THE KEELY MOTOR DECEPTION.

Three lectures on the Keely Motor were delivered in this city—May 16, 18, 20—at Chickering Hall, by Mr. O. M. Babcock, of Philadelphia, for the avowed and singular purpose, first, of showing to the New York public how grossly they have been defrauded by the Keely Motor Company; second, to show the hardship that the inventor of the "motor" now suffers in having lost or surrendered some fifty thousand dollars in money, being part of his share of the financial plunder originally derived from his stock; third, to explain the exact nature and practical operation of the motor, and thereby to let the people see for themselves that the thing is not a myth or a deception, as so many believe, but a real, genuine discovery, of remarkable, far-reaching, useful character.

It was in respect to the explanation of the practical working of the pretended motor that we were chiefly interested, and we accordingly sent our reporter to the several meetings. We regret to be obliged to say that all three of the performances were puerile and empty so far as the delivery of any actual information was concerned.

The first evening was almost wholly devoted to the recitation of a mass of indefinite charges of fraud alleged to have been practiced, from the very organization of the Keely Company, in 1871, down to the present time, by its managers. But the speaker did not venture to name any of the guilty individuals.

The second lecture was mainly a preface to the great and astounding revelations concerning the practical working of the motor. It consisted, however, only of a collection of extracts from the lingo with which Keely and his followers have always been accustomed to mystify their hearers. Here is a specimen from the evening's palaver:

"Water moved earth, air moved water, ether moved air. Vibrations natural to air would disintegrate water, while air was broken into pieces if it were forced into vibrations common to ether in transmitting light. The compressibility of an elastic fluid was in the exact ratio of the tendency to expand. This was the secret of the Keely Motor."

There we have the general principles of the machine in a nutshell; and now we come to the third lecture, in which large diagrams of the motor were exhibited, with which the speaker pretended to explain the practical operation of the contrivance as follows, which is as near as possible a verbatim report:

Fig. 1 represents the first practical engine Mr. Keely made. He had built seven or eight engines before this was constructed, each being in turn rejected; and the one now in use (Fig. 4) was the tenth or eleventh. Fig. 2 represents the lever upon which the pressure was indicated. When a pressure of thirty thousand pounds was indicated on the lever, you had a pressure of ninety thousand pounds in the "stand-up tubes" in the "generator" (Fig. 3). That was the first time this fact, the speaker said, had ever been stated in public; and he thought that if the gentlemen who had witnessed the experiments had been told of it at the time, they would not have been anxious to remain in the room to the close of the exhibition.

Fig. 3 represents the "generator" in which the gas or ether was obtained, and was the fifth that had been constructed. It consisted of a "central column," A, having four chambers; two "side columns," BB, each having one chamber, with descending tubes connecting with the lower chambers of the central column; two "stand-up tubes," the "front stand-up tube," C, and the "back stand-up tube, C;" "copper leads or tubes," D, bringing all the chambers of the generator into connection; the "hand lever," E, attached to the starting bar, F, the bar communicating with all the chambers and leads. The chambers inside the apparatus contained water, and were filled to a definite height, slightly compressing air into the upper portion of each chamber, thus producing an air cushion, which operated to give an introductory impulse to the agitation of the water, which, being expelled downward, aided by the action of gravitation, passed through a complex device situated in the center of the central column (a "core" running perpendicularly from top to bottom), which dispersed the water into "tenuities," increasing as it proceeded downward through the stages of spray, mist, vapor, etc., into a highly elastic gas or ether. The turning of the hand lever, E, opened a "four-way" valve in the center of the "starting bar," and disturbed the equilibrium of the water, the opening of the valve producing what might be termed a "vibratory undulation" in the water throughout the entire apparatus. It was produced by the "impulsion" from the air cushions in the upper portion of the chambers, compressed slightly by the filling of the chambers with water. By means of the agitation thus produced, a minute globule of water was forced through the portion of the apparatus called the "expulsion tube" (the core of the central column), and dispersed from the "lower cell" at the base of the central column into an adjacent chamber called the "undulating" or "cord" tube, G, and through a copper lead into the adjacent chamber marked C, by means of the compressing cock, H, which could be operated and closed instantaneously. The globule of water, in its descent through the "central column" and "expulsion tube," expanded into vapor, and was forced successively into smaller chambers. It was met in its course downward by opposing currents from the side chambers, coming from the "molecular leads," I, and "atomic leads," K, and concentrated in a chamber at the bottom of the "central column," not larger than an ordinary walnut, and from

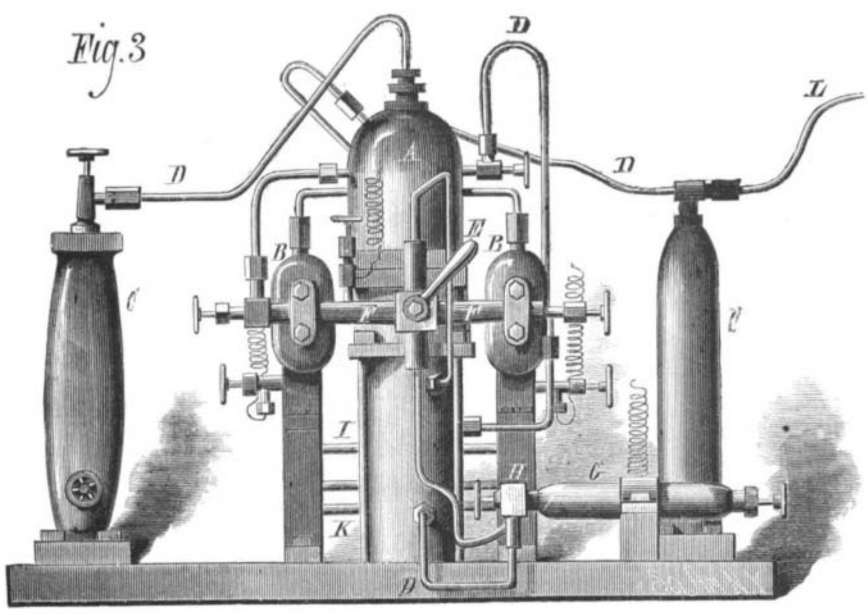
Fig. 3

THE KEELY MOTOR.

thence dispersed through a minute orifice into what was called the "undulating tube" or "cord tube," G. The moment that this expulsion took place from the lower cell into the "cord tube," it was closed by means of a compressing cock or "compressor," H, and the vapor in the "cord

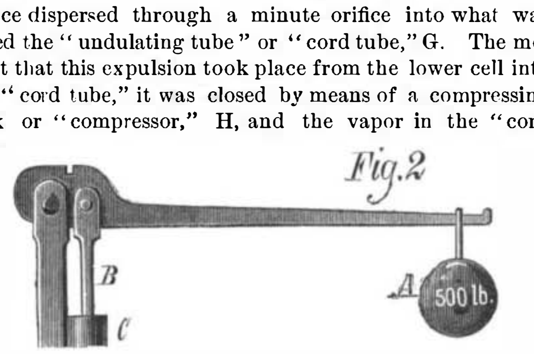

Fig. 2

tube" was held intact. In order to repeat the filling of the "cord tube," the compressor had to be opened and closed again. The vapor in the "cord tube" then passed through the "front stand tube," C, being intensified in its action in the passage by means of a device which increased its tenu-

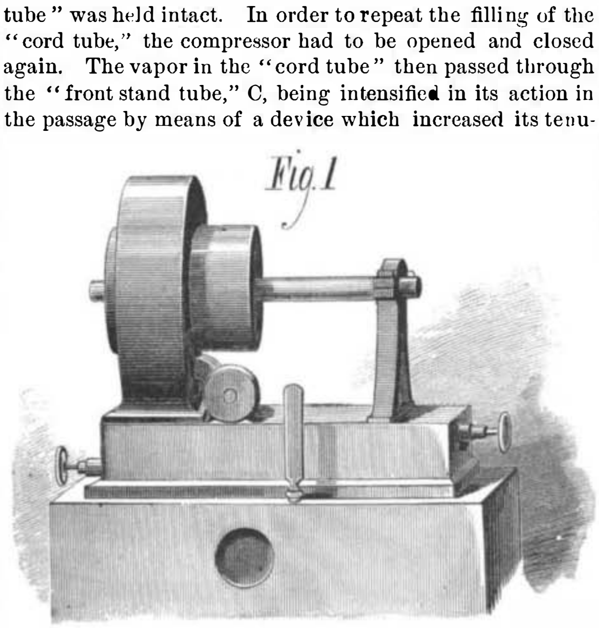
Fig. 1

ity as it passed upward. From the upper portion of the stand tube it was carried by the tube, L, to the engine.

Fig. 4 represents the engine as now constructed. It consisted of four compartments, A, B, C, D, upon a bed plate. The first compartment, A, was a cast-iron casing, called

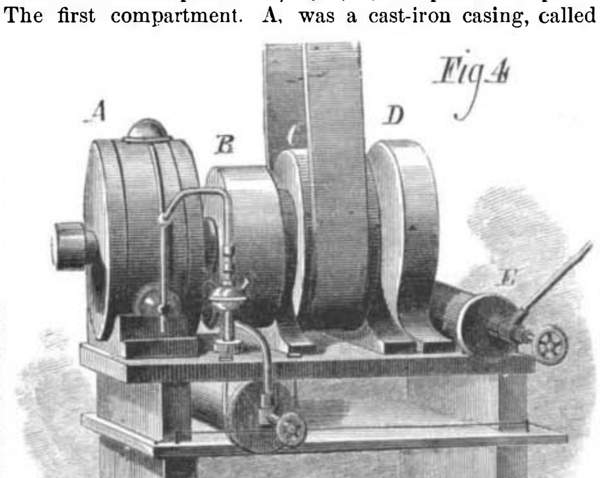
Fig. 4

the "positive casing," because it carried the "positive" portion of the apparatus, named as follows: "suspension plate," "wave ring," 150 pins in a "descending vibratory scale," embracing six chords or notes, each chord or note broken up into twenty-five parts, *i. e.*, each pin varied one twenty-fifth of a tone; also six tuning forks, a device called the "compound vitalizing medium," another the "vibratory elliptic," and another the "elliptic shaft," "six elliptic vibratory cells," a "positive wave plate," and "three vibratory transmitters." The second compartment contained what were denominated "triple vibratories" for transmitting "sympathies," and a "vibratory indicator." The third compartment, a pulley, C, upon which the belting run, contained a number of devices called "sextrum," "triple vibratory tubes," and a "vibratory bar" passing through the center. The fourth compartment was called the "spiraphone box," and contained the "spiraphone" and "wave plate." All the devices in the several compartments were within casings, and of course could not be seen in the cut. These several devices were constructed in sets of threes; and, in fact, the different portions of the whole apparatus seemed to be arranged in threes; there were only three movable parts, the valves; the negative tube had a capacity of three pints of water, as compared with the nine pints of the positive tube. They all seemed to be arranged in a sort of "rule of three." The power was transmitted by a belt running over the third compartment. The vapor passed from the generator (Fig. 3) to the engine (Fig. 4) and into what was called the "negative tube," upon the bedplate, adjacent to the spiraphone box, E. This "negative tube" had a capacity of three pints. This was connected with a tube near the center of the engine, under the bedplate, called the "positive tube," which had a capacity of nine pints. From the "positive tube" the vapor passed to the "positive" end of the engine through "copper leads," and there acted in succession upon the various devices in the four compartments—not by pressure, but by vibratory waves or "impulsions."

The generator occupied a space five feet long and high by two feet wide. The engine occupied a space four feet long by two feet wide and high. A fifty horse power engine would not occupy more than this amount of space, and an engine of two thousand horse power could be contained in a room ten feet square. Being rotary in motion, it required no extra room for the movements of its parts; and water and air being the only materials consumed, the cost of running was practically nothing. If the generator were sunk in water it would displace a quantity of water equal to about three hundred times the amount required to fill it; from this the audience could understand how small were the chambers within as compared with the walls. One quart of water would fill all the tubes and chambers. Mr. Keely had produced a pressure upon the tubes alone of fifty-four thousand pounds to the square inch. When you compared this pressure with the eighty or ninety pounds pressure of the steam engine you could appreciate some of the difficulties Mr. Keely had had to contend with in constructing an apparatus strong enough to withstand such enormous force.

The lecturer was asked if it was not possible to construct a machine that would run at a much less pressure than 54,000 lbs. to the inch, and so avoid the dangers and difficulties of so enormous a power as that stated. The reply was that a small pressure machine might be easily made, but what Mr. Keely wanted was to find out the extreme limits of the capacity of his discovery.

Having thus given the "full explanation" of the Keely motor, as publicly delivered by Mr. Keely's chosen representative and bosom companion, the man, according to his own statement, of most authority in the knowledge of the thing, next to Mr. Keely himself, we leave it to our readers to ascertain whether they know any more about it than they did in the beginning. For ourselves we confess that we do not.

New Method of Inlaying Wood.

A new method of inlaying wood has been contrived by a furniture manufacturing house in England. The process is as follows: A veneer of the same wood as that which the design to be inlaid consists—say sycamore—is glued entirely over the surface of any hard wood, such as American walnut, and allowed to dry thoroughly. The design is then cut out of a zinc plate about one-twentieth of an inch in thickness, and placed upon the veneer. The whole is now subjected to the action of steam, and made to travel between two powerful cast iron rollers of eight inches in diameter by two feet long, two above and two below, which may be brought within any distance of each other by screws. The enormous pressure to which the zinc plate is subjected forces it completely into the veneer, and the veneer into the solid wood beneath it, while the zinc curls up out of the matrix it has thus formed and comes away easily. All that now remains to be done is to plane down the veneer left untouched by the zinc until a thin shaving is taken off the portion forced into the walnut, when the surface being perfectly smooth, the operation will be completed. It might be supposed that the result of this forcible compression of the two woods would leave a ragged edge, but this is not the case the joint being so singularly perfect as to be unappreciable to the touch; indeed, the inlaid wood fits more accurately than by the process of fitting, matching, and filling up with glue, as is practiced in the ordinary mode of inlaying.

Manuscripts on which the Bible Revision is Based.

In a sermon on the revision of the Bible, Rev. Dr. Rylance, of St. Mark's Church, this city, made the following interesting statement respecting the existing early manuscripts of the New Testament. The learned doctor speaks also approvingly of the new version, remarking that the revision was necessary in order that the common people as well as the learned might understand exactly on what ground they stood. Hitherto it has been thought that every word of the English version of the Bible was inspired; this belief is passing away as people become educated and know that no work of a translator can be absolutely perfect. The autographs of the Apostles have long since faded and disappeared. All we have to depend upon for our translations are copies, ancient versions, translations, and the quotations made by the Fathers of the Church. The manuscripts of the New Testament are of two kinds—the uncial, the oldest class of manuscripts, written in capitals and without punctuation, and the "cursive" manuscripts, so called from their being written in a running hand that began to be used in the tenth century. Those of the old class were written between the fourth and tenth centuries, the others after the tenth century.

Of the old there are 130 in existence; of the new about 1,500. The very old and very valuable manuscripts are only five. Of these the Alexandrian Codex was originally discovered at Alexandria, and was sent to King Charles I., in 1628. It is now in the British Museum. Nothing is known of the origin of this, but it is usually assigned to the middle of the fifth century. It is much mutilated, twenty-four chapters of the first Gospel, two of the fourth, and eight of one of the Epistles being missing. The next is the Vatican manuscript, supposed to have been written in the fourth century. A copy of this was never made till 1868, when a *fac simile* was issued. The condition of this is much more perfect. The third manuscript is that in the National Library at Paris, whither it was brought by Catharine de' Medici. This had been overwritten—that is, the parchment had been used for other writings; but, spite of that, the original has been deciphered. It is assigned to the early part of the fifth century. The fourth manuscript is that now at Cambridge. This is the least valuable, as it is much mutilated. It belongs to the sixth century. The manuscript found in 1844 in the Convent of St. Catharine on Mount Sinai by Tischendorf, and copied by him in 1859, is the most valuable of the five, as it contains the New Testament complete. This is supposed to have been written in the fourth century. None of these most valuable authorities were consulted in any of the English versions of the Bible, even in making that of King James' time. The Latin Vulgate, the plentiful cursive manuscripts, and the translations were used. Errors like the Doxology at the end of the Lord's Prayer had crept into the translations, even into the Syrian, which was as old as the second century. The Latin Vulgate was probably an excellent translation, as it must have been made within a few years of the death of St. John. The changes that have just been made have only been made when the weight of authority left no doubt of their necessity. The text is not a question of taste, of like and dislike, but of historic testimony. I expect to see the corrected version win its way into the confidence and the respect of the English speaking people.

Government Examinations of Gun Inventions.

By the act making appropriations for "fortifications and other works of defense, and for the armament thereof, for the fiscal year ending June 30, 1882, and for other purposes," approved March 3, 1881, the President is authorized to select a board, to consist of one engineer officer, two ordnance officers, and two officers of artillery, whose duty it shall be to make examination of all inventions of heavy ordnance and improvements of heavy ordnance and projectiles that may be presented to them, including guns now being constructed or converted under direction of the Ordnance Bureau; and said board shall make a detailed report to the Secretary of War, for transmission to Congress, of such examination, with such recommendation as to which inventions are worthy of actual test, and the estimated cost of such test, and the sum of $25,000, or so much thereof as may be necessary, is hereby appropriated for such purpose."

In conformity with this act the War Department has issued an order for a board of officers to assemble at the Armory Building, New York city, July 13, for the purpose of making examinations of all inventions referred to in the law, and making a detailed report of such examinations, with recommendations as to what inventions are worthy of actual test and the estimated cost of such test. The following is the detail for the board: Brevet Major-General George W. Getty, Colonel Third Artillery; Colonels Z. B. Tower, Corps of Engineers, and J. G. Benton, Ordnance Department; Majors A. R. Buffington, Ordnance Department, and John Mendenhall, First Artillery. Second Lieutenant Frank E. Hobbs, Second Artillery. will report to the president of the board for duty as recorder. The Chief of Ordnance, at Washington, will furnish the board with all the information on the subject in his possession, and all persons interested in such inventions are invited to submit to the board plans, specifications, and models. the mode of construction, cost, etc.

Simple Illustration of Critical Pressure.

Herr Haass describes in the *Berliner Berichte* a simple method of illustrating the existence of the so-called "critical pressure" discovered by Carnelley. A small piece of mercuric chloride is placed in a glass tube which is closed at one end, and communicates at the other with a Bunsen pump. So long as the manometer registers less than about 400 mm. pressure it is not possible to melt the mercuric chloride by heating it; the salt passes at once from the solid to the gaseous state. But immediately the pressure rises above about 420 mm. the mercuric chloride melts.

Correspondence.

The Gamgee Motor.

To the Editor of the Scientific American:

A great many persons are under the erroneous impression that the ammonia engine of Prof. John Gamgee is being built, and the experiments conducted at the public expense; also, that "the lunacy of the author is shared by prominent officials at the Navy Yard in Washington." Permit me to state, through your valuable journal, that the total expense of material and labor is defrayed by Mr. Gamgee; that "the prominent officials at the Navy Yard in Washington" would be pleased to chronicle the successful operation of the "zero-motor," but, like other skeptics, we are willing to wait a "few weeks until all is ready."

JUSTICE.

U. S. Navy Yard, Washington, May 21, 1881.

Non-Rotation of the Earth.

To the Editor of the Scientific American:

You will doubtless think that I am presumptuous when I tell you that I do not believe the earth rotates. My reasons for not believing that the earth turns around every twenty-four hours are simply these: When two objects pass each other, going in opposite directions, they pass *very* quickly, as for instance a bird flying west ought to pass objects upon the earth much more rapidly than when it flies east. But this is not the case. A bird passes no more rapidly going west then when it flies east; a ball thrown against a house in a westerly direction does not rebound any more than when thrown east.

You may send a balloon up above your head and let it stand twenty-four hours, and at the expiration of the twenty-four hours the balloon will be directly over your head. I have studied the reasons given in astronomy and find nothing to refute my observations. Hoping, if I am wrong, you will write to me and set me right, I am yours, etc.,

T. A. KIRKLAND.

Franconia, Pickens County, Ala.

Compound Stern-Wheeler.

To the Editor of the Scientific American:

In your issue of the 15th January last, you have an article headed "Steamboats for South American Rivers." After describing the hull, boiler, and engines of steamer referred to, you state: "They are probably the first compound engines ever fitted to stern-wheel steamers." I now beg to inform you that in 1866 I had a stern-wheel steamer made, in which was put a pair of compound engines made in 1864 by Mr. F. H. Wenham, of London. Wenham's patent double and triple cylinder steam engines are described in the *Practical Mechanic's Journal*, Nov. 1st, 1863, pages 220 and 221.

This steamer, Tadorna Radjah, has been at work ever since, and is probably the most economical and efficient little steamer on this coast.

WM. PETTIGREW.

Brisbane, Queensland, March, 1881.

Oleomargarine and the Butter Trade.

The strongest objection raised against the manufacture and sale of oleomargarine has been that it would ruin the profitable export trade in butter. The alleged danger has been insisted on with much emphasis during the past winter in the Legislature at Albany. The official reports of the United States Bureau of Statistics show, on the contrary, that the quantity of butter exported from year to year steadily and very rapidly increases, while the average price received shows no fluctuations which are not explainable on other grounds than the competition of oleomargarine. The official figures are as below:

Fiscal Year.	Quantities exported in pounds.	Value of Exports.	Average price in currency per pound.
1870	2,019.288	$592,229	—
1872	7,746,261	1,498,812	19 [illegible]
1873	4,518.844	952,919	22 [illegible]
1874	4.367,983	1,092,381	25
1875	6,360.827	1,506,996	$23\frac{7}{10}$
1876	4,644,894	1,109,496	23 [illegible]
1877	21,527,242	4,424,616	20 [illegible]
1878	21,837,117	3,931,822	18
1879	38,248,016	5,421.205	14 [illegible]
1880	39,236,658	6,690,687	[illegible]
1881 (8 months)	25,793,131	5,214,663	20 [illegible]

Postal Cards.

The contract for supplying the Post Office Department with postal cards during the four years beginning the first of next July has been awarded to Woolworth & Graham, of No. 76 Duane street, this city, who are the manufacturers under the contract now existing. The first contract for postal cards was made in 1873, providing that one cent cards should be supplied for four years at the rate of $1.39⅝ per 1,000 cards. The price under the second contract, which will end the 30th of next June, has been 69 56-100 cents per 1,000 cards. Under the new contract the rate per 1,000 cards will be 54 43-100 cents. While the contract from July 1, 1873, to June 30, 1877, was pending, the number of cards issued was 550.619,500. Under the contract for the four years' term which will expire June 30, 1881, the number issued will reach about 990,000,000. The number required during the next four years will be, it is estimated, 2,000,000,000.

A representative of the *Evening Post*, in an interview with the person in charge of the postal card department, is informed that more postal cards are used in this country than in any other, and probably at least half of them were employed for business purposes, such as advertisements, notices of meetings, etc. Immense quantities of them were taken by the Post Office in Chicago, which received more than any other city except New York, and he said that the sales of one cent postal cards at the New York office now averaged about 100,000 a day. The domestic cards were disposed of chiefly in lots of from 1,000 to 10,000, fully three-quarters of all which were sold being used by business firms, companies, associations, etc. Lots of 5,000 were very commonly taken, those of 25,000 were not infrequent, and even 50,000 had been sold in a single installment. Reference to the books of the office showed that 25,377,150 one cent cards were sold in this city during 1879, and 28,082,800 during 1880, making the total for the two years 53,459,950. The increase in 1880 over 1879 was 2,705,650.

Comet I. 1881.

Thus far comets have played a small part among the portents of this momentous year. Four months have passed without one trailing wanderer in the celestial depths. That inveterate comet seeker, Professor Swift, succeeded on the first day of May in picking up an infinitesimal member of the family, too small to be seen in anything less than a powerful telescope. No other observer has thus far had a peep at the stranger, and there seems to be little probability of its growth into one of those monstrous prodigies, spanning the heavens, that a few centuries ago were such frightful omens of evil to those who witnessed them. The comet that made its appearance May morning will probably do little harm to our planet. It seems to be a bearer of good fortune, instead of a prophet of disaster, for the discoverer will win a prize of two hundred dollars, as well as a gold medal. Comets must hurry their footsteps to make this a comet year. More than one-third of the "great year," 1881, as astrologers call it, has already slipped away, with only one tiny comet recorded on its annals. Prizes of two hundred dollars each are in readiness for seven more comets to be discovered before the year fulfills its course. These astronomical tidbits are therefore more earnestly desired by comet seekers than they are dreaded by those whose superstitious fears regard them as heralds of destruction. The nineteenth century chronicles the advent of two superb comets, that of 1858 or Donati's comet, and that of 1861. According to the law of averages, we can hardly expect again visits from such distinguished members of the family before the century closes. But we shall see as time passes what the future has in store, for nothing is more uncertain than the advent of these mysterious strangers, and one may suddenly beam upon our vision when we least expect it. There are but two things to fear, a great comet plunging headlong into the sun, or one coming into collision with the earth. The probabilities that these events may occur are of the slightest kind, and need not give the least anxiety.—*Providence Journal.*

Grinding Chilled Car Wheels.

The following statements in regard to the economy of grinding the chilled treads of car wheels are officially certified to by officers of the motive power and machinery departments of the roads named.

During the year 1880, the number of wheels ground at the Sacremento shops of the Central Pacific road was 3,400, of which 510 were new wheels. Of the 2,890 old wheels ground, ninety per cent were more or less flattened. The cost of grinding is estimated as follows:

Labor in running the Gowan machines	$1,347.13
Emery wheels	1,075.34
Repairs of machines, and lubrication	438.00
Power	250.00
Royalty, 50 cents per wheel	1,700.00
Interest on cost of four machines	320.00
Yearly depreciation of same	400.00
Add for contingencies 10 per cent	555.05
Total cost	$6,083.52

The cost of replacing with new wheels the 90 per cent or 2,601 flattened wheels that were worthless except as scrap (including interest on 1,300 new wheels to be kept in stock, and deducting value of old wheels as scrap at $8.50 each), is estimated at $24,578.77, from which deduct $4,653.19, or $1.78·9 per wheel, for grinding the 2,601 wheels, leaves $19,925.58 as the total saving by the use of the machines.

A New Method for the Analysis of Oils.

The author treats a measured quantity of oil with a measured quantity of standard caustic alkali. Ten c.c. of oil measured with a pipette were heated in a boiling water bath for an hour with 20 c. c. of a solution of potassa, which would neutralize 123 c. c. of sulphuric acid at 98 grms. =1000 c. c. At the end of this heating the linseed oils mentioned in the previous memoir all yielded a cake of soap solid or very firm when hot, always solid when cold, and easily separated by mere draining. The alkaline solution is very differently acted upon by different samples. It still neutralizes smaller quantities of acid, differing in case of every sample.—*E. J. Maumene.*