## recently patented inventions.

## Agricultural Implements.

DRAFT-EQUALIZER. - John Rose, Cheneyville II. A U-8baped frams is adapted to be attached to the an equalizing-lever is fulcrumed. A Aheave is mounted an equaiizing-lever is fucrumed. A Aheave is mounted
on the transverse member of the frame; and a flexible connection between the ends of the levers passes over the eheave. The equalizer, since it is made in sections
can be very closely hitched and prevents all undue side can be very closely hitched and prevents all undue side
draft when in use on gang-plowe for three or mor horses.
harrow. - Whinam M. Baker, Fortville, Ind The invention is an improvement on a harrow patented
by the same inventor, the improvement enabling the machine to be adapted for work in trashy ground. The current with the hooked forward euds of rigid blades, These blades are to be substituted for a plain roller whe the harrow is to be used in trashy ground; and their action is such that, as the toothed rollers revolve, the hook-ends of the blades catch the refuse material and
deliver it at the rear of the harrow, and also pulverize deliver it at the rear of the harrow, and also pulveriz COMBINED HARVESTER, THRESHER, AND bagGer.-Thomas P. Moran, Nelson, British Colum bia, Canada. The invention provides a combined header, thresher, and bagger which will work as well on and the thresher behind the header, with its long axis at right angles to the line of draft, so that the threshe noves practically side-wise. Behind the thresher comes the team, while the driver's seat and bagging devices are
run out to a point in the rear of the team. Special proision is made for leveling and adjusting the variou parts of the machine. The team being placed in the ear is thrown away from the standing grain (instead of nto it) in steering the front of the machine at a sligh angle nphill in counteracting the drift
dency of the machine to slide downill.

Bicycle-Appliances.
BRAKE.-Join F. Moen, Brooklyn. New York city The brake comprises a plate or shoe from which a bank extends forwardly, adapted to engage with the crown portion of the front fork of the bicycle. A band,
elastic in the direction of its length, detachably secures he brake to the fork. The brake can be applied to bicycle without the use of clamps or screws.

## Electrical Apparatus.

 Cable-TERMINAL, -Winiam Calilaban, Sidney Ohio. The cable-terminal is to be used in making cono place the wires on a pole or at any other place where cable terminates. A neat and convenient means i furnished for making connections, with provision for receiving and conducting away the accidental heavy charges due to lightning or the crossing of the lines withhigh-tension electric-light wires. Moisture is prevented high-tension electric-light wires. Moisture is prevented
from creeping into the strands of the cable at it terminal.

## Mechanical Devices

automatic adjustable die. - Frank h TaHL, Charlestown, W. Va. The invention provide several die-blades so supported that they may be ad
justed to proper relation to cut the thread upon the end of a pipe-section. When the thread has been cut on lathe, the blades can be automatically released and for another operation, thereby effecting a very considera ble saving in time. The die can be adjusted to different sizes of rods or pipes as well as to take up wear on the cutting surfaces of the blades. Thus the device combines a number of dies in one, whereby its usefulness is in
creased. By reason of the automatic release, the die can creased. By reason of the automatic release, the die can
not run too far and jam against a shoulder, as so frequently happens in the ordinary construction.

## Miscellaneous Inventions

 DISTANCE-FINDER. - Robert L. MARshall Elizabvide a practical and accurate instrument for find ing the distance or range of any remote object by simple adjustment, without any calculation whatever. The finder has a base-line at right angles to which istationary telescope jointed to a movable hypotenuse stationary telescope jointed to a movable hypotenuse bar has a laterally-adjusting device with a variable index-hand and the hypotenuse-bar also has a variable f these parts being rement, the va. the other in on spect to the relation of speed and power, so that the dial of the index-hand can be spaced off with equal gradua-
tions, a feature of great importance in securing accurate results.
PLOTTING INSTRUMENT.-Luther M. Carmical Joresville, Va. This ploting instrument comprises an arm and a base-plate, provided with different gradua tions on each edge. A quide-bar is fixed on the base
plate; and at right angles to the guide- bar is the base plate; and at right angles to the guide bar is the base-
bar of a protractor. A sleeve adapted to slide on the guide-bar, is rigidly attached, and has a flange serving leevehas a clamping_section by means of which th protractor may be held in any adjustment. The instru ment is used in drafting in poles or feet the field-notes of a survey as usually obtained by
nd ascertaining the area therefrom.
ACETYLENE-GAS APPARATUS.-ALPHonse F Gaiennie, Thibodeaux, La. The acetylene apparatue comprises a generating-tank, into which a carbid-hoppe has a gravity-discharge. A valve controls the dischargeopening, the stem of the valve extending vertically with a lever connected with the gasometer-bell. gasometer-bell falls, the lever is caused to open the valve in order that carbid may drop into the generatlng tank; as the bell rises, the valve is closed.
TAPE-NEEDLE.-Walter S. Hutson, Pocatello,

The pointed head of a shank terminates in shoulders at pivoted on the shank and comprises two connected side members respectively ying on the sides of the shank. The locking-arm has front end arranged to engage the shoulders of the The front end of the locking ism is cess to receive a thread, the recess being closed at the head of the shank when the locking-arm is engaged therewith. A spring serves to throw the locking-arm into closed position.
ACETYLENE-GAS GENERATOR. - OLVER H. Haypron, Williamsburg, Ind. The apparatus is arneded and consumed by the burners, to withdraw the carbid-ashes with the carbid-holder upon removing the lter for recharging and in case of excess pressure of eas to prevent the water from being forced out of the enerator-tank. The generator comprises a carbid-
casing, a gasometer having a tank and bell, a gas-co ducting pipe leading from the carbid-casing to the gaso meter, and a valve on the pipe within the gasometer and ormally held to its seat by a spring. A weight loosely carried by the gasometer-bell and is adapted to
move the valve into an open position against the tension move the valve into an open position again
of its spring upon the descent of the bell.
LAMP-BURNER.-Hartwell A. Crosby, Calais, e. The invention comprises a wick-tube and a wick evating device. The wick-elevating device consists orace the wick $A$ frame is pivoted upon the gage the wick. A frame pived upon the wic tube and has an extinguishing member adapted to swing
over and cover the tube. A triangular bar is journaled in the lower end of the frame and is engaged by the the wick-tube is uncovered when the wheel is tor one direction; and the wheel is prevented from turning on the opposite direction as soon as the frame is per

UMBILICAL FORCEPS,-ERNEGT V Acareon ake City, Utah. The forceps are so constructed that he umbilical cord may be cut in two at one operation of the instrument. The ends of the cord will be automatically fastened or sealed by the instant application of in-
sulated aluminium, gold, silver, or wire bands. The insulated aluminium, gold, silver, or wire bands. The in-
strument is so constructed that the various parts can be readily separated for the purpose of cleaning
ing and as readily assembled aud adjusted.
COORING-UTENSILL-WLIIAM A. VAN DEUSEN,
 collectlvely aud employing but a single cover. The utensil is particularly adapted for steaming cereals, vegetables, custards, and puddings, and is so constructed
that the steam will have access to the sides of the vessel that the steam will have access to the sides of the vessel
in which the food is placed, from top to bottom, insuring which the food is placed, fr
oil-Press mat.-Robert F. Were, New Orleans, a. This new oil-press cloth consists of a fabric com osed of long hair. -The hairs forming the warp thread twist. The hairs for the weft.threads are soft and plis be aud have a soft twist. The mat is designed for use in cotton-seed and other presses, and is not liable to lose is shape when subjected to heavy pressure, or to adhere to the meal-cake.
BLACKBOARD-SUPPORT.-JAMEs S. McClung Pueblo, Colo. The support is so constructed that a eacher can face his class and at the same time write on oard so that the pupils can see the work right side up and quickly remove the work from the pupils' sight. The arrangement is especially adapted to train children see quickly and accurately
Carbureter. - Elujah D. Parrott, Portland, Ore. The object of the invention is to provide a car-
bureter arranged to prevent frost from forming on the inside of the evaporating-coil or in the gas-mains leading from the apparatus. The apparatus is provided with a water-tank and with an evaporating-pan connected with a gasoline-supply and an air-supply. An evaporatingcoil leads from the pan, the pan and the coil being submerged in the tank-water. A heater is connected with
the water-tank to heat the water; and a pump is con ected with the coil,
acetylene-gas apparatus.-Lewis J. Ruth, eamington, Canada. The invention belongs to a class acetylene apparatus in which the generator and gaso
meter are separated and the carbid is placed within perforated or grated cylinder which may be revolved, the water being supplied by a perforated pipe or spray over the cylinder. The lime formed by the decomposition of he calcium carbid will be sifted out of the carbid by the rotary movement given to the cylinder when the gaso-
neter-bell rises. This lime falls upon the inclined bot meter-bell rises. This lime falls upon the inclined botgasometer falls, water is admitted to the perforated pipe casometer falls, water is admitted to the perforated pip
and sprayed on the carbid. The gas generated will cuse the gasometer-bell to rise and the water is cut off.
ARTIFICIAL TOoth-Crown.-Charles ones, Manhattan, New York city. The device com locking member or lock-screw. The construction alrtificial tooth.crown of exceptional strength. No longi udimal strain can separate the crown from the sleeve o rom the lock-screw. Since no platinum is required, he device is comparatively cheap.
PROCESS OF FORMING CONCRETE WALLS. Charles Gut, Box 242, Topeka, Kans. This cheap rrib having a face a corresponding with the desired form of the concrete surface to be produced; next applying a in layer of plaster upon the face; then laying a coarse olying concrete in contact with the fabric and allowing it to set; and finally removing the crib and stripping the abric with the adhering plaster from the concrete sur face. No surfacing or matching of lumber is necessarg

Designs.
Wall-Paper.-Harry Wearne, Rixheim, Ger-
many. The leading featore of the design is a lattice
scroll having reverse curves located between borders of and leaves. Bouquets of flowers, leaves, and buds ar cated at the convesed portions of the scroll.
bustle and hip-form.-Francis B. Granger anhatlan, New York city. The bustle and hip-form omprises a cencelabaped body portion what whic is arranged a pad-like portion or a contour substan tially that of the body portion, but havige
spaced from the edges of the body portion.
TEAPOT. - Austin F. Jaceson, Taunton, Mabs applied on the cover and neck in the form of a foliated flowered spray.
Note.-Copies of any of these patents will be furn the name of the patentee, title of the invention, and date of this paper.

## NEW BOORS ETC.

Magnetism and Electricity. An Elementary Treatise for Junior Stu By J. Paley Torke. London: Edwin Arnol.
$\$ 1.40$.
The author notes clearly the fundamental facts and laws of magnetism and electricity. The explanation are lucid, and the illustrations have a freshness no
usually seen in text books. It will probably be large adopted in schools.
Nature Study for Grammar Grades.
a Manual for Teachers and Pupils Below the High School in the.Study of Nature. By Wilbur S. Jackman
A.B. New York: The Macmillan Compan
Naturestudy is one of the most interesting develop ments of modern education, and the volume before us admirably adapted to assist teachers in preparing experi and definite direction in nature studies is now agreed but to prepare outlines in suggested directions necesery so as to place them within the reach of each pupil is mor than the ordinary teacher has time to do, but the volum before us has admurably filled this gap in the literature
of the subject. Such subjects as botany, mineralogy, astronomy, noteral phil

Electric Power Transmission. By Louis Bell, Ph.D. New York: Elec 1899. 8vo. Pp. 505. Price $\$ 2.50$. A thoroughly practical treatise for practical men and ject we have seen and fills a field which has not bee adequately covered before. Modern electrical practice moves so quickly that treatises on the subject ar date book has been needed. Inductive Geometry. By Col. C. W

Fowler. Published by the author at
Louisville, Ky. 1899. 18mo. Pp. 55. The Successful Man of Business By Benjamin Wood. New York
Brentano. 1899. 16mo. Pp. 208.
There can never be too many books of the present
nature, dealiog with success in business life, though in ature, dealing with success in business life, though in the majority of cases it will be found that those who
have actually achieved success do not write books of this kind, butthe author's intention is undoubtedly good, and they are worthy of considerable circulation. It is trusiness men frequently write books, but they are nearly always upon some subject far removed from thei immediate source of livelihood. The author deals with the subject from an eminently practical standpoint.
A Dividend to Labor. A Study o
Employers' Welfare Institutions. By
Houghton, Mifflin \& Company. 1899 12mo. Pp. 400. Price $\$ 1.50$.
This volume deals with a subject which in the nea ature is certainly destined to be one of the most impor lant of economic problems. A thorough understand cause capital and labor to unite on a substantial basis
and to prevent those most unfortunate of economic reand to prevent those most unfortunate of economic re
volntions-strikes. The author discusses the modern employer, welfare institutions in Germany, patronal in stitutions in France, patronages in Holland and Belgium profit sh.
thought.
American Soaps. A Complete Treatise on the Manufacture of Soaps, with ditions and Practice. Dr. Henry Gathman, Editor of the American
Soap Journal. New York: Pub lished by the author. 1899. 8vo P\%. 461. Price $\$ 15$.
The first edition of "American Soaps" appeared in print seven years ago and was well received, and since
that time the author has continually collected all the available new information that could assist in making later edition of the book more complete, and the autho bas had the benefit of the experience of many of th original purchasers of the book. There is an extensive literature upon soap making, but most of them are
adapted from foreign practice or deal with antiquated adapted from foreign practice or deal with antiquated
methods. 'The present book cannot be placed in thi category. It is an excellent contribution to technical literature by a man who thoroughly understands moder American soap making and it is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making of all kinds, with special refer ence to modern practice, we can heartily recommend formulas for soaps of various kinds is the number of formulas for soaps of various kinds is large. The sec
tion devoted to the actual processes used in the manu tion devoted to the actual processes used in the manu
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Business and Personal.
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and Other Books for sale by Munn $\&$ Co., 361 Broadway, HMustaturins

## HINTS TO CORRESPONDENTS.


(7801) P. C. W. asks: Is there any ricity through a paper in a dry form by having subjected it to a process so it will conduct electricity? A You cannot send an electric current through a dry
paper. There is no substance which will render dry paper a conductor. Only the spark of a high tension ischarge will pass through dry paper.
(7802) S H. D. says: Will you tell me ine, also the horse power of the hog and jack, or conolidators? What is meant by the term horse power ? Please tell me how to calculate the horse power of any
engine. Give the simplest way. A. The horse power of any locomotive can be found by multiplying the area of the piston in square inches by the mean effective steam ressure in the cylinder; multiply the product by 2 , which will give the total average pressure on both pistons; multiply this sum by the number of feet the piston
ravels in 1 revolution of the driving wheel, then multiply this product by the number of revolutions the driving heel makes per minute, and divide by 33,000 . Example: What is the horse power developed by an.engine having an average inches diameter by 24 inches stroke, quare inch? The driving wheels being 78 inches diameter and making 260 revolutions per minute (about 60 niles per hour)?
53.7 pound
${ }_{15}{ }^{2} 2 \overline{5} \cdot 5$ pressure on one piston.
$\begin{array}{r}2 \text { pistons. } \\ \hline 30,450 \text { pressuce }\end{array}$
121,800
260 revolutions per minute
One horse power is a power that will lift 33,000 pound one foot high in a minute. The horse power of any engine is computed on the same principle as shown above,
considering the multiplier 2 as referring to 2 cylinders, considering the multiplier 2 a
(7803) B. F. S. asks : 1. Would a field of wrought iron $12 \times 21 / 2$ inches square do for a field of
notor described in SuppLEMENT. No. 641 ? 1 wish to use it as a generator. A. A field of wrought iron, forged of the same size as that of strap iron, may be used in place of the strap irou. The reason for using the strap iron means of forging a piece of wrought iron 2 Would the field be equally serviceable if brazed instead of welded? A. Yes, if the brazing is put exactly opposite the middle of the armature. 3. Compare such a field an air space for transmitting the lines of force, and hould be placed where the lines of forceleavethe poles and paes through the armature. 4. In making plunge 792), the upper ends of the carbon plates are permeated with paraffine. Will this have any effect on the making f electrical connections is paraffine a conductor of electricity? A. Paraffine is not a conductor, and should be scraped off where the
contact is made with the copper strips. 5. If you take a bicycle whade with the copper strips. 5. If you take a port such as your finger, it will fall over, but if you first cause it to rotate rapidly it will maintain its perpendicnA. The principle involved in this is'that of the groscope all rotating bodies tend to remain in the plane of rota-

| (7804) J. L. B. writes : I saw in your paper some weeks ago the statement that you did not mownd piece of wood is bent and ignited it will take less energy to ignite it than if the same piece or at least the same amount of wood was ignited it ignite the steel spring, and these might equal each other? | INDEX OF INVENTIONS <br> For which Letters Patent of the United States were Issued for the Week Ending JANUARY 9, 1900, <br> ANDEACHBEARINGTHATDATE. [See note at end of list about copies of these patents.] | men |  |
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| ter has not been proved. It it simply a begming of the |  |  |  |
| energy requires a certain result, and therefore that is the |  |  |  |
| (7805) H. C. M. asks the ton burden of tbe "Kaiser Wilieelm der Grosse" and the number or passengers it will carry. A. The displacement (that is total weight) is 17,500 tons; it accommodates 350 first-class passengers; 370 second-class; 800 steerage, and the crew, etc., number 450 . If you will refer to the Scien tipic American for October 9, 1899, you will find your query fully answered. Thisticulars regarding this vessel. |  |  |  |
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| ticulars regarding this vessel. |  |  |  |
| aswer for the benefit of settlinga controversy whether is new year ( 1900 ) is the beginning of the 19th or 20thentury? A. The new century beging January 1, 1901. (7807) F. K. H. writes: I am making a |  |  |  |
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