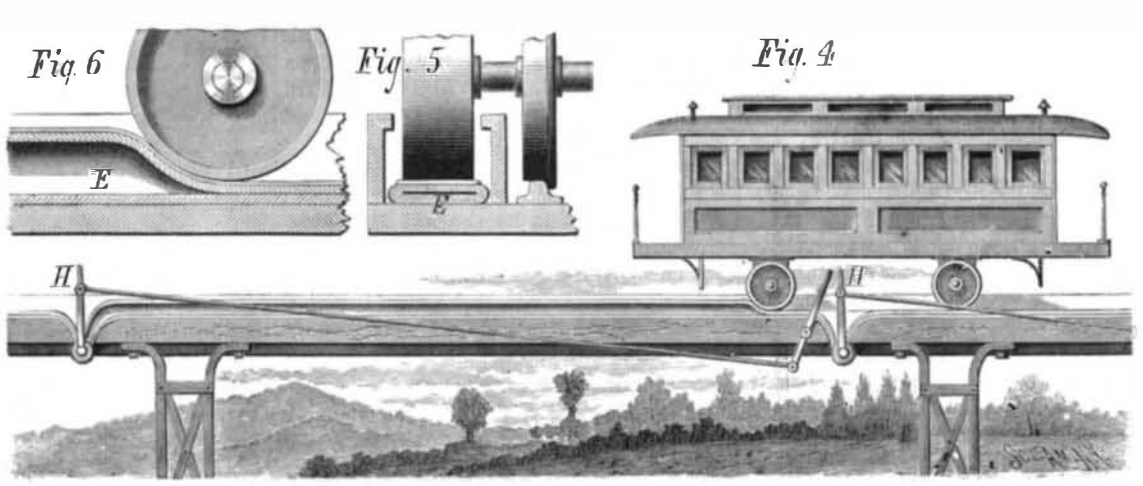
CONGER'S MOTOR.



MOTOR APPLIED TO MILLSTONE. MOTOR APPLIED TO RAILROAD.

The Sunflower.

This plant absorbs, both from the soil and atmosphere, an enormous amount of branched It is from the evaporation of the moisture charged with the gases emanating from the fermentative decomposition of such materials as street sweepings and garbage that diseases due to air charged with such vapor are inhaled and produced. An average sized sunflower plant will give off twenty ounces of water in twenty-four hours, all of which it must derive from the soil and the air. It is nothing strange, therefore, that it has been planted with great success in very many cases to counteract such malarious effects. It also shades the ground, and thus prevents very rapid evaporation of such injurious vapors Apart from this the produce of the crop is very valuable if properly managed. The average yield of seeds is about fifty bushels to the acre, yielding one gallon of oil to the bushel. The oil is good for table use, burning in lamps, and for the manufacture of soaps. The yield of marc or refuse after the oil has been expressed is about 1,500 pounds from an acre, and is an excellent food as oil cake for cattle, or as a manure. The stalks, when burned for alkali, will give 10 per cent of potassa, a very high average; and it has been lately stated that they will give a large amount of fiber useful for textile purposes or for paper making. The seeds are also an excellent food for poultry, who are very fond of them.



CONGER'S MOTOR APPLIED TO ELEVATED RAILROAD.

RECENT INVENTIONS.

Mr. Charles A. Simpson, of Saxonville, Mass., has patented a picture-cord attachment. The cord has a piral spring attached to one end and a flat hook attached to the other end, this spiral being screwed on the picture cord near the lower end, and a hook passed through an eye near the bottom of the rear of the same, and then passed up and hooked on to the cord lower or higher, according to the desired inclination of the frame.

Mr. Jacob C. Landes, of Souderton, Pa., has patented a shutter worker, which consists in a novel combination of a U shaped double cam fixed on the outer end of the crank rod passing through the side of the window frame, with a rod hinged on the outside of the window frame at right angles to the crank rod, and embraced by the cam, and extending horizontally along the face of the blind or shutter, so that the open blind or shutter may be unlocked, closed, and locked, or the closed blind or shutter be unlocked, opened, and locked.

Mr. Charles Chevalier, of Brooklyn, N. Y., has patented an engraving or chasing machine, designed for engraving or chasing on metals, stones, etc. The invention consists of a revolving engraving or chasing tool operated by a cam-actuated trip hammer, and of novel devices for guiding and adjusting the tool.

Mr. Shubael Cottle, of New York city, has patented a die for making bracelets, by the use of which he is able to make band bracelets so much cheaper than has heretofore been done that their cost, in proportion to the metal contained in them, is very much reduced. The bracelets made by this die are strong, durable, and finished in a superior manner.

Mr. Antoine Guipet, of Courbevoie, near Paris, France, has patented a window frame. It is of cast iron, and of such construction as will render it convenient in handling, transportation, etc. The architectural design presents a pleasing appearance. The sill is constructed to prevent water from penetrating from the outside.

Mr. Samuel H. Everett, of Macedon, N. Y., has patented an improvement upon a fertilizer-distributer for which letters patent No. 222,478, dated December 9, 1879, were granted to him. The present improvement enables the mechanism for discharging the fertilizer to operate more perfectly.

Messrs. George H. Hastings and Robert H. Crean, of Toronto, Ontario, Canada, have patented an improvement in the manufacture of hats, caps, and bonnets, which relates more particularly to head gear manufactured from textile materials. The invention consists in cutting the shoddy or other material into strips, which are then sewed together in squares of any desired size. The squares are then stiffened with glue or shellac, or any other suitable material, and pressed out in dies into any shape that may be required. The strips may also be sewed to any desired shape (instead of being sewed in blank) prior to being stiffened to that shape, and afterward pressed either by hand or by machinery. The material may be cut and sewed in parallel lines or diagonally in combination or in any shape that taste may suggest, and it may also be sewed in such a way as to produce the appearance of being corded

The Wyoming Valley Salt Bed.

A correspondent of the *Tribune*, writing from Wyoming, N. Y., gives the following information concerning the rich deposit of salt which has been opened there. About three years ago a company boring for petroleum struck, at the depth of 1,250 feet, a bed of pure rock salt 70 feet in vertical thickness. Its lateral extent is not known; all that has been observed of the deposition of salt, as well as the working of salt mines in Europe, leads to the conclusion that causes which deposited such a depth of salt must have operated over an extensive area. It seems evident that the Wyoming salt mine and the salt springs of Salina, Syracuse, Western Canada, Michigan, Wisconsin, and Iowa belong to the same geological formation, namely, that known as the

Onondaga Salt Group, which was deposited during the Salina period, in a series of shallow, land-locked seas, extending east and west from Eastern New York to Iowa. Evaporation caused a deposition of salt in the bottom of these seas; occasional incursions of ocean water in tides and waves kept up a supply of brine, and the deposition went on so long as favorable conditions continued. The slight dip of all the rock strata of Western New York, fifteen to thirty feet to the mile, in connection with the gradual rise of the surface of the country in the same direction, explains the greater depth of the salt formation at Wyoming than at Salina, the springs at the latter place being about 200 feet deep.

The well, eight inches in diameter, is cased with an iron tube. Inside of this is a two-inch tube. Pure water from a spring in the near hillside is caused to run into the larger tube. The water, descending to the mine, becomes saturated with salt and is then driven up the smaller tube, from which it is pumped into a huge reservoir and from that drawn into an evaporating pan, thirty by twelve feet, over a furnace, in which seventy-five barrels of salt can be made in a day. The salinometer shows the brine to have a strength of 90, complete saturation being denoted by 100. Analysis shows the salt to contain only 3 parts of impurities in 1,000.

WATERPROOF ARTIFICIAL FLOWERS.—Mrs. Rosa Harden, of Baltimore, Md., has devised a new method of making artificial flowers, by which the natural beauties can be imitated as with wax, while the flowers are durable and washable. The basis of the leaves would appear to be gelatine chemically treated. Very pretty and promising results are said to be possible by the new process.

THE PARASITES OF A MONSTER JELLY FISH.

BY C. F. HOLDER.

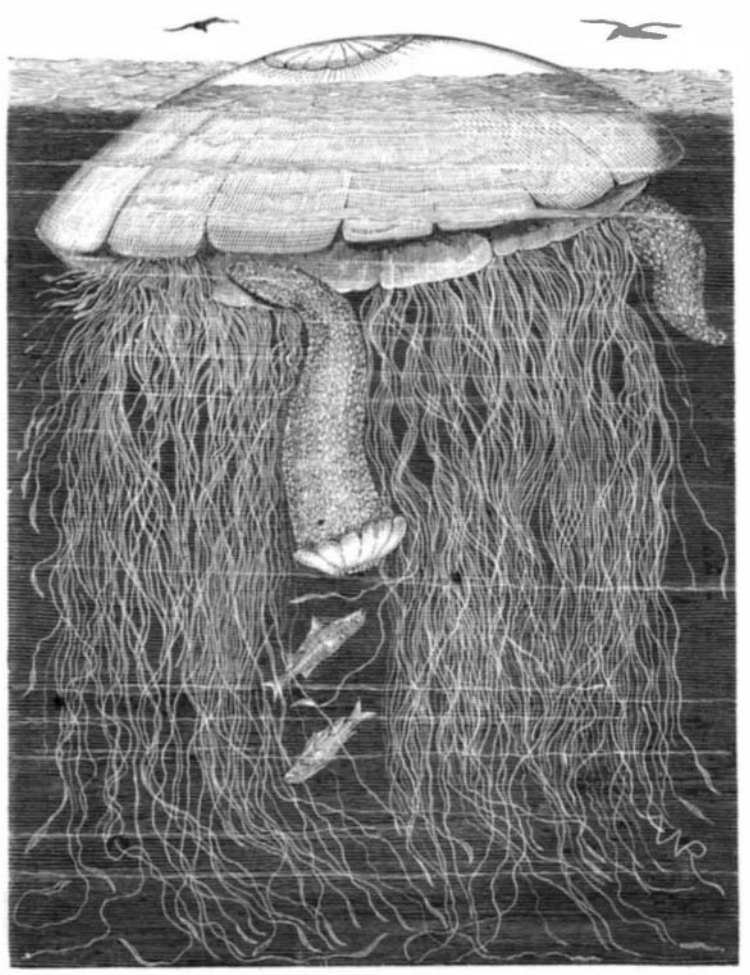
The discophore known as the *Cyanea artica* is familiar to every frequenter of the sea shore, where their stranded jelly-like forms can be found after every tide evaporating, as it were, in the summer sun. While afloat and active in the water they afford protection to several parasites that are figured in the accompanying engraving. The large creature hanging from the inner lobe of the jelly fish is a parasitic sea anemone called the *Becidium parasiticum*. In the engraving it is life size, while the *Cyanea* is reduced greatly. The *Actinia* is generally found in the larger specimens concealed in the mouth folds, where it shares the food brought up by the tentacles of its protector. In appearance it resembles an elongated cone strongly ribbed along its sides; around its mouth are a few short tentacles. The body is covered with innumerable wrinkles, with which it attaches itself to its post, and to which it is a strong contrast, being violet or brownish-red in color. Two or three can generally be found on them.

The little worm-like creature shown on the outer edge of the *Cyanea* is a true parasitic worm, the *Monopus medusicola*—with a depressed subcylindrical body armed with two suckers. The fore one, strange to say, is imperfect, while the latter—one-third the total length from the tail—is columnar and truncate. In the engraving it is magnified twelve fold.

Besides these, numerous little fishes are found up under the tentacles, that with their terrible lasso cells would seem the last place for a fish to choose as a home, but here we find them, darting in and out among the treacherous tentacles, perfectly at their ease.

The *Cyanea* is a giant among its fellows and attains a diameter of seven feet, with tentacles two hundred feet long. Mrs Agassiz thus speaks of one: "He was quietly lying near the surface, and did not seem in the least disturbed by the proceeding, but allowed the oar, eight feet in length, to be laid across the disk, which proved to be about seven feet in diameter. Backing the boat slowly along the line of the tentacles, which were floating at their utmost extension behind him, we then measured these in the same manner, and found them to be rather more than fourteen times the length of the oar, thus covering a space of some hundred and twelve feet. This sounds so marvelous that it may be taken as an exaggeration; but though such an estimate could not, of course, be absolutely accurate, yet the facts are rather understated than overstated in the dimensions here given. And, indeed, the observation was more careful and precise than the circumstances would lead one to suppose, for the creature lay as quietly, while his measure was taken, as if he had intended to give every facility for the operation."

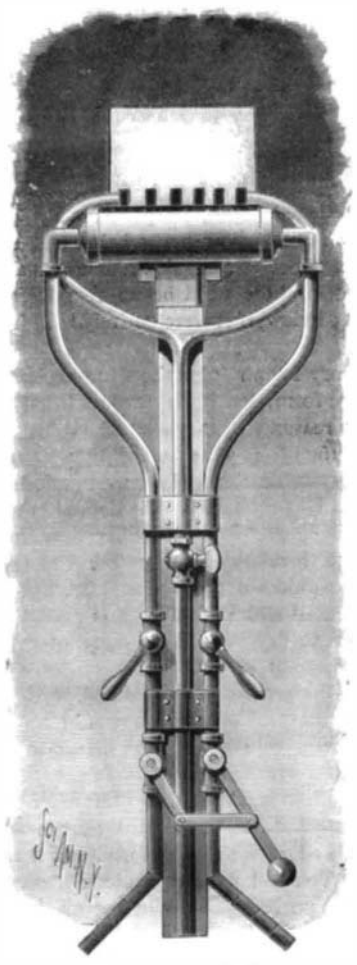
The different stages of the young of this animal are so totally different that they have been described as separate animals, namely *Scyphistoma*, *Strobila*, and *Ephyra*. This enormous creature is produced by a hydroid measuring about half an inch in height. The eggs are laid in the autumn, and the young, when first hatched, are oval, soon they become pear-shaped and attach themselves to the bottom. Now minute tentacles (never over sixteen) appear, and the creature resembles a simple polyp. It grows rapidly, constriction taking place along its entire length, each one being lobed around its margin, until it finally looks like a pile of inverted scalloped saucers. The top one dies and falls off, and the others soon separate by the deepening of the constrictions, and swim off, perfect infantile cyaneas, that soon reach a large size, and in turn deposit eggs.



THE PARASITES OF A MONSTER JELLY FISH.

NEW LIME LIGHT.

The lime light illustrated herewith possesses a few novel features of considerable value, not the least among which are that it will take a block of common lime of any shape and of any reasonable size, instead of the expensive cylinder usually employed, and that the light being once regulated, it may be turned up and down from a distance without the necessity of approaching the light for focusing and adjustment.



NOVEL LIME LIGHT.

The particular form of apparatus illustrated is intended chiefly for theaters and other large inclosed areas. The chamber in which the combination of the gases takes place contains a series of perforated metal tubes, one within another, the function of which is to insure the complete admixture of the two gases before they arrive at and issue from the burners, which are fixed upon the upper part of the cylindrical chamber.

This feature of the invention is an important one, as it insures the perfect union of the gas without introducing an element of resistance to its flow as occurs when gauze, coils of wire, shot, and other obstructions are employed with the idea of deflecting the currents and so of securing combination.

For the purpose of regulating the light two levers are provided, one on each side of the apparatus. These levers have engraved upon them the names of the gases (oxygen and hydrogen) which they respectively control by means of stop taps. These taps being once adjusted require no further attention, and the light may be turned up and down and regulated at will by means of the tap shown at the bottom of the apparatus, and which controls the supply of both oxygen and hydrogen. This tap may occupy any convenient position when the light is situated where it is not readily or conveniently accessible.

The pipe shown in the center of the apparatus is connected with the ordinary gas service, and supplies gas for the purpose of warming the block of lime, igniting the mixed gases, and preventing explosions. It is stated that the apparatus is so simple that any one may work it with perfect safety, and that it gives ten to twelve times more light than an ordinary burner using the same amount and quality of gas.

The apparatus is being made and introduced by the inventors, Messrs. Allen & Co., of Cardiff, England.

Chimborazo and Cotopaxi.

A large and distinguished company lately assembled at the Royal Institution, Albemarle street, to hear Mr Edward Whymper describe his ascents of these mountains. His Royal Highness the Prince of Wales, who was attended by Colonel Teesdale, the Marquis of Queensberry, Lord Aberdare, Sir Beaumont and Lady Florence Dixie, Sir Allen Young, Sir T. Fowell Buxton, Mr. W. Spottiswoode, Colonel Grant, and the Dean of St. Paul's, were among the audience that filled the lecture theater. Mr. C. E. Mathews, late president of the Alpine Club, took the chair.

It is, unfortunately, impossible in a necessarily short report to give any idea of the charm of the narrative which Mr Whymper had to relate, brightened as it was by many quietly-given touches of humor. Personal matters, however, were only introduced when they served to illustrate some scientific observation. While purely athletic mountaineers had his sympathy in the practice of mountaineering as a sport, Mr. Whymper confessed that his sympathies were much more with those who employed their brains as well as their muscles. His journey to the Andes was to be one of work, and all its arrangements were devised so as to economize time to the uttermost. In observations for altitudes and position, in studying the manners and customs of the country, in photography and sketching, in the collection of objects of interest, from beetles on the summits of went tains to antiquities buried in the ground, he found quite sufficient to occupy his time. From Bodegas the party was composed of two Swiss mountaineers, the cousins Carrel, of Val Tournanche, Mr. Perring, some muleteers, and their teams. About two tons weight of the most portable and most condensed provisions went out for their use, and irrespective of the things which were bought already tinned, more than 2,000 tins were soldered down. When they reached the summit of Chimborazo, on the 3d of January, after a most arduous climb, they found the wind blowing at the rate of 50 miles an hour from the northeast, and driving the snow before it. With extreme difficulty a reading of the mercurial barometer was effected. The mercury fell to 14·1 inches with a temperature of 21° Fah. This being worked out, in comparison with a nearly simultaneous observation at Guayaquil, gave 20,545 feet for the height of Chimborazo. They began the descent at 20 minutes past 5, with scarcely an hour and a quarter of daylight, and reached their camp (about 17,400 feet above the sea level) about 9 P. M., having been out nearly 16 hours, and on foot the whole time.

Passing from an extinct to an active volcano, Mr. Whymper next gave an account of his journey to the crater of Cotopaxi. Observing with the telescope, during an enforced stay at Machachi, that much less smoke or vapor was given off at night than by day, he resolved, if possible, to pass a night on the summit. On the 18th of February the party got to the edge of the crater, having passed almost the whole way from their camp, at a height of 15,000 feet, to the foot of the final cone over snow, and then over ash mixed with ice. The final cone was the steepest part of the ascent, and on their side presented an angle of 36°. When they reached the crater vast quantities of smoke and vapor were boiling up, and they could only see portions of the opposite side at intervals, and the bottom not at all. Their tent was pitched 250 feet from the edge of the crater, and during a violent squall the India-rubber floor of the tent was found to be on the point of melting, a *maximum* thermometer showing a temperature of 110° on one side of the tent and of but 50° on the other; in the middle it was 72·5°. Outside it was intensely cold, and a thermometer on the tent cord showed a *minimum* of 13°. At night they had a fine view of the crater, which has a diameter from north to south of