### THE OMAHA DAILY BEE: FRIDAY, NOVEMBER 3, 1899.



the waves, but the entire piece of wire attached thereto. Its vertical position and length render it peculiarly susceptible to the incoming disturbance of the other. The vibrations, thus caught, are conveyed along the wire to the coherer and influence that device very much as the engineer's hand does a valve in a steampipe. The current of a local battery, flowing through a short circuit at the receiving station, is thus enabled to actuate a "sounder" and the message is ticked off as in ordinary telegraphy.

#### Focusing the Waves.

When one recognizes that the source from which the waves proceed is not the spark gap ,alone, but the vertical wire also, he perceives that it is practically impossible to ratch and focus them as the rays of a searchlight are concentrated. There has been some attempt at that sort of thing, but if Prof. Trowbridge is correct such efforts are futile. These vibrations which go out directly from the spark gap can thus be focussed, but not those from the wire. The use of a parabolic mirror, therefore, would certainly stands in need of cultivation in seem to be unavailing, either in increasing the range of the transmitter or in insuring secrecy. That electro-magnetic waves are thrown off laterally along the entire vertical wire has been demonstrated afresh at the Jefferson laboratory. Prof. Trowbridge user. It has just announced that it proplaces sensitive plates so that the wire can pierce them at the center and then sprinkles new rate of charges, so that the man who iron filings on them. When the induction coll is put into operation and electro-magnetic waves are sent up the wire they compel the iron filings to arrange themselves in concentric circles around the wire. The arrangement of the latter is then recorded by photography. This effect can be secured at

any part of the wire. The only method of which Prof. Trow

used, engineers make periodical tours of is pointed out that this objection loses its inspection and test the hard metals. Outforce from the fact that the number of wardly the steel is as solid and resisting as was complete. lights could be reduced and the cars could ever, but a blow of a light hammer on a be lighted from the battery alone for over shaft four inches in diameter will somea week much more brighter than they are times smash it as if it had been a slender now by lamps or even gas. rod of glass. This is when the steel is rystallized.

#### English Telephone Service.

The agitation which has long raged in Testing Impossible in Sky-Scrapers London for an improvement in the tele-In our lofty buildings there can be no phone service has borne fruit in several testing with a hammer, as the steel is coated ways. Not only has the government dewith brick or stone. Herein is the great cided to establish a system in London to langer to the "sky-scraper."

compete with the existing monopoly and to Many and many a mysterious accident in grant municipalities licenses to establish he past was due to this strange peculiarity and work their own exchange systems, but



\$17.50 as a "retainer" so to speak, and NEW ELECTRICAL TREATMENT OF STEEL. above and beyond this he will pay 2 cents

One of these coils placed around his razor gave perfect satisfaction to the experimenting Italian, and he saw that his discovery it is difficult to get enough of the manufacturers into a common agreement and to com-

#### His Electrical Theory.

He perceived that steel and wrought iron must have a normal node of molecular vibration to retain their utilitarian propererties-tenacity, resistance, etc., and that another node of vibration produced crystallization, or a segregation of the atomic masses with little or no cohesion. Over and over again he repeated his ex-

perimenting, inducing crystallization into been carried so far that the officers of an the razor by means of tuning forks, and restoring the lost qualities of the steel by the prosecuted under the anti-trust law and the combination of the tuning fork with the matter is still in the courts. If the move

nterrupted curved solenoid. Then he went abroad and tried his discov ry on a railway bridge. With his hammer he tried the steel rods until he found one which under the stroke yielded a brittle note and so gave evidence of unsoundness. His combination solenoid restored it to its true metallic ring, and his efforts to smash

were unavailing. There was no defect in his discovery and he at once began to study the best means of its practical application. He proposes soon visiting the United

States to have it taken up on a large scale. The adoption of it, he states, will prove an immense economy, independently of the fac that it will preclude serious diseasters. The point of crystallization of a steel rod

is at its center of chief vibration, and this is generally its point of crossing with other rods or its center of unsupported weight.

sition. The coil will only be needed at this point. The practical meaning of the discovery is The grounds of the Greater America Ex-

that on the Brooklyn bridge, for instance, in-

To make soiled matting look fresh and bright prepare a pailful of warm water with a handful of salt and four

engines have been bought by Sioux City par- tain of the Bersagliere was charged with ties, two by the Omaha, Council Bluffs & Su- having sunk a Lowestoft trawler in a colburban Railway company and one by a Chi- lision and with having left the crew of the latter vessel to their fate cago party

Refuse to Surrender Prisoner. KINGSTON, Jamaica, Nov. 2 .- The government of Costa Rica has definitely refused Desperate Battle in Colombia for the to surrender Rutherford, the man charged Control of the Magdawith the murder of the American citizen, Archer, unless the British government guarlena River. antees not to inflict capital punishment, to NEW YORK, Nov. 2 .- A dispatch to the which the government cannot accede, thus Herald from Panama, Colombia, says: A closing the case so far as Jamaica is con-French steamer arriving at Colon has cerned. brought further official details of the im-Blockade Porto Cabello. portant naval engagement between the gov-CARACAS, Venezuela, Nov. 2 .-- General Casernment forces and the revolutionists on the ro, the leader of the revolution in Venezuela. Magdalena river at Puerta Nacional, on has formally blockaded Porto Cabello, the October 24. only port not occupied by Castro's forces, The government forces were on the with two cruisers. Commerce with that rmored steamers Hercules and Colombia, port has been stopped. Castro has won two

which were well fitted up and armed for war purposes. The rebels had several river boats which they had seized, but the vessels were not armored in any way and were wholly unprovided with fighting facilities. The battle lasted more than four hours The and the fighting was very severe. revolutionists fought like heroes, but the odds against them were too great and they were finally forced to yield.

Austria. The Colombia's machinery was disabled after the first shot had been fired. The

Headquarters of the rebels have now been

stablished in Sabanslarsge. The revolu-

known of what is going on in the interior

Capture an Italian Bark.

Officers of Italian Senate. rebels on the powerful dredge Cristobal Colon ROME, Nov. 2 .- The Gazette today pubwere just about to board the disabled steamer lishes a royal decree reappointing Signor in the middle of the river when the Hercules Sarano president of the senate and appointsteamed up the river and a shot at close | ing four vice presidents of that body for the quarters from its Hotchkiss gun sunk the approaching session of Parliament

dredge with all on board. More than 200 Geo. Noland, Rockland, O., says: "My wife men were killed or drowned in the desperate battle. Most of them were from Llaran- had plies forty years. DeWitt's Witch Hazel guilla. All accounts agree that the affair Salve cured her. It is the best salve in was disastrous to the revolutionists, though America." It heals everything and cures the government's loss was very heavy. all skin diseases. The steamers Elena, Cisnercs, Baranquilla Ferryhost Runs Down Cutter. and Elbers were recaptured by the govern-Ferryboat Runs Down Cutter. SEATTLE. Wash., Nov. 2.—The local ferryboat, City of Seattle, run down the revenue cutter Patterson at its anchorage this morning. The long overhang of the ferryboat crashed into the side of the Pat-terson, knocking the officers out of their bunks. There is a hole in the side of the cutter fifteen feet wide and eight feet high, just above the water line. There was no damage to the ferryboat and no casualties. ment's forces and towed down the river in an almost worthless condition from the effects of the heavy fire poured into them for four hours. One of the prominent rebei leaders in the ngagement was Colonel Eustacio Navarro. General Diego de Castro, on the government's sido, was badly wounded in the right eye.

done so. The cut-rate men look at the movement as a species of trust, more far-reaching in its intentions than most of the trusts which have been formed up to this time. They are apprehensive, too, that it will be a success for Omaha is only one of many citles in which the agreement is being circulated and finds support. In Kansas City the fight has association formed there were arrested and

ment is successful the cut-rate stores cannot expect to control as large a share of the retail trade as they have in the past and their profits will probably be reduced in consequence. Some of them admit that the prices which the conservatives are seeking o establish are not excessive and that the lruggists are fairly entitled to the profits

which such prices would make possible. This trouble has not been confined to the drug trade, but is similar to the experience gone through with at one time or another by a great many other lines of trade. Many movements have been made to do away with the middleman and his profit and some of

them have succeeded. CREDITORS PRESSING CLAIMS

They Are Seeking to Recover from the Greater America Expo-

position exhibit more activity now than during many of the days when the show was

pel them to keep their word after they have REVERSE FOR INSURGENTS

bridge can conceive for extending the distance to which messages can be sent by the Marconi system is one that would intensify the shock given to the wire by the spark. There is a close analogy between the behavior of electro-magnetic waves and sound waver. To be sure, the latter are enormously slower and less frequent than the former. And sound is transmitted only by

matter. It will not go through a vacuum. But Hertz waves are propagated by that attenuated medium which is supposed to fill interstellar space, the ether. However, there are many points of resemblance be- Chicago. The Record of that city reports tween them.

A

For instance, if a plano string is struck 150,000 pounds of the light-weight silvery ordinary electric circuit whenever a break They may be very feeble, but they are generated at least. The suddenness of the

stoppage of the current has something to with the force of theso waves. Hence electricians have sought for means of interruption which should give the most conspicuous effects. The old induction coll yields a more intense surrent than can be obtained otherwise and modern attachments to it impart a peculiar sharpness to the break. Now Prof. Trowbridge thinks that a year ago it would have used copper cables only by developing this method further can the range of wireless telegraphy be extended. The instrument known as a relay. by means of which messages transmitted by the Morse system can be repeated and thus sent beyond the station at which they are first received, is not applicable to the Mar-

coni plan. The possibility of maintaining secrecy in communication is considered briefly by the Harvard expert. He deems it credible that some day the frequency of the waves will as it pauses through and for that reason is be so controlled that only a receiving instrument attuned to this rate will respond will carry without friction about sixty per and no other receiver will be sensitive to cent of the current load which copper wire a given transmitter. Marconi and others of the same diameter will carry. To carry have talked of this a good deal and wide differences of opinion have been expressed about two-thirds larger than the copper conwithing the last two years about the feasibility of achieving the result. But from be six times larger to accommodate the same the way in which Prof. Trowbridge speaks current. Now copper weighs three-and-ait is to be inferred that as yet the thing third times as much as aluminum, so that has not actually been done. Thus far most an aluminum wire of any given capacity of the experiments made with Hertz wave would weigh only half as much as a copper telegraphy have aimed to enlarge, not to wire designed to carry the same load. With limit its scope.

#### Other Claimants.

I view of the number of inventors who now claim to have discovered the one perfect method of transmitting signals through space on the wings of the ether, a comic paper's assertion that "wireless telegraphy is in the air" would seem to be justified. An Oklahoma man claims to have a system of great simplicity, by means of which he can talk with towns sixty miles across country. Ducretet, the French experimenter, prophesies that transatiantic cables will soon he abandoned in favor of his system. which will carry wireless messages from Paris to New York. He needs only two poles 3,000 feet high, one at either terminus or, if this height is a triffe inconvenient, he will have a pole only 1,200 feet high planted in midocean and keep a man there transmit messages. A part of his system is an automatic recorder, which will collect all the messages coming along while num wares. the man is sleeping, so that he can dispatch them to their destination when he gets up. The assertion and prophecies of Tesla are familiar to the public and other inventors are equally confident of being on the eve great accomplishments. To the eminently practical American mind the supreme claim to consideration is the quality to "get 2,000 companies in the United States are there" and hence Marconi is the central working aluminum up into novelties, tags, figure in the new system of signaling through medals. Bose, the eminent Indian professor, says a torpede boat to a thimble in aluminum.

for each time he carries on a conversation over the lines. The company announces that this alteration can only apply to the provincial towns and districts, not to London. The reason of this is that the company has some apprehension as to the effect upon its London system of the competitive system now being arranged by the aster. It was the crystallization of the steel government. upports on the bridge which caused the

Substitute for Copper Wire. dreadful calamity. Aluminum is to have its first important An Italian electrical engineer, Signor rial as a commercial conductor of electric-Emilio Faelli, who made a fortune in this ity on the Northwestern elevated road in country, and has now returned to his native land to enjoy it, has just made a discovery twenty miles of inch-and-a-half cableswhich is of the utmost interest in the present connection. Signor Faelli has found out

feebly the note which it emits will be audi- stuff-are to be strung along the seven miles a means of effectively preventing crystallizable at only a short distance. But the more of steel trestle between Wilson avenue and tion, and one, he says, which is just as vigorous and more abrupt the stroke the the Wells street bridge, to distrubute the applicable to sky-scrapers as to bridges or further the sound will travel. A spark motive power to the trolley rails of the ordinary machinery. always proceeds from the gap opened in an new road. Two carloads of cable wound The subject had engaged his attention on giant spools have already been received while he was yet in this country, but it was is made. And simultaneously a few waves and stored near the Fullerton avenue power only on his native soil that he was able to are communicated to the surrounding ether. house ready for laying when the Northwestdevote that study to it which has finally ern structure has been coupled up with the resulted in success Union loop.

"Tired" Bridges Collapse. Aluminum, so recently classed with the A bridge at Setro Ponente, about ten miles semi-precious metals, on account of the to the north of Genoa, collapsed on three cost of its production, displaces its copper different occasions within a dozen years. rival on the new road because of its cheap-Another bridge near Pavia had only just ness. Copper has almost doubled in price been constructed and was being tested when within a twelvemonth, while the lighter it snapped in the middle and nearly 200 permetal has dropped a shade in the scale. If the Northwestern had equipped its structure sons ran the risk of being drowned. Both were metal bridges, into the construction of similar to those which carry the electricity which steel supports largely entered. Over on the South Side, Metropolitan and Lake the former bridge a heavy railroad traffic daily passed, and the latter was parallel and street lines. quite close to a stone bridge used exclusively

James R. Chapman, the electrical engineer in charge of the new road, says aluminum for goods trains. will carry the electric load just as well as Signor Faelli's reasoning was that crystalcopper would and will take less money out lization of the steel had begun in both cases

of the stockholders' pockets. He said: and that, at least in part, it must have been "After copper, aluminum is the best condue to the shock or vibration caused by the ductor among the cheaper metals. A poor great railroad traffic. On this hypothesis he conductor consumes and wastes the current started to study the exact nature of orystallization and the remedy that might be apcommercially impossible. An aluminum wire plied to it. "Steel," argued the engineer, obviously on the borderland of crystallization. It is, however, the metal which, from equal loads the aluminum wire must be its wonderful quality of tenaoity, is most ap plicable to the general run of metallic struc ductor. The best iron wire would have to tures. That very tenacity is mainly due to a alight admixture of carbon. And the action of the carbon can only be to change the ordinary molecular structure of the original iron. The effect of vibration consequently can only be to disturb the molecular arrangement produced by the carbon. aluminum at approximately 30 cents a pound property of tenacity is then lost, and the re-

and copper at 18 cents, the economy of employing aluminum is evident. It has the additional advantages of being lighter to handle and of being non-corrosive. Until a Chicago man invented a solder for

aluminum a perfect joint between two by endeavoring to find something which by pieces of aluminum cable was impossible, admixture with crucible iron would prevent coording to Mr. Chapman. There are three oxydation. On this he has had much sucolders manufactured by eastern firms, but cess. He hopes to take out patents on his all of them deteriorate with age and require discoveries in the matter, and is conserenewing at intervals. Henry Gronimus, a quently not yet ready to make it public. steamfitter living at 9 Rees street, is the But the subject wherein he has achieved man who found the right mixture of anveritable triumph, and which is now for imony, zinc, tin and various other metals. the first time published in the present Mr. Chapman believes the Gronimus solder | article, namely, the solution of the mystery s nearly perfect and the inventor has been of crystallization, was due at the outset to engaged to splice all the big supply wires a mere accident. of the system. The Gronimus solder, Mr. Chapman thinks, will give a new impetus Pavia one day a few months ago he heard to the manufacture of cooking utensils of the knight of the razor grow vehemently aluminum by providing for satisfactory abusive because his best blade would not do joints-heretofore the weak point in alumi-

The white metal is replacing copper in a was in the presence of a similar phenomethousand electrical machines, wherever non, and it set him thinking. It is a long great tensile strength and conductivity in time since it was first observed that a high small space is not absolutely necessary. It grade razor sometimes gives out, and that is used in the gasoline engines and electric all the stropping in the world and all the motors of horseless carriages. More than coaxing will not induce it to cut a single hair. case is "tired." They put it away on a shelf cigar cases, tollet articles and for a month or two, and on trying it after the air. His method, however, though ef- household utensils. If time is given, it will that period of rest they find that it has refective, is at present slow, and Chunder be possible to order almost anything from covered all its pristine worth.

of perpetually trying and of the hard metals. All the world learned with shudders of horror the dramatic details of that tragic catastrophe, when on a stormy Christmas eve the Tay bridge opened in its center and a trainful of holiday passengers lighting power of the bridge. For lofty buildings into which steel largely was precipitated to an awful doom. The enters, and for ordinary mechanical machinstorm had only a trifling share in the disery, the device can be applied without The number of creditors seems to be legion

> trouble. Signor Faelli is sure to be greeted by American scientists with all the enthusiasm given out, it is said that the unsecured debts and encouragement which they lavish on of the exposition will aggregate about \$98,those who do great things for the progress of civilization.

What American Engineers Think. William Kent," M. E., associate editor of the Engineering News, was asked for his opinion concerning Signor Faelli's discovery of a method for counteracting crystallization of steel. Mr. Kent said:

"I am not acquainted with Signor Faelli, but his invention is certainly within the bounds of possibility. It is so very simple that a trial could easily be made of it. When he comes to this country 1 could suggest several very interesting experiments which he could make with his process. If it is all

he claims for it it will be of the utmost importance. Frederick Hobart, associate editor of the Engineering and Mining Journal, expressed himself in almost precisely the same terms as Mr. Kent. He did not think it impossible and is very desirous of seeing it tried, because, as he said, if its principle was a true

one, it would have a wide application in the industrial arts. He suggested obtaining the opinion of the engineering department of olumbia university. How Bridges Collapse.

This was done, A Columbia professor, who

yould not allow his name to be mentioned. however, said that the phenomenon of crystallization was one which was the subject of great deal of painstaking study on the part of the iron constructors. He pointed out the great disasters of the Tay bridge in Scot-"lies land and the Ashtabula bridge in Ohio as instances of how important it is that no flaws

be present in bridge work. That each of hese was due to some such effect was unloubtedly true, and that the constructors of each of the bridges thought so themselves that each of them committed suicide soon after the two disasters took place.

The

sult in the new disposition of the atoms is

How He Began to Search.

The Italian engineer started his researches

termed by us crystallization."

But he said, in the first place, that no arge iron contract should be carried through proper party to accompany and distribute unless the contractor was perfectly sure of the soundness of every piece of the work. If crystallization was present in a bridge it

first place. Therefore, Signor Faelli's dis- ing company as guards upon the grounds, covery would be applicable not so much to while the other members of the party have esting and repairing structures already as would for testing parts of the structures

before they were placed in position. He also did not think the process impossible. and said he could suggest a series of experiments which would prove its extreme ef ficacy.

You never know what form of blood polson

will follow constipation. Keep the liver clean by using DeWitt's Little Early Risers and you will avoid trouble. They are Awaiting his turn in a barber's shop in famous little pills for constipation and liver and bowel troubles.

abusive because his best blade would not do its ordinary work. In America he had heard barbers talk of a "tired razor," and here he was in the presence of a similar phenome-non, and it set him thinking. It is a long time since it was first observed that a high grade razor sometimes gives out, and that all the stropping in the world and all the coaxing will not induce it to cut a single hair. Barbers say that the razor in that case is "tired." They put it away on a shelf for a month or two, and on trying it after that period of rest they find that it has re-covered all its pristine worth. Signor Faelli jumped at the conclusion Quarrel Between Chicago Editors

steel rods and bars it will be sufficient to in full blast. All the gates with the exceprun a slight coll of wire round the center tion of those on Manderson street have been joints and to establish an electric current closed against pedestrians. These, however, in these coils by connecting them with the are doing a good business, as through them pass all the employes, the visitors and those parties who have claims which they seek to press against the exposition association.

> and they appear to be on the increase. While an official statement has not been

000. Of this sum, it is stated that about \$50,000 is due laborers and for material for

tionists propose to try again to obtain conthe month of October. Scores of suits have trol of the Magdalena river, but the governbeen commenced and more are being brought ment troops on the steamers Samper and each day, nearly all of which are accom-Manuela Ayecardi are actively watching their panied by injunction proceedings to restrain movements and seeking to prevent their sucthe Chicago Wrecking company from tearing down the main buildings which it pur-2665 Between Buena Ventura and Bogota the chased, and on which it has made a partial and wires are interrupted and nothing is

payment. In all the main buildings around the main

departments, but it is believed the state of court many men are at work removing the affairs is serious exhibits. At this time the Manufacturers The steamer Laboget has arrived with 100 and the Agricultural buildings are pretty recruits to reinforce the Colombian regiment well cleared of their contents. In the other buildings the exhibits are being boxed and here. General Serria left on the Boyace for

carted away as rapidly as possible. At the cruise along the coast and to ports in the rate at which the buildings are being cleared all the exhibits will be removed by the lepartments.

Panama continues quiet and there is no middle of next week. Just when the wrecking company will begin tearing down fear whatever of disturbances in this section of the republic. the big buildings is uncertain. However, it is pretty certain that little will be done until after some of the injunction cases FOLKESTONE, England, Nov. 2 .- The

have been disposed of in court. Italian bark Bersagliere, Captain Kost, The guards and gatemen are the latest bound from Hamburg for Pensacola, was to consider the bringing of suits to recover captured off here today after an exciting their wages. A plan is under consideration by them now, and if it matures a meeting o chase by a tug, on board of which were

all of these creditors will be called within a day or two. The plan is to assign all the claims to one man and then let him bring his action in district court, at same time attaching everything in sight supplementing this with an injunction to prevent the wrecking company from tearing down or removing any of the buildings which it purchased from the exposition,

Indians Go Home.

The Indians have all gone home. The Elkhorn hauled them out Wednesday on a special. They will be taken to Rushville by train horseback or in wagons. George W. Gaince, who had charge of them during the summer. was designated by Inspector Jenkins as the them among the bands to which they belong. All the cowboys and rough riders remain

been employed by persons having building

Most of the Midway people have left the city; still there are a number living down town until they can straighten out their financial affairs, after which they will scat

up a big company for the Paris exposition. has been taken off and a good many of the

iron rails removed. The gas company is digging up its pipes which it laid for the Transmississippi expo. | round toe, all with heavy flexible soles, sition and which have since remained in the go toward making up the grandest \$3.50 ground. The Missouri Pacific railway people are opening up their tracks which run ever seen.

on the north and south side of the court, and in a couple of days will be able to set cars in back of the big buildings in order that the heavy exhibits may be loaded without hauling them down to the depots in wagons. At the engine house the work of dismantling is well under way. The engines are being taken down as rapidly as possible and So Many People

victories over Hernandez and the former's

Mutual and Equitable Give Up.

Equitable life insurance companies of New

York have notified the government that they

have given up the intention of applying for

readmission to do business in Germany and

BERLIN, Nov. 2 .- Both the Mutual and

government is becoming well established.

Have headaches that are due to the over tasked eyes-Eye helps that help and relieve are the kind we have been furnishing -Our optical department ls in charge of a competent and practical optician who will examine your eyes free of charge-We guarantee satisfactory

THE ALOE & PENFOLD CO., Leading Scientific Opticians. 1408 Farnam. OMAHA. **OPPOSITE PAXTON HOTEL.** 

work.

Exposition Planos-

For a few days you can have a chance at these fine instruments-we say a few days, for there are only a few of the planos and once seen the bargain is so apparent that buyers are early to take advantage-the same rule holds good on the Midway planos, while the prices we make are very easy-with easier terms yet. These instruments can now be seen at our store room on Douglas street.

A. HOSPE, 1513 Douglas. Music and Art.

# Women's Double Soles-

This is double sole weather-the woman who has always worn thin turn soles doesn't know what she has missed -ask any woman who is properly fitted set around the beautiful little sheet of water to a double sole and she says they are solid comfort-the new swinging last, and also the straighter one, with broad, line of women's welts you or we have



Drexel Shoe Co., Omaha's Up-to-date Shoe House, 1419 FARNAM STREET.

was evinced by the remarkable coincidence and from there they will go to Pine Ridge on

The two Mattox brothers, Dick and Ernest must have been in the pieces of steel in the have been employed by the Chicago Wreck.

to move.

ter. Today the Streets of Cairo and the Hagenback people got away. Colonel Ninci will spend a few weeks here, after which he will leave for Egypt, where he will gather

## The work of destroying the lagoon has commenced. The staff that covered the posts