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NEW YORK, SATURDAY, OCTOBER 1, 1887.

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president and section presidents of the late Manchester meeting
of the British Association for the Advancement of Science, with
report of the address of the president, Sir Henry B. Roscoe.—9 if

THE CENTENNIAL OF THE SIGNING OF THE CON-STITUTION OF THE UNITED STATES.

Mr. William E. Gladstone has given it as his opinion that the Constitution of the United States is the most remarkable work produced by the human intellect in modern times. The centennial of the signing of this instrument was celebrated with great pomp in Philadelphia on September 15, 16, and 17, 1887. The President of the United States and his wife, members of the judiciary, State governors, members of the cabinet and of the houses of Congress, army officers, many church dignitaries, and other notabilities were present. The vessels of the North Atlantic squadron of the U.S. navy, five in number, sailed up the Delaware and anchored off Fairmount Avenue. The city was decorated with bunting, and every available spot was utilized by sightseers. All around the public buildings several ranges of staging were carried, which were filled with chairs, providing alone for the accommodation of many thousands. Arrangements had been made to provide for accidents. The fire department was kept ready for instant response to alarms. The ambulances were in readiness to answer any calls. The hospitals made special preparations, and quantities of bandages and similar supplies were sent to them by some of the large business houses. Fortunately these preparations were not needed, as owing to good organization the great display passed off with very few accidents. It included processions, receptions, speeches by the President, by Justice Miller of the Supreme Court, and others.

operations of their trade, both in the old and in the modern ways, were carried on floats or great trucks through the streets. The Carpenters' Club bore a banner which ninety-nine years ago had been carried in the first anniversary of the framing of the Constitution. The portion of the parade occupied by this display of the industries of the country was very long, and took over an hour to pass a given point. The military parade took place upon Friday, and General Sheridan led the march, the famous Marine Band of Washington preceding it, and the different State governors appeared as participants. Finally, upon Saturday, the anniversary day of the signing, the closing exercises took place in Independence Square. An immense stage erected there was filled with 15,000 people, while on the street an audience of 30,000 patiently stood during the addresses, which but few could hear.

The chairman of the Centennial Commission, Mr. John A. Kasson, after calling for silence, during which Bishop Potter pronounced an invocation for the nation, addressed the assemblage. He was followed by the President and Justice Miller. The latter delivered a long and carefully prepared address upon the Constitution. After some further addresses and singing of "Hail Columbia," with additional stanzas by Oliver Wendell Holmes, a new national hymn, by J. Marion Crawford, was recited by Professor Murdock, the elocutionist. Then Cardinal Gibbons, of Baltimore, in full canonicals, recited a prayer, terminating the proceedings by his benediction.

The number of people who participated in the different parts of the display cannot be estimated. It is doubtful if so extensive a celebration of this nature has been seen in this country. As a lesson in the organization of such proceedings, the successful carrying out of the three days' programme, with the liberal provision and the cargo and baggage put through a special profor spectators, is not without value.

Our readers should not forget that in this celebration was included the anniversary of the foundation of our patent system. In the Constitution are those famous articles on which the patent statutes were based, and on which their weight reposes. Three hundred thousand defined inventions, with all the incidental unpatented inventions which they have led to, and with fostered and brought on by them, all repose upon these few sentences of the Constitution. Little allusion to diphtheria. There were cholera epidemics in New York labor parade, with its contrast of the old and new the disease in those years are as follows: 1832, 3,513; will be presented a display in its essentials the most impressive ever yet witnessed.

POSITIONS OF THE PLANETS IN OCTOBER.

VENUS

of the British Association for the Advancement of Science, with report of the address of the president, Sir Henry B. Roscoe—9 illustrations.

PHYSIOLOGY.—Hypnotism in France.—A valuable review of the present status of this subject, now so much studied in Paris

The Duodenum a Siphon Trap.—By MAYO COLLIER, M.S., etc.
—A curious observation in anatomy.—The only trap found in the intestinal canal.—Its uses.—2 illustrations with the constitution of the present method of manufacture of this widely used substance and important paper, kiving many additional forms of centrifugal apparatus—12 illustrations.

Gas from Oil.—Notes on a paper read by Dr. Stevenson Macadam at a recent meeting of the British Gas Institute, giving his results with performing as a recent meeting of the British Gas Institute, giving his results proved Cream Separator. A centrifugal apparatus for dairy use of hish canacity.—3 illustrations.—3 illustrations.—3 making 4,000 small biscults per notuce.—Illustrations.—3 making 4,000 small biscults per notuce.—1 illustrations.—3 making 4,000 small biscults per notuce.—1 illustrations.—3 making 4,000 small biscults per notuce.—3 illustrations.—4 making 4,000 small biscults per notuce.—3 illustrations.—5 making 4,000 small biscults per notuce.—1 illust a quarter before the sun, and at its close nearly two or tram cars. It consists of a trumpet tube and a hours and a half before him. She reaches her period sounding plate which is vibrated by the electric curof greatest brilliancy as morning star on the 28th, rent passing through an electro-magnet having its when she may be seen in full daylight. Venus rises on poles close to a soft iron armature carried by the the 1st at 4 h. 48 m. A. M.; on the 31st, she rises at 3 h. plate. A regulating screw contact, with a platinum 2 m. A. M. Her diameter is 57.9, and she is in the point, rests against the iron armature and serves to in-

among the small stars of Cancer, and forming a triangle can be used also as a Morse sounder in receiving telewith Pollux and Procyon. He is in quadrature on the graphic messages, the current being sent through the

on the 1st at 12 h. 21 m. A. M.; on the 31st, he rises at 10 h. 31 m. P. M. His diameter on the 1st is 16.6", and he is in the constellation Cancer.

is morning star. He is near the bright star Regulus on the 10th, and may be readily seen in the small hours of the morning of that day as a small, ruddy star north of his brighter companion. Mars rises on the 1st at 1 h. 50 m. A. M.; on the 31st, he rises at 1 h. 24 m. A. M. His diameter on the 1st is 4.8", and he is in the constellation Leo.

NEPTUNE

is morning star. He is near opposition, near his least distance from the earth, and in excellent position for telescopic observation. He may be found about 5° south of the Pleiades. Neptune rises on the 1st at 7 h. 51 m. P. M.; on the 31st, he rises at 5 h. 49 m. P. M. His diameter on the 1st is 2.6', and he is in the constellation Taurus.

URANUS

is evening star until the 6th, and then morning star. He is in conjunction with the sun on the 6th, rising and setting with the sun at that time, and being at his greatest distance from the earth. Uranus sets on the 1st at 5 h. 41 m. P. M.; on the 31st, he rises at 4 h. 20 m. A. M. His diameter on the 1st is 3.4", and he is in the constellation Virgo.

is evening star, and sets so soon after the sun that he The different trades of the city made a fine display in will soon become invisible. He makes a close conjunca parade upon the first day; workmen executing the tion with Alpha Libræ on the 26th, at 1 h. A. M., being 34' north of the star. Jupiter sets on the 1st at 6 h. 44 m. P. M.; on the 31st, he sets at 5 h. 3 m. P. M. His diameter on the 1st is 30", and he is in the constellation

MERCURY

is evening star. He reaches his greatest eastern elongation on the 27th at 3 h. A. M., and is 23° 58' east of the sun. He is far enough from the sun at that time to be visible to the naked eye, but his southern declination will make him a difficult object to find. Mercury sets on the 1st at 6 h. P. M.; on the 31st, he sets at 5 h. 34 m. P. M. The diameter of Mercury on the 1st is 5", and he is in the constellation Virgo.

An Arrival of Cholera at New York.

On Sept. 23 the steamship Alesia arrived at New York from the Mediterranean with four passengers sick with Asiatic cholera, there having been eight deaths on board from the disease during the voyage. The ship sailed from Marseilles Aug. 29, and stopped at Genoa, Leghorn, Naples, and Palermo, taking on 561 Italian emigrants, and having aboard in all 609 persons. After the vessel had arrived at the regular quarantine station, which is some six miles below the lower end of New York City, no time was lost in turning her back to the Lower Bay, and putting the passengers and crew under the strictest rules to cut off all possibility of the epidemic being communicated from the ship. The sick were landed on one of the small quarantine islands there, and put in a hospital for contagious and infectious diseases, and the others were placed in an observation hospital, to be detained from ten to twenty days, or until all danger is supposed to be over.

The ship has been thoroughly washed and fumigated, cess of cleaning by sulphurous acid gas, in much the same way as rags are disinfected. The cholera has prevailed for many weeks past at Genoa, Naples, and Palermo, there being many new cases daily at Naples, of which 70 per cent were proving fatal, but the New York health authorities have no apprehension that the disease will obtain a foothold here, so prompt and thorough has been the action of the department, while the unprecedented development of American industries, President Baylies, of the Health Department, is of the opinion that cholera in New York City is not as bad as this can be found in the proceedings, but the great city in 1832, 1834, 1849, 1854, and 1866. Deaths from methods, was the noblest tribute, if an indirect one, that 1834, 971; 1849, 5,071; 1854, 2,509; 1866, 1,137. Most of the could have been rendered. When the time for the deaths werein tenement houses, and the disease obcentennial of our patent system shall come, the country tained its strongest hold in the vicinity of bone-boiling and fat-rendering places. In other parts of the city it yielded readily enough to sanitary measures.

An Electric Whistle,

M. Zigang has devised a trumpet worked by electricity and designed to warn or signal vessels, trains, terrupt the current of two Leclanche elements as the plate vibrates, thus keeping up the sound as long as is morning star, and is easily found making his way desired. The apparatus is simple in construction and

The New Commissioner of Patents.

The N. Y. Tribune concludes that the new Commissioner of Patents, Benton J. Hall, of Iowa, is about as plate. hard-working an officeholder as any this administration has discovered. He climbs up the Patent Office steps every morning as the clock strikes nine, and often stays until long after four o'clock. The slippery chairs and sofas which adorn the commissioner's office pounded," yet introduced. The weight of these shields the average has paid its interest and taxes and quadruare held down continually by attorneys, waiting to is too great for use in naval construction. The first | pled in value. If a young man's father can give him transact their business with the office, in place of the trials were made in 1869, at the Tegel range, and it was anything to start him in the world, he had better invest former crowds of reform congressmen with Demo- found that all shots fired against the chilled plates it in that way and let it accumulate and earn his living, cratic principles and good-looking young women whom they wanted to get into office. The commissioner has made some effort—though not so strenuous as might be-to cut the deadwood out of the examining and clerical forces left him as a legacy by his predecessor. In brief, he seems to recognize the fact that directions for its adoption in important lines of frontier Gould, there are 60,000,000 chances to one that he won't the Patent Office is not a political office, that it is supported by the money of a particular class, the inventors. So well supported, in short, that a yearly dividend of twenty per cent is realized from the fees paid in, while there is an accumulated surplus of \$3,000,000 the Ternitz company had either succeeded in secur-running against you, unless you have an equal or greatin the Treasury. Every week's issue of the Official Gazette contains from one to three of the commissioner's decisions on points of office practice, tending to bring about uniformity in the same among the different attacked by guns varying from 6 to 17 inches caliber, prudent girl who has been brought up by a mother divisions. If the stories told by the attorneys are to be believed, something of that kind is badly needed. The office is slowly catching up with the work, but no great gain can be expected, I am told, with the present force. While the number of laborers in the patent gun, over 47,000 foot-tons, which was only obtained. In my earliest practice in my profession I was quite vineyard remains stationary, the crop of applications is growing heavier every day. The coming Congress ought to do something to remedy the existing state of things.

And the editor might have added that a great injustice has been done inventors and others transacting business with the Patent Office, owing to the indifference of congressmen in past sessions of legislation. The encomium of the Tribune upon Commissioner Hall is just, and reminds one of the Patent ago, but whom a few of us live to remember with satisfaction.

Chilled Armor for Land Defenses.

The Gruson Works of Buckau-Magdeburg have recently published a book of some size, written by Engineer Von Schuetz, in which the system of construction of chilled cast iron armor for use in the protec- world, and it would seem very possible that this may you get any other money, invest it in the same way, tion of earthworks and in the making of turrets for prove to be the best system for our purpose yet de- and if your notes press upon you a little faster than land batteries, as devised by Dr. H. Gruson, some years ago, is described at length, and an account is tain permanent advantage from, as it seems probable what you are doing with your money, discount your given of the results of the experiments which have that its advantages over other forms are not likely to note and give you a little more time, so that you can been made, from time to time, by several European be soon lost.—R. H. Thurston, in Science. governments, to determine its efficiency in resisting the impact of the heaviest modern ordnance. This work has been translated into English by Commander this country, for an early copy. The subject and the matter of the work are of exceedingly great importance to a nation which, as is the case with our own, learn what advances have occurred during the last men are wrecked at the very beginning. twenty years, we must go to England, France, Germany, Russia, and even to Constantinople, to study expense of his living, and has no object in view, he is those of the scientific and mechanical departments of likely either to increase those expenses carelessly or the military and naval establishments, and not to our to loan his money to his friends, and in so doing in own army or navy. This work of Dr. Gruson would the majority of cases he will lose both friends and seem to illustrate such advances in the defense of

Dr. Gruson's armor is simply a chilled cast iron shield, of which the body is a strong normal iron, while the surfaces on the exposed side are chilled like the masses are handled, in this case, however, that correspondingly enormous chills are needed, and the manufacture of these plates becomes a matter of extra- buy some property, preferably a piece, however small, ordinary difficulty and cost. All the resources of a according to his means, of improved real estate that is miles west of here. The estimated flow of gas from great establishment are drawn upon, and all the in- paying rent. He had better buy it when sold at this well is 15,000,000 cubic feet every twenty-four genuity, knowledge, and experience of an able staff are auction, under a judicial sale, paying in cash what he hours.—Indianapolis Journal. called out in the prosecution of the work. Chilling, can, giving his notes for the balance in small sums as is well known, probably, to most of our readers, coming due at frequently recurring intervals, secured consists in the casting of a peculiar quality of cast iron, by a mortgage on the property, and then use all his known as "chilling iron," in contact with a large mass extra income in paying up those notes. It is always of cold iron forming that part of the mould which is safe to discount your own note, and if the notes come a tion of heat prevents the isolation of the carbon in friends will aid him when he is putting his money process of cooling naturally, and insures its retention taking care of the interest, and in a very short time siderable depth. The depth so secured is dependent | ment. He will become interested in it, save his money give best results in these applications. Successfully motive for saving, and will get the result of that sav-pounds press carried out, this process gives a surface harder than ing, and will not be tempted to enter into speculations. avoirdupois.

best possible combination, apparently, for an armor

broke into fragments, and that the plates bore the and he will be richer than if he had gone into business. defenses, and Austria, Italy, and Holland followed its succeed. example. In all these trials the chilled iron shot were in one or two cases in which makers like Krupp and markably effective methods of tempering. Plates were throwing shot weighing from 61 to 2,205 pounds. The thickness of plate was usually not far from three times the diameter of the bore of the gun to be resisted. The energy of impact was, in the case of the largest such cases, the shield is subjected to more severe trial finally breaking up under repeated blows.

a maximum thickness in inches equal to from one-evidently borrowing it. Now you had better invest Office administration under the commissionership of fourth to one-third the fourth root of the energy of it." "How can I invest it?" "Invest it in real estate." Judge Mason and Judge Holt, which was a good while the attacking shot measured in foot-tons. The total "I know nothing about real estate." "Go to the weight of each plate of which the armor is composed first auction and buy the property. You cannot be is not far from the weight of the gun expected to be much cheated in that, because you will have to give used in the attack.

The system of defensive armor here described is one in which we have a peculiar interest. We have in the collect your fees, pay your notes as they become due. United States, in the "Salisbury," and "Hanging See that the property is improved property, so that the Rock," and other brands, the best chilling irons in the rent will keep down your interest account, and when vised. It is especially one which we may hope to ob-

How to Get Rich.

In answer to a request of the Boston Herald to write Grenfell, R.N., and we are indebted to the courtesy of some practical hints for young men on the acquire-Captain Piorkowski, Dr. Gruson's representative in ment of wealth, Gen. Benj. F. Butler responds as fol-

A difficult task is set me, as circumstances under which young men commence life are so widely varied. is destitute of the most ordinary means of defense in But I think that more young men fail in the investment the event of a foreign attack either by land or sea. of what they earn or receive than in any other way to So serious is our case that, as remarked in a private acquire property. The temptations to speculate are so letter from the admiral of the navy, just received and great, and the desire to become suddenly rich so strong, lying under the hand of the writer, if we desire to that I believe eight out of ten, if not more, of young

If a young man is earning something more than the money. So that the best thing that he can do is to have an object, gather up his money, and to have a call for it which shall be a profitable one. He makes no investment because he says, "I have got so little money that it won't come to anything. I will wait until "tread" of an American car wheel. Such enormous | I get more;" and in waiting, generally, what he has

When a young man has a very little money, let him to form the surface to be chilled. The sudden abstrac-|little too fast, as soon as he gets anything paid his graphitic form, as would otherwise occur in the slow where it cannot be lost, and where the property is in the combined form, producing a steel layer of con- he will find that he has got a very considerable investupon the quality of the iron and the efficiency of the to meet his notes, and he will directly come into a "chill," as the iron mould is called. The latter must considerable possession of property, and hardly know have great thickness and good conducting power to how it came to him. That is, he will have had a

tempered steel over a strong and massive interior, the Nothing is so safe for an investment as improved real estate. Nothing is likely to grow in value faster. In the last 50 years 90 per cent of all the merchants and Dr. Gruson constructs large fixed turrets and land traders in Boston have failed. In the last 50 years 90 batteries of such plates, and the results of trial indiper cent of all the business corporations have failed or cate them to be more reliable defenses than any gone out of business, so that their stock has been wiped wrought metal, whether iron or steel, or "com-out. In the last 50 years all the improved real estate on hammering with remarkable success. The experi- Jay Gould is said to have started from a mouse trap mental committee reported that the chilled armor was seller to become a millionaire. Assuming that to be well adapted for its use. Later trials confirmed this true, he is only one of 60,000,000 of people; and if any opinion, and the Prussian government at once gave young man thinks that he is going to imitate Jay

The rule I would lay down for a young man is, never found superior, if well made, to any steel shot, except do a mean thing for money. Be prudent and saving of your money. Be careful to have no interest account ing an exceptional quality of steel or had found re- er interest account running in your favor. Work diligently, and you are sure of a competency in your old tested of from 13.77 to 49.21 inches thickness, and were age; and as early as possible, if you can, find a saving, who knows how to take care of a house, and make a wife of her. She will aid, and not hinder you.

I claim no originality in this advice, and will relate you an incident in my own experience to illustrate it: however, by firing at short range-150 yards. In all successful in earning money, and I had a small balance in the Lowell Bank, at the head of which was Mr. than would be likely to be met in actual battle. In James G. Carney. The bank was directly across the trials last year at Spezia, with the 100 ton gun, the hall from my office. I stepped into the bank to deposit a shot weighed a ton and the powder charge 327 pounds, little money on one occasion, and Mr. Carney said to me: the velocity of impact being over 1,700 feet per second. "Why don't you invest your money?" "Invest," said The maximum penetration was four inches, the plates I; "I have nothing to invest." "Oh, yes," he says; "you have quite a little sum of money, and I see that The method of proportioning is to give the plates your young friends come with your checks occasionally, very little more than somebody else will be willing to pay for it. Give your notes for it, save your money, you can pay them, why we will, when we find that is pay it up. This will necessitate the prompt collection of your bills, for I know that you would rather work and earn a hundred dollars than dun a man for it, unless you have a pressing need for it. You have not even asked for a little bill that we owe you in the bank, which shows me that you do not promptly collect your dues." I followed the advice and bought a number of pieces of property in that manner, and I never did exactly know how they were paid for, but they were, and in a few years I owned some twenty different pieces of property in Lowell that came to me in that way. I can only say that I wish I had been wise enough to have continued this course through life.

> I do not think that I need to extend these suggestions any further, because if a young man won't mind these, he won't any others, and I cannot suggest any I am, yours truly, better ones.

> > BENJAMIN F. BUTLER.

Farming by Gaslight.

Howard County farmers residing in the vicinity of the great Shrader gas well, near Kokomo, Indiana, go on record as harvesting the first wheat by natural gaslight. A dozen self-binders and men shocking wheat was truly a novel scene, which was witnessed by hundreds of people, who surrounded the fields of grain in carriages. The constant roar of the Shrader well can be distinctly heard eight miles away, while the light can be plainly seen at Burlington, fifteen

Steam Pipe for Heating Purposes.

The Master Steam Fitter gives the following rule for finding the superficial feet of steam pipe required to heat any building with steam: One superficial foot of steam pipe to six superficial feet of glass in the windows, or one superficial foot of steam pipe for every hundred square feet of wall, roof, or ceiling, or one square foot of steam pipe to eighty cubic feet of space. One cubic foot of boiler is required for every fifteen hundred cubic feet of space to be warmed. One horse power boiler is sufficient for forty thousand cubic feet of space. Five cubic feet of steam, at seventy-five pounds pressure to the square inch, weighs one pound