

Out of the rat-like marsupials, by the formation of the placenta, development of the commissures of the brain, etc., come the semi-apes, of which the lemur (20) is an existing type. From the semi-apes, by the transformation of the jaw, and by claws on the toes becoming nails, arose the narrow-nosed tailed ape (21). Then the tail disappeared, the hairy covering partially departed, and the brain above the facial portion of the skull developed, producing the orang-outang (22), or the chimpanzee, or the gorilla—the human apes of the miocene period. These apes gradually became accustomed to an upright walk, and the separate pairs of legs differentiated. The fore hand became a human hand, the hind one, a foot. Thus was produced the ape man, the pithecanthropus (23), who existed toward the end of the tertiary period. Genuine man developed out of the ape-like man by the gradual development of the animal language of sounds into a connected and articulate language of words. These went hand in hand with the higher differentiation of the larynx and the brain. Primæval man, Hæckel divides into the straight haired and the woolly-haired. From the last arose the Papuans (24), the oldest of all still living human species, and nearest related to the original primary form of woolly-haired men. Next come the Hottentots, belonging to the same branch as the Papuans. To the other branch belong the Negroes and the Kaffirs.

The straight-haired men generated the Australians and Pro-Malays, the latter, the Mongols and the Malays. The Mongols produced the eighth and ninth species, the Americans and the Arctic Men, and the last produced the Esquimaux. The Malays have developed into no other distinct species. A third branch of the Pro-Malays, however, produced the Dravidas, from whom sprang the Cingaleses, the Nubians, and the Mediterranees, thus completing the series of twelve species and thirty-six races.

Tracing, lastly, the history of nations or historic tribes, the Mediterranean gave rise to four races, the Semites and Basques in one branch, the Indo-Germans and Caucasians in another. From the Indo-Germans, in regular progression, came Sclavo-Germans, the primeval Germans, the Germans, Low Germans, Saxons, and, lastly, Anglo Saxons. And here our chronicle ends, for thus over a lapse of thousands of millions of years—ages, according to Hæckel, countless and incalculable save by mere approximation—we have traced the development of man from the clot of albumen to the race which now populates these United States.

The Heat of Slags and Economy of Furnaces.

From two recent papers of Professor Grüner we obtain the following interesting data: The experiments on which they are based were made with a water calorimeter of 18 kilogrammes (nearly 40 lbs.) weight, and upon quantities of molten material varying from 50 to 100 grammes (1.6 to 3.2 ozs.). The heat is given in French calories, or centigrade units.

The less fusible slags of the blast furnace (accompanying gray pig) possess, on issuing from the furnace, 450 to 500 units. Those proceeding from non-fusible ores, and most frequently associated with white pig, have 400 to 450; white glass (70 per cent silica) heated to the temperature for glass-blowing, 415 to 420; bottle glass under the same circumstances, 380 to 400. The ferruginous and manganiferous scoriae from the Martin process (54 to 55 per cent silica) require for smelting 410 to 415 units; porphyroidal copper slags from Swansea (60 per cent silica and quartz), 405 to 410; bisilicate protoxide of iron slags (45 per cent silica), 380 to 400; puddling or reheating cinder (30 to 35 per cent silica), 320 to 330; monosilicate slags from lead and copper furnaces (28 per cent silica), 275 to 300. Pure, well carburized pig requires for melting 225 to 230 units; gray silicious pig (3 per cent carbon), 250 red copper, which, like the foregoing, has its melting point at about 1,200° C. (2,192° Fah.) may be brought to that temperature with 160 to 165 units of heat. Iron copper matte requires 230 to 240; iron lead matte, 200. Lead, which has, like platinum, a very low specific heat, can be brought to clear orange redness with 45 to 50 units.

From the foregoing figures, and other researches which he has previously made public, Professor Grüner has deducted the following interesting statements:

In the wind furnace, which is from this point of view the most imperfect apparatus, there is utilized, in the fusion of steel in crucibles, but 17 of the total heat capacity of the fuel, or at most 3 per cent of the heat generated. In the reverberatory, when steel is melted in crucibles, the useful effect is 2 per cent of the total heat, or 2 per cent of the heat generated. In the Siemens crucible furnaces, 3 to 3.5 per cent; in Siemens glass furnaces, operating on a large scale, 5.5 to 6 per cent; in ordinary glass furnaces, 3 per cent; in fusion upon the open hearth of a reverberatory, of glass, 7 per cent; of iron, 8 per cent; in well arranged Siemens and Ponsard furnaces, up to 15, 18, and even 20 per cent of the total heat is utilized.

The calorific effect is much greater when the fuel is mixed with the material to be fused. In old cupolas, 29 to 30 per cent; and in modern cupolas, higher, more rapid in working, and narrower in zone of fusion, upwards of 50 per cent is realized. Large iron blast furnaces utilize, according to their working, 70 to 80 per cent of the heat generated, or 34 to 36 per cent of the total heat which the complete combustion of the fuel would set free.—*Engineering and Mining Journal.*

Cat Racing.

Since the siege of Paris a great deal of interest in the breeding and training of homing pigeons has been created by the admirable service rendered by these swift-flying messengers from the besieged inhabitants of that city to friends

outside. The birds in which the homing powers were found to be most strongly developed were of a breed of Belgian pigeons now pretty generally known as Antwerps. This homing faculty, it seems, a Belgian society is now endeavoring to develop in the domestic felines of that country by inaugurating cat races, on much the same principles as pigeon-flying matches. A cat race was very recently instituted in Liège. There were thirty-seven competitors, all of which were liberated some distance from the town, and the prize was awarded to the animal which reached its home in that town first. They were started at 2 P. M., but the distance they had to traverse is not stated; suffice it to say, the first prize animal won in a canter, as he arrived at home at 6:48 P. M. the same evening, the second cat not appearing until 2:24 A. M., the following morning.

DECISIONS OF THE COURTS.

United States Circuit Court—District of Massachusetts.

R. C. ANTHONY *et al.* vs. JOHN CARROLL.—ASSIGNMENT OF CLAIMS FOR PATENT DAMAGES.
[In equity.—Before SHEPLEY, J.—Decided October, 1875.]

SHEPLEY, J.:
This bill in equity, filed July 27, 1874, alleges the grant of letters patent of the United States to Marie Amédée Charles Meiller for a new and useful machine for making paper pulp; the assignment by Meiller, to one Buchanan June 19, 1857, of all Meiller's right and title to the invention secured by the letters patent; the assignment by Buchanan to Buffam, trustee of the American Wood Paper Company, October 14, 1863; and the assignment by Buffam to that company, June 16, 1865, of his legal estate in the patent. The infringement by the defendant, and consequent profit to defendant, and damage to the American Wood Paper Company, is alleged from October 14, 1863, to August 19, 1867.

The bill alleges an assignment, August 19, 1867, from that company to Gardner Harland of "all their claims against the said defendant for the said damages and profits for the said infringement during the said period," and an assignment by Harland to R. C. Anthony, one of complainants, October 4, 1873, of all said claims. The bill is brought by R. C. Anthony, a citizen of New York, and the American Wood Paper Company, a corporation created by the Legislature of the State of Rhode Island and located at Providence in said State, against the defendant, a citizen of Massachusetts, for a discovery and account of profits, and for damages and other relief.

The defendant has demurred generally to this bill, and in support of his demurrer relies upon the bar of the statute of limitations of the Commonwealth of Massachusetts, and also upon the character of the claim alleged in the bill as being a claim in tort in this Commonwealth is six years. (Gen. Stat. of Mass., Ch. 155, Sec. 1.)

A general rule, the law of the State in which anational court sits must be the rules of decision in such court. The thirty-fourth section of the judiciary act provided that "the laws of the several States, except when the Constitution, treaties, or statutes of the United States shall otherwise require or provide, shall be regarded as the rules of decision in trials at common law in the courts of the United States in cases where they apply." It is too well settled to require the citation of authorities that, in ordinary suits at common law, the statutes of limitation of the State where the suit is brought may be pleaded in bar under this provision of the judiciary act.

Whenever the cause of action is one cognizable by a court of common law, a court of equity, in accordance with the general rules of equity jurisprudence, followed in this country, the question of limitation of actions is a question of which is under the exclusive control of the national legislature and judiciary.

Mr. Justice Swayne held, in the case of *Collins vs. Peebles* (2 Fisher, 541), that the State statutes could not limit the time within which actions for the infringement of letters patent might be brought in the courts of the United States; that Congress having failed to legislate upon this subject, the remedy is left to the time for bringing such actions; and Mr. Justice Grier is reported, in a note to the above case (2 Fisher, 543), to have so decided in the case of *Parker vs. Halleck*. To the same effect is the decision in *Read vs. Miller* (3 Fisher, 310).

In the case of *Parker vs. Hawk* (2 Fisher, 58), the learned Judge of the Southern District of Ohio decided that the limitation act of Ohio applied to an action on the case in the Circuit Court of the United States for an infringement of a patent. It is stated, in a note to that, that the decision was affirmed by Mr. Justice McLean. *Parker vs. Hawk* was decided on the authority of *McCluney vs. Silliman* (3 Peters, 270). But *McCluney vs. Silliman* is by no means decisive of the question. There was an action on the case against the defendant as registrar of a land office in Ohio for non-feeance, in refusing at the request of the plaintiff to enter his application for the purchase of certain Government lands, as required by an act of Congress. Such an action against an officer for non-feeance could have been prosecuted in the State as well as in the federal courts. The cause of action was one over which the national and State courts had concurrent jurisdiction. Such a case clearly falls within the provisions of section thirty-four of the judiciary act. It is so stated that the laws of the States apply to the infringement of a patent, when the right of action is exclusively under the Constitution and laws of the United States, when the form of the remedy is prescribed by the acts of Congress, and when the Circuit Courts of the United States are clothed by statute with exclusive jurisdiction over the whole subject matter.

Should the Legislature of a State pass an act in express terms limiting the time for bringing all actions in the federal courts for infringement of patent rights, there can be no reasonable doubt that such a statute would be unconstitutional and void. The policy of the government to provide a uniform system of rights and remedies throughout the United States upon the whole subject matter of patents is manifestly useful and desirable, by placing it under the control of Congress and the federal courts, and by preventing such State legislation could directly or indirectly limit, restrict, or take away the remedy. For these reasons, I think no State statute of limitation can be pleaded in bar of this action.

It is contended in support of the demurrer that a court of equity will not entertain a suit for the benefit of an assignee of a right of action for a tort. The question whether a court of equity would entertain this suit, brought only in the name of the assignee, of a right of action for a tort, does not arise in this case, as this bill is brought by the assignor, who is also the owner of the patent, and who, under the rules of equity pleading, joins with him, the assignee, he being beneficially interested therein. The better opinion seems to be that, if the claim be for an injury to one's estate or property, and not to a mere claim for an injury done to the person or personal feelings of the assignor, the claim may be assigned. (People v. *Metz*, 16 Pet., 221.)

The demurrer of defendants is not sustained.
[Francis C. Nye and L. C. Ashley for complainants.
Brown & Holmes for defendant.]

United States Circuit Court—District of Massachusetts.

JOHN KENDRICK vs. THOMAS A. EMMONS.—WEAVING APPARATUS.
In equity.—Before SHEPLEY, J.—Decided October, 1875.

An English patent, taken out surreptitiously by any person, who, without the knowledge of the American inventor, and without authority from him, endeavored to appropriate the benefits of his invention, would not thereby deprive the real inventor of any of his rights.

SHEPLEY, J.:
The principal questions presented in this case were fully heard and argued upon the motion for an injunction *pendente lite*. Upon a careful revision of the case and of all the new evidence now before the court, no good reason appears for any modification of the views expressed upon the hearing of the motion. The reasons are fully stated in the opinion upon that motion, and it is not necessary to repeat them. The conclusion is that the bifurcated plate in the English machine, constructed substantially according to the patent to Ellis and Sladdin, sealed July 12, 1864, and sometimes described as the retainer fork, as well as the contrivance substituted for it in the Sladdin machines in evidence, which perform the same office, are infringements of the third and fourth claims of the reissued patent No. 5,222 to Joseph Winsor, for an improvement in machines for making weaver's harness.

Additional evidence and elaborate opinions of experts have been introduced at the final hearing upon the disputed point, whether in the machines of the Sladdin type the size of the loop is gaged by the needle or by the retainer and its substitutes. Question is also made whether the fingers in the Winsor machine, in fact, gage and determine the size of the loops. The theories of the defendant's experts upon this subject are ingenious and elaborate; but upon close examination of the two machines, when operating together, the gages, one cannot fail to discover that, as a practical result, the length of the loop in the heddle is limited in the Winsor machine by the fingers W1 and W3, and in the Sladdin machine by the bifurcated plate or retainer. Each of these devices determines the size of the eye or loop by a gage outside of the eye itself, and this operation constituted one of the prominent features of the Winsor's invention. The defendant's expert, in establishing the use of the laying bar, around which the heddle had before been formed, and thus to dispose of one of the great obstacles in the way of making a loom harness automatically, which Winsor was first to accomplish. This office of determining the distance from each other of the two extremities of the eye by limiting device outside of the eye itself, the retainer of the Ellis machine performs for the same purpose, and in substantially the same manner as the fingers in the Winsor machine. It is intended that as letters patent had been granted on the invention in England in April, 1854, for the term of fourteen years from their date, prior to the application for letters patent of the United States, the letters patent of the United States expired with the English patent, and could not be legally extended after the expiration of the patent.

The English patent was not sealed previous to the 15th of June, 1854. It was taken out surreptitiously by some one who, without the knowledge of the American inventor and without authority from him, endeavored to appropriate the benefits of his invention. If a person had thus surreptitiously taken out letters patent in this country for the invention of another who was diligently perfecting his invention, he would not thereby have deprived the real inventor of any rights. It is not believed that, by taking out in advance an English patent, he could accomplish more than he could have done by taking out letters patent in this country. Moreover, as the English patent was not sealed prior to June 15, 1854, it was not more than six months prior to the application for letters patent in this country; and under the act of 1836, he had a right to take out his patent in this country for the full term, although he had taken out one in a foreign country, the same having been published at any time within six months next preceding the filing of his specifications and drawings. The act of 1839 was not intended to limit the inventor's rights under the act of 1836, but to enlarge them. He still had the right to take out his patent for the full term, notwithstanding that he had obtained and published a foreign patent within six months. But after the six months he had, for a further specified time, a right to take out his patent, subject to the conditions and specifications specified in the act of 1839. But the provision in the act of 1839, with reference to the effect of his invention, having been patented in a foreign country more than six months prior to his application, evidently refers to the fact of its having been patented by him, the applicant for the American patent.

In the interlocutory decree made on the motion for a preliminary injunction, and in what has hereinbefore been stated upon the subject of infringement, reference has been had solely to the infringement of the third and fourth claims of the reissued patent. The question of infringement of the eighth claim remains to be considered.

The eighth claim is for—
"8. The combination of the sliding bar, or its equivalent, and the rods acting together, substantially as described, whereby the loom is preserved after it is formed, and the heddles are drawn away from the locality where they are formed on the stationary slats, and the movement of the sliding bar, or its equivalent, and the hand attached thereto, to which heddles are tied in the process of formation."

Winsor's rights under this claim also are to be considered in the light of the fact that, prior to the date of his invention, there had never been a machine constructed in which was organized any apparatus for making the difficult side of a weaver's harness, combined with a sliding bar, or its equivalent, for drawing away the heddles, nor had there, prior to the invention of Winsor, been any machine having any combination of the sliding bar, or any equivalents of any such rods as are described in the Winsor patent, for receiving and preserving the loom after it is formed. The evidence in the record proves that the Winsor invention antedates any devices which are relied upon as anticipating this portion of the Winsor invention.

In the Ellis and Sladdin machine we find the same sliding bar for removing the heddles from the locality where they are formed, combined with automatic arrangements for making the heddles. We find, also, slats securing and preserving the loom supported by one end only, as in the Winsor machine, so as to afford the facility of securing the twine at one of their sides or the other by passing them by the end, and by receiving them as they are formed upon the free end, in combination, as in the Winsor machine, with the screws and yoke for moving the heddles along. The Ellis and Sladdin devices appear to be equivalent devices acting in the same combinations to accomplish the same result of preserving the loom after it is formed; and although they, by assisting to form the loom, do more devices do in the Winsor patent, that does not relieve them from liability to the charge of infringement.

The defendants must, therefore, be held to have infringed the third, fourth, and eighth claims of the reissued patent.
Decree for injunction and account as prayed for in the bill.
[Chauncey Smith, Benjamin F. Thurston, and William W. Swan, for complainants.
Benjamin F. Butler and A. K. P. Joy, for defendant.]

NEW BOOKS AND PUBLICATIONS.

THE ELEMENTS OF PHYSICAL GEOGRAPHY, for the Use of Schools, Academies, and Colleges. By Edwin J. Houston, A.M., Professor of Physical Geography and Natural Philosophy in the Central High School of Philadelphia. Price \$1.75. Philadelphia, Pa.: Eldredge and Brother, 17 North Seventh street.

This is one of the best school books that we have lately received. It is full of information, which has been thoroughly condensed without losing any of its clearness of explanation; and it is written in a style to interest the young reader, and to induce him to give proper attention to every branch of the subject. The maps and other illustrations are excellent, and the book is evidently the work of a writer who knows how to teach.

THE ECONOMY OF WORKSHOP MANIPULATION, a Logical Method of Learning Constructive Mechanics. Arranged with Questions for the Use of Apprentice Engineers and Students. By J. Richards, Author of a "Treatise on Woodworking Machines," etc. New York city: E. & F. N. Spon, 446 Broome street.

Mr. Richards' works on the economy of the mechanical arts are well known, and his new book will enhance his reputation as a fluent and pleasing writer. His views are always sound and enlightened, and his precepts deserve to be learnt by heart by every young mechanic. The chapter on mechanical drawing in the book now before us is an excellent piece of instruction.

THE POLYTECHNIC REVIEW, Devoted to Science as Applied to the Useful Arts. Published Monthly. Subscription \$3 a year, payable in advance. Philadelphia, Pa.: Drs. Wahl & Grimshaw, 119 South Fourth street.

This publication is intended to occupy some portion of the extensive field in which we are diligently laboring, and to present to its readers, monthly, all the current information on the many subjects included under the generic name of Science. Its first number has a creditable appearance.

PAPERS RELATING TO THE FOREIGN RELATIONS OF THE UNITED STATES, transmitted to Congress with the Annual Message of the President, December 6, 1875. In Two Volumes.

NOTES ON THE YUCCA BORER. By Charles V. Riley, Ph.D. St. Louis, Mo.: R. P. Studley Company, 221 North Main street.

SCRIBNER'S MONTHLY for March offers its usual attractive table of contents. The number opens with an excellent description of the new buildings of Trinity College, Hartford, Conn., with illustrations. The architecture of these proposed edifices is altogether different from that of any other college buildings in the country, and will attract considerable popular interest. The kindergarten system of instructing very young children is clearly expounded by Dr. Eggleston. Mr. Dorsey Gardner writes upon the struggles and successes of Wilson, the celebrated ornithologist. The editor has some thoughtful essays on "Public Halls" and "Common Schools." Mr. P. T. Quinn contributes some timely directions about laying out small places and suggestions relating to rural topics, and there is a goodly variety of entertaining serial and short stories. Subscription price \$4 a year. Scribner & Co., publishers, 743 Broadway, New York.

ST. NICHOLAS for March is, as usual, preternaturally good. If the editress would occasionally introduce something poor within its covers, we should be half inclined to welcome it as a pleasing variety, just as a discord in music often adds to the beauty of the surrounding harmony. Mr. Whittier sends a new and beautiful poem, Mrs. Oliphant the beginning of a series of interesting papers on Windsor Castle, Mr. Charles Dudley Warner and Mr. Bayard Taylor contribute interesting sketches of foreign countries, Miss Alcott continues her pleasant talks; in fact, we cannot pretend to tell half the good things with which the youngsters are provided. The illustrations are as charming in subject and variety as they are artistic, and that is saying a great deal. Subscription price \$3 a year. Scribner & Co., publishers, 473 Broadway, New York.

THE ATLANTIC MONTHLY for March begins with Mr. T. B. Aldrich's new poem "The Legend of Ara Coeli;" Mr. John Fiske concludes his papers on the "Unseen World," imparting results of modern scientific religious thought; Mr. Charles Francis Adams publishes the first chapter of his excellent essay on the "State and the Railroads," one of the most valuable and thoughtful contributions to the literature of the railway that we have ever read. The beauty of inflation and the advantages of a paper currency Mr. Henry Carey Baird attempts to show in an article, none the less well written and interesting, even if its writer, in the opinion of most people, is on the wrong side of the present important financial controversy. Mrs. Fanny Kemble continues her pleasant "Gossip," Mr. E. W. Jones tells us some new facts about the Welsh in America; and besides a variety of short poems by Dr. Holmes and other well known writers, the editor contributes his usual careful and critical reviews of current literature. Hurd & Houghton, publishers, New York and Boston. \$4 per year.

THE ALDINE.—The Aldine Company, 18 and 20 Vesey street, New York, have issued, of this year's numbers, Parts 1, 2, 3, and 4. The engravings, letterpress, and paper are all of the highest standard of art work. Published fortnightly at 50 cents a number, and sold only to subscribers. The publishers announced it as their intention to make it the leading art journal of America. They are fulfilling their promise.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]
From January 7 to February 3, 1876. Inclusive.

BOAT DETACHER.—R. F. Hyde, Springfield, Mass.
BOILER, ETC.—B. T. Babbitt, New York city.
CAR AXLE.—T. S. E. Dixon, Chicago, Ill.
CASTING COPPER, ETC.—J. Turner, Bridgewater, Mass.
CONCRETE BLOCK PRESS.—T. Cook, Sing Sing, N. Y.
COP TUBE.—G. H. Simmons, Bennington, Vt., et al.
COP TUBE.—J. Essex, North Bennington, Vt.
CUTTING OIL CAKE.—A. B. Lawther (of Chicago, Ill.), Liverpool, Eng.
ELECTRIC REGULATOR.—J. Sangster et al., Buffalo, N. Y.
EXTINGUISHING FIRES.—J. L. Hastings et al., Pittsburgh, Pa.
FLANGING MACHINE.—R. C. Nugent, Dayton, Ohio. Two patents.
FRICTION CLUTCH.—W. F. Holske et al., New York city.
FURNACE.—E. Savage, West Meriden, Conn.
GLOVE FASTENING.—F. G. Farnham, Hawley, Pa.
HARVESTER SHOE.—Johnston Harvester Co., Brockport, N. Y.
HORSESHOE.—E. L. Tevis, Philadelphia, Pa.
HOT WATER SUPPLY.—J. Archer, Denver, Col.
LAMP.—A. Burbank, Rochester, N. Y.
LIQUID METER.—D. W. Huntington et al., South Coventry, Conn.
LOCK WASHER.—S. E. Gee, New York city.
LUBRICANT.—H. V. P. Draper et al., Hannibal, Mo.
MAKING CIGARS, ETC.—J. T. Hannaman et al., Baltimore, Md.
MAKING CONCRETE BLOCKS.—T. Cook, Sing Sing, N. Y.
MAKING GAS, ETC.—J. P. Gill, Newark, N. J.
MAKING SACKS.—H. P. Gariand (of San Francisco, Cal.), Dundee, Scotland.
MAKING STEEL.—J. Baur (of Brooklyn, N. Y.), London, Eng. Two patents.
MAKING STEEL RODS, ETC.—C. P. Haughian, Brooklyn, N. Y.
METAL-TURNING LATHE.—H. M. Quackenbush, Herkimer, N. Y.
PRINTING AND CUTTING MACHINE.—R. M. Hoe et al., New York city.
PROPELLER.—J. Ellis, Freeport, N. Y.
RAILWAY GATE, ETC.—S. A. Jenks, Lincoln, R. I.
RAILWAY WHEELS, ETC.—J. Bowron, Senr., Philadelphia, Pa., et al.
REEFING SAILS.—P. C. Marsh, Northampton, Mass.
REFRIGERATOR.—J. J. Bate, Brooklyn, N. Y.
REVOLVING PISTOL.—E. P. Boardman, Lawrence, Mass.
ROCK DRILL.—M. D. Converse, New York city.
ROLLER SKATE.—S. O. Brown (of San Francisco, Cal.), London, England.
ROWLOCK.—F. A. Gower, Providence, R. I.
SCREWING MACHINE.—F. P. Sheldon, Providence, R. I.
SEWING MACHINE, ETC.—R. H. St. John, Springfield, Ohio.
SEWING MACHINE.—Howe Machine Company, Bridgeport, Conn.
SEWING MACHINE.—J. E. A. Gibbs, Steele's Tavern, Va.
SEWING NEEDLE.—H. M. Jenkins, New York city.
SHARPENING SAWS.—W. L. Covell, Providence, R. I.
STEAM ENGINE.—W. C. Wilcox et al., San Francisco, Cal.
TREATING OIL SEEDS.—A. B. Lawther (of Chicago, Ill.), Liverpool, Eng.
TYPE WRITER, ETC.—G. H. Morgan, Alexandria, Va.
WOOD SCREWS, ETC.—T. J. Sloan, New York city.

Recent American and Foreign Patents.

NEW AGRICULTURAL INVENTIONS.

IMPROVED BUTTER PACKAGE.

Andrew Jackson Dibble, Franklin, N. Y.—This is a new package containing butter, so constructed that the cover may be readily attached and detached, and when attached will be held securely and airtight in place, and will prevent the tub from spreading. It combines a novel arrangement of grooved catch blocks on the side and cover of a tub, together with a locking latch.

IMPROVED MILK PAN COVER.

Alfred F. Morgan, Mason City, Iowa.—This is a cover for milk pans, made of wire gauze for the top, tin or other sheet metal for the rim and for the flange which shuts down the sides of the pan.

IMPROVED HARVESTER RAKE.

Samuel M. Morrison, Fairfield, Iowa.—This is an improved attachment to harvesters that raise the cut grain to the binders' table by the action of vibrating rakes, so as to cause the grain to be delivered to the binders straight and even, without regard to its condition. The invention consists in the combination of the upper rakes and their crank shafts with the lower angular rakes and their crank shafts. There is a slight variation of speed of the rakes during a portion of their revolution, and the consequent jostling of the grain has a tendency to cause tangled grain to become parallel with the teeth, which are set in horizontal lines. The upper rakes are so set that their teeth may slightly overlap the teeth of the lower rakes, while leaving sufficient space between the rake bars, so that light and heavy grain will be carried up with the same facility.

IMPROVED COTTON PLANTER.

Leonidas M. Rhodes, Warrenton, Ga.—This is an improvement upon a machine hitherto patented to same inventor, in which the seed is discharged through a slot in the bottom of the hopper. It is now found that a better result may be attained by constructing the hopper without a slot, and providing the traveling wheel with pins or fingers inclined rearward, so as to draw the seed toward the side of the wheel and deliver it through the space between the hopper and wheel.

IMPROVED STUMP EXTRACTOR.

John Platten, Fort Howard, Wis.—This is a vertical windlass operated by a horizontal sweep, to which the power is applied. The windlass winds the fall of a single purchase, from the moving block of which connection is made to the stump by a series of bars secured together. The lower end of the windlass cylinder revolves in a ring formed in the center of a lower bar, and rests and revolves in a cup-shaped plate connected with and supported from the bar, a space being left between the edge of the cup and the ring of the bar, to enable any sand or dirt that may get into the said cup to be conveniently removed.

IMPROVED GRIT SEPARATOR.

Walter M. Jackson, Augusta, Ga.—This consists of a pair of riddles, which detain and transversely shake the grain until the latter passes through their perforations, while the lighter impurities are eliminated in front of the winnower by a blast from the fan, coming lengthwise. Beneath the lower riddle is placed a pair of conveyers, converging toward each other in a downward direction, and toward the middle of a subjacent grading sieve.

IMPROVED CHURN.

David L. Epperson, Mill Shoals, Ill.—The novel feature here is a dasher geared with a crank shaft, so as to be rapidly revolved, and thus cause the cream to flow continuously into the wheel at the top, through and out of it at the periphery, and back to the top, by which it churns the cream into butter in a short time.

NEW CHEMICAL AND MISCELLANEOUS INVENTIONS.

IMPROVED SHIRT.

Geo. D. Eighmie, Poughkeepsie, N. Y.—This invention relates to certain improvements in shirts, designed to obviate the breaking and rumpling of the bosom produced by the bending of the body and the girding of the suspenders. It consists in a bosom or front attached to the shirt about an inch from the edge, so as to leave a

coarse edge all round, beneath which the suspenders pass when bending forward. The upper part of the bosom is attached to the neck band below the yoke band, so that the pressure of the suspenders on the shoulders does not cause the top of the bosom to bend or rumple.

IMPROVED HARNESS.

Benjamin H. Cross, Byron, Ga.—In order to connect the trace chain and back strap, this inventor suggests a couple of rings and a buckle tongue suspended from a bar fastened in a loop attached to the back strap, so that the trace chain passes through the rings and is fastened by the tongue.

IMPROVED CARTRIDGE.

Louis T. De Froideville, Paris, France.—This inventor interposes between the powder and the bullet a layer of grease to keep out dampness, to operate as a gas check, and lubricate the gun; and then, to prevent the grease from permeating the powder grains, he places between the grease and the powder two wads, with a metallic plate placed between them to prevent the absorption and penetration of the grease through the wads.

IMPROVED HARNESS SADDLE.

Robert Spencer, Brooklyn, N. Y.—The object of this invention is to increase the flexibility of a harness saddle, so as to cause the same to automatically adjust itself to the horse's back. It consists in the combination, with the bearings and trimmings of a harness saddle, of a thin main plate of elastic steel, securely attached to, and worked up with, the other parts of the saddle. The crupper loop also, being held in place by the crupper, and the water hook, being held in place by its rein, cannot turn.

IMPROVED LOCK FOR TRUNKS, ETC.

Christian H. Stall, Red Falls, N. Y.—This consists of a system of checks to obstruct the turning of the key and prevent the unlocking of the lock, except by one acquainted with the order of operation by which the checks may be displaced or avoided.

NEW HOUSEHOLD ARTICLES.

IMPROVED COMBINED SKIMMER AND FORK.

Emerson E. Flagg, Brattleborough, Vt.—A skimmer and a fork are here connected with each other in such a manner that they may be slid back and forth upon each other, to adapt the instrument to be used as a skimmer or as a fork.

IMPROVED CUPBOARD.

Lewis Spangler, Auburn, Ind.—This is a cupboard constructed to extend through two stories, connecting the kitchen and dining room floor with the cellar floor below. It is set into the dividing wall of the kitchen and dining room, and arranged with doors at both sides to give access from either side. The cupboard is arranged with sinks, hinged tables at both sides, and an elevator that is raised and lowered by hoisting mechanism, to connect with the cellar. A refrigerating and other shelves serve to preserve articles that have to be kept in a cool state.

IMPROVED FLOUR SIEVE.

Ferdinand Blair, Pleasanton, Kas.—This invention relates to supporting the rotating crank shaft of the sifter upon arms which are bent upward at the middle: the object being to provide a space at the center of the concave wire bottom of the sifter for reception of hard particles in the flour, or worms, insects, or other foreign bodies.

IMPROVED LAMP.

George Sherwin and Edmond Hoople, New York city.—In this device the chimney is fitted on guides, with or without friction rollers, to enable it to be raised up and let down for lighting, trimming, filling, etc. The guides control and keep the chimney in place, so that it will not fall when raised up, and will drop into its place with certainty when down.

IMPROVED WEATHER STRIP.

Thomas Walker and Washington A. McCrery, Pleasantville, Md.—The object of this invention is to provide a weather strip for closing the crack between the door sill and the bottom of the door. It consists in the particular construction of a strip of molding having an extensible slide held to the molding by a spring, with a strip of rubber upon its bottom, and the whole so arranged that, when the door is open, the spring holds the slide up and away from the carpet, and out of sight, and when the door is closed the said slide is extended downward, so as to entirely close the crack.

IMPROVED MOTH-PROOF COMPOSITION.

Wm. H. Hall, Jersey City, N. J., and John Kennell, Passaic, N. J.—The invention relates to that class of preventives which have been long employed to deter moths from attacking woolen goods, furs, and pictures, and consists in dissolving purified tar and mixing it with camphor, merbane, citronella, bitter almonds, and extract of cedar. The solution may then be sprinkled on the wrapper or envelope in which the article is to be enclosed.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED TIRE UPSETTER.

Charles H. Reynolds, Brooklyn, N. Y., assignor to himself and William Freudel, same place.—This invention consists of gripper jaws fixed on pivots so as to adjust automatically to tires of any radius; and it also consists of a novel contrivance of the pivots for both the stationary and movable jaws, arranged so that the resistance is taken directly by the supporting blocks instead of being expended on pivot bolts.

IMPROVED THILL COUPLING.

William O. Hanby, Oseola, O.—In this thill coupling, the inventor employs a clip having a perforated block, through which passes the pintle, to which the thill iron is hinged. The invention is a non-rattler, the work and wear being brought upon the coupling bolt, while the knuckle at that point is subject to the pressure of rubber.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED COMBINED BARREL HOOP MACHINE AND COILER.

George C. Skidmore, Grand Rapids, Mich. This invention relates to a novel construction of a machine for making barrel hoops. It consists in the arrangement of devices for feeding the boards to a reciprocating shuttle, carrying a knife which at each stroke cuts off a hoop slip. It also consists in the means for automatically reversing the motion of the reciprocating shuttle, and in the means for trimming the ends of the hoop slip, crimping it into the circular form, and coiling them into bundles for the market.

IMPROVED BELT COUPLING.

James K. P. Shelton, Gaston, Ala.—A series of square holes is made in each end of the belt. On the under side of the latter are placed transverse wires. The lacing is first secured to one end of the belt, passed through the first hole around the wire, then led to the other end of the belt, carried through the opposite hole and around the wire, and so on until all the holes are laced. Notched strips of belting are inserted between the wires and the belt to prevent wear.

IMPROVED CAR COUPLING.

Horace Resley, Cumberland, Md.—This invention relates to certain improvements in that class of automatic car couplings in which a gravity catch is pivoted in the draw bar so as to rise above the entering link and fall through the same to effect the coupling. It consists in the particular construction and arrangement of the said gravity catch, provided with a hole which receives a coupling pin of the ordinary construction, to secure the short links of cars unprovided with the gravity catch, whereby the devices are equally as well adapted to be coupled with the draw bars of the ordinary form.

IMPROVED TREADLE.

Henry Reese, Baltimore, Md.—The object of this invention is to lessen the fatigue of operating sewing machines and other devices run by treadle power by means of a peculiar construction of treadle which permits the movement of the latter to be made without bending the ankles, and enables the operator to run the machine with a very light expenditure of muscular power. This result is accomplished by a peculiar construction of two independent treadles hinged or pivoted upon opposite sides of the fulcrum of the main treadle, held in proper horizontal position by means of springs, and arranged adjustably for either foot foremost.

IMPROVED SCREW-CUTTING DIES.

Shadrach N. Cudworth and George R. Stetson, New Bedford, Mass., assignors to the Morse Twist Drill and Machine Company, same place.—The die consists of two parts, held together by means of a guide, which has holes for screws formed in it, which are elongated to admit of adjustment of the dies to which the guide is connected. The invention also consists of two adjusting screws fitted in the body of one part of the die to secure the die positively after being adjusted, and an improved adjusting die and guide connected with a screw plate.

IMPROVED BELT STRETCHER.

Frederick L. Spiess and William Spiess, New York city.—Bars are clamped on the meeting ends of the belt. On the ends of said bars are journaled two or more loose pulleys; also hooks are fastened on two or four of the extremities. To the hooks are attached the standing parts of cords which, passing over the pulleys of the bars, form tackles whereby the ends of the belt may be drawn together.

IMPROVED PUMP PISTON.

Lorenzo D. Hovey, Clinton, Ill.—This piston has tapering base rings, between which an elastic packing ring is secured. The rings are perforated to allow the entrance of guide rods, which are of such a height that a heavy cylindrical valve may slide vertically within them. Their upper ends are attached to the connecting socket of the pump rod. On ascent of the plunger, the valve's leather-lined packed bottom bears on the interior wedge ring, so as to close the opening through it watertight. The descent of the piston lifts the valve and allows the passage of the water through the base rings.

IMPROVED GIGGING MACHINE.

Carl Gerber, Sr., and Christian Woelfel, Webster, Mass.—This invention consists in combining, with the stretching and guiding rolls of a napping machine, sliding napping cards, arranged between each pair of guide rolls, and adapted to reciprocate in planes at right angles thereto. The quick withdrawal of the cards from the cloth gives them, it is claimed, no chance to stick, and overcomes thereby the objectionable rigidity of the rotating wire cards, while doing the dressing in a more perfect and rapid manner than the teasels, but without the expensive and troublesome features of the same.

IMPROVED NAIL MACHINE.

Stephen Butterfield, Boston, Mass.—This invention consists of two sets of dies, arranged like comb teeth and fixed on slides. The latter are caused to move the teeth of one set into the spaces of the other set, in which condition they form dies, which shape rods hanging down from a feeder, so that they are caught between the fingers and shaped into nails by them. Below these fingers the projecting ends of the rods are upset, to form heads, by a header forced up nearly against the dies by the slide which works the dies. The points are formed by the upper margins of the dies, and by cutters immediately above the dies the points of the nails are separated from the rods. The header then moves laterally a little, and opens passages for the escape of the nails when freed by the opening of the dies.

IMPROVED ROTARY ENGINE AND WATER WHEEL.

John Lucas, Hastings, Minn.—This invention consists in the construction of a revolving piston wheel, which is formed of two parts, in diametrical registering slots, in which is arranged a piston plate, the journals of which are seated in recesses made in the parts of the piston wheel. The pivoted piston is arranged to oscillate in a line at right angles to the rotation of the piston wheel, by the action of the water or steam admitted into the engine casing. Said casing is provided with an oblique opening for the passage of the piston-wheel shaft, so as to cause the beveled sides of the piston wheel to bear against the inner sides of the casing. The pivoted piston plate is made in two or more parts, to adapt it to receive and hold packing between said parts.

IMPROVED POST DRIVER.

Isaiah W. Norton, Memphis, Mo.—This is an improved portable post driver, that may be used on sloping ground for the purpose of driving in the posts in perpendicular position with great rapidity. The hammer is raised by bringing one of the cams on the end of a lever, and the post is then placed into position in the guides. The hammer is then adjusted to the height of the same by raising or lowering its pivoted supporting frame. When the hammer is in the required position, the drum is operated and the cams of the actuating wheel will engage the hammer lever, producing powerful strokes of the hammer in rapid succession, until the post is driven into a level with the height of the bed frame.

IMPROVED WATER ELEVATOR.

Andrew B. Flowers, Thibodeaux, La.—This consists mainly of an endless bucket chain. The buckets are provided with suitable guards to prevent the escape of water. There are devices for changing the tension of the chain, and also an adjustable spout. The apparatus is suitable for draining marshes, irrigating land, and the like.

IMPROVED CHEESE CUTTER.

Bowne G. Yates, Madelia, Minn.—A hinged section is opened for the purpose of cutting off a portion of the cheese; the knife is then raised and the platform turned till a piece of required size is below the knife, which is then carried down, cutting the pieces in radial direction from the cheese. After the piece is taken out the front section is brought back on the base part, so as to inclose thereby the cheese completely, and keep off flies, etc.

IMPROVED SPRING POWER.

Charles M. Frahm and William Scharnweber, Chicago, Ill.—This is a new arrangement of a series of coiled springs and gears, whereby a large number can be arranged in a small space, and each spring can be wound up independently of the others, and while the machine is running. There is an ingenious regulating apparatus and stop mechanism, the whole forming a machine designed for wherever light power is required.