## ENGINEERING INVENTIONS.

A car axle lubricatorhas been patented by Messrs. William H. Sterling and Dyson D. Wass, of
New York city. This invention consists in a spring New York city. This invention consists in a spring
wire frame of novel construction, carrying oiling rollers intended to give a constant and uniform lubrication : of the journals of car and other axles by devices that An electric grip for railways has been An electric grip for railways has been
patented by Mr. John C. Henderson, of New Yorkcity. patented by Mr. John C. Henderson, of New Yorkcity.
This invention consists in a novel combination of adjustable gripping and combined within a longitudinally slotted box or tube arranged between the raile of the
track, and is an improvement on a former patented inslotted and is an improvement
vention of the same inventor.
A car coupling tool has been patented by Mr. Edward A. Hamilton, of New Bethlehem, Pa.
It is an implement for holding up the free ends of car coupling links, so train men can do the coupling without going between the cars, and consists of a link holder with arms held to a shank adapted to slide along the
handle, but which may be set, and a spring to draw the handle, but which may be set, and a spring to
arms backward from between the drawheads.
A means for coaling locomotiv
A means for coaling locomotives has been patented by Mr. Henry McLaughlin, of Bangor,
Me. It consists of an elevated track crossing the track on which the locomotives run, and tracks leading to the coal heaps, a traveling derrick frame running on the
elevated track, provided with a hoisting apparatus, making an advantageous combination of tracks, ways, cars, cranes, etc.
A feed water heater and purifier has been patented by Mr. Dyson D. Wass, of San Francisco,
Cal. The heater fs suspended in the boiler above the water level, with a feed pipe dividing into two branches, each with a cluck valve, an extension of the feed pipe
attached to one of the branches, and a blow off pipe and attached to one of the branches, and a blow off pipe and
valve, so that impurities will be delivered at any de sired point of the boiler, and to scour and clean the heater by water contaned in the boiler.

## agricultural inventions.

A plow and cultivator has been patent-
ed by Mr. RobertM. Henderson, of Leesville, Ind. This ed by Mr. RobertM. Henderson, of Leesville, Ind. This
invention relates to plows used by corn growers, in which the driver's seat is supported forward near the team, while the weight of the driver is almost entirely removed from the necks of the team, with various other
novel features of construction and arrangement of parts.
An adjusting mechanism for harvesters has been patented by Mr. Newton W. Miller, of Mar
shall, Ind. Combined with' a drive wheel and hollow shall, Ind. Combined with' a drive wheel and hollow
axle is a shaft working therein, a guide plate and bearing carrying a sliding bar, with other novel features, to facilitate the vertical adjustment of

A corn harvester has been patented by Mr. Samuel H. Young, of Bankston, Iowa. This inven tion covers a construction to facilitate guiding the machine along a row of corn hills, so the front of the machine can be readily adjusted to the height of the corn,
so fallen stalks will be raised, and whereby bunches of stalks are drawn against the dividers, with other novel

A cutting apparatus for mowers and reapers has been patented by Mr. Luman Rundell, of
New Baltimore, N. Y. The cutting teeth throughout New Baltimore, N. Y. The cutting teeth throughout
one-half the length of the cutter bar, when moving in eitherdirection, are, by this invention, made to complete or nearly complete their cut before the cutting
teeth on the other half of the bar come into cutting position with the fingers or guards, thus dividing up and easing the cut to reduce shock and jerk.

## MISCELLANEOUS INVENTIONS.

 A device for handling boxes has been patented by Mr. Alfred Ayer, of Lake Weir, Fla. Com-bined with two side bars are clamps pivoted to their ends, with a strap uniting the clamps, making a devic especially applicable to the handling of orange and
lemon boxes, and other such packages too cheaply conlemon boxes, and other such packages too cheaply con
structed to have handles. A horse block or step has been patent ed by Mr. Martin B. Duncan, of Angelica, N. Y. The
framework upon which the treads of the steps are mounted is formed of hollow tubes or pipes, united by $T$ and elbow couplings, the uprights being fastened in durable device.
A plane guide has been patented by Mr. William W. Provides an improved guide for This inven tion provides an improved guide for attachment
planes to enable the edges of lumber to be squared o planes to enable the edges of lumber to be squared with accuracy, and without the aid of a try square or

A fastening for blind slats has been pa tented by Mr. George F. Evans, of Corpus Christi, Tex
It consists of brackets adapted to be secured to th lowerrail of the blind and to receive the slat rod between them, together with a binding screw projecting through one of the brackets, to
A tree ladder has been patented by Mr. James M. Cunning, of Haskins, Ohio. Combined with upright bars are top bars hinged to the upper ends of
the uprights, and having hooks projecting from the the uprights, and having hooks projecting from the
bottom edges, with braces so pivoted that the ladder can be swung around a tree, and the outer ends of the branches reached thereby.
An ice cream freezer has been patented freezing cylinder has a hollow trunnion fitted to admit the refrigerant, and having a hopper supported on and
revolving with the trunnion, with other novel features to facilitate quick freezing, and convenient for taking apart for repairing, replacing, and cleansing.
A wagon standard has been patented by Mr. Jeffrey Starmer, of Levering, Ohio. It is a re-
consisting of a novel construction of locking device and
catch, the standard being quickly and easily attached to and removed from the bolster, staying firmly in place when locked, and being cheaply made.
A cutter head has been patented by Mr. Benjamin R. Hand, of Camden, N. J. This invention relates to wood planing machinery in which the knives
in connection are held by a revolving head o in connection
with the mechanism for moving the material to b with the mechanism for moving the material to be ill firmly hold the knives after their adjustment.
A necktie fastening has been patented by Mr. Benjamin F. Hutches, Jr., of Galveston, Texas Combined with an apertured collar button is a disk with a spring loop, the disk being adapted to be secur-
ed to the back of the cravat shield with a loop projected to the back of the cravat shield with a loop project be used in place of the elastic loop and other means.
A stack cover has been patented by Mr. tions with projecting coloss bars, bars consiets of sec tions being at different distances, and the sections having edge notches to receive locking bars, so the cover
may be put on and taken off in sections, and may be may be put on and taken off in
A coal hoisting machine or dredge has been patented by Mr. Bernard M. Munn, of Elizabeth,
N.J. The machine has a drum, cable, boom, and means for revolving the drum, in combination with verically movable plates, arms, and scoops, the whole so arranged as to facilitate the handing
material without the use of shovels.
A faucet has been patented by Mr. Frank F. Wolff, of New York city. Combined with a bushing adapted to be held in a barrel or cask head is
valve for closing the outer end and a plate for closing the inner end of the bushing, or a tube held on the same, both the valve and plate being held on the same spindle, the device being intended to facilitate the drawing of A from casks or barrels.
A fanning mill sieve has been patented by Mr. Siver J. Aasen, of Republican, Dakota Ter. The construction is such that fine seeds are deposited in a receiving box under the sieve, and larger seeds, such as
buck wheat, cockie, oats, etc., slide down over the sieve into a suitable box, making possible the separation of oughly cleaning the seed.
A dental jaw brace has been patented by Mr. Willis J. Bickford, of North Attleborough, Mass. This is a device for keeping the mouth of a patube inclosing a spiral spring on the end of which is slide spring to force and hold the mouth open, the prop slide sp
thus fo
tom.

A canal convory has been patented by Mr. William F. Cowden, of Cumberland, Md. This inthe convoy may beallowed to drop some distance the boats and means whereby the separating device may be disengaged and the boats drawn close together for passing through locks.
A sash holder has keen patented by Mr. Henry Staib, of Jeffersonville, N. Y. A face plate is formed with side flanges having spindle perforations
and recesses on their inner faces extending from the ace plate to the perforations, with eccentric, removable spindle, and other novel features, making a simple
mechanism for supporting and locking window sashes mechanism for supportin
An oil strainer has been patented by Mr. William Connolly, of South Norwalk, Conn. It is bers with perforated side walls, and an imperforate bers with perforated side walls, and an imperforate
bottom tapering downward, the device being especially bottom tapering downward, thedevice being especially
intended for use in connection with the oil drip pans intended
for sewin
ventor.

A machine for cleaning and repairing oller skates has been patented by Mr. Rufus F. Hull, of Fonda, Iowa. It has a rotary shaft with a pair of
wheels having a space between them equal to the disance between a pair of skate wheels, the wheels having nclined grooves whereby the rollers may be cleaned and evened, while there are chucks, abrading disk, and
drill, for leveling, reboring, and repairing.
An automatic swingingt chair has been
atented by Mr. John C. McMnllen, of St. Augustine, patented by Mr. John C. McMnllen, of St. Augustine,
Pa. By this invention the lever through which the chair
and Pa. By this invention the lever through which the chair
is moved is not connected with the supporting bangers of the chair, being thereby freed from the weight of the operator and giving a greater movement to the chair, so the occupant can originate and easily maintain a con-
tinuous swinging motion.
A chain saw has been patented by Mr. Walter S. Shipe, of Minerva, Ohio. Each link of the
chain is made to displace the whole chip, and effect a chain is made to displace the whole chip, and effect a
ready clearance, which is done by a single cutter of eculiar construction applied to each hnk, the saw, atting logs or felling trees, being started by placing drawing the chain over the timber
A door has been patented by Mr. Jeuleos Gambllee, of Creskill, N. J. Combined with a
door having top and bottom openings are slides for losing and uncovering them, and a mechanism for operating the slides automatically and by hand, so the door oan be opened and closed without affecting the covers the openings, or the openings can be uncovered and
losed while the door is shut.
A sheep shears has been patented by Mr. Elijah Kellogg, of Reno, Nev. Combined with a handle having on the forward end of its under side a lotted stud is another handle having a stud at the rear end of its outer side, with a strap secured to both studs, making a pivoted joint with large bearing surfaces capable of supporting the shear blades and preventing th
from being separated when doing heavy shearing.
A lime distributer has been patented by Mr. John Hotham, of Hillside, Pa. It has wheels
pivoted beneath the discharge openings of the hopper
with curved radial flanges and connected by gearing
with a rear wheel of the machine, the size of the discharge openings being regulated by sliding plates, the lime in the lower part of the hopper being agitated and

A cracker machine has been patented by Messrs. William H. Bromley and Philip J. Gately, of Brooklyn, N. Y. It has an elastic bed plate resting upon eccentric rollers, so that by turning the latter the
bed plate can be readily adjusted according as the de. bed plate can be readily adjusted according as the de.
sired thickness of the sheet of dough or the wear of the sired thickness of the sheet of dough or the wear of the cutters may require, the rollers having
A car starter has been patented by Mr. Theodore F. Bourne, of Bloomfield, N.J. A ratchet wheel ie fixed to the car axle, and a lever is pivoted to gage the ratchet wheel, a chain or coupling connecting the lever to the draught bar, there being a stop between help turn the axle on a continued draught strain.
A plaster of Paris splint has been pa Shy Messrs. John W. Bender and James C. Hinkle of Shippensburg, Pa. It consists of segmental section moulded internally to the shape of the limb, and hav ing on their meeting edges interlocking projections and
sockets, with coincident strap grooves in their outer sockets, with coincident strap grooves in their outer
sides, the sections to be made in any desired number of pieces, so that one or more may be removed at a time A
A roving frame has been patented by Messrs. Richard Curtis and William H. Rhodes, of Man chester. Eng. This invention relates to slubbing, inchester. Eng. This invention relates to slabbing, ind termediate, and roving or jack frames, and is intended
to improve the mechanism for imparting a gradully de creasing speed to the bobbins, so they will always draw the slubbing or roving from the front rollers at a uniform speed, notwithstanding the increase of the diameA horseshoe has been patented by Mr. Lawrence Schwaab, of New York city. This shoe is
intended to be fastened to the horse's hoof without nails, and is made in two parts hinged to each other at their outer edses, and having a plate formed on to overlap the other part; the shoe has a pad with a buckle and strap at its rear end, and projections on its sides to engage with apertures in the sides of the rim of
he shoe, to protect the hoof from jar in traveling.
A candy machine and a cake machine are the subjects of two patents insued to Mr. Daniel M.
Holmes, of Arlington, N. J. The first machine has Holmes, of Arlington, N. J. The first machine has a
steam heated chamber, which keeps the candy in a steam heated chamber, which keeps the candy in a
melted condition, and from this chamber definite quantities are fed, either upon plates on an intermittent ly moved endless apron or into pits or moulds formed ner, for the rapid and economical production of formed or moulded candies: the cake machine is of that clasit
in which the dough is fed down from a hopper into series of cylinders, whence it is forced by reciprocatin plungers in small lumps upon pans carried by an end less apron, and the invention covers improvements in
theseveral parts of the machine to increase itsefficiency theseveral parts ange of use.

## NEW BOOKS AND PUBLICATIONS

Magneto and Dynamo Electric Ma CHINES. From the German of Glaser
de Cew, by $F$. Krohn, and edited LL.D., D.Sc. London: Symons and Co., 1884.
This volume is the first of a new Specialists' Series edited by Dr. Paget Higgs and Professor Charles Forbes, formation in regard to recent technical subjects. It is the object of the series to provide practical hand-books both thorough and easily understood, and, though treat-
ing of apparatus in the market, entirely devoid of any ing of apparatus in the market, entirely devoid of any
commercial advocacy. It is admittedly hard to be percommercial advocacy. It is admittedly hard to be per
fectly impartial, but the high character of the editors will insure a belief in the honesty of their criticism, if will insure a belief in the honesty of their criticism, if
not always in its correctness. The present volume not always in its correctness. The present volume
treats of a comparatively new subject, where our experience is necessarily limited, and is, therefore, par
ticularly welcome as a conscientious effort to acquaint the public with the principles underlying the construc tion of electrical machines. The introduction will be found useful to those but little familiar with the theories of induced currents, as well as interesting historically to all readers. The subject has been divided
under the head of machines generating alternating or direct currents of matherthan in strict accordance with the differences between magneto-electric machines and dyinterest just at this time, as :he subject is attracting such general attention. In the appendices is given con-
siderable information in regard to the practical con struction of dynamos, and a comparison between the principal ones now in use. The series is introduced in his country by Van Nostrand
Canok and Camp Cookery. A Practi Outers. By "Seneca." Forest and York.
At this time of year, such little books as this seem to introduce the urban resident, and worker in store and camping-out life, for it brings one directly to the prac tical details on which the comfort and solid enjoymen of such summer excursions perhaps most largely de
pend. The author speaks from experience, and pend. The author speaks from experience, and his
suggestions as to outfit, choice of menu to lay out for suggestions as to outit, choice of menu to lay out for
different kinds of expeditions, management of the fire, and the best ways of cooking afford sufficient variety wh satisfy a taste wilh a good deal of discrimination, in such matters cannot fail to quickly acquire therefrom the knack of preparing his own food. Take nothing but what is necessary and which can be compactly
towed, is the author's rule, and this little book, which can be easily tucked in a side pocket, might well be
counted an essential of a perfect outfit.
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The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office
as early as Thursday morning to appear in next issue.

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ew and original designs and work natural. Address, with full description and price, Lock Box B, Waterbury, One-th
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If an invention has not been patented in the United States for more than one year, it may still be patented in
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he whole range of engineering, mechanics, and physical cience. Address Munn \& Co., Publishers, New York. Knots, Ties, and Splices. By J. T. Burgess. A Handbook for Seafarers and all who use Cordage. 12mo,
cloth, illustrate. London, 1884 . Sent, postage prepaid, receipt of 75 cts., by Munn $\&$ Co., New York.
Send for catalogue of Scientific Books for sale by Munn \& Co., 381 broadway, N. Y. Free on application.
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Street, Philadelphia. Curtis Pressure Regulator and Steam Trap. See p. 12. Wood Working Machinery. Full line. Williamsport We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure
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Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom \& Son's Shafting
Works, Drinker St., Philadelphia, Pa.

## 

HINTS TO CORRESPONDENTS.

(1) P. \& M. ask if running an electric motor on a watch maker's bench would tend to magan induction coil for the purpose of giving shocks

n hand? A. By means of the voltmeterer
ter placed in a shunt of the main circuit.
(3) H. W.-Ordinary machinery steel is generally used for telephone magnets; they are hardened at the ends only, usually by heating to a red heat
and plunging into cold water. Cast steel is no better and plunging into cold water. Cast steel is no better than machinery steel, but if
(4) P. W. B.-The north-seeking pole of a magnet is attracted by the earth's north pole, and the south seeking pole is repelled by the earth's
(5) O. Z. writes: How is paraffine dis solved quickly? I receive tools and toys from the old country (Germany) covered with a coat of paraffine, to prevent rust I suppose. It makes them sticky to the ing the articles. A. Naphtha or gasoline dissolves paraffine; a little on a small rag, and rubbthe articles
(6) W. F. L.-Fishes balance themselves in water by the muscular contractionof the air bladder. raising the fish to the surface. The center of gravity being in the air bladder. which is located in the abdomen, brings the belly up when the fish fioats.-In regard to electroplating, see Scientific American pulations, $\$ 7.50$, Watt's Electro Metallurgy, $\$ 1.00$, which may be had through this offce.-We charge for an analysis of minerals only, not for an opinion of hat they are
(7) J. L. M.-We know of no special rules or formulas for the relation of coil to size of wire
in spiral springs. Their use, strength, elasticity, and mount of extension required are the special considera coiling force of a spiral spring. The only way is to
ake a trial.
(8) J. S. M. asks: 1. What are the conditions on which so many patents are issued on telephone transmitters, wherein the variation of the resist-
ance of carbon by pressure is the principal feature? In other words, why are patents issued to Draughbaugh and others for carbon transmitters when Edison is the first inventor and patentee? A. If you will examine the patent, critically, you will find tnat they are not issued for the same thing, although they may contain some of the same elements. They are generally for different combinations of the elements required to
produce a telephone. 2. What are the conditions on which patents on magnetic telephone receivers are Bell: A. The same may be said with regard to tele hone receivers 3 Is there ony practical form tele telephone relay in use giving good results? A. We believe not. 4. Is there any practical form of loua-
peaking magnetic telephone that can be heard through large hall by an entire audience? A. No. 5. Would
the invention of an effcient magnetic separator capable of separating 15 or 20 tons of magnetic sand per day be of any great value to the industries? A. Separators of this class are in use; any improvement will have some value. 6. Is magnetic sand used in any part of the
country in the manufacture of iron and steel on a large country in the manufacture of iron and steel on a lar
scale? We believe it is used to some extent.
(9) S. B. G. writes: It is said that the magnetic needle stands at right angles to a current of electricity which encircles the earth eastward and westward. If it is so, please explain what causes the varia the of the magnetic needle, or rather the variation of the magnetic current. A. We do not know that corret. We believe an axplanation of the variation of the earth's magnetism is yet wanting. We regret that
(10) H. I., Jr., asks for a mineral or subtance that! when placed between a horseshoe magnet the latter toward it. A. No substance having the properties you require has yet been discovered.
(11) E. J. R. asks how many 2 gallon potash battery described in Scientipic American of potash battery described in Scientific American
Supplement, No. 485 , would be required to run one 6 candle incandescent lamp of 108 volts and 1.43 amperes. Also what carbon surface, and how deep, should the
zincs be immersen? A. You would require 11 to 12 zells. Better use your cells as Bunsen bichromate bat-
cell teries. They will be more constant than the plunging battery. If you desire to use them as plunging bat-
teries, you may use in each cell 1 zinc plate and two teries, you may use in each cell 1 zinc plate and two
carbon plates, each $4 \times 6$ inches. Place a carbon plate on each side of the zinc plate and about $1 / 3$ inch distant. You will be obliged to plunge the elements more and
(12) F. A. writes: I wish to construct (12) F. A. Writes: I wish to construct
a dynamo, twice as large as shown in Supplement, No. 160. 1. Shall I use the same number of wire? A. Use the same number for the armature and No. 12 for the electric magnet, and for the armature? A. It would be more or less a matter of experiment; better put on about six layers on the magnet, and bring ends out so that you could connect the different coils up in series or in parallel circuit. 3. How many candle power will it give (arc lamp), how much power required to run it? A.
The amount of light produced by such a machine de pends entirely upon the manner in which it is con structed. It will probably require at least $1 / 2$ horse power to drive it.
(18) J. B. W. asks: 1. How many cells Fulfer bate lamp of 5 candle power? A. It depends incan he resisturec of the lamp. Probably from 10 to 20.2. Wht erect do large wires have for a core in an inuction coil over small wires? I have made an inducon coil after your Supplement, and have heard some ectricians argue for large wire in core and some in
vor of small wires in core. Please state the advanges. Mine is for a shockingmachine. A. The smaller
der izeti and demagnetized. 3. What advantage is there having a large core over a amall ones Mine is $1 /$ inch in diameter, and some say if I had it 1 inch it would be stronger. A. By using a large core you would be able to get a larger and stronger magnetic field. 4.
Would it not be better to use No. 10 cotton covered wire for primary and No. 18 silk covered for secondary for an induction coil for a shocking machine, for street
use? A. Better use No. 16 for your primary and No. use? A. Better use No. 16
34 or 36 for your secondary.
(14) F. W. W. writes: 1. I have a hunt ing jacket made of commonducking. Can you tell me what preparation I can put over it to make it water-
proof, and not make it stiff and uncomfortable? A. proof, aterproofing your duck coat, dip it in a solution
For water ontaining 20 per cent of soap, and afterward into Then wash and dry. Another: 1 pound alum, 1 pound sugar of lead; pulverize both finely, and thoroughly mix dry and pour on 2 quarts boiling water. Let it stand hours, when it will be ready. Sponge the coat until it is saturated, then iron dry. 2. If the muzzle of a shot gun is worn a little bell-mouthed, will it have a ten-
dency to make the gun scatter? A. Yes. 3. When dency to make the gun scatter? A. Yes. 3. When
brass shells for shot gun expand, through continuous use, how can they be contracted to gauge again? A nhould be able to make.
(15) P. P. B.-Balloons, unless of very arge size, should be made of the lightest material. Bal hot air if made of cotton cloth or ducking. See ScIer tific American Supplement, No. 127, 312, and 413 or the construction of balloons. A returning bullet in creases its velocity from the turning point until strikes the earth.

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

August 4, 1885,
AND EACH BEARING THAT DATE.
[See note at end of list about copies of these patents.]
Alarm. See Burglar alarm. Low water alarm. S. Baxter..
S.
 uger bit. F. Shailer... A wning, E. A. Fildebrandt

Axes, manufacture of, V. Halter..
Axle box, car, Dooly $\& ~$
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