

**COMBINED BENCH AND IRONING BOARD.**

The bench is composed of side pieces, legs, end pieces, and a central cross brace. At one end it is provided with stationary top pieces having curved inner edges, as shown in the upper view, which are covered with a thin strip of angle iron extending up flush with the top and bent to conform with the curved edge.



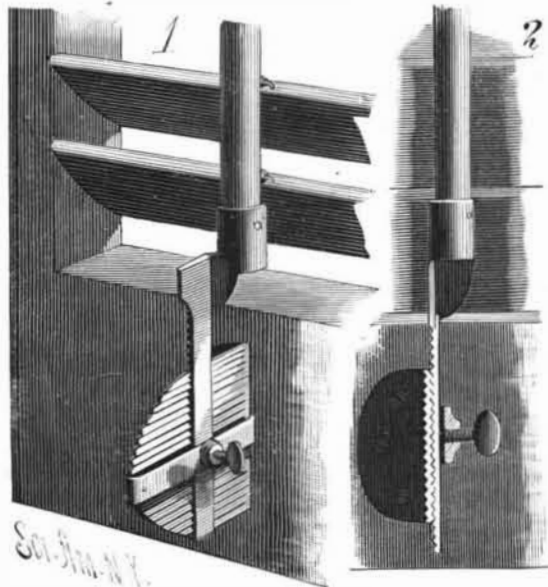
**WELLER'S COMBINED BENCH AND IRONING BOARD.**

To the upper ends of the legs are hinged supports adapted to extend upward to form continuations of the legs, to engage with and hold an ironing board in a horizontal position. A tongue formed upon the free end of each support enters a socket box fitted in a recess formed in the board, so that the hinged lids of the boxes are flush with the bench surface of the board. When the board is in position to be ironed upon, the hinged lids rest against the sides of the supports, an opening in the lids receiving pins projecting from the sides of the supports. The lids are held in this position by suitably arranged buttons. By this means the ironing board is securely fixed in its elevated position. The rigidity of each support is promoted by another button attached to its inner side, and which enters a slot in the top edge of the side piece. To convert the ironing board into a bench, the board is lifted up and the supports closed down within the bench, as shown in the lower view. The wraps used upon the board are then placed neatly over the supports. The board itself is then turned over and its narrow end slid under the projection of the angle iron to a bearing upon the upper edges of the bench frame. The board now forms a smooth top for the bench. The under side of the ironing board, when forming a seat, is recessed near each side of its square end. Each recess is covered by a metal plate having a diamond-shaped opening to receive the elongated head of a bolt secured to the inner face of the bench side pieces. The square end of the board is thus held to the bench, the narrow end being held by the angle irons.

This invention has been patented by Mr. Daniel H. Weller, of Boyertown, Pa.

**IMPROVED BLIND STOP.**

By means of the simple attachment here shown, the blind may be securely held in any desired position. Secured to the lower cross bar is a metal plate, bent at



**GULICK'S IMPROVED BLIND STOP.**

right angles to form flanges, the projecting one of which is finely corrugated. The plate is held to the bar by screws passing through the other flange. Across the face of the outer flange is secured a spring retaining strip, which bears against the corrugated face and which carries a set screw. To the end of the slat bar is secured a corrugated strip, which is passed between

the flange and its strip, the corrugated faces resting against each other, as shown in the right hand view.

This device will hold the slats in any required position, but when the slat bar is subjected to a positive pull, the strip will slip upon the face of the flange, against which it will be held by the action of the spring strip. By means of the set screw, the parts may be so locked together as to prevent the turning of the slats from the outside.

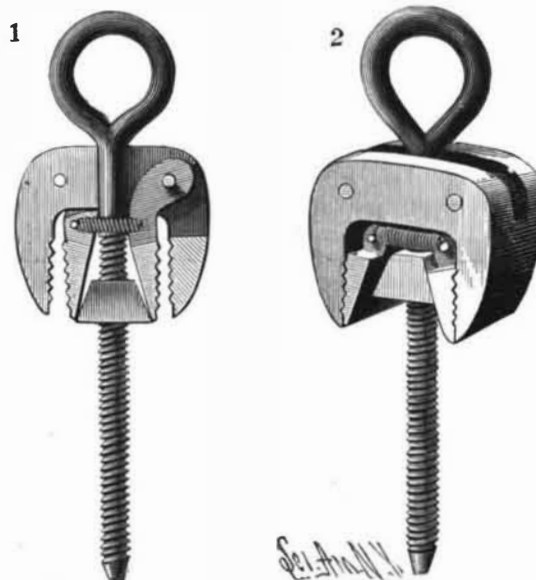
This invention has been patented by Mrs. Lizzie T. Gulick, of Corsicana, Texas.

**The British Armament at Victoria.**

Some mistake appears to have been made in the recent announcement that the British Government are sending out a number of eighty ton guns for the coast defense of Esquimault and Victoria. Twelve sixty-four pounders have been sent out from England, not for the armaments of the forts, but to be placed on board the British ships of war belonging to the Pacific squadron or to go into the naval reserves. Some time ago the British Minister of War made application to the Canadian Pacific Railway to know if they could transport one or more eighty ton guns over their road. An estimate of the cost was given, with the model of a car composed of three trucks, which it was proposed to use if the shipment was made. Since then nothing has been heard of the eighty ton guns. The officer in command of the British Columbia district does not speak very creditably of the condition of the armament at that point. The artillery armament is described as old, the carriages and limbers are reported rotten and are falling to pieces, while the guns are without sights. The batteries at Victoria and Esquimault, the officers say, are in a discreditable condition.—*N. Y. Evening Post.*

**A SIMPLE DEVICE FOR CRIMPING BOOTS OR SHOES.**

The crimper herewith illustrated has a yoke-shaped stationary portion, the jaws of which are formed with



**LA FOLLETTE'S BOOT CRIMPER.**

transverse corrugations. The top of this yoke has a longitudinal slot, in which are pivoted the upper reduced ends of movable inner jaws, whose operative faces have transverse corrugations, arranged to always meet and fit within the corresponding corrugations of the outer jaws. These inner jaws are normally held open by a spring. The operating or crimping screw slides freely through the slot in the yoke, extending between the inner jaws, and on its lower portion fits a wedge-shaped clamping block, which is drawn up between the inner jaws by turning the operating screw. The outer end of this screw being placed in an aperture in the heel of the last, or in other suitable position relative to a form over which the leather is to be crimped, and the edges of the leather placed between the jaws, the leather may be strained about its forming block as desired by simply rotating the screw.

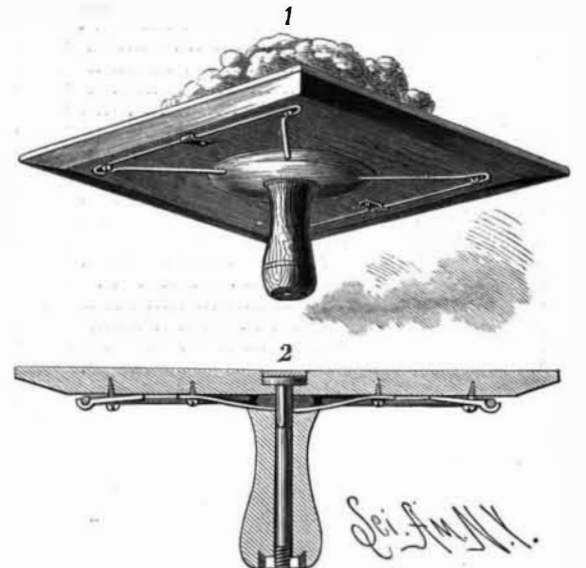
This invention has been patented by Mr. Elery B. La Follette, of Flemington, West Va.

**PLASTERER'S HAWK.**

The object of this invention, which has been patented by Mr. Geo. W. Jaques, of Burton, O., is to provide a plasterer's hawk in which the board on which the mortar is received, and which is subjected to expansion and contraction due to alternate moistening and drying, may be rendered light and rigid and, at the same time, be free to expand and contract without warping or cracking. In the center of the board is secured a bolt, upon which is received a handle having a nut in its outer end fitting the end of the bolt. A circular concave plate is placed on the bolt, between the handle and board, with its concave side toward the board. Between the plate and board is held an elastic rubber washer, which is compressed by screwing the handle down.

The plate has a plane edge, which is secured to the board by screws, and in the edge are four notches for

receiving the ends of wire frames that extend a short distance under the plate, by which they are clamped to the board. Each frame consists of a wire, bent to the shape shown in the upper view in the engraving. Through the end loops are passed screws, projecting from the board, and the center of each frame is secured to the board by a clip, the clips and bolt being ar-

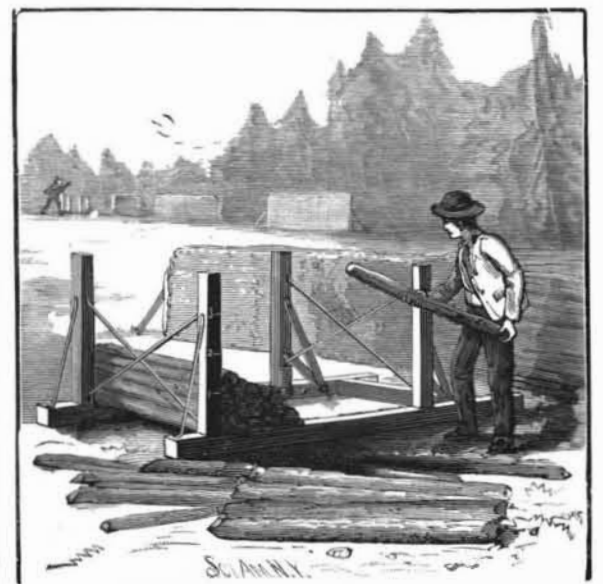


**JAQUES' PLASTERER'S HAWK.**

ranged in a line parallel with the grain of the wood. The frames support the edges of the board, and the loops permit of the lateral movement of their screws and the portions of the board by which they are carried. This hawk weighs, even when thoroughly soaked, only one pound and a half, the old style weighing from three to five pounds.

**ADJUSTABLE WOOD MEASURING BACK.**

By means of this device wood may be measured by the cord or fractional parts of a cord, as occasion may require. The sill frame consists of two longitudinally ranging timbers connected by cross bars. Near one end of the timbers are fixed uprights, braced to each other and to the timbers. To the inner faces of the sills are screwed a series of headed pins, the first one being exactly one foot from the inner face of the end posts, and the others being spaced one foot apart. Two posts, braced together by rods, are adapted to stand on the sills, and to the inside face of each post is attached, by coach screws, a metal plate provided with a hook at its lower end, adapted to engage with the shank of one of the headed screw pins of the sills. Attached to each post is a brace with two arms, and formed at its lower end with a notch to engage the pins on the sills. The metal plates and braces are slotted for the passage of the screws, so that the movable frame may be quickly and easily set perfectly plumb, whichever opposite pair of the sill pins may be engaged by the hooked plates. The posts are exactly four feet high, and one is marked by cross lines one foot apart. It is apparent that, to measure a cord, the frame is moved to the eighth set of pins and the wood is piled to the tops of the posts. To measure half a cord, the hooks are engaged with the fourth pins. By adjusting the hooks to the first pair of pins, and filling the wood in between the end posts up to the first cross line on the post, a single foot of wood can be measured, or up to the second line for two feet, and so on. Thus a cord or any fractional part



**BROUGHTON'S ADJUSTABLE WOOD MEASURING BACK.**

can be readily measured. To disengage the frame, it is only necessary to tilt it forward toward the fixed posts, when it may be shifted to any point along the sill frame.

This invention has been patented by Mr. Horace L. Broughton, whose address is P. O. box 320, Marblehead, Mass.

**Steel Rail Capacity of the United States.**

Name.	Capacity in Tons.
Springfield Iron Company.....	12,000
Indianapolis Rolling Mill Company.....	75,000
Joliet Steel Company.....	200,000
Lackawanna Coal and Iron Company.....	216,000
Troy Steel and Iron Company.....	120,000
Montour Iron and Steel Company.....	90,000
California Mills.....	50,000
Lochiel Iron and Steel Works.....	65,000
Cleveland Rolling Mill Company.....	200,000
Roane Iron Company.....	50,000
Union Steel Works, Chicago.....	168,000
Colorado Coal and Iron Company.....	125,000
Cambria Works.....	100,000
Western Steel Company.....	132,000
South Chicago Plant.....	250,000
Bay View Plant.....	50,000
North Chicago Plant.....	200,000
Carnegie, Phipps & Co.....	125,000
Union Iron Mills, Pittsburg.....	50,000
Edgar Thomson Plant.....	450,000
Cranston Steel Company.....	175,000
Pennsylvania Steel Company.....	300,000
Bethlehem Iron Company.....	250,000
Worcester Steel Works.....	50,000
<b>Total apparent rail capacity.....</b>	<b>3,671,000</b>

**PENBERTHY INJECTOR.**

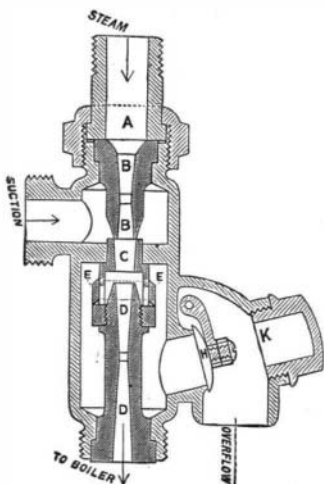
At last a mechanical combination and device has been produced, and a man's labor and study crowned with success, in the production, for the convenience of engineers, of a simple and compact device known as the Penberthy injector or boiler feeder.

Its mechanical construction is very simple, but perfect. All its parts are movable and convenient of access (not being screwed in), its working so complete that an inexperienced person can operate it with success and perfectness. Its adaptability to all classes of boilers, such as stationary, portable, traction, marine, and locomotive, and its working on each, makes it very desirable, and recommends it to all classes of engineers. The automatic working of this injector is of very great advantage, as by this mechanical construction it works under all conditions of shakes, jars, and concussions. In case of a break, or the suction is to be removed and then returned, it picks up or begins working without any aid, assistance, or attention from the engineer, thereby relieving of much care and annoyance. Its convenience of access is of very great consideration and importance, owing to the advantage of cleaning and examining its interior parts.

The working parts of this injector are stationary in their work, thereby causing comparatively no wear in its mechanical parts. The inventor seems to have combined common sense with mechanical science, by leaving out all complications, and combining in the injector every convenience of operating, getting at, and putting it on the boiler.

The body is of a single cylinder or barrel, with two jets inside, "steam and combining," and governed by an automatic swinging overflow. The injector is operated by the opening or closing of the globe valves. It is connected to the boiler and pipes with uniform and interchangeable square centered unions, and can be put on or taken off very quickly without any annoyance or injury, and the only tool required being an ordinary wrench.

Another great point gained in this injector is its great range of working capacity. It will lift water twenty-five feet perpendicular, or take it a hydraulic pressure and force it into the boiler at a temperature of from 140° to 180° Fah. It will work under a steam pressure of from 20 to 140 lb. It will also lift and force water



**PENBERTHY INJECTOR.**

at a very warm temperature (say 120° Fah.) in tank or well, and under all circumstances and at all points it works automatically. The inventor and manufacturers of the Penberthy injector have great confidence in its working qualities, and to satisfy engineers of its merits and perfectness of work, solicit a trial. From observation, a brilliant future is in store for this little wonder of simplicity and compactness, which is a model of mechanism in appearance and finish.

For prices, etc., address Jenkins Bros., 71 John St., New York, 13 So. 4th St., Philadelphia, and 105 Milk St., Boston, agents for this injector.

**PROTECTOR FOR LADIES' HATS.**

This simple and readily adjustable protector may be quickly applied to and removed from a hat or bonnet, without injuring its delicate trimmings, and may be adjusted to fit large or small hats. The main portion of the protector, which alone will be used to cover hats of small or medium size, consists of a piece of some light waterproof fabric strengthened about the margin with an inside facing. At the inner face of the body are secured a couple of narrow strips of suitable fabric (Fig. 2), forming casings for drawing strings. At the opposite edges of the facing are attached small rings, through either series of which a drawing string may be passed.

The extension piece (Fig. 1) of the protector consists of an endless band of waterproof fabric, like that of



**HOPKIRK'S PROTECTOR FOR LADIES' HATS.**

the body, provided at its edges with bindings, to which rings for drawing strings are secured. The protector can readily be adjusted and held upon a small or medium sized hat by properly manipulating the drawing strings. To adapt the protector to a large hat, the extension piece is united to the main piece by a string passed through the inner series of rings on the facing and through one of the series of rings on the extension piece. A string is then passed through the other rings of the extension piece, when the protector can be held to the hat by adjusting the drawing strings. It is evident that this protector may be applied over a hat without danger of crushing the most delicate trimmings.

This invention has been patented by Mrs. W. H. Hopkirk, of Agency, Iowa.

**IMPROVED STUMP PULLER.**

The stump puller shown in the accompanying engraving (page 130) is exceedingly powerful, as, by a system of compound levers, a pull of one pound on the operating bar will exert a pull of 384 pounds on the stump, and if the lifting chain be passed around a single pulley, this power is doubled. With one of these machines one man has pulled a green maple stump two feet in diameter from clay soil. The pulling mechanism is supported by a tripod, to the upper end of which is secured a chain carrying a bar or plate provided with a bearing in which slides a notched bar. Meshing with the notches of this bar are the teeth of a pawl, which is so connected, by levers, with the operating handle that the downward movement of the latter will raise the pawl and notched bar and the chain attached to its lower end. A sliding bolt then holds the notched bar in its raised position, when the handle can be raised to enable the pawl to engage with the next lower teeth of the bar. Thus, by a succession of up and down movements of the handle, the notched bar may be elevated its entire length, or until the stump is pulled completely out. It will be seen that the sliding bolt permits of the upward, but prevents the downward, movement of the notched bar when the pawl is disengaged and slides downward. But, by means of a suitably arranged hand lever, the pawl may be moved so as to be out of contact with the bar, and, at the same time, the bolt, which is pressed forward by a spring, may be moved to disengage it from the notch in the bar, which may then be adjusted in any desired position. The machine is built of steel and malleable iron.

This invention has been patented by Messrs. R. R. Tichenor and P. Walker, of Henning, Minn.

**The Defense of New York within Thirty Days' Time.**

The idea seems to prevail that the United States is absolutely helpless against a naval attack from England. I think this idea is entirely erroneous. There is the pneumatic gun, capable now of throwing 300 lb. of nitro-glycerine, which amount could easily be in-

creased to 1,000 lb. For the value of one modern ironclad, 150 steamers with such a gun could be put in service in two weeks by the United States, because any steamer of 100 feet or over would answer; while the gun, being a mere tube, subjected to but 1,000 lb. of air per square inch, with air-compressing machinery, is all so available and quickly built that a month would put the United States into possession of 500 of them. If, now, 20 such steamers be told off for each ironclad sent against us, even if two-thirds were sunk, they would, before being entirely demolished, succeed in depositing 5 to 10 tons of nitro-glycerine on the deck of the ironclad, and exploding it.

Would not the effect of repeated explosions of 1,000 lb. of nitro-glycerine blow the deck in, dismount the guns and engine, and shake the armor loose, as the explosions of the Monitors' guns did when they were in service in the late war—the heads of bolts and other fastenings of the armor flying off from the concussion.

Then there is the submarine boat, that has already stayed under water thirty minutes with its crew, and been easily and correctly guided. What is in the way of using ten such boats to each ironclad, one of which would unquestionably succeed in placing 1,000 lb. of nitro-glycerine under the ironclad, the explosion of which would be heard from? Because the explosion of 90 lb. of gun-cotton did not materially damage an ironclad, can it be reasoned that 1,000 lb. of nitro-glycerine, which would have twenty-five times the force of 90 lb. of gun-cotton, would be equally ineffective? Hardly, I think.

Nets, etc., would not prevent such boats from diving under them, while they would only impede the speed and maneuvering of the ironclad, and render her more easily approached.

Blucher, the German cavalry officer, insisted that it was the impression and belief existing in Germany that Napoleon was invincible, and the Germans helpless, that alone prevented them from conquering. When the occasion came when he could demonstrate this, the Germans and allies easily defeated and dethroned Napoleon.

It is similarly true in this country, for too many believe that the English ironclad is invincible, and this impression makes cowards of too many. Give the nitro-glycerine gun and submarine boat a trial, if occasion arises, and England's ironclads will succumb as easily as Napoleon when sufficient power of the right kind was brought to bear on him. The right kind of power to apply to England is nitro-glycerine and dynamite, which could be ready with guns and boats in a month or less. One hundred days sufficed to build the first Monitor many years ago, and much less time will be needed for dynamite guns. WAYNE.

**Electroplating with Platinum.**

Platinum has not been much used in electroplating, notwithstanding its hard, durable, and protective properties. This is, perhaps, chiefly owing to the practical difficulty of obtaining a good firm "reguline" deposit. A process for effecting this has, however, been brought out recently by a Mr. Bright, whose patents have been acquired by the Bright Platinum Plating Company, and are in actual operation in London at works established there. Platinum has the advantage of keeping its color where silver, brass, or copper becomes discolored, and will, to some extent at least, replace the use of these metals in electrotyping. It will be highly useful in plating chemists' crucibles and so on. German silver, for example, plated with platinum can be used to manipulate strong acids. By the Bright process, platinum can be deposited on any surface which can be electroplated with other metals.

**COMBINED BRUSH AND COMB CLEANER.**

The invention herewith illustrated relates to a device for cleaning brushes and combs. It consists of a handle or body of suitable form, provided at one end with a brush, and at the opposite end with thin curved fingers of metal, or equivalent elastic material, adapted to enter between the teeth of the comb or the



**BROOKBANK'S COMBINED BRUSH AND COMB CLEANER.**

bristles of the brush. In making use of the device the hooks are employed to loosen and remove, as far as possible, the hairs or other foreign matter, after which the brush is employed to complete the operation. It is intended to afford a cheap, simple, and efficient means of cleaning articles in daily use in every household, and is virtually sure, considering the low cost at which it can be manufactured, to become a staple article of merchandise. The invention has been patented by Mr. J. O. Brookbank, of Driftwood, Cameron County, Pa., to whom all particulars relating to purchase of rights for the United States and Canada should be addressed.