## कppecial. <br> THE OLDEST METHODIST MINISTER IN PHILADELPHIA.


#### Abstract

"I am the youngest old man in New York," said the Hon. William E . Dodge, a short time before he died Mr. Dodge was indeed one of the sprightliest of ofd gen Mr. Dodge was indeed one of the sprightliest of old gen tremen. He was as active as most men of ffty, althoueh he was about seventy-five. Up to the time of his death, which came very suddenly, he was able to accomplish more work in a das than almost any of his partners or clerks could get through with. In Philadelphia lives anothe In Philadelphia lives another "young old man," on of the most venerable of Met hodist ministers. He is as active, as hearty, and as cheery as was Mr. Dodge. He is the Rev. Anthony Atwood, honored and beloved not is the Rev. Anthony Atwood, honored and beloved not only by Methodists, but by good people of every per- suasion. Mr. Atwood might pass for a man of about told the writer that he hardly expected to do much mor work, and that he thought a man of seventy might be considered to have rendered all the effective service he considered to have rendered all the effective service he would be capable of. Yet, since that time, Mr. Atwood man has accomplished. Some years ago he had a par tial stroke of paralysis, which for a while disturbed his general health. He also suffered from a bronchial diffi- culty which threatened to be serious. From both of these disabilities he has now entirely recorered with his snow-white hair. in its ample fullness, and his clear and ruddy complexion, he is the picture of a model patriarch, both in heaith and good nature. Although it is some time since Mr. Atwood has been in pastoral charge of a church, he preaches frequently, and is regularly at of a church, he preaches frequently, and is regularly at the Green Street Methodist Episcopal Church on Com- munion Sundays, taking part in the sacramental servmunion ice. The at his home, No. 809 North Seventeenth Street, Philadel


 former years."Well, Mr.
looking so vigorous and hearty; but years do not seen to make you an old man, and you appear to enjoy quite
"My health," said Mr. Atwood, "is all I can expect,
considering my age, which is now close to eighty-flve.
Since the stroke of paralysis which I had several years Since the stroke of paralysis which I had several yeare
ago, I have not been able to preach with my former ago, I have not been able to preach with my former
vigor. I'find that I am not capable of a prolonged pulpit effort as of old. Words do not follow my thoughts as
quickly as they used to. But with this exception I am "Wout as well as I have been for many years.
$" W h a d ~ t h a t ~ s t r o k e ~ o f ~ p a r a l v i s " ~$
ch I found had
were similarly been of great value to many others who were similarly
affected. I had for many years known Dr. Palen, of
In Messrs. Starkey \& Palen, who have done so much good with their Compound Oxygen, and I consulted him in
reference to my case. I took the treatment atthe office, which was then in Girard Street. At once I began to receive benefft. For some time. I visited the office regu-
larly and frequently. I took inhalations of the Oxygen until my health was so fully restored that I was in no
further need. It gave me a new vitality, restored my general health, and put my whole system in renewed good order""
"You had some bronchial difficulty, did you not, Mr.
Atwon?" "Yes; I had an irritation in my throat which was quite Compound Oxygen for this also, and was surprised no only to flnd the completeness of the relief it afforded me, but the readiness, with which it acted. I procured a
"Home Treatment" in" order to cure this bronchial slow to go away, as it is in the case of many clergymen who. after long years of pulpit service,are attacked with
soreness of the vocal organs. But I had occasion to use soren a small. portion of what was contained in the
onreatment." My throat became so much better that Treatment." My throat became so much better that
had no occasion again to resort to the use of Oxygen."
"And have you, since your recovery, had much occaAnd have you, since your recovery, had much occa-
ion to use this remedy, Mr. Atwood?" "Not a regular thing, at all; only at long intervals.
Once in a while, if I need a general toning up of my sysem, I call at the new office of Drs. Starkey \& Palen-
which, by the way, is an exceedingly beautiful and con which, by the way, is an exceedingly beautiful and con
venient place-and I take a few inhalations. From this alwassreceive benefit and strength."
"You are, then, a frm believer
" Yes, very, very frm. You may say that I most heart ly and thoroughly approve the treatment, and indorse Drs. Starkey \& Palen as gentlemen whom I have known
for years, physicians of repute and ability, in whom I ave entire confldence. They with invalids have been brought to health by this means. I
am glad, too, that people are becoming more generally am glad, too, that pe
The experience of Mr. Atwood is an evidence that the virtues of Compound Oxygen are not only for the ad
vantage of the ycoung and those in middle life. There are many other instances on record in which persons ad-
vanced in years have received, by means of this great For further reference to these and for better a acquaint STARKEY \& PALEN, 1529 Arch Street, Philadelphia, Pa. or their pamphlet treatise, which will be freely maile

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gage in manufacturing cutlery. Also want a hardware specialty to manufacture. Keokuk Cutlery Co., Keokuk

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| :---: |

(1) J. W. asks : 1. Will a brass pipe ex pand in length as a pressure of steam is gradually let
into it ? A. Yes. 2. How much in length willa brass pipe 4 feet long by 1 inch inside diameter expand as steam pressure in it rises from 0 to 30 pounds, also 69 pounds? A. $0 \cdot 1$ inch and 0.114 inch respectively. 3. Is
there any metal, as a rod $1 /$ inch diameter, which, if placed within the pipe, will contract or remain sta-
pater tionary, or nearly so, as the pressure rises? A. None.
4. Will a large brass pipe expand more'or less than small one? A. The same
(2) H. C. M. asks: What will harden soft spots in a grindstone and leave it so it will wear away evenly? A. We know
trate and harden the spots
(3) F. A. W. says: I have made a Voss-Holtz electrical machine with a revolving plate 8 inches in diameter. It will when in good working
order give a 2 inch spark, but is constantly changing order give a 2 inch spark, but is constantly changing
or rather reversing its poles. I had the same experi or rather reversing its poles. I had the same experi
ence with a simple Holtz and also with a wimshurst machine. Kindly give reason and remedy through slight displacement of the armature or stationary plate

## that it ig free from liability to move.

(4) -J. P. A.-The extreme depth of Water in the Mersey River over the tunnel is, at high
ide, 90 feet. The averaze thickness of sold rock be
. tween the bed of the river and crown of the tunnel is 30 feet, and nowhere less than 25 . The height of the tunnel is 21 feet. The Nicaragua Canal would pass through a much healthier climate than the Panama
Canal; the obstacles would not be so stupendous the ine to be cut would be less, as Lake Nicaragna would be utilized; it would present a shorter line from the North A tlantic to the North Paciic ; but 1 would have to employ
both in men and money
(5) "Inquirer" asks the method of finding the height of a conical frustum containing20
ponnds of lead, the diameters of its faces being inches and 11 inches respectively. A. The volume of gravity of the metal being $11 \cdot 363$, and the weight of a cubic foot of distilled water at $0^{\circ} \mathrm{C}$. being $62 \cdot 418$
pounds, it is a simple calculation to fo find the number pounds, it is a simple calculation to find the number
of cubic inches of lead which will weigh the required number of pounds. This must then be put equal to the volume of a conical frustum which is given by
he following formula:

$$
v=\frac{1}{3} h\left(a^{1}+\sqrt{a^{1}} a^{3}+a^{3}\right)
$$

In which $a^{1}$ and $a^{3}$ are the respective bases and $h$ the height. The area of a circle being $\boldsymbol{\pi} \boldsymbol{r}^{2}$, we have all found the value of $v$ by the previous calculation. The equation may therefore be solved for $h$, giving us the
result desired. Or, the formula may be stated as fol ows, omitting the separate calculation of the areas the two circles

## $v=\frac{\mathrm{T}}{5} \pi h\left(r^{2}+r \mathrm{R}+\mathrm{R}^{2}\right)$

(6) R. M. C. asks for details of a 14 inch hollow wall, designed to keep out the damp. A inches wide between them, the outside casing being one brick, or 8 inches, in thickness ${ }^{8}$ and the inside cas ing half brick, or 4 inches. The bricks of each casing
are laid in the ordinary manner, either in the usual running bond or, if it is preferred, in Flemish bond. The two casings are connected together by the inser course in height and at distances apart of ubout 30 inches. Ties are manufactured for the purpose in va-
rious designs. The base of the wall is built solid ap from the footings to just above the ground line, where it is covered on top with a damp course of asphat or some other suitable material, impervious to
moisture. The casings are then built upon the asphalt misture. The casings are then beent upon the asphat
with the two inch space betwen them, forming a gutter to receive and carry away any water that may get in. This gatter is constructed with a slight fall o place over every window and door frame a strip of sheet lead or zinc of a width a little greater than that of the frame, so that any water which may fall
upon it shall drip off into the gutter below. A house upon it shall drip off into the yutter below. A house
built with hollow walls, properly constructed of good built with hollow walls, propeny
materials, will be perfectly dry.
(7) G. W. asks what it is that is put on paper, so, when you breathe on it, it will in a few
seconds blaze up in a fiame. A. Perhaps it may be phosphoras. Whatever it may be, our advice is to leave it alone. It cannot be a desirable article to have
around.
(8) E. C. M. says : In your issue of March 6. query No. 32, W. T. W. A. asks for a re-
nedy for ingrown nails. An excellent one, affording piece , a piece of glass or a file scrape along the top of the
nail untili it is very thin in a line with the toe ; then,
if the nail be too long, cut awav some of the middle part of the edige only. By these means the nail is
rendered elastic and yiclding and the corners are re. rendered elastic and yielding, and the corners are re-
lieved from the pressure that caused the pain and iniammation.
(9) A. B. asks what to wash lamp chimceys in so they will not crack. A. Place the chimneys in cold water, and then gradually heat until the boil-
ing point is reached then allow them to cool slowly. ing point is reached, then allow them to cool slowly.
By repeating this operation several times, the glass will' become thoroughly annealed, and no fear of
(10) G. S. asks: 1. What will sticls sheet lead to cardboard ? A. See list of "Cements " civen
Scievilicic Anerican Suppiemext. No. 158. 2. Thereany way to cure dreaming? A. Do not lie on our back, and be careful to keep your stomach in iied to them, so they will not turn over on their reams. 3. In what proportions is tincture of canthardes used for the hair, and how is it to be applied? . Scald black tea, 2 ounces, with 1 gallon of boiling water, strain, and add 3 ounces glycerine, tincture of
antharides $1 / 2$ ounce, bay rum 1 quart. Mix weil, and cantharides $1 / 2$ ounce, bay rum 1 quart. M
perfume. Apply by rubbing on the head.
(11) W. W. N. asks for the component arts of Leclanche battery porous cup and prism. A. anganese dioxide and carbon (graphite or powdered oke) with dust sifted out, are used about half and arts manganse cup. 52 of carbon 5 of arts manganese dioxide, 52 of carbon, 5 of gum lac,
and 3 of bisulphate of potash, is compressed by a ressure of 300 atmospheres, at $100^{\circ}$
(12) J. H.-Alum gives excellent results hen it has been found desirable to clarify muddy on in solution, but is not likely to be as successful clarifying agent.
(13) L. D. P. asks what to add to nickel olution of double sulphate and ammonia to throw will throw down the nickel itself? A. If the solution acid, any copper present will be precipitated by hydrogen sulphide. Ammonia sulphide will precipitate nickel. See any work on qualitative analysis.
(14) J. L. D. asks: What will take the
 nd not dissolve at a test of $110^{\circ}$ Fah. Should be tasteless. Try gum sandarac 1 pound,clear turpentine 6 ounces, ectified spirit ( 65 over proof) 3 pints; dissolve. India ubber cut in fine shreds and dissolved in carbon dipulphide or
(15) N. L. S. writes : How do minstrels e cork to blacken their faces and hands, and what akes it shine?
Cacao butter.
Oil of neroli..
6 grains.
5 drops.
Melt the cacao butter, add the lampblack, and while cooling make an intimate mixture, adding the perfume
(16) F. B. writes: In refinishing furniture, I know of no way to remove ink stains. Can you of salt and $1 / 2$ ounce of powdered salt of lemons. Drop of salt and $1 / 2$ ounce of powdered sat ons, and rub well
little of this misture on the stains, with a cork
cold water.
(17) Information desires the composiion used for making silicate slates. A. We should think they could be made with pulverized slate or quartz moistened to the consistency of a thick fiuid
with water glass, and colored with powdered charcoal or boneblack. Then apply with a brush like a paint
(18) A. L. Z. asks : What is the best method of collectinglvery fine, fiat, scaly gold from
an auriferous sandbank? A. Wash it through sluice an auriferous sandbank? A. Wash it through sluice
ways or troughs overmercury, and then distill the mercury, leaving the gold behind. Simple pan washing will
(19) W
W. H. T.The removal of super jlatories and by skin is possible both by means of de preparations of sulphide of barium or sulphide preparations of sulphide of barium or sulphide of ach hair root having to be killed separately.
(20) J. W. asks (1) whether the smoke of tobacco which has been filtered through cotton bat-
ting is rendered comparatively harmless. A. It is certing is rendered comparatively harmless. "A. It is cer
tainly rendered less poisonous, but the "comparative harmlessness" depends upon the individual. 2. How many candle power lamp of an incandescent electric lamp will be equal to a common gas fiame? A. An ordinary burner consuming 5 feet of the New York Gas Company's gas per hour gives a light equal to 23 can-
dles, while theordinary Edison incandescent lamp burns dles, while theordinary Edison incandescent lamp burns (21) J. F. writes - I 10 candes
(21) J. F. writes : I have in use porcelain enameled jacket kettles for melting beeswax
from which the enamel has come off partly; how can I from which the enamel has come off partly; how can I
repair the kettles? A. It is not likely that the defective portions can be repaired. The enameling is baked on portions can be repaired. The enameling is baked on
the iron, and so when broken cannot well be replaced unless the entire enamel is removed.
(22) E. F. S. writes : I wish to obtain normation on bluing iren so it will be durable ; some
iding bridle bits that are inlaid with silver. What process must I use ? A. We know of nothing hut heat
for bluing that will be permanent. The heat will also tarnish the silver inlaying. We can only recommen
(23) B. E T B.
iipe B. B. Asks (1) for the best highly adhesive, and that will stand considerable at. We are advised by one of the large stereo type makers that the paste is composed of the fol-
lowing ingredients: Water, flour, starch, gum arabic.
alum, and whiting. The best of flour and starch are to be used. These foregoing articles, excepting the whiting, are thoroughly mixed, and heated by steam.
When the mass is thoroughly homogeneous, sufficient When the mass is thoroughly homogeneous, sufficient
whiting is added to give stiffness. 2 . Some preparawhiting is added to give stiffness. 2. Some preparation that
Take of:

## Gum shellac Camphor... <br> Camphor Alcohol.

Dissolve and filter.
(24) G. O. asks whether there is any difference in the pressure on the slides of an engine engine runs over (as it is called), or the upper half crank stroke is from the cylinder, the whole pressure is down, while in the opposite direction it is upward. If the
slides are over and under the rod, as in a locomotive, the pressure is against the upper slide in runnin ahead, and vice verse
(25) F. A. G. asks the most practical way of driving a countershaft at right angle with main line, and on same level. A. Use a belt held at the desired angle by two iderer pulleys on verticial shaft.
They are sold by machinery dealers. Bevel friction They are sold by mach
pulleys are not reliable.
(26) E. E. R.-There is no blacking you can put on a stove to keep it blacked that will no
(27) J. D. B.-The refractive index of a few liquids is as follows: Water 1.336 , alcohol 1.372 , muriatic acid $1 \cdot 140$, nitric acid 1410 , sulphuric acia,
$1 \cdot 434$, olive oil 1470 , oil of turpentine 1475 , cajepu 1.434, olive oil 14770 , oil of turpentine 1475 , cajeput
oil 1483 , castor oil $1 \cdot 490$, beech nat oil $1 \cdot 500$, balsam copivi 1588 , Canada balsam 1.549 , oil of cloves 1.535 , 1.641 , sulphuret of carbon 1768 .
(28) H. E. H. asks: 1. Can a spring mo tor like those described in Scientipic American Sur Plement, Nos. $142,146,147,148$, and 150 , be made to
propel a small boat (a Barnegat sneak boat about 10 propel a small boat (a Barnegat sneak boat about 10
or 12 feet long)? A. Probably a spring motor could be arranged to drive a small boat but we think it would be easier to row the boat than $t$
wind the motor. 2. Can you give me the address of any one that could make them for me? A. We do not know one that could make them for me? A. Wedo not know
of any one regularly engaged in the manufacture of spring motors. 3. Do you think the motor advertised by the Electro-Dynamic Company of Philadelphia in
Scieviricic Anrrican Export Eortion for Septem ber, 1885 , page 206, would do? Io want to use this boat for fishing and hunting. A. It is hardly large enough for your purpose, but possibly the same company can
provide you with an electric motor which woold
(29) E. G. H. asks: 1. What will be the result if a rubber balloon is partly filled with air, and a vacuum produced arond it ? A. The air in
the bag will expand. 2 . A recipe for a good liquid glue for small woodwork, inlaid work, etc. A. Se
(30) J. G. writes: 1. Can you give me usual proportions of each article used in compound
ing benzine drier, also of turpentine drier ? A. The ing benzine drier, also of turpentine drier? A. The
addition of certain chemical substances rich in oxygen, adation of certain chemical substances rich in oxygen,
such as borate of manamese, litharge, minium, etc.,
withturpentine constitutes driers. The benzine is said to be used in partially replacing the turpentine whe the so-called benzine drier is made. The proportions vary with different manufacturers, and it is impossible to obtain exact formulas. See Condit's Painting
and Painters' Materials. 2. What is the simplest and cheapest method you know of for lighting gas by electricity for family use on small scale, say 4 to 8 burners? What appiances a yol nnow of for faciil-
tating ase of personal electricity in lighting gas with the finger after collecting electricity by friction of feet on a carpet? A. We knowof no simple electric lighter a asked for ; the ordinary electric lighter is covered by
numerous patents. No appliances are used for faciil. numerous patents. No appliances are used for faciil-
tating use of personal electricity $;$ shuffing the feet over a woolen carpet will enable any one to thus ligh
(31) P. H.-Chimneys with draught elbow on top draw only when the wind blows ; at
other times the draught elbow is of no value. Chim neys may be in height from 20 to 100 times their interior diameter, and should ordinarily be of equal interior size throughout.
(32) G. B. C. asks the best way to harden large steel plates, so as to keep them from springing. A. We know of no way of hardening larg plates without warping. The usual way is
the temper and straighten with the hammer.
(33) C. E. K. writes: Can telegraph operator's paralysis, in any stage, be remedied or per-
manently curred by any doctor, or can it be done with gymnastic exercises in any form? A. What your arm paralysis, caused by long and over-fatiguing This almost surely will increase if the same use is continued. Medicine can be of but little service. Your right hand and arm must have rest. You can do this bylearning to use the left; it takes time and patience, but it can be done, and is well worth the doing, for (34) C. R. W. asks information with re gard to the curing of hickory, oak, and ash timber, to
eeppit free from the worms. A. Your cheapestmetho is to saturate the timber with a solution of bichloride of mercury (corrosive sublimate). Make a tight box of
sufficient size, pack in the timber, and pour in the sosufficient size, pack in the timber, and pour in the so-
lation so as to cover all several inches deep. Let it relation so as to cover all several inches deep. Let it re-
main twenty-four hours, and remove it. You will find main twenty-forn hours, and remove it. You will find
that no worms will touch it. The expense is not great for one part of the bichloride in a thousand of water must be kept with care, but the timber when dried is not in any way injurious to workmen or others.
(35) J. R. asks : 1. What is iron sponge,

SUPPLEMINT, Nos. 87 and 115, for spongy fron. 2.
What is the temperature at which water dissociates in What is the temperature at which water dissociates in
iron pipes? A. Water does not dissociate in this way, hat is chemically decomposed, giving up its oxygen the iron at a red heat. The temperature at which between $4,000^{\circ}$ and $7,0000^{\circ}$ Fah.
beat diso
(36) L. J. P. asks : 1. How many pounds will one gallon of air sustain in water? A. About 81/3 pounds, or the weight of a gallon of water less the weight of a gallon of air. 2. Can a cord belt be nanufactured so that it will be endeless and have no mpps, where it is connected, to throb in passing over
small pulleys ? A. There are no such cords in market, but the splicing should. be done so neatly that there is no perceptible throb.
(37) K. F. writes: 1. Can you tell me ow to raise Canary birds ? Should the male bird be sept in the same cage until the young birds are
ready to fiy, or should it be separated when the eady to fiy, or should it be separated when the
emale is ready to sit ? A. It is not necessary to eparate thebirds. The male generally waits on the hen bird while she is sitting. There are several books
n the care of Canary birds, such as "Canary Birds on the care of Canary birds, such as "Canary Birds;
Manual of Useful and Practical Information for Bird Fanciers," price \$1.00.
(38) G. H. C. desires a positive cure for "Fetter's salt rheum." A. Wash the parts affected hen wet with tincture of iodine, and let it dry; after which apply citrine ointment, made by dissolving $11 / 2$ ounces mercury in $31 / 2$ ounces nitric acid. Stir till
fervescence ceases. Heat $161 / 2$ ounces lard to $200^{\circ}$ Fah. in an earthen veessel, and add the solution, stirconstantly until thoroughly amalgamated
(39) C. E. M. asks : 1. Is there any rule for finding the proportion between the pressure required to crush or collapse a boiler and the pressure required to burst it ? A. No. The form, size, and thick-
ness of metal determine this. 2 . Hasthere been an engine ness of metal determine this. 2. Has there been an engine A. Yes; many. 3. What is the general plan of comSee Scientific Ampr an Supplement, No. 309. 4. What is the condition ft the United States navy now? A. A great many officers, but a very poor show of vessels. See report of Secretary of the Navy. Your question on book-
(40) M. A. M. asks : 1 . Why does the water of Lake Geneva, switzerland, rise and fall so
oddenly? A. From unequal barometric pressure and local winds. 2. If a piece of ice containing a large air bubble be allowed to thaw rapidy, will it thaw a particle inside so long as the walls remain intact? A. It will not. 3. At about what date in the earth's
existence did the glacial period begin? A. Several nillion years ago. 4. Was it a sudden transition from neat to cold ? A. Probably not. 5. What is supposed
to have been the cause \& A. Possibly and probably change in the position of the earsthisy and prowabs been more than one such period? A. Supposed to have been two. 7. What book will give me the most information on the formation, chances, etc., of the earth up to the present time, in simple language, easily understood? "The whole thing in a nutskell.". A. The whole thing cannot be put in a nutshell. See Dawn's Geology, which
we can send for $\$ 5.00$, and Scrimiticic American Sup LEMENT, Nos. 1,268, 227, 400, 419, 398 , on glacial period.
(41) H. C. F. desires a method of pre srving natural fiowers. See answer to query 32 in
(42) C. W. McC. asks rules for centering he large speculum of a Newtonian refiector on a star. A. For centering the large mirror, remove the eyeiece, and look into the small mirror with the telenirror so that the edge of the mouth of the tabe will correspond with the edge of the mirror and the field Do you know of ane small mirror in the center. . Do you know of any substance except selenium changed to electricity? A. Selenium does not change sunlight into electricity. Sunlight simply affects its conductivity for electricity. A thermo-electric pile, described in any work on physics, converts radiant heat, of which light is probably a modification, into elecricity. It is constructed of various substances, some-
(43) A. B. C.-The same weight of meta orms a stronger column when hollow than when solid. If of the same diameter, the solid is the tronger under all conditions. The thinner metal of
hollow column would be more quickly affected by rect exposure to a high heat.
(44) W. D. V. B. asks: How many feet of asoline gas is equal to 1 ton of coal for cooking puroses? A. It is very hard to get at any practical ratio, ase economy of gas in cooking arises from the coal gas for each pot hole, allow eight feet per hour in brning; for each oven, double the amount. Pure gasoline gas would be consumed in smaller quantities,
(45) T. R. G. asks : Does the stern or ow swing around when a sail boat is brought about? keel keeping pretty closely to the series of chords
(46) S. J. asks : 1. How many volumes air are required for the complete combustion of on It depends on the composition of the gas. For pure hydrogen, two and a half volumes; from that up to ten or fifteen for a pretty wide range of illuminating power may be taken. Ten volumes would be a good basis for coal gas. 2. What is the increased volume of air for every degree of heat added? A. None. 3. What
is the proportion of air and gas used in gas engines?
A. About 1 to 10. 4. Is it necessary that the mixture ploded? A. No. 5. Will not a gas engine work with mixture of gas and air exploded without compressing? A. Yes ;
struction.
(47) H. B. N. asks: What wire and cores electro magnet, using six or eight cells Bunsen bat tery? Also how many feet of wire it will take? A. In general terms, the larger the core, with wire corre spondingly heavy, the greater would be its power three or four ohms resistance. Hence its size and ength would depend on the core.
Minerals, etc.-Specimens have been ceived from the following correspondents, and ex B. B.-The specimen appears to be a piece of mica ceous iron_ore. The value of the ore can only be deter mined by an assay, costing from $\$ 12.00 \mathrm{upw}$
cording to number of constituents determined.

INDEX OF INVENTIONS
For which Letters Patent of the United States were Granted

AND EACH BEARING THAT DATE

## [See note at end of list about copies ofthese patents.]

Acids, apparatus for concentrating, J. Hughes....
Alarm. See Water alarm.
Arches, forming artiflial stone or concrete, P.
Arches, forming artiflcial s
H. Jackson..............
Automatic gate, T. E Wiso
Axle box, car, G. Condery et al
Bagasse furnace, R. Marsa...
Baking apparatus, W. Smith...
Banker's note case,
Bar. See Harvester sickle bar.
Basting machine, w. Duchemin
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## Book leaf holder and support, J. F. Morton. Book, writing and drawing, w. H. Lamson.

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Box. See Car axle box. Cash box. Miter box.
Box
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\& Churchill.
Buckle, harness
Buckle, harness, Cramer \& La
Bull ringer, T. Butterworth.
Burnishing machine, C.J. A
Butter moulding machine, A. H. Bingham
Button attaching machine, Slater $\&$ Lamoreau
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Button or stud, H. H. Curtis....
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rine, H. . Spalding..............
rine, H. C. Spalding..................
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Cap and faucet, sealed, W. Longma Car brake, G. Fletcher.
Car brake, C. M. Sturgi
Car coupling, W. H. Adams et
Car coupling, A. D. Babcock.
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Car coupling, R. H. Dowlin
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ar coupling, R. D. Giles.........
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Car coupling, Myers \& Morrison
Car coupling, Myers \& Morris
Car coupling, J. W. Thomas
Car coupling, F. Yeiser.,.....

Car platform, safety door for railway, F. Lap-
 Carburetor, natural gas, W. Herlehy et al.........
Carding engines, card clothing for, J. T. Fallow

## \& Knowles................... Carriage, child's, P. Gallagher

Cartridge shell, H. W. Libbey
Cartridge shell holder, W. H. Fisher........................ 339939031
Carving machine, R. 7 ? Markee
Case. See Banker's note case. Eyeglass case.
File case. Watch case.

## Cash box, Hubbard \& Brownell.............................. 339,422 339,373

Casting medallions, tiles, picture frames, mould-



