

lines, etc., is to be completed. This is designed, as far as possible, to give a correct idea of the amount of excavation required.

The examination and survey of the port of Brito, on the Pacific coast, is also provided for, and is to be performed toward the end of the season's work.

A dispute as to the boundary line between Costa Rica and Nicaragua is now in the hands of President Cleveland for arbitration. This affects the canal quite seriously, as Costa Rica claims some rights in territory through which the canal, near its northern end, would normally pass. Recognizing the importance of having its whole length included within the one republic, a third deviation, bringing it all within the undisputed territory of Nicaragua, is to be one object of survey. This third route very probably will not be used, but it is to be located so as to provide for any contingency that may arise, owing to the international dispute.

The total length by the shorter line is calculated at 169.8 miles. Lake Nicaragua is the summit level, and is 110 feet above tide water. On each side of the lake a number of locks will be required to overcome this difference. The canal is to vary in bottom width from 80 to 120 feet, and in upper width from 80 to 288 feet. Its depth is to vary from 28 to 30 feet. Of the route, 120 miles are included in the river San Juan and in the lake, and will be available for rapid navigation. The total cost is estimated at \$64,036,197. For tonnage dues, at \$2.50 per ton (the Suez Canal rate), a total of over sixteen millions of dollars for the year 1892 is assumed as possible.

The latter date marks the possible era of completion. At present Mr. Menocal is still in this country, but during the winter he will go to the field of operations.

THE CELESTIAL WORLD.

SATURN AND THE CLUSTER PRÆSEPE.

The constellation Cancer, through which Saturn is now traveling, contains a cluster of stars called Præsepe. It is visible to the naked eye on a clear, moonless night as a nebulous mass of light resembling the nucleus of a comet, for which it has sometimes been mistaken. A small telescope will resolve it into stars, the largest of which are of the seventh or eighth magnitude. This cluster lies about two degrees west of Delta and Gamma Cancri, two conspicuous stars of the fourth magnitude.

During the month of November, Saturn passed less than a degree south of Præsepe, and, on November 17, was very near Delta Cancri, moving at that time eastward or in a direct course. At that point in his apparent path, he remained stationary for a few days, and then, making a curve, began to move backward or retrograde, his returning path lying north of his advancing one. This retrograde movement will bring him within the precincts of the cluster, and during the first half of December he will be found traversing the southern border of Præsepe. This aspect of Saturn will repay telescopic observation. A good instrument will reveal the wonder of our planetary system surrounded by his belts and moons, and will also separate the cluster into tiny stars through which the planet of peerless beauty slowly makes his way.

Saturn rises soon after 7 o'clock, about the middle of the month, and may be readily recognized, as there are no bright stars in his vicinity, and also from his position southeast of the twin stars, Castor and Pollux.

THE APPROACH OF VENUS AND JUPITER.

The most interesting planetary observation of the month is the approach of Venus and Jupiter on the celestial pathway. The morning sky will be made brilliant with their presence among the stars that twinkle in the east, and observers who command a view of the southeastern sky, and are willing to waken early from their slumbers, will be rewarded for their pains when they behold the beauty of the spectacle. The reason for the approach of the two planets may be easily explained. Venus, on the 2d, reached her greatest western elongation, or greatest distance west of the sun. She then arrived at her western limit, and began to retrace her steps toward the sun, moving eastward. Jupiter is receding from the sun, and traveling westward. If Venus is moving east and Jupiter is moving west, on the same side of the sun, the approach between them is inevitable. The student of the stars will see this for himself, and will not fail to pay a tribute of admiration to the exceeding beauty of the starlit December sky, among whose glittering hosts the two peerless planets of the sun's family of worlds wend their shining way. On the 1st, Jupiter rises about two hours and a half after Venus. On the 31st, he rises only thirteen minutes after his fair rival.

THE TOTAL SOLAR ECLIPSE OF AUGUST 19.

There were a few bright spots in the clouds of disappointment that overshadowed the observers of the last total solar eclipse.

In Irkutsk, Eastern Siberia, the sky was cloudless and the atmosphere serene through the whole day. An observer succeeded in getting three good photographs of the sun during the eclipse, one taken toward its commencement at 11 h. 10 m. A. M.; the second, dur-

ing totality, at 0 h. 25 m. P. M.; and the third, toward the end, at 0 h. 55 m. P. M.

THE INFERIOR CONJUNCTION OF VENUS.

The inferior conjunction of Venus occurred on September 21, at 11 o'clock in the morning. She then passed between the sun and the earth. If under these conditions she is at her node, she passes directly between the sun and the earth, and makes a transit over the sun's face, as in 1882. If she is in her ascending node, she passes above the sun, and if she is in her descending node, she passes below him. At the last inferior conjunction she was 8° below the sun, being then in her descending node. Although invisible to the naked eye at that time, her entire course was followed by several observers with the aid of a small telescope. In Paris, M. Flammarion used a small telescope, following closely the course of the crescent as it grew more and more slender until on the 21st the middle of the crescent measured 1". The points were very fine and did not extend beyond the semicircle. The crescent was regular in its whole extent. At Marseilles, M. Bruguere followed the crescent of Venus without interruption from the 17th to the 23d. At Rouen M. Gully, and at Soissons M. Guiot, followed the planet during the same period.

VENUS VISIBLE IN DAYLIGHT.

This peerless planet was seen as evening star in daylight for an unusual length of time during the past year. M. Bruguere at Marseilles observed her during the day, with the naked eye, from March 26 to September 16. M. Guiot, at Soissons, observed her in full daylight and with the naked eye from April 2 to August 18. She has been equally observable as morning star, under the same conditions, being visible in full daylight to the unaided eye through October and November.

Cholera and Cold Weather.

In a letter to the editor of the *New York Medical Record*, Dr. Reginald H. Sayre, of New York, quotes a number of instances to show that cholera is one of those scourges whose march is not stopped by heat or cold, high or low altitude, dryness or dampness, or any other condition of the weather. He says:

"In 1830 the cholera appeared in Moscow in the month of October, and continued its ravages until the end of December, in spite of the severities of a Russian winter, and caused the death of 8,130 persons out of a population of 250,000, or about 1 in 30. From Moscow it went north to Yarasy, thence to Rybinsk, sixty leagues north of Moscow, where it appeared on March 19, 1831, in spite of the ice and snow which covered the ground.

"In October, 1831, the cholera appeared in Great Britain, and continued there until March, 1832, doing most of its destruction in December. About one-third of the people affected died.

"On March 27, 1832, the disease appeared in Paris, and the mortality was so frightful that 861 people died in ten days.

"In 1848 the emigrant ship *New York* left Havre on the 9th of November, having no sickness on board, and no cholera being then in Havre. During the voyage the weather became bitterly cold. There were some German emigrants on board, from a town where cholera had prevailed, who had a trunk which had belonged to a man who had died of cholera. They opened the trunk, took out the clothing, and wore it. On November 22 a child died of cholera, and seven persons in all succumbed to it before reaching New York harbor. They were strictly quarantined, and the disease limited to those who died on Staten Island in the quarantine.

"About this same time another vessel from Havre, bound for New Orleans, developed the cholera on the twenty-seventh day out, and, owing to imperfect quarantine regulations, the disease spread rapidly through the town soon after the arrival of the vessel, there being then no other cases in the United States except those in the quarantine on Staten Island. From New Orleans the disease traveled to Memphis, appearing there toward the end of December, and at St. Louis in the first week of January, 1849. Toward March several places in the Upper Mississippi valley were affected, and then gradually the disease moved east through Chicago, which it reached in May, to New York, which became infected then, and not till then, although the disease had been imported to the city six months previously, but had not been allowed to land; and the city in this way kept free from infection until the cholera effected a flank movement, by the way of New Orleans, and attacked her in the rear, having made its progress in spite of the winter, and having attacked the cities through which it passed in the cold weather.

"These facts in regard to the prevalence of cholera in spite of cold, and the well-known futility of a quarantine on land, make any attempt to lull the medical profession into a false sense of security fraught with great danger to the country, and I have therefore wished to call attention to the fact that cholera is not stopped by cold, and that to be quarantined effectively it must be arrested in our ports, which can only be done by having a general quarantine under the direction of the federal government."

DECISIONS RELATING TO PATENTS.

U. S. Circuit Court.—Southern District of New York.

MONTROSS v. MABIE.

IMPLIED LICENSE TO USE.

BROWN, J.:

The extent of an implied license to make and sell patented articles is to be construed according to the presumed intent of the parties, as inferred from the circumstances.

A firm having been largely engaged during several years in manufacturing and selling stoves upon designs patented by one of the partners, and accounts between them having been repeatedly settled embracing such sales and the profits thereon, as firm business, *held*, without regard to the question whether the patent was equitably the exclusive property of the patentee, (1) that a license by the patentee to the firm to make the stoves and to sell those manufactured was implied; (2) that such license, by necessary implication, was co-extensive with the business of the firm, and continued until the copartnership affairs were wound up by any lawful agencies for that purpose; (3) that, consequently, the copartner of the patentee had the same authority after dissolution as before to sell for the benefit of the firm the stoves manufactured for sale before dissolution; and (4) that a receiver of the partnership effects, appointed by a State court in a suit brought for winding up the affairs of the partnership, had a similar authority to sell the stoves remaining on hand, both as the representative of the parties and as a lawful agency for closing up the partnership business, and was by necessary implication included in the implied license. An application for an injunction to restrain him from selling was therefore refused.

U. S. Circuit Court.—Northern District of Illinois.

TOEPFER v. GOETZ et al.

MALT KILN PATENT.

BLODGETT, J.:

This was a bill in equity to restrain the alleged infringement of a patent granted April 27, 1880, to the complainant, Wenzel Toepfer, for a malt kiln.

It is wholly irrelevant to inquire whether the patentee was obliged to limit himself by the ruling of the Patent Office. It is enough to say that he did so limit himself.

Although the patent may show features which were patentable and which, if properly patented, would render the defendants liable as infringers, such matters are abandoned to the public by the act of the patentee in accepting a claim which fails to comprehend the same.

Round rock shafts in tilting malt kiln trays are old and now common property, and it is an old expedient to tilt frames by square rock shafts; but where the patentee sees fit to limit his claim to a square rock shaft, the defendants who use a round shaft cannot be held liable. Also, while a patent may cover a new hook, it cannot prevent the use of an old door latch.

U. S. Circuit Court.—Eastern District of Pennsylvania.

GOOD v. BAILEY et al.

HEMP COMBING MACHINE.

BUTLER, J.:

Letters Patent No. 95,462, granted to John Good, dated October 5, 1869, for improvements in machinery for drawing and combing flax, construed strictly.

Where all the elements employed in forming the combination are old, and the combination alone is new, and this differs but slightly from that of machines previously manufactured or described, the claim for it can only be sustained in connection with the special mechanical devices employed in forming it.

The employment of other devices, though a combination of the same general character, yet producing a more perfect combination, one better adapted to the contemplated use, is not infringement.

Insect Remedies.

The report on entomology made by W. B. Alwood to the Columbus Horticultural Society, last winter, states that many remedies were employed on the two described cabbage worms, consisting of alum water of different degrees of strength, tansy water, tomato water, benzine, coal oil emulsions of different strengths, Hammond's slug shot, Cayenne pepper, half a dozen remedies from England, several preparations of tobacco soap and pyrethrum. None proved of any value except the tobacco soaps and pyrethrum. The tobacco soaps prepared with potash were quite efficient, the value of which was ascribed to the potash. Pyrethrum is recommended as the best remedy, being perfectly safe, easy of application, and more deadly on the worms than any remedy used. Powder of good quality, mixed with three times its bulk of flour, was found perfectly effective, applied with a dusting bellows. One pound, costing fifty cents, was enough to cover an acre if properly handled.