## recently patented inventions.

## Pertaining to Apparel

garment-form.-Anna L. Traviss, Vi ginia, Minn. This apparel apparatus comprises a garment form for use in dressmaking estab-
lishments, stores, homes, and other places, and lishments, stores, homes, and other places, and
is arranged to display a garment to the fullest advantage, to preserve its shape, and to permit
of conveniently folding the garment form into of conveniently folding the garment form int
comparatively little space when not in use.

## Electrical Devices.

electrical cut-out.-P. T. McNally Mandan, N. D. This device is especially of a system of arc lamps, operated by a single alternating current dynamo, where it is not profitable to make a separate line circuit from
the power house, or install a separate alternator for operating the arc lamps and incandes cent lamps. It shuts off transformers when
not in use, thus preventing loss of power in idle transformers, or for any other analogous purpose.

## Of Interest to Farmers.

FLED-TROUGH.-G. D. Kolifler, Mac
donia, Iowa. The invention compriscs donia, Iowa. The invention comprises
trough proper which forms the base of th feeder as a whole, and a part which is hinged thereto and consists of a hopper, for receiving
the feed and a serics of transverse partitions the feed and a serics of transverse partitions
arranged on the sides of the hopper and dividarranged on the sides of the hopper and divid form a series of what may be called "stalls," each adapted to accommodate the head of
single animal. The trough may be constructed double or single and easily and quickly cleaned.
GATE.-J. M. Higbe, Manson, Iowa. The
object of this invention is to produce a gate which can be formed of wire or similar light material, and to provide a construction which will prevent the gate from sagging withou necessitating a construction involving the
of a heavy frame for the gate. It relates gates such as used in the fencing of farms an gardens.

GATE.-E. J. A. Rice, Harvard, Neb. On of the several objects of this invention is to provide a construction of farm gate, or tha
class of gates adapted to bc opened by a per son approaching it and closed by a person son approaching it and closed by a person
after having passed through the gate, no matter
whether such person is on foot, mounted, or whether such person is on foot, mounted, o
seated in a vehicle.
COMBINED COTTON CHOPPER AND CUL TIVATOR.-R. H. Purnell, Rosedale, Miss
The invention is a machine for chopping, o cutting out, cotton rows at regular intervals, and also for throwing dirt up to the plants
which remain standing. The runners will al ways rest and travel upon the ground, and if the team be large, or tall, the front end of the chopper striking the row of plants squarely, or chopper striking the row
at right angles thereto.

## Of General Interest

POWDER-COMPACTING DEVICE FOR DRUGGISTS.--O. Ware, Muskogee, Ind. Ter This invention pertains to a device for faciliportions to be put up in papers or capsule according to the requirements of the prescrip-
tion being filled by the druggist, and has for its object to compact the powder into a regular sized body whereby the druggist may more easily estimate the proportional parts and may of equal size.
bagasse-furnace.-F. F. Willems, Del anggoe, Soerakarta, Java. The invention re lates to improvements in furnaces, and more ing of bagasse, the fiber refuse of sugar cane
discharged from the juice-extracting machinery. discharged from the juice-extracting machinery. The bagasse may be dried before reaching the
grate bars, and may thus be utilized more grate bars, and may
cconomically as a fuel.
CONCRETE S'IEEL SUSPENSION-ARCH.A. J. Schauwecker, Clay City, Ind. The adapted to enable concrete arches to be con structed with a much larger span than is
practical at the prcsent time, with less con practical at the prcsent time, with less con the construction the arch may be made with a span of any desired length.
ANCHOR FOR AIR-SHIPS.-D. Thomas San Francisco, Cal. One purpose of the inentor is to provide an automatic anchor par-
ticularly adapted for use in connection with buoyant vessels to effect a landing at a given point quickly and accurately, and to so con-
struct the anchor that when it has entered the ground claws will be forced out into the ground when the anchor is sub.jected to upward strain,
preventing the anchor from being withdrawn or preventing the anchor from being withdrawn or permitting the claws to be drawn out.
HORN-SUPPORT.-V. H. Rapki, New York,
v. Y. One object in this case is to provide N . Y. One object in this case is to provide
in the construction of a supporting device parin the construction of a supporting device parengaged with a molding of the machine casing, and to provide a supporting rod so con-
structed that the horn may be supported vertically or horizontally, or. in other words, a
universal or interchangeable supporting rod.

Bag-LOCK.-L. B. Prahar, New York,
N. Y. a purpose of the invention is to fur ish a friction lock or latch for purse frames being particularly adapted to the frames of
what is known as hand or wrist bags, which ock or latch is intended to be more simple, durable, and economic to m
of its class now in use.
SYRINGE-NOZZLE.-H. F. Ong, Portland Ore. The aim of the inventor is to provide a
nozzle for fountain syringes or nozzle for fountain syringes or douches, in
which a tube having a catheter pointed ex tremity is provided with an attached bulb, tube being adapted to enter the cavity organs, permitting the inflowing liquid to leave and fo any and all fluid in the cavity at any time in its use.
MEANS FOR RECOVERING SUBMARINE
BOATS.--E. Oswald, United States Navy. The invention is an ald, United states Nor the re covery of lost submarine boats, designed place the location of the submarine with tainty in both day and night, permitting com-
munication with those imprisoned therein and munication with those imprisoned therein and the use of divers. It can be installed on boats already built or now building at a small DEVICE FOR PROTECTING SAFE-aUlTS.-E. V. Lorig and U. G. Graham,
South Omaha, Neb. An object of the invention mong others is not only to provide a means o act with certainty in giving alarms, but also at the same time to extinguish fire which alarm is sounded, and at the same time by the generation and distribution of noxious gases, drive away burglars or other unauthorized per-
sons. POST-HOLE DIGGER.-R. T. Jenney, De ere, Wis. There is provision in this invention
for a simple, durable, economic, and easily operated post-hole digger, one wherein the in but tryo parts, and whercin further the en tire structure may be made exceedingly light without sacrificing strength.
sustaining devicia for aerial ves sels.-I. Gruber, New York, N. Y. It is device capable of operation from within basket or car of a balloon to direct the balloo in one or the other direction or to prevent a
too rapid descent of the balloon in the event of a leakage of gas. or should the balloon be apparatus for cooling or heating beer.---E. A. Applal, New York, N. Y. Th paract of the invention is to provide an ap lishments, and designed for cooling beer and like liquids in a very simple and rapid manner, or for heating fluids by the use of steam or like heating medium.

## Hariware

door-fastener.-M. D. Merring, East Stroudsburg, Pa. The object of the inventor durable in use, adapted to securely fasten a door so as to prevent it from being opened when not in use by folding the lower section against the upper, and as a spring passes over
the hinge joint it is stretched and again contracts, thereby pulling the brace sections firmly together.
WRENCH.-F. C. Magenhermer, Evans ville, Ind. In the operation of this monkey
wrench the shaft may be partially rotated by its handle which projects from it a poin midway between the upper and lower loop blocks and as it is turned it will operate upo tions, and to free said serrations from engagement as may be desired.
nUt-Lock.-C. C. Halgren, New York N. Y. The direction of this invention is to
improvements in nut locks relating to type of nut lock embodying in its construction a helical nut. When the nut is threaded upon the bolt and forced to its seat, its threads
will automatically be forced into tight embrace with the threads of the bolt and thus securely lock them together.
GAGE. - G. W. McLavghlin, Ho uiam,
Wash. This invention relates to type adapted for discovering irregularitics in
to the cutting edges of saws, and it is an object of the inventor to provide a gage which is
particularly adapted for usc in gaging saws particularly adapted for use in gaging saw
with curved cutting edges, such as cross-saw and the like.

## Heating and Lighting.

SAFETY DEVICE FOR GAS-bURNERS. A. A. Churchill, Portland, Ore. The improve-
ment pertains to a device designed for the ment pertains to a device designed for the
prevention of accidents resulting from the accidental cscape of gas due to a failure to light same when it is turned on, or due to the gas Theving been blown out after being lighted
The object is to provide a device for closing an electric circuit and ringing a bell or operating any other indicator when unburned gas escapes from the gas jet.
APPARATUS FOR PRODUCING MIX-

Karger, 26 Frankfurter Allee, Berlin, Germany. In accordance with the present invenair respectively which are dependent upon the operation of the suction and forcing appliances, are arranged behind the admission aperture
common to them both, in such a manner that during the admission to the suction chamber the gas and air mutually penetrate each other.
ntages.
heater.-H. f. Langenhof, New York, . Y. The object in this instance is to proarising from the burning fuel in the fire-box to the fullest advantage, to heat a room by radiation of heat from the stove or heater, and to heat water, air, or both and conduct it to radiators or registcrs for heating other rooms
and to assist in heating the room in which the heater is located.

## Household Utilities.

cuspidor-cleaner.-O. Kerouse, San Francisco, Cal. This inventor's improvement for cleaning cuspidors and other rece adapted tubular bodies, especially those whose mouth or entrant portions are contracted or made of bing and cleaning is done in a rapid and ef-

## Machines and Mechanical Devices.

LABELING-MACHINE.-F. X. Malocsay,
ew York, N. Y. The principal objects of the invention are to provide means whereby an adhesive can be applied to cans or other arti-
cles, to provide for thereafter feeding and applying labels to the cans successively onto the portion supplied with the adhesive, and to essential parts of the machine and feeding the plied.
brickmaking-machinis.-E. L. Martin Woodburn, Iowa. The invention has reference to machines for making bricks, and is espeobject of the invention is to simplify and im prove the machine, and the finished bricks re ELEVATOR - $A$ Lindstror Seattle Wash. This improvement relates to elevators designed to be used for stacking lumber, and
has for its object to provide means simple in has for its object to provide means simple in
construction, effective in operation and durable in use, adapted to be moved about in ard and to elevate and deposit lumber at any desired height to form a stack.
COLLAR.-D. J. Kelly, Aberdeen, Wash.
The invention is an improvement in collars as used on the shafting of machinery, espethe clothing of workmen and others. An blaced over the ordinary collar as now in for covering the set-screw head which is th
PLUNGER FOR
онns, Fairmount, W. Va. The purpose of
the invention is to provide an improved con
struction of plunger whereby to preserve a proper and uniform degree of temperature necessary to the successful operation of such plungers as are commonly used as a part of
machines and presses employed in the manufacture of bottles, jars, and other tubular glass
POWER-SHOVEL. - R. Belden, Spanish Ranch, Cal. Mr. Belden's invention has refer-
ence to improvements in power shovcls for diging railroad beds, ores, ditches, and the like the object being to provide a power-shovel of omparatively simple construction by means
which the work may be rapidly carried on. RATCHET-POWER.
on, Ala. The invention refers to means plied reciprocal motion into rotary motion, and means for the purpose stated, involving rotat able shafts operatively connected by suitable gearing,
devices.

Prime Movers and Their Accessories.
AUTOMATIC DRAINAGE ATTACHMENR For lubricators.-J. C. Hubrakd, Georgetown, S. C. The invention relates to an 1 m provement in lubricators for steam engines in steam pipe for a regulated feed. As lubrica happens that the engineer forgets to open the drain valve of the lubricator when leaving at night, with the result that the lubricators
freeze and burst, thereby entailing expense of ew ones. The invention prevents this possi bility. Mr. Hubbard has also reccived a patent on an invention designed to provide an autowhic drainage attachment for each lubricator, which is entircly independent of any separate ion by the merc act of disuse of the into action by the merc act of disuse of the
or, or shutting down of the engine.
TRIPLE-FXPANSION ENGINE.-W. S. Lyan, Marshall, III. In the present patent the ncw and improved triple expansion engine,
new and improved triple expansion engine, to the fullest advantage and without back press-

Railways and Their Accessories. RAILWAY-TIE.-H. E. Matthews, Salida and the object is to produce a metal tie of simple construction having a special form thereto, and which tends to prevent a lateral displacement of the tie in the roadbed.

Pertaining to Recreation.
SNAPPING DEVICE FOR MARBLES.-W L. Horfman, Jersey City, N. J. The device is atter the the hand, and by pressure of the napped from the may be projected as wher object is to produce a device adapted to b uscd in playing marbles, and enables th marbles to be snapped with greater force an TRANSFORMABLE TOY May
TRANSFORMABLE TOY.-Mari A. Ginen Elizabeth, N. J. The toy is primarily in shee
form and adapted to be citt out, folded, glued orm and adape connected to out, folded, glued, and the parts connected to produce a trans
formable object. Objects may be produced upon sheets of paper, pastcboard, metal, or other material, manufactured, issued, or published separately, or in book form, or other form, and printed, drawn, stamped, or painted in colors or otherwise, with single, double, com pound, or scparate figures or parts, animals, creatures, or the like, which, after being made |different figures of persons, animals, creatures, or objects.

## Pcraiuiug to Vehicles

VEhicle-Wheel.-J. B. Huntrr, Pittsburg, Pa. The object of the invention is to provide a construction of wheel in which the rim is cushioned with respect to the hub,
special features being an octagonal metal hub, an ocial features being an octagonal metal hub, an outer rim, an inner ring, spokes between
the rim and ring, and radial spiral springs the rim and ring, and radial spiral springs
between the hab and ring allowing free vibra betwcen the hab and ring allowing free vibra-
tions in all directions radial to the hub, four annular metal plates being fitted between the hub and the ring and lapped and bolted together so as to brace the wheel in all dircctions.
auxiliary melly and Tire.-C. Buck-
 object is to provide means adapted to be cadily attached to or removed from vehicle heels of ordinary construction, and when appied thereto to protect the pneumatic tire from f the tire.
Note.-Copies of any of these patents will furnished by Munn \& Co. for ten cents each. Please state the name of the patentee, title of

##  <br> Notes and Queries.

mints to correspondents.

(10567) W. W. R. writes: We have an artesian well here about 1,000 feet deep
that is throwing out salt and white sulphur water at the rate of 400 gallons per second This is correct. I tested it three different times, and made it that or a little over. I am
satisfied it will rise in a 6 -inch pipe 30 to 50 satisfied it will rise in a 6 -inch pipe 30 to 50
feet, and probably higher. With say a risc of 30 feet, what horse-power will it make with a to run a flouring mill, or will it do it it ake Our town has a population of 600 , and we light the town with the power from well Say eight large clectric lights and 400 incan descent lights for stores and dwellings. A a pressure equal to a head of per sccond a develop 180 horse-power. The number of pounds of water per second, multiplicd by
the head and divided by 5,500 will give you the theorctical power. If this flow of wate ould be constantly relicd on, from 75 to 80 per cent of the above horse-power could be sufficient to light your town, with considerable margin to spare It is very doubtful if your well will continue its present output at th pressure which you mention for a great length get an expert's opinion on this point before making any large investment.
(10568) C. H. M. says: What is the
to run an air compressor, given the following:
The internal dimensions of the cylinder, the
speed, an the maximum internal pressure, or The internal dimensions of the cylinder, the
speed, and the maximum internal pressure, or
the pressure at which the air is delivere from the pressure at which the air is delivered from
the compressor. 1 . The horse-power required to run an air compressor, neglecting friction,
equals the area of the cylinder in square inches equals the area of the cylinder in square inches
multiplied by the internal pressure per square inch, multiplied by the number of feet which the piston moves per minute, and the whole
divided by 33,000 . Taking friction into ac count, the power necessary would be nearly
double this amount. 2. In finding the exact double this amount. 2 . In finding the exact ure be considered? $\Lambda$. In determining the
cxact horse-power, the difference in pressure of the two sides of the piston in pounds per
square inch is the figure that should be used. 3. Of what advantage is a several-staged com
pressor over a single-staged one? $\Lambda$. $\Lambda$ several pressor over a single-staged one? $\Lambda$. I several
staged compressor has the following advan tages: The air is compressed less in each cyl
inder, and therefore a larger amount of air can be forced out of each cylinder per stroke.
The valves work more satisfactorily, an there is less leakage, because the difforence in pressure on the two sides is less. Second, a smal
amount of leakage does less harm. The increase in temperature duc to the compression in each cylinder is less, and the air may be
cooled between the various stages of the compression. The work is more uniformly dis-
tributed throughout the entire stroke, making tributed throughout the entire stroke, making
the compressor run more smoothly. 4. What would be the formula for finding the horse power recjuired for a two, three, or four stage
compressor? $\Lambda$. The horse-power of the two threc, or four stage compressor each cylinder,
first finding the horse-power of
by the method already explained, and adding these amounts together. 5. Is there a formula for computing the horse-power of a steam tur-
binc, given the steam or air pressure and the number of cubic feet of steam or air delivered per minute at a given pressure? At what
pressure will a turbine work most economicmessure will a turbine work most economicing engine? I. There is no reliable formula ing engine? . . There is no reliable formula turbine. In general, steam turbines winl
develop about the sante horsc-power for a given amount of steam as reciprocating engines. $A$ small power turbine at 120 pounds steam
pressure non-condensing, will require 40 or 45 ! pounds of steam per horse-power per minute.
On the other hand, a larger turbine, designed so as to get the full lxenelit of the expansion of the stcam, when working with stcam at 180
pounds prossure and condensing may be erated with about 16 or 18 pounds of steam per horse-power per hour. The higher the steam press
(10569) W. M. says: I wish to experiment with compresse air. and desire a little information on that sulject. nir com-
pressed to a density of 50 pounds to the square inch and admitted to a cylinder 3
inches in diameter for a distance of 2 inches, how far will the piston travel before losing all its expansive force? Also, at 100 and 200
pounds to the square inch? $\Lambda$. When air expands, its absolute pressure decreases in the
same proportion that its volume increases, so same proportion that its volume increases, so
long as the temperature remains constant. The absolute pressure is found by adding 15
pounds-the atmospheric pressure-to the pressure which is shown by the gage. Thus,
if one cubic foot of air at 50 pounds pressure expands to two cubic feet, the absolute pressure after expansion will be $50+15 \div 2=32.5$
This equals a pressure of $32.5-15=17$ pounds above the atmosphere. In the same
way, if the volume were increased to 3 cubic fect, the final pressure would be $50+15 \div 3=$ 21.6. This equals a pressure of 6.6 pounds
above the atmosphere. This rule can be applice to any pressure and to any change in volume, so long as the temperature remains
constant. The rule docs not exactly apply to compressed air in the cylinder, because the
temperature of the air decreases when the air expands, and this decrease in temperature
decreases the pressure somewhat by the figures given by the above rule. Where the expansion is not carried too far, however, the above rule
gives restults which are approximately correct. gives results which are approximately correct.
If the fall in temperature is known, the final pressure, as dotemined by the alove rule, may formula: $4(60+t 1$. where $t 1$ efuals the tem$460+t 2$
perature of the air in degrees Fahrenheit at the end of the expansion, and t2 equals the at the beginning of the expansion.
(10570) W. T. H. asks: Can you tell me if there iss any machine invented or patcint (or in use) to produce power by any of
what are called the mechanical powers, such
as the wedec, the solels without any other agent whatever, motor as aim, water, clectricity, hat in any form or or operate machinery? I do not mean the perpetual motion fiond business, but something to push and pull with for something. A. We
do not know of any motor as a generator of power such as you call for, but a lever or an a weight, acting under gravity, will generate penell and comes within the limits of your
question They do not use air, water, heat,
electricity, or chemicals, but only gravity. electricity They do not use air, water, heat,
or cheer and au
or chem, but only gravity.
engineering.

Tomato Culture. By Will W. Tracy New York: Orange Judd Co. 16 mo . 50 cents.
The author has rounded up in this book the all its phases that has ever been gotten to gether. It is no second-han work of refer
ence, but a complete story of the practical ex periences of the best posted expert on tomatoe in the world. No gardener or farmer can
affor to be without the book. Whether grown affor to be without the book. Whether grown
for home use or commercial purposes, the for home use or commercial purposes, the
reader has here suggestions and information nowhere else available.
Electric Bells, Indicators, and Aerial Lines. By Umberto Zeda. Translated from the original Italian and
revised by S. R. Bottone. Authorrevised by S. R. Bottone. Author-
ized edition. London: Guilbert Pitman. 16 mo .; cloth; 120 pages; 109 man. 1llustrations. Price, 80 cents.
$\Lambda$ knowledge of electric bells is almost a The work of which we are writing gives a The work of which we are writing gives
progressive account of the modern practice fo installing electric bells, indicators, and aeria lines, with particular stress upon the many novelties which the Italians have
int- the usual ways of working.
Lessons in Leather Work. By Mar-
guerite Charles. New York: F. W. guerite Charles. New York: F. W.
Devoe \& C. T. Raynolds Co. 16 mo Devoe \& C. T. Raynolds Co. 16 mo .;
paper cover; 56 pages. Price, 35 cents.
Although the art of leather-decorating reached a very high stage in the middle ages, and for several centuries following, its possi-
bilitics are scarcely realized nowadays. The tools required are not expensive, and the skill necessary to achieve at least passable results can be acquire without excessive practice.
The translation of Miss Charles's pamphlet should give an impetus to leather-working
that will take away the haunting memories of the "burnt-work" horrors of a year or so ag by the a
the art.
The Effect of Diev on Endidancer. Effect of Diet on Endurance
Publications of Yale University. By
Irving Fisher, Ph.D. New Haven Irving Fish
Conn., 1907.
Dr. Fisher's monograph is a valuable contribution to the very scant literature on the
subject of endurance. His experiments were subject of endurance. His experiments wer
conducted largely to verify the claims o ance of thorough mastication upon endu implicit obedience to appetitc. Dr. Fisher finds that Mr. Fletcher's claims, so far as
they relate to endurance, are justified. The results observe during the experiment may be summarized as a slight reduction of total food consumed, a large reduction of proteid element,
especially for fresh foods, a lessenc excretion especially for fresh foods, a lessence excretion
of nitrogen, a slight loss of weight, a slight of nitrogen, a slight loss of weight, a sligh
loss of strength, an enormous increase physical endurance, and a slight increase in mental abinit. The practical value of the man can apply
of food values.
One Year's Growth in the Railioad Dethe OUtlook for 1907. Issued by the International Committee of the Y. M. C. A., 3 West 29th Street, New
York city. .
To those unacquainted with the ramifica
tions of the organization, the Year Book of the Railroad Department of the Y. M. C. will prove a revelation. With. its one hun-
dred and sixty-two buildings, this association reaches a membership of over eighty-four thou sand; for the most part men whose lives woul for the opportunities of worship offered by this society. When one sees that the attendance upon religious exercises is above so per cent of the total number of members, one can
draw some idea of the magnitude of the work draw some idea of the magnitude of the wor
carrie on.
Mechanical Triangulations in Free Cleveland, Ohio: Cleveland Pub lishing Company. 12mo.; paper
cover; 44 papes; illustrated. Price cover; 44
50 cents.
description of a method of drawing by
triangulation, which, when mastered, enables
the pupil to make rapid progress in free-hand the pupil to make rapid progress in free-hand
drawing. Although best adapted for the copy ing of objects which are all in one plane, the system can be so modified as to be applicable
to subjects having three dimensions author's manner of expressing his ideas is rather involved in parts of his work, but the
benefit derive is quite worth the slight extra benefit derived is quite worth the slight extra trouble in gaining
Histolyse, Sans Phagocytose, des Muts cles Vibrateurs du Vol, Cilez les
Reines des Fouryis. Extrait des Comptes rendus hebdomadaires des Séances de l'Académie des Sciences Paris, 1907. T. 144. Pp. 393.
This short but valuable discussion by M.
Charles Janet, well known to entomologist
isappear completely after the nuptial flightit fanet concludes from a minute study of the degeneration of the system that these muscles in the queen ant of Lasius niger disappear ab-
solutely without any intervention of solutely without any intervention of phagoytosis.
igation by Compass. By Clinton S. Bissell, B.A. Flushing, N. Y.: C. S.
Bissell. Paper cover; 32 pages. Price, 50 cents
splendid little practical book of instruc on navigation by "Dead Reckoning." by its use anyone with a knowledge of sailing should be able to master the details of the
art, so clearly are all the operations explained. Since all the necessary tables are containe in the text, there is a saving in time in bringing up the day's work.
imple Photographic Exprinimevts. By F. Thorne Baker. London: Percival
Marshall \& Co. 16 mo .; paper cover; 68 pages; illustrated. Price, 25 cents.
hotort treatise for such tollowers of of minaphy as are of an incestigative turn
of contains a number of simple, yet most interesting, experiments with photographic materials that anyone can perform however slight his theoretical training may have been. The directions for making sensitized bapers.
and "orthochromatic plates" place a most im. and "orthochromatic plates" place a most im-
portant part of photography within the grasp of the amateur
Light and Shade. By the Duffner \&
Kimberly Company, New York. 16 mo .; paper cover.
A really charming little book on Period Decoration, showing how the products of the
firm by whom it is published have been decloped along harmonious lines. The text is rations are of a very high artistic the illus The Long Leaf Pine in Virgin Forest. A Silvigil Study. By G. F. Schwarz.
New York: 16 mo .; cloth; $13 \overline{3}$ pages; illustrated. Like all nations that have had enormous ates
een lavish of our timber supply. Our have have were so widely extended that it seemed absur Now we realize that we can hope to have a
Nowhasted sufficient supply of lumber for our future needs only by carefully gnarding our remaining
woodands. This volume adds to the knowledge of the life-history ree, the "long leaf pine." slong almost the isolated areas, seaboard, as well as in several cr-growth. its ingly great. Mr. Schwarz has had admirable pportunitics to study the various conditions ork of in his book, and has produced the welfare of our forests.
Remplacement des Muscles Vibrateurs u Volpar des Colonnes d'adipocyTres Cinez les folkais, Apres Le Vole
Neptial. Extract des Comptes Ren dus Hebdomadaires des Seances de l'Acadèmie des Sciences. Paris.
period which may not be more than a few minutes in duration. Tle investigations of The Janet show what becomes of these muscles,
the most bulky of those which the insect pos

INDEX OF INVENTIONS
For which Letters Patent of the

## United States were Issued

for the Week Ending
June 11, 1907.
AND EACH BEARING ThAT DATE
See note at end of list about copies of these pateuts.]









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