

HYDROPHOBIA—PRACTICAL SUGGESTIONS FOR ITS PREVENTION AND CURE.

At a recent meeting of the New York Neurological Society, which was largely attended by prominent physicians and surgeons of this city, Dr. Hammond made an address in which many interesting facts and experiences pertaining to the dreadful malady of hydrophobia were presented. He also produced diagrams of highly magnified sections of the brain, spinal cord, and pneumogastric and other nerves, of McCormick, the expressman, taken soon after his death here from this disease. All of the parts exhibited showed a deficiency of cell structure, and it was evident that a striking change from the normal condition had taken place. The gray matter had passed into a state of fatty degeneration, mainly in the form of oil globules. This discovery was considered important, as indicating the particular members of the system that were affected and the changes therein, congestion of some of the parts being especially shown as a primary condition. The knowledge gained might assist the physician in future treatment of the disease.

Among preventives, Dr. Hammond thinks that the cutting out of the wounded parts is the best, and that it will be effectual if done at any time prior to the development of the symptoms of the disease, although the sooner it is done after the bite the better. He had performed this operation of excision some thirty or forty times, upon persons supposed to have been bitten by mad dogs, and in no case has hydrophobia ensued.

"In regard to the treatment," Dr. Hammond observes, "there is not much to say; but I have one or two ideas about it which I would like to mention to the Society. I am inclined to think that the most effectual method of treatment would be the persistent application of the primary galvanic current. I would put one pole to the patient's head and the other to his foot, and make the current flow continuously all the time while the disease lasted. In one case reported by Mr. Schivadi, he by that means maintained the life of the patient for seven days, a very long time for the disease to last, and then the patient died without any hydrophobic symptoms, seeming to die purely from exhaustion. Recollect that means has not been used successfully in but two cases. Schivadi used it in some former case, but there was such a neglect about the application of it that it was not effectually carried out, and so that patient died with hydrophobia fully developed. There are dozens of ways in which galvanism can be applied; but which one will be more effectual than others or what the effect will be, we cannot definitely say until we have



FILING THE TEETH OF THE DOG. more experience upon the subject. There is some ground, likewise, for thinking that, in the application of the primary galvanic current in that manner, we have one of the most if not the most effectual means of treating disease known to us. And then, in addition, I would apply ice to the spinal cord and to the whole length of the spine, and keep the patient immersed in it, you may say, the whole time. I have used ice quite extensively in the treatment of tetanus four times in this city. In one case in particular, in which I was in consultation with Dr. Lewis Smith, the ice was kept at the spinal cord during the whole course of the disease, and the patient got well. Another case, induced by a wound, like wise in this city, in the person of an eminent musician, I treated in the same way—with ice—and he recovered. And I am inclined to think that in ice we have another very effectual means of treating hydrophobia, which I would feel disposed to rely upon; but I should say galvanism more than anything else. As regards the administration of internal remedies, I have nothing to say. Those cases in which they are reported as being successfully used, rely upon it are not authentic cases of hydrophobia."

Dr. Hammond then presented resolutions, which were adopted by the Society, against the muzzling of dogs, in favor of killing all vagrant dogs, and also the following:

Resolved: That in the opinion of this Society the most effectual means of preventing the origination and spread of hydrophobia is by the imposition of a tax upon all dogs kept for use or pleasure; requiring the canine teeth or fangs and the incisor teeth to be blunted, as proposed and effected by Bourrel, and the destruction, under proper regulations and by duly authorized persons, of all dogs not licensed, or which may be found with the teeth unblunted.

In the absence of any legal enactment, the New York Neurological Society recommends to all owners of dogs to have the teeth of the animals blunted in the following man-

ner, as detailed by Fleming in his "Treatise on Rabies and Hydrophobia": "The operation is a simple one. For a large dog, two assistants are necessary; for a small animal, only one. The creature is seated on a table, a gag is fixed in the mouth between the molar teeth by a band passed behind the neck; another band or piece of wide tape fastened around the muzzle at the back of the gag prevents any movement of the jaws. To blunt the incisor teeth a file is used, and to expedite the operation the longer canine teeth or fangs are shortened by sharp nippers and then smoothly rounded by the file. The gag, of course, must be proportioned in thickness and length to the size of the animal."

Dr. Hammond then placed a dog in view of the audience on which the operation of blunting the teeth had been performed. The Doctor said: "You will see how impossible it is for him to bite so as to break the skin even—it is utterly out of the question. This is the manner in which it is done: Place this stick between the molar teeth of the dog, and keep the stick in position by a cord attached to both ends of it. Then while the stick is in his mouth, and a cord placed so as to prevent his opening his mouth any wider, this operation could be done within eight minutes. When the operation of filing is performed he cannot bite, and he is not injured in the slightest degree for any purposes. He can do just as well as ever. He does not use his canine teeth to tear his food, and there is no reason why the operation should not be performed upon him, and it makes him altogether a more useful portion of society. We have performed various operations on animals to make them subservient to our uses, and there is no reason why this operation should not be made obligatory upon all owners of dogs."

THERE are 5,000 miles of telegraph line in Mexico, according to the latest official returns. Of the total, the government owns about half, and the balance is in course of construction or is controlled by States and private companies.

A CORRESPONDENT, Mr. D. B. Snow, of South Lancaster, Mass., reports the appearance of a perfect lunar rainbow at that place on the evening of June 29. Naturally the colors were not so vivid as those of a solar rainbow, but the arc was complete.

THE ST. LOUIS UNDERGROUND RAILWAY TUNNEL is 4,800 feet in length, and extends from the great bridge to Poplar street.

A LARGE portion of the rails on the Great Western Railway, England, were lately reduced from the broad to the narrow gage, of 4 feet 8½ inches. Two thousand men did it in eighteen hours.

M. F. DE CANDOLLES has been elected Associate Member of the French Academy of Sciences in place of Professor Agassiz. M. Caudolles is a Swiss naturalist of considerable reputation.

THERE is to be an International Geographical Congress held in Paris in the spring of 1875. A committee is now at work, arranging details and classifying the various subjects to be considered.

THE Chicago Railway Review appears in a new dress, enlarged in size, and full of interesting railway information. It is one of the best periodicals in the country.

HOW SHALL I INTRODUCE MY INVENTION?

This inquiry comes to us from all over the land. Our answer is: Adopt such means as every good business man uses in selling his merchandise or in establishing any business. Make your invention known, and if it possesses any merit, somebody will want it. Advertise what you have for sale in such papers as circulate among the largest class of persons likely to be interested in the article. Send illustrated circulars describing the merits of the machine or implement to manufacturers and dealers in the special article, all over the country. The names and addresses of persons in different trades may be obtained from State directories or commercial registers. If the invention is meritorious, and if with its utility it possesses novelty and is attractive to the eye, so much the more likely it is to find a purchaser. Inventors, patentees, and constructors of new and useful machines, implements, and contrivances of novelty can have their inventions illustrated and described in the columns of the SCIENTIFIC AMERICAN. Civil and mechanical engineering enterprises, such as bridges, docks, foundries, rolling mills, architecture, and new industrial enterprises of all kinds possessing interest can find a place in these columns. The publishers are prepared to execute illustrations, in the best style of the engraving art, for this paper only. They may be copied from good photographs or well executed drawings, and artists will be sent to any part of the country to make the necessary sketches. The furnishing of photographs, drawings, or models is the least expensive, and we recommend that course as preferable. The examination of either enables us to determine if it is a subject we would like to publish, and to state the cost of engraving in advance of its execution, so that parties may decline the conditions without incurring much expense. The advantage to manufacturers, patentees, and contractors of having their machines, inventions, or engineering works illustrated in a paper of such large circulation as the SCIENTIFIC AMERICAN is obvious. Every issue now exceeds 42,000 and will soon reach 50,000, and the extent of its circulation is limited by no boundary. There is not a country or a large city on the face of the globe where the paper does not circulate. We have the best authority for stating that some of the largest orders for machinery and patented articles from abroad have come to our manufacturers through the medium of the SCIENTIFIC AMERICAN, the parties ordering having seen the article illustrated or advertised in these columns. Address

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DECISIONS OF THE COURTS.

United States Circuit Court—Southern District of New York.

PATENT WATCHMAN'S TIME DETECTOR.—JACOB E. BURK vs. WILLIAM WOODRUFF, Circuit Judge.

I have re-examined the decision heretofore made by me in Burk vs. Valentine (9 Blatchf. 479), so far as it bears upon the content in this suit. In that case, the patents and patented devices, including the patent for the infringement of which this suit is brought, are fully described. The additional evidence here introduced does not alter my conviction that the invention now in question, and secured to the complainant by his patent of June 5, 1865, was not anticipated by any of the devices to which the evidence relates; nor by John Buerk, upon whose invention that of the complainant was an improvement. Is the defendant's detector an infringement? I think it is. The only difference between it and the complainant's detector is that instead of forcing points upward to perforate, the defendants force the paper downward upon and to receive an impression from stationary projections from the surface below. Both in the defendant's and in the complainant's, the other an upward indentation. I do not think an inventor can be robbed of the fruits of his invention by such a variation, when the whole structure of his machine is in other respects the same. Without deeming it necessary to discuss the subject more minutely or fully, my conclusion is that the complainant's patent is valid, and that the defendants infringe it. Let a decree be entered for the complainant awarding an injunction, directing an account, etc. J. Van Santvoerd, for complainant. Keuer & Blake, for defendants.

PATENT SUBMARINE DRILLING APPARATUS.—CAMMEYER and SAMUEL LEWIS vs. NEWTON et al.

[In equity.—Before Blatchford, Judge.—Decided June 10, 1874.]

Blatchford, Judge: This suit is brought on letters patent granted July 23, 1868, to William H. Cammeyer, as assignee of Samuel Lewis, as inventor, for an "Improved Portable and Adjustable Still Water Dam." The specification states that the invention is an "improved portable and adjustable dam for the purpose of producing still water in which to operate for the blasting and removal of obstructions in rivers and other water courses, etc." The answer of General Newton denies the infringement alleged, and avers that, during the year 1839, he invented an apparatus for use as a caisson, coffer dam, and diving bell, in excavating and taking out rock in the harbor of New York; that it was constructed by and at the expense of the United States, and has since been used exclusively by the United States in the prosecution of the work undertaken by the United States, of improving the harbor of New York; that General Newton, being an officer of the United States and a lieutenant colonel of engineers in the army of the United States, has been heretofore assigned to the duty of directing the said improvement of the harbor of New York, and in pursuance of his assigned duty, and acting for the United States, has used the aforesaid apparatus; that the other defendants, during all the time they, or either of them, have had any connection with the use of the said apparatus, have been employed and paid by the United States, and have acted in connection therewith solely as employees and agents of the United States; that neither he nor any of the defendants have derived any profit or emolument from the construction or use of said apparatus; that in the year 1867, in Boston harbor, Massachusetts, one George W. Townsend put in operation a method of drilling and blasting rock under water in a rapid tide way, using therefor a drilling platform, supported by anchors and adjustable legs, combined with a boat and a system of windlasses, anchors, and chains, together with suitable machinery, by means of which a system of drills might be operated, substantially like the apparatus claimed by the plaintiff. That the apparatus and dam claimed to have been invented by Lewis was not in fact the invention of Lewis, but the same had been invented and described by the defendant Newton prior to its invention by Lewis; that such invention and a description thereof were printed and published in a letter from the Secretary of War of the United States to the House of Representatives in the Congress of the United States, dated Washington, February 11, 1867, containing a report made by the defendant Newton, which gave a full and complete description of said machine so invented by the defendant Newton, together with the mode of constructing and using the same, which said letter and report were, on the 14th of February, 1867, ordered by said House of Representatives to be printed, and were printed and published at Washington, and are known as Executive Document No. 80, House of Representatives, Forty-sixth Congress, first session. That the said Lewis unjustly and surreptitiously obtained a patent for the said apparatus, which was in fact invented by said Newton, who was using reasonable diligence in adapting and perfecting the same.

Lewis testifies that, having read General Newton's reports from time to time, particularly the one of 1867, setting forth the difficulties of accomplishing anything in submarine drilling in strong currents, he turned his attention to inventing a machine for that purpose. The patent said on was taken out July 23, 1868. It discards the idea of a rigid platform supported from the rock to hold the drill tubes, but adopts the idea of a dam in sections suspended permanently from a float, and attaches the drill tubes to the dam. It is in direct antagonism to the ideas developed by General Newton. His purpose is to work in the rock in drilling, so as to work on dry land. Lewis proposed to work from a float, and General Newton proposed to use a dam merely to prevent divers in removing blasted pieces of rock, and for this purpose a dam in flexible sections, strong enough to lie on the bottom, could well be suspended permanently from a float. Lewis proposed to suspend a sectional dam from a float, and mix the drill tubes to the dam, and subject the drilling to the contingencies of the movements of the float. The allegations of the bill, so far as they assert that General Newton proceeded in constructing his apparatus in intentional imitation of Lewis', are not sustained either as to the invention or imitation. General Newton appears to have considered Lewis' plan, and to have deliberately rejected it, and to have proceeded on one directly opposite. The latter has proved successful. General Newton, in all he has done, that is complained of in this suit, has acted as an officer of the Government, in its service, and for its interests, judiciously, carefully, and without failure. He has not used Lewis' invention. He has done nothing for his own profit. There is nothing developed in the evidence to warrant the suggestion contained in one of the arguments submitted on the part of one of the plaintiffs that General Newton put forth a snare to catch the unwary by inducing Lewis to invent an apparatus, that he introduced to Lewis his intention of taking and using any patented invention which it might suit his purpose to use in the work; that he did not intend to waste any sentimentality on nice points in relation to the rights of patentees, so long as his own purposes were served, or to allow any scruples to interfere with his taking other people's property for the accomplishment of his own ends; that the infringement complained of was a matter of deliberate intention from the beginning; that General Newton has been robbing a poor man; and that the court has never had occasion to deal with a more unscrupulous, wanton, and cruel infringement. Some ideas are found in Lewis' patent, which, if worked out in such a manner as to produce a successful practical result, are valuable—a current breaker including the working drills, and drill guides near the rock affixed to the current breaker. But these ideas are so hampered in construction as to make the drill guides deep dent on the boat. General Newton took up, as any inventor had a right to do, the complete invention of Lewis, and, on examining it, found that it proceeded on an entirely wrong principle, designed to accomplish the result of saving a dam to act at the same time as a current breaker and a fixed support for drill guides near the rock, and he organized it on a new principle. He took up the apparatus where Lewis left it, and discarded Lewis' arrangement. These views are sustained by the experts or the deponents, General Tower and Professor Peck, and by the other evidence in the case. A decree will be entered, dismissing the bill with costs. [George Gifford and Thomas F. Hon, for the plaintiffs. Charles M. Keller and Henry E. Davies, for the defendants.]

Recent American and Foreign Patents.

Medical Compound for the Cure of Coughs, Colds, etc. Henry M. Hoyt, Knight's Landing, Cal.—This invention consists in a compound made of ingredients whose properties are peculiarly adapted to reach the seat of disease in throat and lung complaints. In cases of colds that had settled on the lungs, this compound has given relief in a few days, loosening the matter and, in cases of consumption, the tubercles from the lungs. It is stimulating and healing, enabling matter to be thrown off without severe fits of coughing or unusual exertion. More over, it is entirely without opium or other stupefying ingredients, which merely deaden the sensations and temporarily relieve the patient.

Improved Railway Car. John Coyne, Baltimore, Md.—This invention relates to modes of constructing the frames of railway cars that are to be rubber-covered on the inside and outside, and consists in sheets of metal jointed together and re-inforced at the bottom.

Improved Velocipede. Moriz Nowak, Jeffersonville, N. Y.—This invention relates to improvements in velocipedes which are propelled by the action of the occupants, and it consists of a carriage body or frame placed on wheels, and driven by means of a pivoted foot board or treadle, which communicates motion by a fly wheel, belts, and pulleys to the hind axle, while the front wheels serve for steering the vehicle. Suitable devices for retarding and arresting the motion of the vehicle are applied in connection with the same.

Improved Revolving Horse Hay Rake. Clarence E. Peckham, Columbus Cross Roads, Pa.—Levers are connected by a cross bar, and to a platform is attached a loop to receive the operator's foot, so that he can raise the said platform by lifting with one foot while he presses against the cross bar with the other. By this construction, by raising the platform above a horizontal position, bars will be pressed down upon the rear ends of the pins, so as to raise the points of the teeth; and by pressing the platform below a horizontal position, the bars will be pressed down upon the forward ends of the pins, and the bars will be raised from the rear ends of said pins, causing the forward ends of the rake teeth to catch upon the ground, revolving the rake and discharging the collected hay.

Improved Tumbler for Permutation Locks.

Henry W. Covert, New York city, assignor to Marvin's Safe Company, same place.—The general operation of this lock is similar to the combination locks now in use, it is, having a spindle, dial, and driving wheel, with one or more revolving combination wheels. The changeable pin has a stem and two jaws, with an open slot between the jaws, which receives the rim of the wheel. The stem fits into and fills the lower portion of the slot in the wheel, and the jaws project on each side of the wheel, so that when one of these pins is placed in any one of the slots of the combination wheels, the first wheel will be revolved by a stationary pin in the driving wheel, which pin will strike one of the jaws. The opposite jaw of this pin in the first wheel will strike the pin in the next wheel, and revolve that, and soon for any number of wheels. This pin may be changed to any of the slots, and the combination is altered by such change. By making these pins with jaws projecting on each side of the combination wheels, those wheels may be reversed, and by making the pins changeable the number of combinations is greatly increased. The same is effected by changing the pin from one slot to another, and by reversing the wheel.

Improved Drum.

Thomas Rawson, Williamsburgh, N. Y.—A two pronged hook hooks over the edge of a hoop, and in the shank is formed a hole to receive a screw, which is swiveled to said hook, and its end is squared off to receive a key for turning it. The screw passes through a screw hole in the body of a bracket, the outer part of which projects upward at right angles to extend along and rest against the screw. The inner end of the bracket passes in through the shell of the drum, and is slightly bent to take hold of the edge of the lining, so as to be firmly supported. By this construction, by turning the screw in one or the other direction, the drum may be strained to any desired extent, or slackened, as may be desired.

Improved Cultivator and Marker.

Amos Barker, Nebraska City, Neb.—The tongue is attached to the middle part of a curved bar, the end parts of which are horizontal, and carry coupling blocks. The latter are secured in place by the ends of a curved brace. Small wheels revolve upon the journals of the axles, which are bent twice at right angles, and the ends of which pass up through the forward parts of the connecting blocks, and are squared off to receive the lever blocks, the forward parts of which receive hooks formed upon the forward ends of rods. The rods have hooks upon their rear ends, which enter holes formed in the plow beams, so that the movement of the plow beams may control the wheels. By suitable construction, by detaching the plow beams and attaching two devices, four rows may be marked at a time.

Improved Plow.

Michael Barry, Valparaiso, Ind.—The plow beam is extended to the rearward, and is curved upward to form the landside handle. Upon the beam is the standard, the lower end of which is attached to the head. The forward end of the head fits into a socket formed upon the base of the share, which share is kept in place without any other fastening. The moldboard is curved, and the point is beveled off and fits into a groove beneath the cheek of the share, which holds it in place, prevents the said point from wear, and allows it to scour readily. The heel of the plow is bolted to the standard, and its rear part inclines upward, and is bolted to the handle. The rear part of the heel has a ling formed upon it, which is bolted to the rear end of the head. The moldboard is secured in place by braces. One brace is curved outward, and to its middle part is bolted the moldboard. The other brace is bent at a suitable angle, and its outer part is bolted to the moldboard, and its inner part to the moldboard handle. The forward end of the handle is bolted to the standard and head by the same bolt that secures said parts to each other.

Improved Ore Separator.

Herman Schafer, Chicago, Ill.—This invention relates to an improved apparatus for use with blast and other furnaces in condensing, from the fumes of certain metals, as gold, silver, and lead, the fine particles which they otherwise carry off. The fumes, etc., entering through pipes, vaporize water, so that a tank is filled with steam or vapor, which condenses the fine particles of metal, and causes them to drop into the lower part of the tank. The fumes, etc., that enter through the pipes must pass beneath the lower edge of partitions before they can enter the escape pipe; and as they are entering the said escape pipe, they are exposed to the spray from a sprinkler, by which any particles that may have passed beneath the partitions are removed and caused to drop into the lower part of the tank. In some convenient part of the latter is formed a door, through which the solid particles from the bottom may be raked out.

Improved Hay Loader.

George W. Eldwell, Elwood, Ind.—A suitable carriage is made to receive the lower end of a post, to the upper part of which a lever is pivoted. The rear part of the latter is branched, and to these rear ends of its branches is hinged a shaft, to which are attached the curved rake teeth. A base is secured to the rake head and hooked to the post to sustain the draft when collecting the hay. By suitable arrangement, by turning a crank and winding a rope upon a shaft, the forward end of the lever will be drawn down raising its rear end and the loaded fork attached to it. When the loaded fork has been raised to the proper height, the post is turned to bring the loaded fork over the wagon at the side of the machine, upon which the hay is dropped. The loaded fork may be held in any position into which it may be raised while the post is being turned to bring it over the wagon. There are also devices for turning the rake to discharge the hay and for pushing the latter off the teeth.

Improved Alarm Attachment for Measuring Cans.

Edward A. Temple, Chariton, Iowa.—This is an improved alarm attachment for the automatic measuring can described in letters patent issued to C. M. Bridges, September 19, 1871, to give notice when the desired amount of liquid has been drawn from the can. A float in the can is connected with a ratchet disk by suitable mechanism. To a rock shaft is attached the end of a bell hammer, so that, each time a pawl drops into a notch of the ratchet disk, the hammer may strike a bell and give notice that one measure has flowed from the float tube of the can.

Improved Currycomb.

Benjamin F. Williams, Federalsburgh, Md.—This is a durable and convenient comb for cleaning horses, having a comb for the mane combined therewith, and it consists of a frame of malleable cast iron, to which are attached wire teeth. These teeth are formed by bending, in serpentine form, pieces of wire which are attached to the sides of the frame by means of holes in the latter, and turning over the ends. Four of these corrugated wires may thus be attached to the frame, each forming five teeth. The mane comb is formed of one or more pieces of wire attached to the sides of the frame in the same or similar manner to the other wires. The wire for this comb is doubled at intervals, each tooth being formed of two wires, which are perpendicular to the top of the frame, and on the opposite side from the other teeth. These teeth are long, so as to penetrate the mane.

Improved Hemmer.

James M. Terry, Williamsburgh, N. Y., and Enos Waterbury, Stamford Conn.—There is a supporting plate, a tongue over which the cloth is folded, an adjustable guide for regulating the width of the hem, a curved guide for turning the edge of the cloth down, and a flanged wheel for folding it under the tongue. This wheel turns with the cloth, and the fold of the hem runs in the groove of the roller. The roller and curved guide are mounted on a swing plate which can be swung away to the left for convenience in introducing the cloth. It has a catch stud for holding it back and a spring for holding it in the working position and to regulate the roller and turning plate to the irregularities of the cloth. As the supporting plate extends under the presser foot, it is provided with a stud rising a little higher than the plate, and on this the presser foot rests. The supporting plate is connected to the removable slide plate by a spring, which allows it to rise and fall with the feed, and also to rise from the table when passing over seams.

Means for Connecting Soldering Irons to Gas Pipes.

Thomas R. Gannon, New York city.—This invention is so contrived that simply placing the soldering tool upon a pipe with its lower end resting upon a collar will open the valve, and allow the gas to escape and be ignited, heating the tool in a very short time. As the tool is removed, the escape of the gas is stopped by the upward movement of the pipe, caused by the action of a spring.

Improved Milk Cooler.

Kossuth E. Bunnell and Albert R. Brown, Guilford, N. Y.—This is an improved milk cooler by which the milk is rapidly cooled, being surrounded at the bottom and sides by cold water, and readily drawn off without leakage by a watertight pipe joint passing from the bottom of the milk pan through the bottom of the water tank to the outside. The milk pan and cooling tank are fastened by clamps, attached to the top rims of the same, for preventing the lifting off of the pan from the tank by the water.

Improved Scraper.

Peter H. Carey, New York city.—To operate the machine the scraper is lowered, by a hand crank and gearing, enough for it to scrape up a load by depressing the front end and raising the rear. Then it is raised sufficiently high to be transported to the place for discharging; the frame is disconnected from the tongue, the back end board is unfastened, and both the frame and box are tilted down behind, which allows the load to escape.

Improved Turpentine Tool.

Walter Watson, Fayetteville, N. C.—This is a convenient tool for gathering turpentine from trees, having two blades, one for a scraping or down motion and one for pushing or upward motion.

Improved Cultivator.

John McGee, David W. McGee, and William J. McGee, Farley, Iowa.—There are outside and inside plow beams. To the forward ends of the outside plow beams are attached iron straps having eyes to receive a long staple attached to the front cross bar of the frame. To the inner side of the outside beams are attached braces which incline inward, project forward, and have eyes to receive the staple, so as to hold the outer plows vertical. To the forward end of the inner beams are pivoted iron straps having eyes to receive the inner vertical arms of the staples. Upon the rear end of the straps are formed curved straps, the upper ends of which are pivoted to inner arms of the staples. To the rear ends of the beams are attached the standards, the draft strain upon which is sustained by the brace rods.

Improved Roller Skate.

John H. Fenton, Indianapolis, Ind.—A bracket with two rollers is placed at the toe, and also at the heel of the skate, the two pairs being duplicates of each other, and fastened to the sole in the same manner. The bracket consists of a plate having four pendent arms, through which the spindle passes on which the rollers revolve. The plate is provided with two pivots, one on each side and opposite to each other. A spring of rubber is placed between the plate and the sole. The brackets are placed transversely across the sole, and the boxes on the pivots are so formed that the bearing or weight of the person skating is received by the springs, the elasticity of which springs gives a flexibility which allows the foot to turn in or out to guide the skates, while the pivots confine the bracket and rollers to their places.

Improved Hood for Smelting Furnace Chimneys.

John R. Egar, Corinne, Utah Ter.—The object of this invention is to provide a simple and improved means for saving the mineral which now escapes from the furnaces for smelting silver and other valuable ores; and it consists in a hood to be placed on the furnace chimney, which arrests the whole products of combustion. The smoke and gases will escape and ascend, while the dust, some twenty or thirty per cent of which is mineral, drops down and is caught in a space, from whence it is discharged through a series of tubes, and conducted into a reservoir of water for separation.

Improved Folding and Rocking Crib.

Oliver Noller, North Lawrence, Kan.—In this crib the side pieces are pivoted together, and the rockers fold up alongside when the crib is not in use. The device consists chiefly in pivoting the uprights together at the top, and arranging end pieces to hold them apart when the crib is in use. Folded in this manner, the crib takes up but little room, and may be transported or stored away when not in use.

Improved Governor Valve for Steam Engines.

Elijah K. Eversol, Springfield, Mo., assignor of one half his right to Cyrus M. Eversol, same place.—The steam chest is provided with a horizontal partition having flat valve seats. The valves are made with flat projecting heads which close over the valve seats at both sides of the partition and are connected by a guide part. The valve stems are pivoted to a lever, which is attached to a regulating spring, and the steam supply is adjusted by means of the same together with sliding weights. The weighted spring lever is further connected with the governor of the engine, so that the balanced valves indicate instantly the changes of speed, shutting off entirely the steam supply as soon as the governor belt breaks or flies off, or the limit of speed is reached by the governor.

Improved Sewing Machine.

John Steinbach and James Ready, Brooklyn, E. D., N. Y.—The feed plate is connected to the free end of a long lever, which is pivoted to a stud projecting downward from the cloth plate. Motion is communicated to said lever and feed plate, for throwing it forward, by a lever which is pivoted to a stud projecting downward from the cloth plate, and connected, at the other end, to an eccentric rod worked by the main shaft. The return motion of the feed plate is effected by a spring. The lever acts on the long lever through a block, which is arranged between them, and connected to a bar which has a binding screw, which extends up through the slot of the plate of the machine, near the back end, for shifting said block along between the levers, to vary the stitch; and it may be fastened at any point.

Improved Type Setting Machine.

John A. Reynolds, Danville, Pa.—This invention relates to that class of machines which are used for setting type, and is a new and improved arrangement for doing the same which enables an operator to set type by a simple manipulation of keys as rapidly and much in the same manner that a performer on a musical instrument reads his notes and renders the music upon the keyboard, the printer's copy corresponding to the musician's notes, and the key of the machine to the keyboard of the instrument. It consists in an arrangement of type (including letters, figures, spaces, and reference and punctuation marks) in vertical cases, which vary in number and height, according to the number, variety, and demand for said different classes of type. Said cases have lateral openings at their lower extremities, corresponding in size to the different sized type. Through these holes the type are pushed out upon a table by fingers of a corresponding size, said fingers being actuated by a cam groove in an endless hinged sectional metallic belt revolving around pulleys. To said belt is attached an arm which glides along the surface of the table, carrying the type with it to a slot in said table, down which it falls with its lettered end up, passing down a curved chute into a recess, whence it is forced laterally by a slide into the composing stick. The line which has thus been set up is then moved forward into column in the composing stick by the automatic operation of levers, cams, and pins. The operation of this machine is thus reduced to five mechanical motions: 1st. Taking the type from the cases 2d. Carrying it along the table. 3d. Dropping it down the chute. 4. Pushing it laterally into line. 5. Sliding the line into column.

Improved Machine for Splitting and Dressing Hoops.

David Murray and John Lamont, Annawan, Ill.—The splitting knife is set with its edge parallel with the line on which the two splitting rolls meet, and said rolls are provided with several grooves of different sizes. One roll is geared with a driving shaft. The other roll is held in bearings and provided with springs to allow it to shift to the inequalities of the poles to be split. While the hoop is confined by the feed roll in advance of the shaving knife, it presses down on the guide so as to throw the shaving knives out of action; but when it escapes, so as not to press down on the guide, the frame is drawn down at the other end so as to cause the shaving knives to taper the end sufficiently to form the lap. Springs are employed, in connection with the feed rolls, to cause them to gripe the hoops sufficiently to force it along. The shaving knife is provided with adjusting screws to regulate the knife for shaving off the requisite amount.

Improved Tobacco Packing Press.

Marcellus J. Farmer, Lynchburgh, Va.—This invention consists in a novel means for compressing tobacco or other articles into bags and then relieving it of the mold, and in a peculiar means for operating the compress and mold holder.

Improved Carriage Springs.

J. H. Gould, Rutland, N. Y.—This invention is a spring adapted to all classes of vehicles, and possessing superior qualities of elasticity, durability, etc. It consists of a series of spring plates or leaves, tapered from centers to ends and of equal thickness longitudinally. They are placed at such relative distance apart as not to touch when compressed, and are either applied to recessed and bolted central blocks, or run through from socket to socket with intermediate separating pieces. Some of the springs are made detachable, and the ends of all are supported on separated pins in the sockets and lubricated in suitable manner.

Improved Rein Terret.

John J. Wightwick, Brooklyn, N. Y.—This terret is made of a single piece of metal, having one or more rein orifices or openings, according to the number of horses in the team. In the bottom is a swivel pin which passes through a bed piece. The latter is screwed or riveted to the head strap of the bridle. The terret may, therefore, turn in either direction, and prevent the lines from tangling, besides supporting their weight and rendering it much less laborious to drive four or more horses or pairs of horses.

Improved Ferrule and Hook for Whiffletrees.

William Starling, La Prairie, Ill.—Upon the forward side of the ferrule is formed a slotted lug to receive the eye of the hook, which is secured to said lug by a pin. The part of the lug in front of the pin hole, and upon its inner side, may be made thin. When used in plowing, the iron pin may be replaced with a wooden one, so that, should the plow strike an obstacle the said pin may break, and thus prevent the plow from being broken.

Improved Sausage Meat Cutter.

Jacob Knopp, Columbiana, Ohio.—In the lower part of the case are formed inclined slots, in which are secured notched or slotted plates. The two forward plates extend from the opposite ends of the case nearly to its other ends, so as to overlap each other and leave spaces at their alternate ends for the passage of the meat. The rear plate extends entirely across the case, and its upper end terminates a little above the discharge orifice. The toothed plates thus form a zigzag inclined plane, along which the meat passes from the hopper to the discharge orifice, being all the time operated upon by the knives fastened to the rotary head. The knives being of triangular form have straight cutting edges, so that they can be readily sharpened. They can also be readily reversed when dull, so as to present new cutting edges, and thus avoid delay and loss of time from having to wait so often while the knives are being sharpened. They can also be cut from plates of sheet steel, to avoid waste of material.

Improved Treadle.

Joseph Lee, West Chester, Pa.—This is a centrally pivoted rock lever, operated alternately by two treadles, pivoted at the center, and the lever at its ends in the flanges of the treadles. Either heel or toe may be employed to alternately operate the crank rod.

Improved Derrick for Pumping and Boring Oil Wells.

John Schellkopf, Tidoute, Pa.—The object of this invention is to construct, for boring and pumping oil wells, an improved rig, which is made up of lighter timber, dispensing with the use of the heavy timber required at present for the band wheel blocks, Samson's post, and walking beam, and admitting that the rig may be taken apart, put up, and transported from place to place, with greater facility and a saving of timber, time and labor.

Improved Gas Purifier.

Marie Eugene Paul Audouin and Eugene Philippe Pélouze, of Paris, France.—The object of this invention is to eliminate, by a new and improved process, the liquefiable matter held in suspension by gases and vapors. The mode of action of this apparatus is as follows: The gas coming from the generator through the pipe enters the top of a case, and passing downward through perforations strikes against an opposing plate, moves laterally to the next set of perforations, passes through them and strikes the next plate, and so on through an entire series of plates. The holes being so numerous and small bring the volume of gas into a finely divided series of jets, which, by striking repeatedly against the opposing plates, sooner or later precipitate all of the impurities in suspension by condensation and liquefaction, it being partly effected by cold, and partly by the mechanical motion of the particles in suspension on their passage through the apparatus. The liquefied portions drip down, and are forced through the apertures into the tar well below. The gas next passes up into a receiver through the perforations, with opposing plates in an inverted cup-shaped purifier, and out into the large holder, completely purified. For further particulars regarding this invention, see page 292, Vol. XXIX. of the SCIENTIFIC AMERICAN.

Improved Windmill.

George A. Myers, Schoolcraft, Mich.—The vanes are connected in groups of four to short cross bars. The outer cross bar is pivoted to a wheel arm, and the inner bar is yoked to said arm, so that the section can swing around out of the wind when the force of the wind rises above the limit which it is to bear. This is governed by a weighted lever, whose office it is to hold the vanes in the wind. Each section is connected by a double-cranked rod, with a sliding hub or collar on the crank shaft. The latter is mounted on the top of a hollow casting, which rests at the shoulder on the top of a cast metal socket piece, and has a tubular extension fitting in said socket piece, and secured against being lifted out by the wind, so as to allow the casting to turn freely. The casting has a cap fitting on it above the crank shaft, to exclude snow and rain from the tubular part of the casting.

Improved Egg Beater.

William O. Crocker, Turner's Falls, Mass.—This egg beater consists of a stock, which has an arbor pin thereon, carrying a driving wheel which engages with a pinion. The pinion revolves on a spindle, and a rotary beater is attached thereto. The stationary frame is rigidly attached to the spindle, and is prevented from turning. The egg beater rests on bows on the bottom of the vessel. The spindle, the stationary frame, and the rotary beater are readily removed from the stock for cleaning or for other purposes. The frame surrounds the rotary beater, and serves to cut the egg as the beater revolves within it, and greatly to facilitate the operation of beating eggs.

Improved Foundry Molding Machine.

Gavin R. McGregor and Edgar Penney, Newburgh, N. Y.—In this machine, end-forked lifters extend up through slots in the table and support side studs of the flask. The lifters are attached to a sliding cross head, to which power is applied to lift the flask when the same is to be turned.

Improved Harness Saddle.

Edward Edwards, Hawkinsville, Ga.—The check hook and terrets are attached to plates, which are each bent or formed with a recess, which admits the back strap, and is fastened to the top of the saddle by means of rivets through their ends. This arrangement allows the back strap to render or slide on the top of the saddle, as it is kept securely in position by the loop plates and by leather loops on the side of the saddle. The back strap is made round. By this construction, the bearing of the thills is equalized on the saddle, as either one of the thills can rise or fall. They are also self-adjusting independently of each other.

Improved Mechanical Movement.

Emanuel Swartzwelder, Chaneyville, Pa.—This invention relates to a mechanical movement, by which a continuous rotary motion of the shaft is produced from the rocking motion of a lever pivoted loosely to the shaft. The invention consists of a rocking lever frame, which intermeshes, by intermediate gear wheels and alternately acting, toothed friction rings, with a central double cog wheel, keyed to the shaft, so that by the strokes of the levers the continuous rotation of the shaft is produced.

Improved Sound Insulating Attachment for Pianos, etc.

William R. Miller, Baltimore, Md.—This invention relates to that class of attachments for musical instruments which are used for insulating the sound vibrations, and rendering the same more clear and full by causing them to react instead of allowing them to be conducted away and deadened upon the floor. It consists in a core of glass or other similar substance for arresting sound vibrations, placed in a nicely fitting cavity in the bottom of the piano leg, fastened therein by buttons, and having in its center a socket to receive the revolving plate of a suitable caster.