

"In the Herreshoff launches the engines are by preference of the compound type and of the simplest design; the two cylinders are connected at right angles, and the control of the vessel is thus made complete, there being no time lost and no uncertainty in the starting, stopping, and backing. There are no independent cut-off valves, the difference in the areas of the pistons of the two cylinders giving, without that complication, an expansion of from four to five times, so that all the economy possible from this source is attained. The boiler is practically inextinguishable, being composed of a coil of iron pipe from two to three inches in outside diameter according to size of boiler. The steam pressure carried, however, is comparatively low, ranging for ordinary use from 40 to 60 lb. per square inch above the atmosphere; the engines being made strong enough to run under a pressure of 150 lb., or as much as the boiler can be made to furnish. This boiler has a forced circulation, is absolutely safe both on account of its strength and of the very small quantities of steam and water which it contains; it is operated by natural draught, which, however, can be increased by a small steam jet thrown into the chimney whenever there may be a demand for the maximum quantity of steam. The economic vaporization is as good as that of any other marine boiler. This boiler, owing to its forced circulation, with the feed water entering at the top of the coil while the steam is drawn off at the bottom, can be successfully employed with the highest rate of combustion given by a powerful fan blast delivering the air into a closed ashpit; that is to say, with a combustion of 50 lb. of coal and over per square foot of grate surface per hour; being in this respect the only boiler composed exclusively of tubes that can be worked at exceptionally high rates of combustion. In all other boilers of this kind the rate of combustion is limited by the fact that as soon as the quantity of heat thrown in a given time on the tubes reaches a very moderate amount, the water is driven from the iron, which, deprived of that protection, speedily burns out.

"The coil boiler is the lightest ever constructed for its power, and the weight of water contained in it is the least. This boiler is the peculiar feature of the Herreshoff system and the only part patented.

"The engine is condensing, the steam from the cylinder being exhausted into a surface condenser of the simplest design and lightest execution, formed by a copper pipe secured to the outside of the hull just above the keel. By this means the boiler is supplied with fresh water, and the slight quantity lost by leakage is restored from a small tank situated beneath the boiler.

"The continuous service of the launch is thus limited by only the weight of coal it can carry, and not by the weight of water it can carry. The bunkers can easily and quickly be refilled from other vessels at any locality, but the filling of tanks with fresh water can only be done where fresh water can be obtained.

"The use of condensing engines with surface condensers renders the Herreshoff steam launch of real military value, from the length of time it can continuously steam, and from its freedom from noise. When the engines are stopped temporarily, the steam is then blown from the boiler directly into the condenser and there condensed, the condenser, under the circumstances, cannot be overheated, as the outboard pipe is in continual contact with continuously changing outside water even when the vessel is at rest.

"The navy launch carries 900 pounds of coal in the bunkers, and 2,500 pounds of water in the tanks, and in smooth water can maintain a speed of 7 statute miles for four consecutive hours, after which the tanks must be refilled.

"The Herreshoff launch carries 1,120 pounds of coal in the bunkers, and can maintain a speed of 7 statute miles for twenty-eight consecutive hours, after which the bunkers must be refilled. But if there be added to the launch the 2,500 pounds in water in the navy launch, then the consecutive steaming of the Herreshoff launch can be extended to ninety-eight hours.

"The maximum speed of the navy launch was 8.5 statute miles per hour, and of the Herreshoff launch 11 statute miles per hour.

"When the two launches were tried together in very rough water, against a strong head wind and sea, the superiority of the Herreshoff launch was much more marked than in smooth water. While the navy launch took in so much water over the bows as to endanger her safety, and to require constant bailing with buckets, the Herreshoff launch was dry. She was much better trimmed, lighter, more buoyant, and every way superior in nautical qualities to the navy launch, at the same time making double the speed.

"As regards economy of fuel, the Herreshoff launch develops the indicated horse power with less than half the coal required in the navy launch. In every particular the superiority of the Herreshoff launches to the navy launch was so marked as to be apparent to the most cursory observation. Their weight was one-half and their economy of fuel was double; their nautical qualities were much finer, their carrying capacity was greater, their finish and general arrangement were better, they were noiseless, and their capability of continuous service was enormously greater. The superior adaptability of the Herreshoff system to that of any other known to us, for steam launches, steam yachts, steam pinnaces, torpedo boats, small gun boats, etc., is so unquestionable, that after the most extensive experiments and thorough examination of the subject, we are constrained to recommend it, though comparatively new, to the serious attention of the department for such classes of vessels. The management of the boiler differs from the management of boilers of other types, but is soon acquired by the humblest intelligence, and we believe the engineering of the Navy should be familiarized with it as speedily as possible, as its use is certain to extend as its merit becomes understood."

In addition to marine work the Herreshoff company are at present giving particular attention to engines for electric light. The quickness with which steam may be raised, the freedom from danger of explosion, the lightness of both boiler and engine, and the perfection of the mechanical details, render this system valuable for this purpose, and admits of placing powerful machines in the midst of crowded cities without danger to life or property.

This system has also been successfully employed in working bridge draws, dummy engines, portable and stationary pumping engines. For saw mills it has peculiar advantages. Its safety, portability, and its quick and powerful steaming qualities, give it the precedence over other steam motors.

The entire range of the manufactures of the Herreshoff company exhibit careful and intelligent supervision, and workmanship that is in every way superior.

Manufacturing in New York City.

Of late years Philadelphia has justly boasted of being not only the largest manufacturing center in the United States, but the largest in the world. If the chief special agent for the collection of manufacturing statistics for New York, Mr. Charles E. Hill, is correctly reported, our city now takes the first place in productive industry as well as in commerce and population. Mr. Hill estimates that the final footings will show the value of our manufactured products to be fully \$400,000,000, or nearly \$77,000,000 more than Philadelphia's product. This excludes the numerous factories situated in what are practically suburbs of the city, and operated by New York capital and brains.

DECISIONS RELATING TO PATENTS.

United States Circuit Court—Northern District of Illinois.

BARBED WIRE FENCES.—WASHBURN & MOEN MANUFACTURING COMPANY *et al.* vs. HAISH. WASHBURN & MOEN MANUFACTURING COMPANY vs. SAME.

Drummond and Blodgett, Judges:

1. An assignment purporting to convey all the right, title, and interest in letters patent "excepting thirty two or thirty three counties, heretofore sold and assigned," without designating the counties thus previously sold, is not so far ambiguous as that nothing passes thereby, the reservation being such as is capable of being made certain by competent evidence, showing what counties have been actually conveyed.

2. The action of the Patent Office in reissuing a patent to assignees raises a presumption of title in the assignees named, and if the defendant wished to raise the question as to whether a reservation contained in an assignment included the territory in controversy, he should have raised it in his answer, or at least have put in proof tending to show such fact.

3. Evidence almost wholly made up of the recollections of witnesses revived after the lapse of many years, and contradicted in most instances by explicit testimony of other equally credible witnesses, leaves so much doubt as to the actual existence of the device as to make it unsafe to defeat a patent on the ground of public use thus sought to be established.

4. Evidence of the state of the art showing the prior existence of analogous devices for substantially the same purpose, but not fully exhibiting the device patented, operates to narrow the field for the exercise of inventive faculty and limit the range of the patents.

5. A device, in order to be patentable, must be the result of invention, but the mere mechanical adaptation of old things to new uses is not usually invention, unless in combination.

6. Invention appearing, the law does not attempt to measure its extent or degree.

7. Utility is suggestive of originality, and the fact of the acceptance of a device or combination by the public and putting it into extensive use, is accepted as evidence that it was the product of invention.

8. An inventor may, in his reissue specification, make his description more full and accurate; but he must not substantially change it so as to describe another device or cover anything not in the original.

9. The original patent was for "the method of providing the wires of a wire fence with a series of spur wheels," and a reissue was obtained for a "fence wire provided with spurs for the purpose specified;" *Held*, not to be a departure from the original invention, the only changes in the specification serving merely to give point or direction to the invention claimed.

10. Matter so described in the original specification that it might have been claimed in the original patent, may properly be claimed in the reissue.

NEW INVENTIONS.

Mr. Rush E. Avery, of New York city, has patented a folding cot which can be folded or erected without attaching or detaching or coupling any of its parts. It is very convenient for transportation, occupying only a very small space when folded.

A safety attachment for watches has been patented by Mr. James Roberts, of Brooklyn, N. Y. A plate or ring, having scalloped edges, is slipped over the stem of the watch, projecting horizontally, and so nearly filling the pocket that when a thief attempts to extract the watch the projecting plate will catch in the lining of the pocket and alarm the owner. Or, if the thief attempts to take hold of the plate itself, the pressure of his fingers in the narrow space between the plate and the pocket will alarm the owner.

Mr. William Hoffmeister, of Mossy Creek, Tenn., has patented a double try-square. Two ordinary try-squares are joined together side by side, a suitable and adjustable distance apart, by a metal plate and screws or equivalent means, by which means the square may be made to straddle boards of different thicknesses. The scope of the tool is by this means much increased, and kinds of work performed with it which are not possible with the ordinary try-square.

Mr. Wilhelm Espig, of Berlin, Germany, has patented a billiard table, which provides means for adjusting the bed to different heights from the floor, and also for extending its frame for the reception of table boards whereby it may be converted into an ordinary dining table.

Mr. Francis Hopkins, of New York city, has patented an improvement in eyeglasses, the object of which is to obtain a firmer gripe upon the nose without tightening the spring, to prevent the glasses from slipping forward on the nose, and to hold them on the nose nearer to and on the same plane with the eyes. This is accomplished by forward projecting arms to which the spring is attached.

Mr. William H. Older, of Packwaukee, Wis., has patented an improved construction of buildings designed especially for barns upon prairies and other parts of the country where timber is scarce. A peculiarly constructed frame of timber and wire, the timbers being secured by bolts, is the principal feature of the invention. The outside may be covered with straw thatch, tarred paper, etc. A serviceable building can thus be constructed with little timber and at a small cost.

In a bill coupling patented by Mr. Levi B. Stuart, of Seymour, Conn., a grooved cushion and centrally grooved plate are claimed to provide a more durable and more easily adjustable spring to prevent rattling of shafts on their bolts than has hitherto been supplied.

A log tripper patented by Mr. Levi Gunter, of Gunther's Mills, S. C., consists of a novel arrangement of levers and an improved hook, whereby a saving in power and labor for turning logs in saw mills is effected.

Mr. Samuel White, of Eau Claire, Wis., has patented an improved head block for sawmills which comprises improvements in the jacks or standards of the head blocks, the dogs for holding the logs upon the carriage, and the means for receding the jacks upon the head blocks.

Mr. Charles P. Batt, of Phoenixville, Pa., has patented a pendulum scale which consists in a novel combination and arrangement with each other of a pair of weighted levers, a pair of connecting bars, and a vertically operating scale-beam and indicator.

Mr. Edwin B. Hutchinson, of Detroit, Mich., has patented an improved account-book, which saves time and work in making up trial-balances from a ledger. The book is bound with half leaves that are ruled for an index, and fitted with a removable pad provided with leaves ruled in columns for account totals, arranged for two or more balances, which pad when in place forms, with the bound half leaves, a complete trial-balance book, into which the headings or names can be copied on the bound portion and the accounts carried out upon the pad leaves for two or more balances, and the pad renewed by another when exhausted, all with but one entry of the names or headings.

Mr. Ura H. Palmer, of Elizaville, Ky., has patented a wheat heater for flour mills, in which the grain is heated by the direct contact of hot air, the air being heated by a lamp and circulated in currents through perforated tubes, among which the grain passes by virtue of its own gravity.

Mr. Prosper Humbert, of Austin, Texas, has patented a three-wheeled vehicle which has one or more seats so arranged that the forward seat turns with the horses so that the driver is always directly in the rear of the horses, and holds the reins at the same length no matter how much the horses may turn to either side.

Mr. George B. Taylor, of New Brunswick, N. J., has patented a feed-water heater for steam engine boilers and locomotives. The heating chamber is formed of two plates attached to a frame, and its interior is divided into zigzag form by strips extending alternately from the top to the bottom, and from the bottom to the top. The heating is accomplished by the products of combustion as they pass through the smoke box.

Mr. Charles Niederauer, of La Grange, Texas, has patented a cultivator in which the standards may be adjusted to regulate the depth of the cultivators or plows to avoid obstructions. Each cultivator or plow standard has attached to it an adjustable segment, and the standards are all operated together by a lever and link connections. The plows are thus raised, while the main frame upon which the operator rides is not raised.

Mr. Gottlieb Kinsey, of Lock Seventeen, Ohio, has patented an attachment for reapers and mowers which is a substitute for ordinary reel, and which, while less expensive, is claimed to be equally as effective. It consists substantially in a rake which is automatically raised, swung forward, lowered, and drawn back as the machine advances to draw the grain or grass against the cutter bar.

Mr. Jacob Gilstrap, of La Plata, Mo., has patented a wind wheel of that class in which the access of wind is controlled by hinged valves regulated by the action of a governor. Instead of two cords and rings for connecting each valve to the governor Mr. Gilstrap uses only one cord to operate the valve in one direction, its movement in the other direction being controlled by a spring. By this means the number of parts is greatly lessened and a consequent reduction in friction results.

Mr. John Coyle, of East New York, N. Y., has patented a combined lampwick-trimmer and burner and chimney cleaner constructed of a brush, a square staple, and a serrated disk, whereby the charred portion of the wick can be removed, the wick and burner brushed off, and the inner surface of a lamp chimney cleaned.

Mr. William Jones, of Nashville, Tenn., has patented a machine for making rim tops of vessels. It operates upon a straight strip of metal, flanged at one edge, to convert it into a hoop of the desired dimensions and of such shape in cross-section as renders it peculiarly suited to form the flange for the cover of sheet metal vessels.

Mr. Bolivar J. Quattlebaum, of Williston, S. C., has patented a portable dental engine which may readily be set up in small compass and readily taken down and packed in small compass for transportation. The frame of the machine can be adjusted to form a case for the working parts when packed.

Separation of Cobalt and Nickel.

Reichel gives the following new method for the qualitative separation of these two troublesome metals, especially when there is but little cobalt in the presence of a larger quantity of nickel. Both metals are precipitated with potassium hydrate solution and filtered. The unwashed precipitate is thrown into a test tube and heated with very strong potash until it boils. Under these circumstances the cobalt dissolves with a blue color, thus proving its presence in a very simple manner.

Z. A. C.

Scarlet for Felts.

The following two processes give shades which bear soaping. The dyeing is done in a well-tinned pan or a wooden cistern the goods are entered, at 115° Fah., in water, to which 1½ lb. white argol is added, and boiled strongly for a long time, turning occasionally. Lift, and add the dissolved coloring matter; re-enter, turn, and add gradually, lifting the goods before each addition of 11 lb. tin composition. The beck is then brought to a boil again, which is kept up for half an hour. Lift, cool, and wash well.

If the argol does not loosen the tissue sufficiently, it is recommended to add a small quantity acetate of soda.

The tin composition is prepared as follows: Muriatic acid, 3 lb., nitric acid, 1 lb.; water, 1 lb.

To every 6 lb. of this mixture 1 lb. of granulated tin is added, with the aid a gentle heat.

Sulphuric acid may be used instead of the tin spirits, but the shades are less pure.

The first method consists in dyeing the goods thus mordanted with the "Ponceau 2 R" of the Aniline Color Company of Berlin. In the second the goods mordanted in the same way are dyed with "Ponceau S extra," made by the same company — *Muster Zeitung für Faerberer*.

CONTINUOUS-SLIDE LANTERN.

The engraving shows a lantern which possesses certain advantages, and is specially adapted for lectures where the subjects follow each other in an unbroken series. Mistakes arising from the insertion of a wrong slide, or an inverted subject, are apt to mar an evening's entertainment. But, as will be seen, errors of this nature are altogether avoided, and by a simple mechanical arrangement, the slides present themselves in perfect order and at their allotted times.

The instrument is fixed to the top of the packing case, B, by the screws, A A; the lid of the case, C, serves to elevate or depress the lantern which may be fixed in position at any angle. Reared above the chimney are two metal uprights, secured to the sides of the lantern. These carry at their apex a wooden cube covered with fine leather; each side of this cube corresponds with the size of the slides. But, by the aid of strong ribbon binding, the slides are so united as to form a flexible band which traverses the cube and descends into the case, B, through slots, D D. The cube turns on its axis, E, to which is attached a milled head. The band is made so that the slides can be detached and replaced by a new series at will.

The advantages of this simple arrangement are so obvious as hardly to require further comment. The operator has only to turn the milled head of the cube in order to bring his subjects, one after the other, into position. This system might be applied also to the dissolving view apparatus. The heat from the chimney is never so intense as to interfere in any way with the slides, while it clears them of surface moisture, by which they might be obscured during cold weather.

An Aluminum Battery.

A curious and novel voltaic cell has been devised by Herr Wöhler, and described in *Liebig's Annalen*. The chief peculiarity is that both plates are of the same metal—aluminum—and a tolerably strong current is supplied. The cell consists of a glass vessel six inches high, filled with very dilute hydrochloric acid, or caustic soda, and containing an inner porous pot filled with concentrated nitric acid. In each compartment is placed a cylinder of aluminum provided with a projecting lug which passes through the cover of the vessel, and acts as a contact piece for the electrodes or conducting wires. As soon as the aluminum cylinders are plunged into the acids, a current is given off sufficiently powerful to heat a platinum wire red hot.

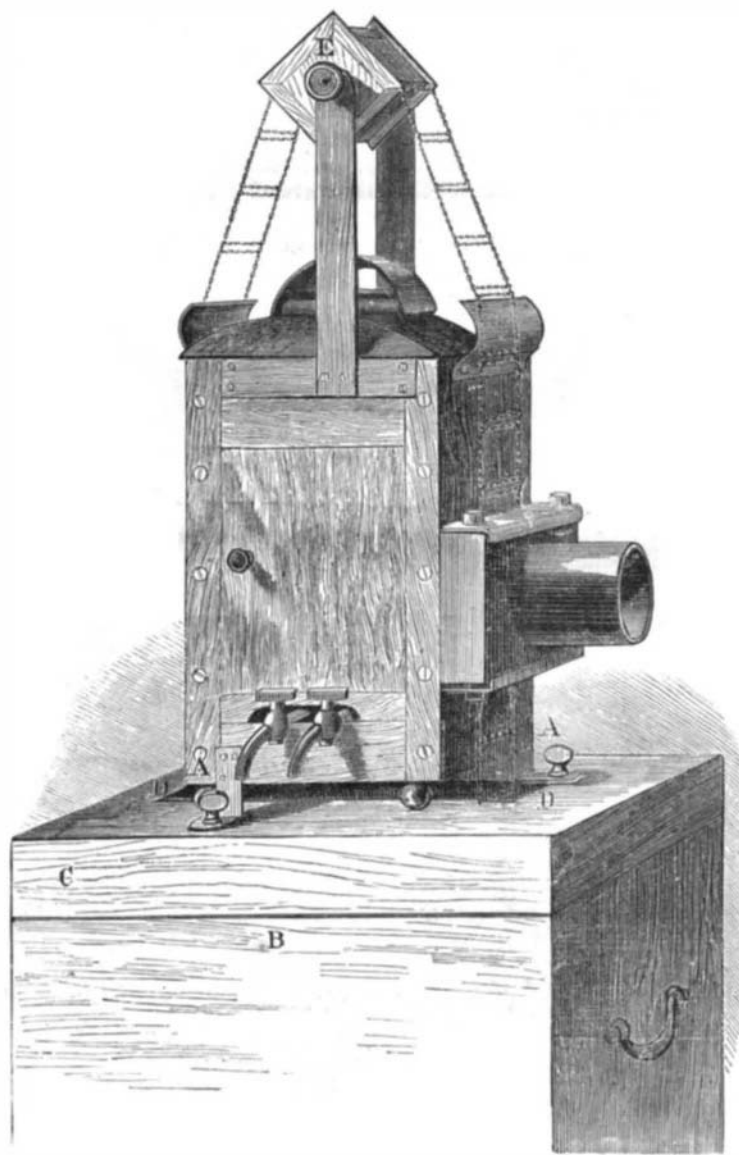
To Make Chloride of Gold and Nitrate of Silver.*

Procure 8 grammes = 5 dwts. of fine gold, and after rolling out to thin plate, cut into small strips. Get an olive oil flask, and clean it well with a warm and saturated solution of soda and water. Fill the flask half full of water, and set on a sand bath over a heat that will slowly bring the water to boiling, which will both temper and test the flask; if it stands this test it is fit to be used. Put the pieces of gold into the flask, then mix in a small bottle half an ounce of pure nitric and two ounces of muriatic acid, and pour some of this into the flask to cover the pieces of gold, place it in a sand bath over a gentle heat, and put over the mouth of the flask a small piece of glass to prevent the solution from spiriting out while in action. As soon as the acid ceases to act on the gold, and if any remains undissolved, add more of the mixed acid, and continue to add little at the time as often as it stops acting on the gold until all is dissolved; remove then the flask from the sand bath and let it cool, then add to it about its like quantity of water, and boil over a heated sand bath until about half of it is evaporated; remove and pour the solution into a glass or porcelain dish,

and rinse the flask several times with small quantities of warm water, which add to the solution.

Now prepare a filter in a small glass funnel, place it in the flask, and filter the solution back, and before the filtering is nearly completed pour a few drops of water at a time into the filter in order to wash the gold out of it, and until the solution is increased to about a third in bulk, then return it to the sand bath and evaporate again to about half; after this pour the solution into an evaporating dish and rinse the flask with warm water and add the rinsing to the contents in the evaporating dish, then add about 1 gr. 50 centigr. of fine table salt for each gramme or 1½ dwt. for each dwt. of gold dissolved; place it on the sand bath, stir it well with a glass rod until perfectly dry, then allow it to cool, when it will be ready for use, or to be poured into small bottles for sale. The 8 gramme or 5 dwt. of gold used will realize 24 bottles containing 1 gramme or 15 grains of chloride of gold to each bottle and will pay well for the trouble of preparation. The chloride of gold prepared in this manner will answer for making solutions for electro-gilding or for photographic purposes.

To make nitrate of silver, take granulated fine silver and put into a glass flask similar as used for dissolving gold, pour pure nitric acid mixed with about half the quantity of warm water into the flask to cover well the silver, place the flask in a sand bath over a gentle heat or into a vessel of hot water, which must be kept hot by placing over a spirit lamp until the acid ceases acting on the silver; if silver remains undissolved in the flask, remove it from the sand and let it

**CONTINUOUS-SLIDE LANTERN.**

cool; then pour off the liquid into a porcelain dish, add a little more acid to the remaining silver in the flask, and place it again over heat until dissolution of silver ceases, and keep on repeating the decanting and adding until all the silver is dissolved. By this method an excess of acid is avoided. After the solution has cooled add to it about half its quantity of water and filter it through asbestos broken up and placed in the filter in the neck of the funnel; after filtering pour into an evaporating dish and place it on a heated sand bath and evaporate until you perceive a light scum on the surface of the liquid, when it is removed and allowed to cool, and when nearly cold is placed on ice covered over and left undisturbed for twenty four hours, when crystals of nitrate of silver will form; the crystals are removed with a pair of platinum pincers into a glass funnel placed into the neck of a bottle, and as soon as the crystals have given over dripping pour quickly about an ounce of water over the crystals, and after done dripping repeat it twice more; take the crystals out of the funnel and spread them out on a china plate and place on a warm stove to dry. Pour then the washings of the crystals back to the remaining silver solution not yet crystallized, evaporate and filter the same as before and set by to crystallize, and repeat the process until nearly all the silver is disposed of. The small remainder of silver solution may be decomposed into chloride of silver by adding gradually small quantities of salt water.

In order to obtain crystals of large size, the moment of forming the scum on the solution has to be watched during evaporation and advantage taken of by removing it from the sand bath at this point. Another advantage of greatly accelerating the formation of crystals is to put a piece of nitrate of silver into the solution before placing it on the ice. This method will produce nitrate of silver of a better and purer quality than generally bought of dealers.

MISCELLANEOUS INVENTIONS.

An improved end gate for wagon bodies, patented by Mr. Thomas Dwyer, of Kendall, Ill., supplies drop end gates which may be turned down and supported in horizontal positions to serve as platforms for convenience in shoveling oats out of wagons. It may also be turned down in a vertical position out of the way. Quadrantal wings with stop devices enable these adjustments to be easily made, and hold the gate securely when adjusted.

Mr. George T. Hedrick, of Weaverton, Ky., has patented a nozzle and stopper for grain bags. It is metallic, and the bag is gathered and attached to it by a draw string. The stopper is a metallic disk with a spring catch which engages interrupted flanges on the interior of the nozzle.

A lock and latch combined, patented by Mr. Charles F. Batt, of Phoenixville, Pa., is so constructed that the lock cannot be readily picked, and both the bolt and the latch can be operated by the same key. It also allows the latch to be thrown out of or into gear with the spindle.

Mr. Earnest J. Krause, of Carlisle, Pa., has patented a fire escape ladder, which provides means for adapting the hooks of a fire escape ladder to window sills of all widths, and for holding the ladder as firmly on narrow sills as on broad ones.

Mr. Orlando H. Jadwin, of Brooklyn, N. Y., has patented an improved cable traction for street cars. A peculiar clutch attached to the car serves, at the will of the conductor, to attach the car to the traveling cable, which runs in a channel or trough formed in the ground. Devices are also supplied to hold the cable in position at street corners, etc. The clamping of the cable by the clutch is gradual and uniform.

Mr. James Pardee, of Phillipsburg, Montana Territory, has patented an improvement in rotary ore-roasting furnaces, intended to increase the capacity, effectiveness, and working economies of this class of furnaces, and more especially applicable to what is known as the Howell rotary furnace. The improvement consists in a diaphragm or partition placed in the rear of the furnace feed pipe, by which means the crushed ore is given time to become heated and aggregated before dropping through the moving current of air and flame, and in this condition is not carried by the draught into the dust chambers in such quantities as heretofore.

Mr. James M. Totten, of Sharon, Wis., has patented an improved adjustable wrench. The shank has a socketed mortised block at the lower end, and a cross bolt passing through the shank, which holds side sliding plates. By sliding out the side sliding plates from the block and fastening them by the bolt, the wrench may be made to fit various sizes of nuts.

Mr. August W. Klammer, of Cahoka, Mo., has patented a draught equalizer for side reaping machines. A rectangular framework is adjustably secured to the tongue or pole of the vehicle, projecting on one side thereof and carrying the whiffletrees, thereby affording the horses a powerful leverage against the side pull of the machine.

Mr. Charles Steinfelds, of Elizabeth, N. J., has patented a screw polishing machine, which automatically seizes and properly presents the heads of the screws to polishing wheels, the screws being fed to the machine in mass.

Mr. Heinrich Trenk, of Berlin, Germany, has patented a composition for use in tanning, consisting of a concentrated solution of crude tartar or argol, to which a small quantity of chloride of zinc or analogous chloride has been added. This composition is used after the hides or skins have been treated by the tanning liquor, and its action is to make the finished leather more dense and compact.

A hitching strap, patented by Mr. John D. Stotlemeyer, of Hancock, Md., prevents horses, when hitched, from falling, and assists them in recovering their feet when down. A portion of the strap is made of a strong strip of elastic rubber, provided with a snap hook, and suitably attached to the leather portion of the strap.

In an apparatus for watering stock, patented by Mr. James Ray, of Huntsville, Mo., a trough or receiver is provided with a device whereby water flowing into it from a pipe is automatically prevented from flowing as soon as the water reaches a prescribed level in the trough. The troughs may be arranged in a series, delivering water one to another, in such manner that none shall be wasted by overflow. A novel arrangement of float lever valves and float valves is used to accomplish the end sought.

A cheese cutter, patented by Mr. Lionel J. Smith, of Peshtigo, Wis., is so constructed that cheeses can be easily, accurately, and quickly cut into pieces of any desired size.

*From the *Deutsche Chemiker Zeitung*, by H. Bush, Hull.