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CYLINDRICAL NUTS.

tunity was given to see a practical illustration. A ma- the bridge would have been provided with an autochinist had an order for a small ornamental steam en-matic signal were it not for an occasional failure of gine, to be placed in the show window of a coffee and these appliances, and their excessive cost, and it would instead of hexagonal ones. The engine was a horizon-tal one, with steam chest on the top of the cylinder, skillful mechanics, whose business is to give them thorand all the hold-down bolts were furnished with cylin-pough inspection and all needed repairs at the end and drical nuts, through the tops of which protruded the before the commencement of each trip, but notwithflattened convex ends of the bolts, making a very neat standing these precautions they sometimes refuse to finish. The bolts were three-eighths of an inch diame-lact, and the results are usually serious. Brakes and ter and the nuts three-quarters of an inch diameter; to signals that are more simple in construction, and rehave made them hexagonal they would have been a quire less skill and expense to keep in working order, trifle over seven-eighths of an inch from corner to corner, are in demand. and if square they would have been a full inch across corners, and neither the hexagonal nor the square nut would be any stronger than the cylindrical nut-the protruding corners give no additional strength. For a wrench he took a tool with opening jaws operated like a pair of pliers. These jaws, while slightly open, were reamed to fit the diameter of the nut, so that when closed on the nut the jaws would embrace almost its entire circumference; the leverage of the handles made

a very slight pressure necessary to set up the nuts. The wrench did not have a short biting jaw, like a pair of pipe tongs, which dig into the pipe at each grip, but the inside of the jaws were perfectly smooth, and left no mark on the nut in using.

The method of making the nuts produced them in a very rapid manner. A bar of steel, of the proper diameter to finish to size after being turned, was fed through the head of a turret lathe, the end squared, a hole drilled in it, the tap run in, the surface turned, who desire and the nut cut off; all done by fixed tools in the turret and the cross cutting off tool. The finished nut dropped, and the bar was advanced for another nut. There was no planing, milling, or seating on an arbor, as would be the case in forming and finishing rectangular nuts. Every machinist knows that lathe work is cheaper and quicker than reciprocating work, whether planer or milling machine.

> In addition to these advantages of quick work. almost self-acting, the rapid production of the nuts and their finish from the first inception, there is the advantage of the requirement of less metal for the requisite strength. The embracing jaws of the wrench have a bearing on almost the entire circumference, while on the square and hexagon nuts the bearing of the wrench is on only two opposite sides.

> Another advantage that the cylindrical nut has over the angular nut is that the wrench may get a grip in moving through the smallest arc of a circle; an advantage that will be understood by the setters-up of machinery under difficulties. With the square nut an entire quarter turn is required before, in a confined space, the wrench can get a new hold; and with the hexagonal nut not less than one-sixth of a revolution is necessary before the wrench can take a fresh grip. When the wrench handle is long and the working place is limited, these considerations are of consequence.

- ------ -+++++ ---

RAILWAY IMPROVEMENTS NEEDED.

The recent disaster near St. Catherines. Ontario, where a heavy passenger train drawn by two locomotives went through a swing bridge into the canal, brings to mind the fact that a similar accident occurred at the same place eleven years ago, and that about 1854 one of the most serious disasters on record occurred under similar circumstances near there on removed or abandoned.

22 bridge signals to become inoperative seems to be the irksome and perfunctory.

brakes to operate. 'This is the fifth train that has The substitution of cylindrical nuts for those of a met destruction on this side of the Atlantic within two square or a hexagonal form has been advocated, with years from failure 'of air brakes, and accidents less very good reasons as a backing. Recently an oppor- serious are frequent from the same cause. Doubtless spice establishment, and on it he used cylindrical nuts, not seem a difficult matter to remove these objections. Air brakes are usually placed under the care of

AS TO THE SINKING OF THE WIRES.

The time given to the electrical companies in New York city to present plans and come to an agreement as to the system to be adopted in burying the wires has now gone by, and, according to the law passed by the last legislature, they must accept the plan chosen by the Electrical Subway Commission, or have their wires buried by it vi et armis.

Unhappily for the New York companies, the commission contains neither an electrician nor a scientific expert, and however good their judgment may be, it is scarcely probable that they will be able to discover a means of efficiently working long lines of telephone, at least, underground, when a score of experts employed by the companies have failed in a similar search.

It is pretty evident, too, by recent action of some of the companies, that the constitutionality of the law is to be thoroughly tested before they succumb: the Commission in the mean time being enjoined from interference. From reports which have reached us, the grounds on which an injunction will be asked may thus be summarized:

Having once had authority to string the wires through the streets, and there having been no proviso to restrain them at any moment from further operation of aerial lines, they cannot be constitutionally forced to change the mode of operation without compensation. The right of the legislature to forbid any further stringing of wires, save what is required to keep the original lines in efficient working, is admitted. But to compel the companies to make the great outlay required in taking their wires down and placing them underground would be to mulct them in damages for doing what under their charters they have a clear right to do, and it was intended they should be protected in doing. The case of the elevated railroads might be cited as in many ways parallel. Having legislative authority to build the road the incorporators went to the expense of construction. They took a certain risk. Had the project proved a failure, they would have had to stand the loss-the State, of course, would not have compensated them. Now, the project having proved a success, can the legislature step in and regulate the rates at which they are to carry passengers? Eminent authority decided that it could not, and the Governor refused to sign the bill.

How conclusive this reasoning may be, the writer has no intention of trving to determine. There is reason, however, to believe that the courts will be called upon to do so.

SHOP IN DEPENDENCE.

Unless one has an "independent fortune," one makthe same road at a canal bridge that has since been ing him independent of financial circumstances, there is no condition in civilized life preferable to that of a There are appliances that will, if kept in working shop mechanic. Especially is this the fact if the meorder, effectually prevent such accidents. It is true chanic is competent and feels an interest in his work. that accidents do happen occasionally on roads that He has a comfortable shop, pleasant fellow workmen, are equipped with the most approved means of safety, good tools, and a job that will amount to something but this is chargeable to the neglect of those who when it is done; this is enough to content a man who have the care of the appliances, rather than to any has a pleasant home or a comfortable boarding place. inherent defect. The liability of switch and draw-And yet there are some who look upon shop life as

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religion; sorcery; etc.-4 engravings.....

principal reason set forth by railway officials for re-| There are others who do not. An illustration is fusing to adopt them, and this objection may be re- recent. A fine workman, a machinist, possessing other moved by a more simple construction, which would valuable qualifications as an executive manager, a render them reliable and proof against derangement- public speaker, and with great personal power of per-Simplifying their construction would also reduce the suasion, was induced to take the superintendency and cost and remove the only remaining objection to their management of a Young Men's Christian Association. general adoption. Most of the signal devices brought He filled the position satisfactorily and creditably; forward of late are expensive, and require much skill but at last he tired and resigned. Strong influences and constant watching. An automatic signal that is were brought to induce him to change his determinanot reliable at all times is more dangerous than those tion. He refused, and for nearly two years has worked which are operated independently by an attendant. in the shop as a tool maker. He gets good pay, but because greater reliance is placed upon the former, refuses to be a boss--only an inspector--and works and it is not as closely watched by engineers. The every day as any ordinary workman. recent accident occurred at midday, but the engineer Recently he was seen, and asked if the change from a had no warning of danger until he saw the ends of the public life to a shop life was agreeable. He was quite apply the air brakes, but they failed to act. He then ent; had no meddling suggestors to bother him; could

> called for hand brakes, but it was too late. The pri- scan his day's work in the morning, and see it done in mary cause of the accident was the lack of a proper the evening; was nobody's slave or servitor; did not . soss signal, and the immediate cause was the failure of the have to modify his plans to suit a committee; his eight

.... DEATH VALLEY.

in the world deserve their appellations so well as does the first appointed day there was not sufficient wind editorial on tomatoes, they are said to be cultivated the Death Valley of California, nor is it easy to find for this purpose. The Puritan and the Genesta made in gardens in Maine, and to be 'a useful article of diet, any other locality in any country whatever which the trial, but did not either of them reach the stake- and should be found on every man's table.' In a local gathers about itself so much that inspires horror and boat, the wind being so light that it seemed rather a lecture in one of the Western colleges about this time, dread. A region where a man can die of thirst while drifting than a sailing match. The next day, Septem- a Dr. Bennett refers to the tomato or Jerusalem apple he has water within his reach, more than he can drink, ber 8, was then appointed for the first race. On this as being found in the markets in great abundance, may well bear the most terrible title that can be given occasion the wind was good enough to promise a and in the New York Farmer of this period one perit; and this name-Death Valley-given from the first spirited contest, but, in taking position to cross the son is mentioned as having planted a large quantity known event in its history, thirty-five years ago, will starting line, the Puritan crossed the course of the for the purpose of making sauce. In 1844 the tomato doubtless cling to the spot to the end of time.

36° 10' N. is as nearly as possible in its center of hor-, tan, and, ruling her out, offered the Genesta the privi- America does not antedate the present century, and rors. Probably only one other spot of which we have lege of going over the course. This her owner declined, only became general about 1835 to 1840." any knowledge, the Guevo Upas, or Vale of Poison, saying they had come over for a race and not for a in Java, exceeds the fatality of Death Valley.

The valley itself is 40 miles by 8, running nearly entirely accidental, though indicating extreme sharp north and south, and every portion of this is desert work by the sailing masters. and barren in the extreme, as is in fact the entire surrounding country; but a narrow central space along set down for Friday, Sept. 11, the second one for Sept. business cards, etc., by saying "late with," etc., is disthe eastern side, about fifteen miles in length, embodies 14, and the third, if it should be necessary, to take cussed. In this case the defendant, who had been emthe typical features in their highest intensity. Into place on Sept. 16. The Genesta's owners found no ployed by plaintiff as a workman upon jewelry and in this, not Porte d'enfer, but Puit d'enfer, very few per- difficulty in getting quickly fitted out in New York the repair of watches, set up in a business similar to sons have ever gone, that is, who returned to tell the yards with a new jib of Georgia pine, while the Puri- that kept by plaintiff, and put upon his cards and upon tale, and what is here related pertains to the higher tan's sails were as quickly mended, to make both a sign in his store "Late with James P. Van Wyck." and comparatively moderate parts toward the borders yachts ready for the race on the 11th inst., which, This use of his name the plaintiff sought to restrain, and of the valley.

solely. Lack of water may be a fatal evil, but this can the required time of seven hours, although both crews demnation from the hearer, and an analysis of the be avoided; supplies of water may be carried, or better exhibited fine seamanship for several hours in their thoughts which produce such instantaneous conclusions still, it is now tolerably well ascertained that water is attempts to get ahead of each other. available by sinking even shallow wells in much the The "sailing measurement" of the two yachts, as well as upon the conscience of the hearer. greater extent of the upper portions of the valley.

exceeding great risk. But this soon passes away, and measurement made the sailing length of the Genesta charged for want of fidelity or competency, he could 100°; and a little later it averages over 100°, reaching the race of 31 seconds. often 120° to 125° in the coolest place that can be found. If this was with a damp atmosphere it would stifle any of dryness enables it to be borne with more safety. American Origin," in the American Naturalist, Dr. E. use that name in connection with his own, so as to adwhich have been indicated; the *intense dryness* of the 'tomato, from which we make the following extracts: atmosphere. This is so excessive as to be in many instances fatal, in spite of every precaution. The writer called (singly) tomati (plural tomame)." The tomato nature of the relations to him. has never tested the full severity of this feature in "was described by various European botanists of the Death Valley itself, but his experience along its imme- sixteenth century." . . . It seems to have been granted, becausediate border renders him ready to give full credence to grown in European gardens as a fruit, from its first the statement that many cases of death have occurred introduction, judging from the references in Dodonæus the plaintiff's name, which is the use of another's propenough to supply the drain caused by the desiccative grown in England for ornament and curiosity only. power of the dry, hot air." In fact, in one instance he In Italy, Chateauvieux, 1812, mentions its cultivation own name among those of its victims.

1882, says that he "picked up, at different times, two and mentions its frequent use in soups and sauces, and little birds, a mile or so from water, whose bodies were adds that it is likewise fried and served up with eggs. still warm, having evidently but just dropped dead." In 1778 Marre and Abercrombie mention five varieties The bodies of men and their horses are liable to be en- as known, two of which are described as scentless countered at any time; they have been found within a i and burnet-leaved, and add that they are eaten by mile of water, and in one case with water still in their the Spaniards and Portuguese in particular, and are canteens, and a supply of food as well, showing that in high esteem.

The Great Yacht Race.

walkover," the occurrence having been undoubtedly No Right to Steal Away Your Employer's Business.

made out by the official measurer of the New York

History of the Tomato.

among southern nations, as we find that the Anglo- he is the actual owner. It has been said that birds drop dead in attempting Saxon race was the last to receive it into the kitchen.

the climate was the cause of death. With these facts "In the United States its introduction preceded by course of events have for some time recalled electricians in view, it is not unreasonable to say that the name many years its use as we at present know it. It is to a sense of the blunder they commit in devoting so Death Valley is well bestowed. And if this is the said to have reached Philadelphia from St. Domingo much attention to the incandescent lamp and neglectstate of things on the elevated borders, ranging from in 1798, but not to have been sold in the markets until ing the arc light. It is notorious that the end and aim 1,200 to 2,000 feet and more above the sea, what must 1829. It was used as an article of food in New Orleans of incandescent lighting was simply to supersede gas. be the heat and the dryness in the very focus? For in 1812. The first notice of it in American gardens, The extent to which this result is likely to be achieved one of the additional wonders of Death Valley is was apparently by Jefferson, who notes it in Virginia is now pretty well understood. Electricians themselves that its central region lies away below the level gardens in 1781. It was introduced into Salem, Mass., are willing to admit that they cannot compete by of the sea. There is perhaps no other spot on the about 1802, by an Italian, but he found it difficult to means of incandescent lamps with gas at its present globe which at so great a distance from the ocean persuade people even to taste the fruit. Among cost. The arc light, on the other hand, is susceptible reaches such a depression-159 feet. The Dead Sea, American writers on gardening, McMahon, 1806, men- of application for many purposes at a marked economy with the gorges of the Jordan and the Arabah, of tions the tomato, but no varieties, as 'in much as compared with gas; and it is undoubtedly suitable course greatly exceeds this, but it is not widely sepa- esteem for culinary purposes;' Gardiner and Hepburn, for use in many places where gas cannot be obtained. rated from the eastern parallel border of the Medi- 1818, say, 'Make excellent pickles;' Fessenden, 1828, The older arc lamps brought themselves into disfavor quotes from Loudon only; Bridgeman, 1832, says, 'Much' by their unsteadiness; but this has, to a great extent, terranean. The climatic violence of this deep trough of Death cultivated for its fruits in soups and sauces.' They were been remedied by improvements in the carbons, and Valley must be left to conjecture. It is certain that no first grown in western New York in 1825, the seed by not expecting too much light from the power availaman could survive there long enough to secure con- from Virginia, and in 1830 were not produced by the ble. Arc lamps are still rather more liable to sudden tinuous observations of any extent. vegetable gardeners about Albany; yet directions for extinctions than are incandescent lamps; and this fail-----cultivating this fruit appeared in Thorburn's Gar- ing will always cause them to be distrusted for street AN Association for the Protection of Plants has deners' Kalendar, 2d edit., New York, 1817. Buist lighting and the illumination of large buildings frebeen started at Geneva. The object is to preserve writes that as an esculent plant in 1828-29 the tomato quented by the general public. On the whole, how-Alpine rarities from the extermination with which was almost detested, yet in ton years more every va- ever, the field for profitable arc lighting is wider and the annually increasing number of botanists, mercen- riety of pill and panacea was 'extract of tomato.' Mr. more promising than that remaining for incandescent

about 1832, only as a curiosity, made no use of them, The international contest between the fastest pleas- though we had heard that the French ate them. They and his family's. This is the sort of mechanic that ure sailing craft of Great Britain and the United States, were called love apples.' D. J. Browne, 1834, describes recommends shop life, and proves that it is one of the which was to have been completed during the week six varieties, and says: 'The tomato until' within commencing September 7, was interrupted by a most the last twenty years was almost wholly unknown unlucky accident, necessitating delay. The conditions in this country as an esculent vegetable.' In 1835 of the race made it necessary that the yachts should go they were sold by the dozen in Quincy Market, Bos-The name is fearfully suggestive, and yet few places over the course of forty miles in seven hours, and on ton. In the Maine Farmer, October 16, 1835, in an Genesta, with the result of disabling both yachts, the was now acquiring that popularity which makes it It is in the southeastern part of Inyo Co., Cal., and former's mainsail being torn and the latter losing her so indispensable at present, writes R. Manning." From the point at which the meridian of 116° 45′ W. crosses jib boom. The judges decided it the fault of the Puri- this it appears that "the esculent use of the tomato in

In Van Wyck vs. Horowitz, New York Supreme Court, special term, 28 Daily Reg., 305, the question as To give time for necessary repairs, the first race was to the right of a party to use another name upon his like the first day's attempt, was a failure, the wind the court granted a motion to continue an injunction, The dangers are the result of atmospheric conditions being too light for the yachts to go over the course in saying: The statement of the case evokes instant conwill show that it rests upon sound legal principles as

The defendant has no right of property in the name But the water fails to afford its usual life-giving value Yacht Club, was as follows: Genesta, perpendicular, nor in the reputation of that business which he seeks from two causes. The first of these is the heat. Of from topmast head to deck, 972 feet; base, from end of to use with his own name and businessso as to give his course this is moderated during two or three of the boom to tip of bowsprit, 140.5 feet, gaff, 46 feet; water own prominence at the expense of the other. If the winter months, and for that space of time a residence line, 81.6 feet. Puritan: perpendicular, 102.01 feet; defendant had been a stove blackener, or hostler, or an on the borders of Death Valley is possible without any base, 144 6 feet; gaff, 47 feet; water line, 81 1 feet. This errand boy in the employ of the plaintiff, or a clerk disthe furnace is in blast. By about April the average (of 83 05 feet, and that of the Puritan 83 85 feet, so that with just as much truth advertise himself as "late with day and night) is from 90° to 95°; by May it is 95° to the latter had to give the Genesta a time allowance in James P. Van Wyck." The extreme supposed cases are put to illustrate the danger of the counsel's position. It cannot be that a man who has sustained any position toward or had any employment for a well human life with great rapidity, but a certain amount In an article upon "Kitchen Garden Esculents of known individual, that thereby he obtains the right to Here, however, comes in the second of the two evils L. Sturtevant has some interesting remarks upon the vertise himself and his business at the expense of his former patron and employer, and to do it in a manner "Tomatoes were eaten by the Nahua tribes, and were which is likely to, and often must, deceive as to the

The motion to continue the injunction must be

First. The defendant is, without authority, using "when water was plenty, but could not be drunk fast and Gerard; but Parkinson, 1656, speaks of it as erty for his own benefit and to the injury of its owner. Second. He is attempting to transfer to himself a part of the reputation of the store and business of the himself nearly reached that condition, and a few hours on a large scale for the Naples and Rome market. It plaintiff, which also belong to the plaintiff as really and longer of the heat and dryness would have placed his is probable that its use was at first more general as truly as his name or his personal property of which

Third. The mode and manner of the use by the deto cross the valley. Mr. Hawkins, who visited it in garden. Thus, in 1774, Long describes the fruit well, fendant of the name of the plaintiff are such as oftentimes to deceive, and because liable to deceive, and thus benefit the defendant at the expense of the plaintiff, such use must be held to be unlawful.

Value of the Arc Light.

Says the Journal of Gas Lighting: Sir James Douglass and many other disinterested observers of the

ary collectors, and mountaineering tourists generally T. S. Gold, Secretary of the Connecticut Board of Agri-lighting. For many purposes there is no comparison is said to menace them. culture, writes me that 'we raised our first tomatoes' between the arc and any other kind of artificial light.

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