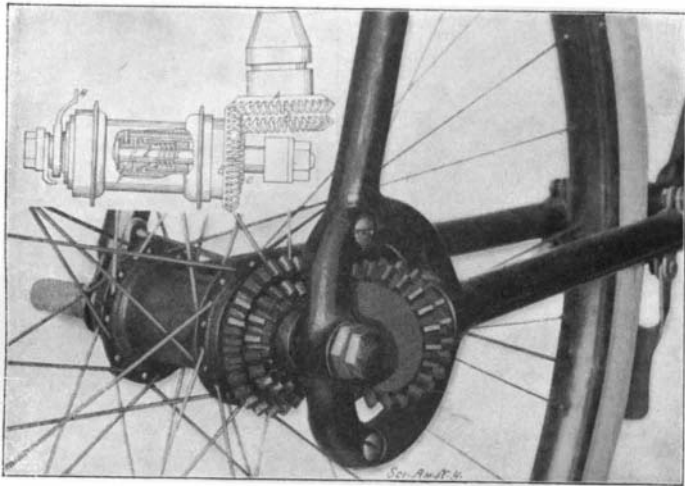


#### THE CHAINLESS-BICYCLE COASTER-BRAKE GEAR-CHANGER.

From the very advent of the safety bicycle inventors began to devise speed-changing gears, which, as a general rule, were so fearfully complicated as to be utterly impracticable. Difficult as the problem has been, so far as the chain bicycle is concerned, it must be confessed that it has not become simpler in the modern chainless wheel. The chief requisites of simplicity of construction and certainty of operation have been so woefully lacking in the speed-changing gears devised for both forms of bicycles that bicycle manufacturers have almost given up the hope of ever securing the contrivance they desire. Among the inventions recently patented in the United States is



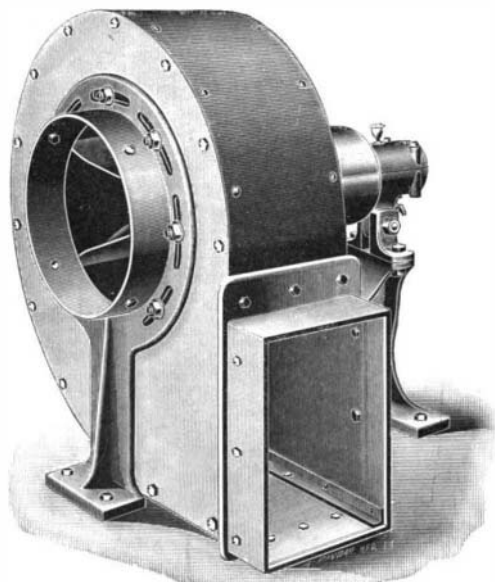
THE MAYNES CHAINLESS SPEED CHANGING GEAR.

a differential gear for chainless bicycles which seems to possess all requisites to such an eminent degree that it will shortly be adopted by one of the leading bicycle companies. The inventor of the device is Hyla F. Maynes, of Corning, N. Y., formerly of Gaines, Pa. The accompanying illustration is reproduced from a bicycle to which the invention has been practically applied.

Broadly speaking, the changeable gear consists of two gears, A and C, carried on the drive-shaft passing through one of the hollow, lower braces; independently acting gears, B and D, respectively meshing with the gears, A and C, and carried by hubs adapted to rotate within the hub of the rear wheel; and a clutch mechanism of approved form, which is operated by back-pedaling. The gears, A and B, and C and D, provide two speeds; when the one set is in operation, the other set is left to rotate. The gears run one within the other and are never disengaged from each other. If the rider wishes to coast the pedals are held still. In order to apply the brake, which is of the well-known A. B. C. type, the pedals are pushed back about 1-16 of a revolution. A backward movement of about 1-32 of a revolution will change the gear from high to low, or from low to high. The brake can also be applied without changing the gear. The clutch mechanism employed locks the gear to be used to the driving axle, and releases the other gear. A clutch, G, shown in the diagram serves the purpose of separating the clutch members. In the diagram the letter H represents the brake lever of the A. B. C. brake. The wheel from which our photograph was taken has been ridden for two years without serious accident.

#### THE HARTFORD STEEL-PLATE EXHAUSTER.

The accompanying cut illustrates the Hartford patent adjustable, interchangeable and reversible steel-plate exhauster. The journals are supported by self-oiling bearings, secured to standards which are adapted to be bolted to a floor or to overhead timbers. On the inlet side of the shell is a supporting standard



THE HARTFORD STEEL-PLATE EXHAUSTER.

that has an annular head, and on the pulley side of the shell is a standard that has a disk head. These heads are circular, and near the outer edge of each is a circular series of slots. Bolts extend from the side walls of the shells through the slots of the head, and are provided with washers and nuts. If these nuts are loosened the shell is free to be adjusted about the axis of the blast wheel in either direction; and if the bolts are removed the shell may be completely revolved and set with the discharge outlet pointing either vertically up or down; 30 deg. up or down; 45 deg. up or down; 60 deg. up or down, or horizontally to either side or to any intermediate angle. When the discharge is pointed in the desired direction, so that the discharge pipe may be connected in the most convenient manner without elbows or angles, the bolts are replaced and the nuts tightened to secure the shell in that position; also, when the bolts are removed the shell may be taken from between the standards and replaced in a reversed position—i. e., with the inlet on the opposite side—thus converting a right-hand machine into a left-hand machine, or vice versa as may be desired.

This construction enables the user to place the exhauster either on the floor, or reverse it and bolt direct to overhead timbers, thus saving the cost of building an expensive platform on which to place the exhauster, allowing the machine to be operated to the best advantage without the use of cross belt, etc. After using the machine for a time in one place, if the user desires to make changes in his plant, thus changing the piping system, he may change the exhauster from a right-hand to a left-hand, or vice versa; change the discharge so it will point in any desired direction; place the machine on a floor or reverse it and bolt direct to overhead timbers, etc., and not be required to purchase a new machine in order to comply with the conditions of the altered arrangements. The simple construction of this exhauster combines over twenty machines in one, and all the changes and adjustments can be made with the aid of a monkey wrench only.

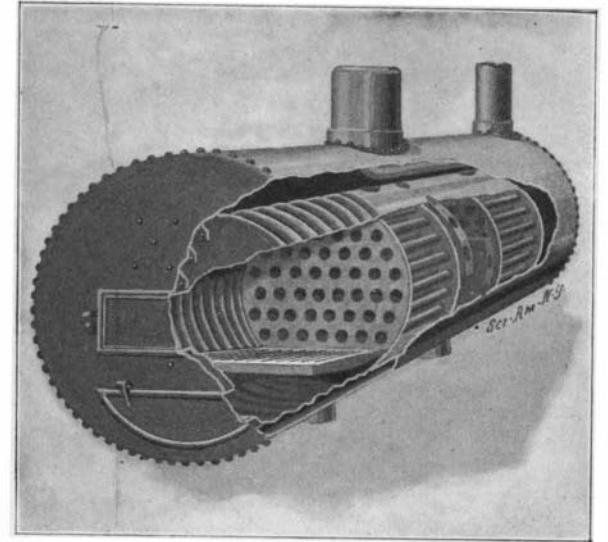
The shells are built of sheet steel, while the other parts are of gray iron castings with the exception of the shaft, which is of best steel for the purpose. The machine is fitted with reversible bearings of the well-known ring-oiling type, which allow it to be operated with very little attention; all that is necessary is to keep the oil reservoirs supplied with oil. It is made with very heavy blast wheels in order to withstand the wear and tear of shavings, chips, blocks, etc., which pass through the machine. It is especially adapted for handling shavings, sawdust, chips, etc., from woodworking machinery; dust, lint, etc., from polishing and buffing wheels; for conveying wool, cotton, and all kinds of like material; for removing steam, gas, smoke and odors; for heating and ventilating purposes, and for mechanical forced and induced draft apparatus. The manufacturers are the Hartford Blower Company, 70 Suffield Street, Hartford, Conn.

#### THE REGAN LOCOMOTIVE BOILER.

A locomotive boiler, which is arranged to provide a large heating surface and to insure complete combustion of the fuel, has been recently invented by Mr. John J. Regan, of 166 Third Street, Jersey City, N. J. It consists essentially of two shells, one being arranged eccentrically within the other. There is thus formed between the shells a steam and water compartment leading to a steam dome, from which extends the usual supply-pipe carrying generated steam to the engine. The near end of the internal shell, as shown in the illustration, forms a fire-box, from which a set of smoke-flues extend, through a water-compartment, to an auxiliary combustion chamber containing water-jacketed deflectors. Thence a second set of smoke-flues extend through a second water-compartment to the smoke-box. Under the grate in the firebox is an air inlet which is provided with a valve under the control of the engineer. A similar inlet is located in the auxiliary combustion chamber. The smoke and gases, passing through the first set of flues, enter the auxiliary combustion chamber, and after passing downward under the first deflector and upward over the second, continue through the next set of flues to the firebox.

It is evident that this arrangement provides a large heating surface resulting in greater economy in the consumption of the fuel. There is a complete circulation of water, which is an important factor in keeping all surfaces at a uniform temperature. The combination of two sets of flues with an auxiliary combustion chamber results in utilizing more of the heat in the gases, and this, together with the arrangement of the deflectors, insures the consumption of a large proportion of the sparks now thrown out of the stack. When it is found necessary, air can be admitted to the firebox and the auxiliary combustion-chamber to insure

complete combustion. There are no flat places or corners in the boiler where mud can collect and cause overheating of the seams. All flanges look outward, thus greatly facilitating the calking and inspection



THE REGAN LOCOMOTIVE BOILER.

of the seams, and the flues being shorter than in present boilers, will necessarily have a longer life.

#### STATION INDICATOR.

Our illustration shows a simple and durable apparatus which is designed for use in railroad cars and street cars to display the name of the next station or street prominently. It is the invention of A. M. Taylor, of Port Ewen, N. Y. The apparatus is contained in a neat casing which may be secured to the side of the car. Within the casing and mounted on a roller at the bottom, is a web of paper on which the station or street names are printed. The web passes up over two idlers at the center of the indicator, and thence to a take-up roller at the top. The portion of the web between the two idlers is displayed through a window in the front of the casing. The take-up roller is loosely mounted on a shaft, to which is fastened a ratchet wheel adapted to engage a spring-pressed pawl fulcrumed on the end of the take-up roller, so that the latter moves with the shaft when the paper is being wound up, but is independent when the motor-spring is being wound up, or when the paper is being wound back and reset. A gear wheel is loosely mounted on one end of the shaft and is connected to it by means of a pawl and ratchet, whereby the gear is caused to turn in the direction in which the paper is wound, but is stationary when the shaft is turned in the opposite direction to wind up the motor-spring. The spring is secured to and coiled about the shaft, its outer end being attached to the casing. Near the periphery of the gear-wheel is a slot adapted to receive a pin which keeps the wheel from turning. By pressing the button near the top of the indicator,



A NOVEL STATION INDICATOR.

this locking pin can be withdrawn, thus permitting the wheel to rotate until it has made one complete revolution, when the pin, under tension of a spring, snaps again into the slot and locks the mechanism. A suitable escapement is connected with the gear-wheel to govern its motion.

In operating this indicator the attendant of the car needs merely to press the button and the mechanism will automatically wind up, the web stopping when the roller has made one complete revolution, which will bring the next station or street name into view. The web is long enough to have the return stations indicated on the unrolled half. A thumbnut is attached to the shaft of the lower roller, by the turning of which the web can be wound back and reset. The motor-spring may be wound up by a key or crank applied to the squared end of the take-up-roller shaft.

## Brief Notes on Patents.

Some time ago we called the attention of our readers to the fact that the Examiner of Interferences of the United States Patent Office had awarded priority of invention to Linde in the Liquid Air Interference, Trippler vs. Linde. News now comes from Washington that the Board of Examiners-in-Chief has affirmed the decision of the Primary Examiner.

A New Haven photographer, A. Hyatt Verrill, a son of Prof. Addison E. Verrill, of Yale University, announces further discoveries in his experiments with color photography. Verrill says he has found it possible to produce "aurotypes" and "argentypes" simply by depositing gold and silver in metallic form on glass, wood, metals and even on paper. The pictures thus made are claimed to be absolutely permanent.

A company is being formed in St. Louis for the manufacture of the power plow designed by Richard J. Gatling, the designer of the famous rapid-fire gun bearing that name. This machine is said to do the work of from thirty to forty men, using from sixty to eighty horses, and the cost per day for fuel is said to be six dollars when using oil, wood or coal and two dollars per day when using gasoline. A wheat drill may be attached to the machine, and the grain sown as the disks turn up the earth. The first public appearance of the Gatling plow will be at the St. Louis exposition.

Jerome Wheelock, the builder of the Wheelock engine and an inventor of national repute, dropped dead on the street on February 25 in Worcester, Mass., where he resided. Mr. Wheelock began life as a machinist and soon developed into an inventor, his first important work being a piston packing. The engine designed and built by him had many novel features, and it was a feature of the Centennial Exhibition, where it was shown for the first time. Nearly all of his patents related to the steam engine. Mr. Wheelock was a member of the American Society of Mechanical Engineers.

The ninety-fourth anniversary of the first successful burning of anthracite coal in a grate was celebrated at the old Fell Hotel in Wilkesbarre, where that interesting event took place. The old fireplace and grate are still preserved, and the room in which they are located was gayly decorated in honor of the event. A banquet was served, and among the speakers was H. P. Fell, a descendant of Jesse Fell, the old proprietor of the house. The first steps were taken toward the celebration of the centennial anniversary of the discovery six years hence, and it will in all probability be an affair of national and State importance.

An explosion took place in the nitro-glycerine house of the Cerberite Manufacturing Works at Ardwick, Md., on the morning of February 5, and although the concussion was terrific, a large quantity of the cerberite, which was stored in another house only a short distance away, was not affected, thus giving a practical demonstration of the remarkable quality of the explosive, which, it is said, requires the combined action of flame, heat and concussion to detonate. In practice, a percussion cap is used to explode it. Cerberite is the discovery of Count Sergy de Smolianoff, a Russian chemist who died about a year ago in Washington, D. C.

The removal of electric incandescent lamps is such a common form of nuisance that there seems to be some demand for the locking lamp socket which has been recently patented by Charles R. Barrett and Elwood C. Phillips, of Chicago, Ill. There is a closed chamber located laterally at one side of the lamp socket, inside of which is a locking detent supplied with the usual spring. In the walls of the chamber is a keyhole for the insertion of the key with which to throw back the locking mechanism. It is the custom in many places to turn the lamp out of or into service by giving a twist to the bulb, and this locking arrangement does not in the least interfere with this. The locking detent engages with a recess in the threaded foot of the lamp, and this permits of a certain amount of freedom in the turning of the lamp in its place.

Dr. M. G. Burgess, of Herkimer, N. Y., besides being a very busy physician is an inventor and an excellent mechanic. He has recently secured patents on an operating table which is said to have many advantages over the old type. After designing a table to meet the demands of the operating surgeon, the doctor, with no other assistance than that of an unskilled man, set about and built a table which would be considered a very flattering job turned out from a well-equipped industrial plant. The table works on the hydraulic principle, and the motions of raising, lowering and tilting are all controlled by a single lever, which is a great convenience, these motions all requiring a separate lever in all the types now in use. The system of drainage marks an improvement also, as all fluids are caught at once and disposed of, no matter what the position of the table is. Although there is great freedom permitted in the movement of the table, the mechanism is very simple and devoid of cogs, gears and ratchets.

## Legal Notes.

Houghton, Mifflin & Co. have brought two cases up before the Court of Appeals which involve alleged copyright infringement of two of their publications. The first of these appeals, in which Dutton & Co. are the respondents, originated in a bill to protect a copyright in a portion of "The Minister's Wooing;" the second is based upon an alleged copyright infringement of a portion of "The Professor at the Breakfast Table." The copyrights were taken out under the Act of February 3, 1831. Both parties claim the benefit of a renewal.

Twenty-nine of the forty-two chapters of "The Minister's Wooing" were serially published in the Atlantic Monthly from December, 1858, to October, 1859. In October, 1859, Mrs. Stowe took out a copyright of "The Minister's Wooing," as a whole, and in the book published by her authority a proper notice of this copyright was entered. After taking out this copyright the remaining thirteen chapters were published in the Atlantic Monthly for the same year, and the numbers in which they appeared bore on the title pages "Entered according to Act of Congress in the year 1859, by Ticknor & Fields, in the Clerk's Office of the District Court of the District of Massachusetts." The Circuit Court found that the publication of the first twenty-nine chapters without any copyright abandoned them to the public, and that as the remaining chapters were published with no notice of the copyright, except that which we have stated, sufficient notice was not given of a copyright by Mrs. Stowe. The Circuit Court of Appeals affirms this decision of the lower court.

So far as "The Professor at the Breakfast Table" is concerned, ten of the twelve parts of which it is composed were published serially in the Atlantic Monthly between January and October, 1859, without any notice of copyright. The remaining two parts were published in the following December, upon which a copyright was obtained, and a notice thereof given in the magazine in the manner adopted in the case of "The Minister's Wooing." When the entire work was published in one volume Dr. Holmes copyrighted it. The Circuit Court of Appeals held in accordance with the lower court that a literary work published serially with the consent of the author, and copyrighted in the name of the publishers, gives rise to such conditions that the author cannot subsequently secure the copyright. If the author subsequently republishes the work in book form, with a copyright notice in his own name, such republication with such notice effects, under the statute, an abandonment of the copyright.

THE STANLEY STEAM CARRIAGE IN COURT.—The Whitney Motor Wagon Company has brought suit against the Stanley Brothers, Newton, Mass., for infringement of its patents. It is claimed that the Whitney patents antedate the patents of Francis E. and Free-land O. Stanley. The Whitney patent, No. 652,941, contains 46 claims, and is said to cover the foundation principle of the steam vehicle. It is asserted that the Stanley vehicle is a direct infringement of the original Whitney wagon, which was built in September, 1897. In that year Mr. Whitney, it is claimed, not only turned out the first steam carriage made in this country, but also built an improved carriage. The Stanleys are the inventors of the steam carriages sold under the names of "Locomotive" and "Mobile," the rights to manufacture which were acquired by Amzi L. Barber and J. Brisben Walker, the former president of the "Locomotive" Company of America, and the latter president of the "Mobile" Company of America and editor of the Cosmopolitan Magazine. Since selling this invention the Stanley Brothers have produced a new vehicle, which differs somewhat from the original, but which is declared to possess the fundamental principles of the first vehicle. It is claimed that this machine is an infringement of the Whitney carriage; that the Stanley Brothers had had ample opportunity to inspect the wagon, which was at the Mechanics' Building, Boston; that the Stanley vehicle was not produced until after Whitney's had been inspected, and that the Stanley carriage is a close copy of the Whitney vehicle. The outcome of the suit will be awaited with interest.

The case of Metz vs. Johnson, decided in the Circuit Court for the District of Massachusetts, shows that an inventor cannot be too careful in patenting improvements upon his device. The Metz patent, for a bicycle pedal, claimed pintles having screw-threaded ends, the inventor intending to attach the pintles to the crankshafts by means of the screw-threaded ends without employing any of the old independent device for holding them firmly in place. Before the granting of the Metz patent both the right-hand and the left-hand pintles were threaded with a right-hand

screw-thread. Difficulty arose from the fact that the right-hand pintle was likely to become loose in the crank. Metz's idea was to master that difficulty by putting a left-hand screw-thread on the right-hand pintle and a right-hand screw-thread on the left-hand pintle, but, in practical operation, the tendency was to unscrew both pintles in the crankshaft arms. As a result of observation and experiment the inventor, after his patent was taken out, conceived the idea of reversing the screw-thread, and doing what had never been done before in connection with bicycle pedals, or, as far as shown, in any other art, by making a right-hand pintle with a right-hand thread, and a left-hand pintle with a left-hand thread. Automatic tightening of both pintles resulted by reason of the lost motion of the pintle in actual use, which tended to screw home both pintles. If the patentee had conceived that idea at the time of his patent, and had described it in connection with the other elements, or if the combination which he described had possessed the inherent capacity or function of accomplishing the new result, there would have been no doubt as to the validity of the invention. But the patentee did not describe such means, nor had he discovered these means at the time of the issue of the patent. The discovery was valuable. In view of the fact that the function of automatic tightening resulted from invention subsequent to the granting of the patent, through a rearrangement of the means described, the Court felt constrained to hold the Metz patent void.

Upon the application of Dr. Dairrian, Judge Blanchard, of the New York Supreme Court, issued an injunction restraining William Hames from using the word "Matzoon," holding that the term was an arbitrary designation and a proper subject of a trade-mark, which is the exclusive property of the company. The defendant urged that the word was not fanciful, but descriptive of a food that has existed for years in Armenia and other Eastern countries known by the name of Madzoon or Maaadzoon, being a species of fermented milk having the consistency of jelly or of cup custard, and that when in liquid form it was known as Taa; that it was first introduced into this country in 1885 by Dr. Dairrian, and that through his efforts the article has a commercial value to-day. The judge adds that the question as to whether the word "Matzoon" is a proper subject of trade-mark has already been before the courts of this country, the federal courts holding that the word could not be appropriated as a trade-mark, and the courts of this State holding to the contrary.

In closing, Justice Blanchard says: "The equities of the case are with the plaintiff, and until the higher courts of the State hold otherwise I prefer to follow the decisions of the courts of this State."

INVENTION CHANGED BY ASSIGNEE.—An agreement between the inventor of improvements in automatic air brakes and a railroad company, granting to the latter the license and right to use the invention, and equip their rolling stock in whole or in part with the same during the term of the patent, does not entitle the company to make important changes in the mode of constructing the brake and in using the brake so altered, especially if they use, and claim to use, it as the invention of such inventor.—MacLaughlin vs. Lake Erie & D. R. Ry. Co., 2 Ont. Law Rep. (Can.) 190.

BROADENING CLAIMS ON REISSUE.—The claims of a patent which has been in existence for ten years, during which time it has been before the courts in a number of cases, and construed and held valid, cannot be broadened by a reissue to cover structures which the courts had previously decided did not infringe; and particularly where such broadening of the claims eliminates the distinctive feature of the invention, upon which alone the validity of the original patent was sustained, and of which decrees for infringement were predicted. Troy Laundry Machinery Co., Limited, et al. vs. Adams Laundry Machinery Co. et al., 112 Fed. Rep. (U. S.) 437.

COMBINING SCIENTIFIC NAMES.—After certain medicines have been discovered and named, and their effects on the health have been investigated, and the results of such investigation published to the world for several years, a manufacturer of a preparation for the same purpose could not adopt a combination of the names of such first-discovered medicines, and thereby prevent the use of such names, or a combination thereof, by other manufacturers of similar preparations. Searle & Hereth Co. et al. vs. Warner, 112 Fed. Rep. (U. S.) 674.

USEFULNESS OF INVENTION.—The degree of utility of a patented article does not affect the question of patentability, nor does the length of time it will last and continue useful, but, if it is useful at all, that is sufficient to sustain the patent.

111 Fed. Rep. (U. S.) 916.