that an examination of the diagram sections accompanying this will satisfy every mechanic that both of these requirements are met.

More information about it may be obtained by letter addressed to Mr. Taft.

MISCELLANEOUS.

[California a Hundred and Fifty Years Ago.

About the year 1701, a missionary named Francis Maria Pocolo, published a description of California, from which we extract the following scientific statements:

The climate is very healthy. Along the coast the heat is great, and it seldom rains; but the air of the inland is more temperate. In April, May, and June there falls with the dew a sort of manna, which congeals on the leaves of reeds—sweet as sugar, though not so white. The country abounds in large plains, pleasant valleys, and excellent pastures; the rivers contain plenty of fish, especially xicames and crawfish. On the mountains are mescales all the year round, besides figs of different colors, pistachios (Pistacia vera), and palo santo. The natives feed on fourteen sorts of grains, and make bread of the yyuca; skirrets (sium sisarum), a species of red strawberry and mammoth citrons and watermelons also abound. The land is so good, most plants bear three times a-year. The animals are numerous: among them we found two sorts of deer that we knew nothing of: one is as large as a calf, having the head of a stag, the horns of a ram, the hoof of an ox, and a speckled tail; the other resemble sheep, but have more wool. As for fowls, there are in California all that there are in Mexico and New Spain. The sea affords plenty of good fish—pilchards, anchovies, and tunnies, which last are caught with the hands. The shores are covered with heaps of shells. Salt is procured from pits; it is as bright as crystal, and so hard it is necessary to break it with hammers. The coasts are famous for the pearl fishery. I doubt not but there are mines to be found in several places, if they were sought for: since the country is under the same degree as the provinces of Cinalao and Sonora. Yet the Californians, amidst this plenty and riches of their country, content themselves with what is only necessary for life. The inland parts of this region, towards the north, are very populous. The common employment of men and women is spinning; they make their thread of long plants, or else of a cotton-like substance found in the shells of some sorts of fruit. They have a great deal of liveliness, and are naturally addicted to raillery, but we found no form of government or religion.

Honey Trees in California.

As California has been established a land flowing with gold, it will soon come in for the definition of a land flowing with honey. One of the papers in Stockton states that in the region round, there is to be found an abundance of saccharine matter of delicious flavor. It is to be found on different descriptions of trees, and in different forms. On the leaves of the willows which grow upon the banks, it is found in a candied form, on the upper surface, early in the month of July. The Indians gather the sugar, and at their encampment, enjoy the luxruy of chewing the leaves. On the leaves of the white oak, also, there is a clear deposit of honey, which is as transparent and fine as the article is ever seen, but it is of thicker consistency. Here, also, it collects on the upper foilage until the latter is borne down, when the saccharine matter drops in masses or lumps. Its flavor is exceedingly pleasant. On the ascent of the Sierra Nevada there is a species of pine, much resembling the white pine of the Atlantic States, except that the leaves turn down. This tree grows to an enormous size—270 feet in height, and 30 feet in diameter at the base; and sometimes the trunk runs up 180 feet, almost without a limb or crook. The resinous matter which exudes from the bark has a rich saccharine flavor. The Indians eat it in large quantities.

Camphene Lamps.

At a meeting of the American Academy of Arts and Sciences, at Boston, on Thursday the 6th inst., Prof. Hosford exhibited the tin camphene vessel whose explosion at Salem caused the death of a female in the room where it took place. The stopper of the vessel was still in its place, from which it had not been driven by the explosion. Prof. H. submitted a satisfactory explanation of the manner in which the explosion was probably occasioned. He also exhibited the fragments of a glass camphene lamp which had exploded, seemingly without contact with the flame, in the hand of a lady at Hamilton. It is evident from these and other instances of the kind, that the use of highly inflammable burning fluids is attended with considerable danger, in cases where no apparent contact with fire takes place.

Cultivating Potatoes.

"All experience shows that flowers of the potato are produced at the expense of that organizable matter which gives its value to the tuber, and which is diminished in quantity as in proportion to the number of flowers that have been fed; for flowers must exist and feed on something, and that something is what would, if not removed by the flowers, descend beneath the ground, and collect itself in the tubers. The mere production of flowers is a loss; but the mischief is infinitely increased if the flowers are succeeded, as they almost always are, by the berries."

Mr. Editor—the above I have seen in a number of papers, and as some excellent things have been published in the Sci. Am., on potatoes, I must say so far as opportunities of observation have been presented to me while travelling in various countries, the above is not correct. In England and Ireland the potatoes always flower and produce "*plumbs*" as they are termed which somewhat resemble yellow tomatoes. And I must say that no finer potatoes are produced in any other countries whatever than in these. I have seen a field of 100 acres of potatoes in blossom at once, and a more beautiful sight cannot possibly be imagined. I suppose that climates have a different effect upon potatoes in respect to their flowers. Our potatoes never produce plumbs like those in England. It would be a new idea to introduce into agriculture, viz., "the mischief of potatoes flowering." R.

The Great Britain Screw Steamship Again

This noble vessel, the largest steamship afloat, arrived at this port on last Friday, at noon. She left Liverpool on the 1st, at 9 A. M., thus making the passage in 13 days and 3 hours, having beaten the Washington, a paddle-wheel steamer, two days. It is now five years since she visited our shores before, since which time she has occupied public attention, perhaps, more than any other vessel ever built. Her beaching in Dundrum Bay; the skill called out to extricate her from the perilous position in which she was placed, and her long, long inglorious repose in dock, are things with which all are familiar. She is built of iron no wooden vessel would have undergone what she has. She has been completely refitted and renovated. Her tonnage is 3,500 tons.

She has ten kelsons of three feet in depth, running the entire length, strengthened by transverse floors every three feet,—the whole being covered by a wrought iron platform. Her frame, for the space occupied by the engine and boilers, and for ten feet beyond at each end, is of double angle irons only eighteen inches apart. Three double lines of angle iron stringers run under each dock, and the stern and bow are both still further strengthened by a series of deep shelves of wrought-iron, while to the latter there are heavy breast-hooks in addition. The decks are supported throughout by strong wrought-iron stanchions, based on the lines of kelsons, and carried thence continuously to the upper deck. The space occupied by the machinery is fastened in the strongest way by seven wrought-iron box beams and six iron-plated beams, secured in each case to a large surface of the ship's frame. The engine-bearers are of the height of the platform, weigh many tons, and, together with the gearing and thrust beams, are of wrought-iron, of hitherto unparallelled strength. Five water-tight bulkheads divide the ship: three through her entire height to the main deck—one being placed at either end of the engines and boiler space, so as entirely to inclose them, while two are carried up as high as her lower deck. The coal bunkers are entirely of iron, on each side of the machinery, and on the forward platform. The engines are a beautiful pair of oscillators, by John Penn & Son, of London, with 82-inch cylinders and 6 feet stroke. The principle of the geared engine has been adopted, in order that full advantage might be taken of the comparatively fine pitch of the screw, which has been fixed at 19 feet, its diameter being 15 feet 6 inches. The diameter of the driving wheel is 14 feet, and of the pinion, 4 feet 8 inches, the entire breadth of both being 4 feet; and the jarring, usual in wheel gearing, is prevented by its division into four parts placed slightly in advance of each other. The boilers, six in number, with two funnels, are also made by Messrs. Penn & Son. They are tubular, and are so arranged that they can be used collectively or separately, as occasion may require. There are eight pumps placed in different parts of the ship, independent of the bilge pumps, in connection with the engine. In addition to the Great Britain being of iron, with an iron deck over her boilers and engines, every arrangement has been made to guard against the possibility of fire. There is nothing but iron near the funnels, which have two outside iron castings. The galleys are placed upon iron decks, on stands of the same metal, with a free circulation of air beneath. A pipe from the boiler will enable a jet of steam to be directed, in a moment's notice, to all parts in the immediate neighborhood. A hose, attached to the fire engine, will reach from one end of the ship to the other, and fire annihilators will be kept ready in different parts. Ten life boats are carried—eight on davits, which will require only one person to lower them; and are so hung as to render it impossible for them to reach the water except on an even keel, while an arrangement will be made enabling the two on deck to be lowered with great ease and rapidity. Second to no other steamship of her class, the Great Britain spreads on her four masts nearly 13,000 yards of canvas, and fairly competes with any sailing vessel in the world.

We are glad to see the Great Britain on her legs again. She will test the value of oscillating engines, and give us some more data on the economy and utility of the screw.—Her steam arrangements to prevent fires are good. All steamships should adopt the same plan. May she long be a regular sailer on our seas.

Compliment to Mr. Squier.

At the last meeting of the French Geographical Society, where the annual prizes were rewarded to those, who in the judgment of the society had made the most important discoveries during the past year, one of the distinctions of this kind was bestowed upon E. G. Squier, late U. S. Charge to Nicaragua in reward of his archæological discoveries, particularly those made in the last named country.

Astronomical.

Lieutenant Maury states officially, that the Asteroid discovered by Gasparis on the 17th of March last, was observed at the National Observatory at Washington, by Mr. James Ferguson, with the filar micrometer of the large Equatorial, on the 6th, and again the 7th instant.

This Asteroid has the appearance of a star of the 10-11 magnitude, and makes the 16th in the group between Mars and Jupiter.

The longest known current of modern lava on the earth is in Iceland, extending 60 miles; while from the foot of the largest volcanic cone on the southern limb of the moon diverging streams of lava flow to the distance of 600 miles.

An animal performs the greatest quantity of work in the least time, when it moves with one-third of the utmost speed with which it is capable of moving, and is loaded with four-ninths of the greatest load which it is capable of putting in motion.

Proportions of the earth's equatorial and polar diameter:—according to Bernovilli and Maupertius, 129 to 128; Bouguer, 179 to 178; Newton, 230 to 220; La Place, 334 to 333; Huygens, 578 to 577.

Handling Red-hot Metal.

M. Boutigny, the celebrated Frenchman, recently astonished the members of the Royal Institution in Albemarle street, London, by delivering a lecture, with experiments, on the spheroidal condition of liquids when brought into sudden contact with heated surfaces. M. Boutigny commenced by heating a metal plate red-hot, and dropping upon it a small quantity of water. The liquid, instead of coming into contact, as might have been imagined, with the heated metal, and expanding into vapor, remained at an appreciable distance, and continued at a temperature far short of boiling. On removing the flame from the metal plate, and consequently diminishing the amount of heat, the water came into contact with the metal, burst violently into steam, and escaped. M. Boutigny now, instead of using the metal plate, took a silver bottle, which may be considered the representative of a steam-engine boiler. This bottle he made glowing hot, and, pouring water into it, corked the bottle securely, and removed the lamp. For a few seconds the apparatus remained tranquil; but no sooner had a sufficient amount of heat escaped to permit of contact with the water, than the latter violently expanded, and forced out the cork with a loud explosion. M. Boutigny remarked, that artificers well knew the difficulty of tempering highly heated steel, and explained the difficulty by reference to the spheroidal condition of water, into which it is plunged. M. Boutigny concluded a series of well-devised and demonstrative experiments by dipping his hands, only moistened by the tongue, into molten lead. Molten iron, he told his audience, would have been quite as innocent, the only danger being lest the hand be plunged into the metal just as it is solidifying, when a permanent fixation of a most destructive kind would result.

Cure for Cancer.

A Mr. Benson, of Franklin county, Tenn., has been cured of a cancer by the following means:—He procured a peck of cleaned oak bark, by first cutting off the rough outside, and put it into a vessel containing about two gallons of water, which he boiled over a slow fire until the ooze became quite strong, when he strained it through a cloth to remove all the particles of the bark, then he again put it into a clean vessel and simmered it over a slow fire, till it came to the consistency of molasses, when it is fit for use. It is then spread upon a piece of silk or other soft rag, and applied to the diseased part. He used about two plasters each week, until the cancer was removed and the wound healed. He says it is not painful, but believes it an infallible remedy.

[The above we copy from an exchange. We neither endorse nor discredit it, for cancer is a disease which baffles our greatest doctors' skill. The asserted remedy can easily be tried; it is merely a strong astringent, and experiment alone can discover the remedy if there be one.

Bushing Tomatoes.

Those who love good tomatoes will take pains to cultivate them so as to insure them as near as may be in their full perfection.—There is no other fruit that delights more in air and sunshine than the tomato. They should have, therefore, abundance of room, and the vines be sustained from falling to the earth. Stout brush firmly set around the plants, answer the purpose better than any other method. The branches have room to extend themselves as they like, while the limbs of the brush keep them in their positions. By this method the fruit is more fully exposed to the genial influences of the air and sunshine; whereby it attains a more delicious flavor, larger size, and comes quicker to maturity.

Collins' Line of Steamers.

It is expected by all the friends of this line that the bill appropriating $33,000 per trip, will pass the Senate and House of Representatives. Many of the Senators have opposed it conscientiously, but we incline to the opinion that the measure of relief is necessary, honorable, and of paramount importance to our country.

The quantity of land in the northern hemisphere is to that in the southern as 16 to 5