## ENGINEERING INVENTIONS.

 A car coupling has been patented by Mr. Fred Tiedt. Sr., of Euclid, Minn. It is a double posing coupler of like pattern, and with provision for posing coupler of like pattern, and with provision forcoupling with the ordinary link drawhead without coaphing whe linke or
of the improvement.
A lubricator has been patented by Mr. Patrick Brownley, of St. John, New Brunswick, Canada Patrick Brownley, of st. Jonn, New Brunswick, Canaua.
It it a dapted for use in connection with the steam
chests of locomotive, hoisting, and other engines, and is made not to depend upon suction or the formation of a vacuum for 'the proper operation of the lubricator

A car coupling attachment has been
patented by Mr. Stephen D. Smith, of Spotswood, N. patented by Mr. Stephen D. Smith, of Spotswood, N.
J. It consists of a folding frame carrying a lever, a J. It consists of a folding frame carrying a lever, a
nose being pivotally mounted within the frame, and ar ranged to support the free end of the outer coupling link and be held in position by the lever, making a
"three link coupling," which may be coupled without "three ink coupling,", which may
trainmen going betweenthe cars.

## agricultural invention.

A planter and drill has been patented by Mr. Ruseell Brock, of Gladstone, ohio. This invenclear the soil of weeds in advance of the shovel, pro.
vide means for dropping the eeed at regular intervals vide means for dropping the seed
and cover the seed when dropped.

## miscellaneous inventions.

A faucet has been patented by Mr George W. Aldrich, of Brooklyn, N. Y. It has a loose removable and revoluble valve eupport or seat, of spiaer
iike or open work construction, within the adjustable elazstic ball valve, preferably of rubber.
A key hole guard has been patented by Mr. Alfred J. Urlin, of Misoula, Montana Ter.
This invention provides alide block preventing persons seeing through the keyhole, or the admission of cold air, etc., and also preventing the key from being
from the outside, or from falling out of the lock.
An explosive compound has been pa tented by Mr. Lucien G. Heusschen, of Paris, France It is made with coal oil or naphthaline and glycerine mixed with nitrate of potash or soda, suphuric acid and
sulphate of iron, together with carbonaceous matter, a carbonized tan or sawdust, and also sulphur.
A reel has been patented Mr. Frederick Eitapenc, of Oneonta, N. Y. It is intended more particularly for nolding lane from injury during transportation or shipment the invention covering certain novel features of contruction and combinations of parts.
A jail window has been patented by Donald McDonald, of Louisville, Ky. Combined with gratings set in grooved stones is a hinged or swinging
sash, with connecting rod and operating cord, to pre sash, with connecting rod and operating cord, to pre-
vent tools and other things being handed in to prisoners, vent tools and other things being handed in to prison
while providing for the admission of light and air.
A tablet binder has been patented by Mr. William B. Pearson, of Jacksonville, Ill. Com-
bined with covers and a flexible back is a metallic strip connected to the back and formed with a lug or ear. folding clip and side clips, it being feasible to use
An oven door has been patented by Mr. John R. Conrad, of Long Pine, Neb. It has a T shaped opening covered with graduated transparen
material, a securing plate and a socket in which is a material, a securing plate and a socket in which is a oven, and
the door.
A pegging jack has been patented by Mr. Nathaniel Kinney, of Amity, Democracy P. O.
Ohio. It is made in sections so connected that the upper section carrying the shoe clamp may be raised upper section carrying the shoe clamp may be raised
and lowered to adapt it to different heights, the invention covering various novel featuresof constructionand arrangement $n f$ parts.
A longitudinally expanding roller has been patented by Mr. Arnold W. Schlichte, of New Yor' City. It has sheathing plates arranged to be
moved backward and forward upon the face of the moved backward and forward upon the face of the
roller, the plates being gradually drawn outward as the roller moves forward, and rapidly forced in
they arrive at a certain predetermined point.

An elevator gate has been patented by Mr. Eugene F. Hardin, of Liccoln, Neb. It is fitted th slide in vertical guides fixed to the side posts at the
shaft opening, these posts being hollow to receive weights, making a simple and effective safety gat which will be opened automatically by the rising carriage, and closed automatically as the carriage farthe
A gate has been patented by Mr. Gus H. Ingersoll, of Franktown, Col. It is adapted to b opened and closed by the wheels of passing vehicles, o may be opened from the vehicle while horses are travel-
ing either way toward the gate, and may be automatically closed behind the vehicle, the invention coverin various novel features for the making of a simple and inexpensive gate.

An egg beater and mixer combined has been patented by Mr. Louis Rosenkranz, of Rhine volved beaters are carried around a central shaft to cut and agitate the material in the body of the receptacte,
elevating it aloo from the bottom toward the top, the action of the apparatus being suck that it not only beat the material, but thoroughly mixes it at the same time
A numbering head for printing presses has been patented by Mr. John G. Sauer, of New York
City. It is made with a main casing and inner frame City. It is made with a main casing and inner frame
carrying the nombering disks, arranged to receive au
out and in movement in the main casing from coutact with the platen of the press, thus turning the numbering disks for co
they are printed.

A shutter fastener has been patented by Mr. James B. Kelly, of Canton, Miss. It is an ef-
fective fastening both for the blinds and the window fective fastening both for the blinds and the window,
whict cannot be tampered with from the outside, and which cannot be tampered with from the outside, and when the blinds are thrown open the device swings
with the blinds out of the way, while by it the blinds with the blinds out of the way, while by it the blinds
may be held closed in a convenient manner, both when may be held closed in a convenient ma
the window is raised and when closed.
A mouthpiece for speaking tubes has been patented by. Mr. Patrick McGunnigle, of New York City. It is composed of two main parts connected together back of the bell by a lap joint, in such way hat the shaft and whistle have their axis at the diameter of the mouthpiece, and thus avoid hinges and
other details of construction of the ordinary form onthpiece.
A machine for sharpening and gumming saws has been patented by Mr. George P. Saltenberer, of Hamburg, Ark. It is for use with gin saws,
and has reciprocating files which operate simultaand has reciprocating files which operate simulta-
neously and are drawn back out of contact with the saw neously and are drawn back out of contact with the saw
teeth at the moment when the saws are being turned, the device being readily changed from a saw sharpener to a saw gummer, and being very rapid and efficient in operation.
A wagon brake lever has been patented by Mr. George J. Riblet, Sr., of Shinnston, West Va. A lever is fulcrumed on the brake hand lever, engaging with one end a fixed segment, a spring lever fulcrumed on the brake hand lever, provided with a segmental gear
wheel arm, meshing into a segmental gear wheel arm wheel arm, meshing into a segmental gear wheel arm
formed on the other lever, making a lock for the lever of a wagon brake in which the lever is firmly held in lace when the brakes are applied.

## SCIENTIFIC AMERICAN

BUILDING EDITION

## december number.

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## ©pecial.

## A NEW MINISTERIAL EXPERIENCE.

One year ago last December the pastor of a church in
Philadelphia was forced to surrender his pulpit. and acting on his physician's advice, with his young wife
sounht the warmer climate of Florida. Both were consouyht the warmer climate of Florida. Both were con-
sumptive, and when it became evident that the young minister must relinquish a futurethat promised so much, he was broken lin spirit. Together these two aftlicted persons traveled toward the milder latitudes. It seemed
a journey to death. Nothing more pathetic has been Journey to death. Nothing more pathetic has been
seen since Charles and Mary Lamb set out hand in hand and with tearful eyes, toward the madhouse to which they had self-condemned themselves. The partingfrom
their friends and parishioners at the rsilroadstation was affecting in the highest degree. Several long, weary was awatted. It came not. Both man and wife gradually grew weaker. The little cottage they had taken at Jacksonville flnally began to lack necessary comforts. A
small negro servant had to be discharged because sh small negro servant had to be discharged because she
could no longer be paid. Then the despairing young could no longer be paid. Then the despairing young
wife took to her bec, and rapidly grew worse. One good lady assumed that death was inevitable, and hoped only to make the end as painless as possible. In her mission of kindness she encountered a hale old gentleman who,
after he had given her a ten dollar note, added: " 1 will fter he had given her a ten dollar note, added: " 1 will
o more. I will send that unfortunate woman my Comcolds colds or throat affections; but 1 know what it can do
even in desperate cases." In a few minutes he was ready, and accompanied the noble hearted lady to the
house of suffering. Hot water was .readily. procurable, Compound Oxpen, evolved from one of Drs Starker th Palen's Home Treatments. At the end of a week notable improvement in the woman's condition set in. The end
of another week's treatment found her seated in a chair Meanwhile f key as to the Compound Oxygen, two Home Treatments had arrived, and the minister began to give some atten-
tion to his own case. Friends gathered around them amid the Land of Oranges, and now they are both in a pulpit and his good wife the care of her own home. A valuable and Interesting pamphlet on the methods
of manufacture and of treatment by Compound Oxygen is manufacture and of treatment by Compound Oxygen
is sent all who desire it, by Drs. Starkey \& Palen,
1529 Arch Street, Philadelphia.

## Special ${ }^{2}$ Rotice.

The following is a copo of of testituonial received b Navy Buard, New Y. York, July $\mathbf{5 , 1 8 8 7 .}$
a to your order of the 9th of June (a SIR:-In obedience to your order of the 9th of June (a
copy hereunto attached), to make a careful and thor ougn test of the Star Machine Co.'s Improved Portable
Forge, the Board met on June 28 and proceeded to carry out said order.
Forge No. 8
hosen for trial, it being circular appended, was the one the cognizance of the Bureau of Steam Engineering, fo ise on board of vessels.
After a fire had been well under way, two pieces of
ron, two inches in diameter, were brought to a welding heat in five (5) minutes and a clean, smooth weld made
The blast is excellent and continuous; the frame the forge weil braced, and set screws are so arranged as In conclusi lost motion of the shaft and other parts. able Forge that has come under our notice. and w
[Signea] JoHN L. D. Bothwick, $\quad$ Chief Enoineer, $\mathbf{U}$ s. N . Very respect fully. J. J. BARRY, $\quad$ Passed Ass't Engineer, U. S. $N$ F. C. BOWERS, $\underset{A s s^{\prime} t}{ }$ Engineer, U. S. N.

## Bancrnft Gherardi. O. S. Navy, Commandino $\mathbf{~ U . ~ S . ~ N a v y ~ Y a r d , ~}$ <br> New York.

A copy of the original report can be seen at our office,
obs. 1188 and 200 Terrace, Buffalo, N. $\mathbf{Y}$.
$\mathfrak{P B u s i n e s s}$ and Personal.
The charge for Insertion under thas head is One Dollar a linejor each insertion; about eight words to a line. as early as Thursday morning to appear in next is8ue.

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at combination rates.

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Benj. R. Western, 'Treasurer. Best of r
The Sturtevant Mill (a rock crusher and pulverizer combined) is specially adapted to grinding phosphate
cock, cement, ores, and all kinds of refractory material and is meeting with ready sale in this country and in Europe. Full information, with circulars, etc., can be ing, Boston, Mass.
Engine lathes, chucks, planers, drills, shapers, press es, shears, etc. Machine and blacksmith shop equipment
a specialty. Send for special prices and cuts, stating exactly what is required. W. E. Drew, axt., S.C. Horsait Mch. Co., Manchester, N. H
Air compressor, rock drills. Jas. Clayton, 43 Dey St.
Link Belting (malleable iron, detachable).-Used for transmission of power and in improved appliances
for handling any material in bulk or package. Send for catalogue. Link Belt Machinery Co., Chicago.
 specialty. American Machinery Co.. Cleveland, $\mathbf{0}$.
Vंery thick walrus, hippopotamus, giraffe, elephant,
and buffalo leather for polishing metals. Greene, Tweed and bufalo leather for polishing m
The Milwaukee Cement Co., Milwaukee, Wisconsin, have recently erected a $20^{\prime \prime}$ Sturtevant Mill for grinding
their cement, which is doing wonderful work. Full information, with crrculars, etc., can be had by addressin
Bturtevant Mill Co., 89 Mwson Building, Boston, Mass.

Woodworking machinery, planers and matchers, Woodworking machinery, planers and matchers,
moulders, scroli and band saws, tenoners. mortisers, sam.
clapboard and shingle mills. saws, belting, shafting. and mill supplies. Send for catalogues and obtain our prices, W. E.
chester, N. H.
Among the fertilizer works using the Sturtevant Mill Paciflc Guano Co.. Woods Holl, Mass.; Walton \& Whann Co., Wilmington, Del.; Etiwan Phosphate Co., Charleston, S. C.: Bowker Fertilizer Co., Flizabethport.
N. J., all of whom are greatly pleased with the work one, and consider it th
Large and small punch presses and machine tools. M. York, Cleveland, 0.

Wanted by a Brick Manufacturing Co.-A good ddress Silver Plating without a battery.-Silver held in solution. No acids, no quicksilver. Quick, sure, cheap.
Send for circular. R. T. Ladd, 46 Beekman St., New York. For combination lathe chucks, with bodies and jaws eaming centers of shafts $3^{\prime \prime}$ and less diameter; taps, dies, thread tools, small bench drills, for amateurs and machinists : and for reliable automatic grain weizhers,
address the Pratt \& Whitney Cu., Hartford, Conn.,

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Engines and boilers, port. and sta., hor. and vert.
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dol dnlar in this line. W. E. Drew, agt., S. C. Forsaith

The Kansas Coal and Mining. Co., Kansas City, Mo., have recently erected a $12^{\prime \prime}$ Sturtevant Mill for grinding with it, considering it the best machine made for this

A tried business man, one familiar with the sale of machinery, is wanted to take entire charge of a largeand rowing business in a thriving city on the Pacifc coast. An applicant possessed of capital would be offered an
interest in the house. The position will be given to a ddress, with references and full statement of qualiflations and experience, "Machinery," P. o. box T73, New York.
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Burnham's New Improved Turbine. Sold at cost of manufacturing and advertising. Address York, Pa.
The St. Louis Smelting and Refining Co., St. Louis, Mo., are using a $12^{\prime \prime}$ Sturterant Mill for grinding their
res, mattes, etc., and report that they get a product of en tons per hour from the mill to pass a 10 -mesh
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Wanted-A foreman for a foundry job shop. Aboat moulders employed. Address, stating age, refererce,
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The Railroad Gazette, handsomely illustrated, published weekly. at 73 Broadway, New York. Specimen
copies free. Send for catalogue of railroad bonks. The Knowles Steam Pump Works, 113 Federal St., Boston, and 93 Liberty St., New York, have just is-
ued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be
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science. Address Munn \& Co.. Publishers, New York. The Holly Manufacturng Co., of Lockport, N. Y., will send their pamphlet, describing water works ma-
chinerg. and containing reports of tests, on application. Curtis Pressure Regulator and Steam Trap. See p. 364 Billings' Patent Breech-loading Single Barrel Shotng Single B
We are sole manufacturers of the Fibrous Asbestos sabestos goods of all kinds. The Chalmers-Spence Co., 19 and 421 East 8 th Street, New York.
Unversal \& Independent2 Jaw Chucks for brass work,
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Greenwood \& Co., Rochester, N.Y. See illus. adv., p.28.

Graphite Lubricating Co., Jersey City, N. J. Graph Quints' patent automatic steam engine governor Correspondence solicited from manufacturers of throt tie zovernor eng
Street, New Yurk

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A clergyman, after years of suffering from that loath some disease, catarrh, and vainly trying every known
remedy, at last found a prescription which completely cured and saved him from death. Any sufferer from this dreadful disease sending a self-addressed stampe
envelope to Prof. J. A. Lawrence, 212 East $9 t h$ St, Ne York, will receive the recipe free of charge.
Lathes
ad. p. 349.

## Graphite Bushings.-Put them on all loose pulleys.

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We have here one of the most useful, as well as the most creditable, contributions which have ever been made to the technical literature of this country. Not only is it thorough and complete, but it stands almost of the kind in our literature which does anything more than dip here and there into this highly and widely important subject. The want of such a boo has been long and severely felt; and this eminent house, which has done so much for the diversifed industries
of this country, in its publications, has, we venture to say, never done a better survice than by the publica tion of this treatise. The great work of Dr. Kar schaedier, upon which it is largely based, is well known plete and reliable book on fixed oils, animal, vegetable and mineral, published in Europe; but Mr. Brannt, the accomplished American editor, has added largely to the work of Dr. Schaedler, especially in the departments of volatile oils and lubricants. The matter of $\mathbf{M r}$ Brannthas been collected from widely extended sources, and treats very thoroughly those olls which are pecu liarly American, whether fixed or volatile, more espe cially cotton seed, lard, peppermint, sassafras, birch thc. The title of this volume conveys a fair idea of
the contentes, but we would adrice our seaciers that he publishers have adopted a system of issuing with each of their new and important publication mens of the illustrations. Such a circular of this book can be had on application to Messrs. Henry Carey Baird \& Co. There is one especial feature in the pub lications of this house to be highly commended, and it
is worthy of imitation by other publishers. We refer is worthy of imitation by other publishers. We refer
to their full tables of contents and to their ample indexes, which render all im

## 


(1) A. L. J. asks : 1. What will take rus rom finely polished steel, such as drawing instru of tin pntty, 8 of prepared buck's horn, and 25 of alcohol to a paste. Cleanse the article with this, -and finally rub with soft blotting paper. 2. What will prevent their rusting? A. You can preserve them by a coat of
colorless lacquer. 3. How to clean gun barrels of rust and keep them so? $A$. The gun can be cleaned by and keep them so? A. The gun can be cleaned by
stopping the opening and pouring in mercury, which, on stopping the opening and pouring in mercury, which, o
shaking, will clean up the barrel. Thencoat with par affine. 4. A good cement for leather for patching shoes A. Make a rubber cement. See Scientific American SUPPLEMENT, No. 158, under " Cements.
(2) W. H. H. asks : 1. Are pumpkins a goor milk-producing food for cows, and have pumpkin make a rich food for cows, producing good milk, but not so much as with other kinds of food. They have a drying tendency, and should not be made an exclusive
diet under any circumstances. Plenty of hay, a little bran or meal, and a little pumpkin is a good receipt for late fall and winter fodder. 2. What is the best plant for stopping the washing of the banks of a stream plentyof it. 3. Is there any good grass for pasture that will thrive on sandy and gravelly bottom land, wher native blue grass will burn out in August? A. Try timo thy and clover mised.
(3) J. E. desires a recoipt for making a good blue black copying ink. Take of Aleppo galls, 80 ounces, sulphate of iron 3 ounces, sulphuric acid 70 minims, sulphate of indigo, thin paste, 4 drachms. Place the gall with the cloves in a gallon bottle, pour upon them the water and digest, shaking often, for a fortnight. Press and filter through paper into another gallon bottte. Next put in the sulphate of iron, dissolve it, add the acid, and shake briskly. Lastly add The indigo, mix well, and filter again through paper
(4) J. A. P.-We are not acquainted with the epecial variety of cough drops mentioned by you, but we wo nt article: Tincture of squills 2 ounces, camphorated wine of ipecac $1 /$ ounce, oil of wintergreen 4 drops sass ras 3 drops, and of anise seed oil, 2 drops. The above mixture is to be put into 5 pounds of candy which is just ready to take from the fire, and continue the boilng a little longer.
(5) S. O. H. asks whether the killing of alligators is an industry, if the hides are tanned and used to any great extent, and what per cent of so-called
alligator hides are genuine. A. It is an irregular occupation of quite a number, in many places along our much, a great many thousand are tanned every year. mitation skins are, however, much more numerous, being made largely of sheepskins and limitedy of split in imitation of alligator leather.
(6) T. M. S. asks: 1. What can I put my watch face to make it paint. See the articles on the paint in Scientiric American Supplement, Nos, 249 and 497. 2. What so lution will remove ink stains from carpets and blots rom paper? A. Use a solution of oxalic or citric acid, ollowed.in the case of the carpet,with coplouswashings with cold water. 3. How can I make a good, hard walk small cost, in the conntry? A. See the article on
Foot Walk Pavements," in Scientifio America Foot Walk Pavem
UPPLEMENT, No. 82
(7) J. H. D. asks for a receipt to remove aint from a wood carving without damagingthe wood, burning or scraping would ruin it. A. Mix part by veight of pearlash with 3 parts quick stone lime by laking the lime in water and then adding the pearlLay the above over the whole of the work required to be cleaned, with an old brush; let it remain 14 or 16 hours, when the paint can easily be scraped off.
(8) E. P. M. asks: What amount of oxygen, hydrogen, and carbon is there in steel? A. Steel contains no oxygen, save in the rust there of a minute portion of hydrogen. The elements of steel vary much to meet its special qualities. It contains carbon to the amount of from 0.1 of 1 per cent in soft or Bessemer to 2 per cent in high grade eels. In addition to the variations in carbon, it ma pave silicon and sulphur to the extent of one-tenth of per cent. A grade called manganese steel may hav per cent. A grade called manganese steel may have subject to rust from exposure to snow and rain. unless especially protected.
(9) W. C. P. asks: 1. Does paint or black japan injure the sound of a whistle or gong? A. use to thoroughly remove paint or black japan whistle or gong which cannot be taken down, and can only be reached by means of a ladder \& A. If you can
get at, the whistle to clean it, you certainly can take off the bell by unscrewing the nut on top, which will enable you also to unscrew the bell from the stud. Boil the bell in caustic soda or potash, which will d grate the varnish and allow it to be rubbed off.
(10) R. R. W. writes : I wish to move large building over ice which freezes from 2 to 338 feet. Will it be safe? A. Ice 8 inches thick will support heavy wagons and artillery. The crushing strength of ice varies from 327 to 1,000 pounds per square inch.
At the lowest figures this is 23 tons to a square footThis does not represent the bearing power of the ice covering water, in which case it becomes elastic under pressure, and may give way without crushing. A
building of moderate weight may readily be moved ver ice 3 feet thick, if properly set on runners of large bearing, and moved along at a fair pace. The only difficulty in such work arises from suspt_sion of the vork, when the weight might press the ice down in the vicinity of the building, and cause cracks which would
fiood the depressed surface, and possibly cause dis-
(11) H. R. E. writes: I have a fine Ar (11) H. R. E. Writes : I have a fine Arwithout being sharpened. How can I make it cut? A. Soak the stone in turpentine or naphtha for a few ays, when it will cut as new
(12) C. H. S. asks (1) how to make a trong joint with glue. A. Use new glue, and in applylet it dry; the pores of the wood with thin glue and trong glue. 2. How off, and glue it at the joint with A. Take of linseed oil 1 pint, rectifled spirits 4 ounces, oil of turpentine $1 / 3$ pint, powdered resin $11 / 6$ ounces. rose pink 3 6 ounce: mix. 3. A good cheap wood filler A. Boiled linseed oil 1 quart, turpentiue 3 quarts, cor starch 5 pounds, japan 1 quart, calcined magnesia 2
ounces; mix thoroughly. You can buy better pre pared fillers than you can make.
(13) C. A. D., Virginius, Col., writes : I would like to know the relative speed of an air compressor in high and low altitudes. Take, for example,
Rand drill compressor, running at the rate of 30 revolutions per minnte at sea level. Wonld it have to run faster at this altitude, it being 12,600 feet above sea level. A. At above elevation the atmosphere is but
two-thirds the density of the air at the sea level. Pamps
should run, at a speed of 45 revolutions per m . for
the volume of compressed air as computod for the sea
(14) G. H. W. asks in what way he can make a battery to run a single bell $2 / 8$ inches diameter by using a cast iron box $51 / 2$ inches wide, 834 inche oxide of copper at the bottom of the iron vessel, fill with strong caustic potash solution, and suspend in it horizontally a good sized zinc, preferably a thick plate 4 inches by 14 inches or thereabouts in
one wire to the zinc, the other to the iron.

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