

RECENT INVENTIONS.

Mr. Nelson Herrick, of Champlin, Minn., has patented an improved truss for the relief of hernia and for similar purposes. The invention consists in a novel construction of a frame or band for carrying the pads, and a novel construction and combination with said frame and pads of elastic stems or shanks for connecting the pads to the frame.

An improvement in sap spouts has been patented by Mr. George J. Record, of Conneaut, O. The object of this invention is to strengthen sap spouts against injury when inserting them in a tree and removing them therefrom, also to insure security in suspending the sap pails.

An improved bee-hive has been patented by Mr. William K. Lindsey, of Central, S. C. The object of this invention is the production of a bee-hive of simplified construction, and one which is thoroughly protected against worms, ants, and all other creeping insects. The invention consists of the hive constructed with passages in combination with removable plates of glass and springs or similar means for holding the plates of glass in place.

An improved device for attaching the trace to the hame tug has been patented by Mr. Seth D. Bingham, of South Toledo, O. The invention consists in a wedge-shaped or beveled block or plate provided with a stud on its upper surface and with side arms surrounding the longitudinal bars of an oblong frame, so that it can slide in this frame, which has its outer end bent upward, and its inner end is attached to the hame tug. The end of the trace passes through the outer bent end of the frame and rests on the slide, the stud of which passes through it.

An improved cotton elevator has been patented by Mr. William F. Newton, of Valley View, Texas. The object of this invention is to facilitate the delivery of cotton to the gin, and at the same time to remove from the cotton the gravel and other foreign substances that may be in it, thereby preventing injury to the gin and causing it to deliver the cotton in better and cleaner condition.

An improved indicator lock has been patented by Mr. Austin Leyden, of Atlanta, Ga. This invention consists in constructing a lock in such manner that, in applying it to freight cars of railroads and to similar purposes, the car may be locked for through freight, and the destination of the car be indicated by a letter shown on the lock, and so that a way-freight key for the same lock will not open it.

An improved cover for coffee pots has been patented by Mr. John McAnespey, of Philadelphia, Pa. The invention consists in providing the cover with a perforation, which perforation is covered by a housing containing a ball, which acts as an automatic valve for retaining the aroma of the coffee and for admitting air to the pot while pouring the coffee.

An improved horse-detaching device has been patented by Mr. John E. Anger, of Albany, N. Y. The object of the invention is to provide certain improvements in thills which are so constructed that the horse can be released from the vehicle at will, permitting the thills to drop and the wagon to run forward until it meets with sufficient obstructions to check its progress, the thills being prevented from plowing into the ground by cushions attached to their forward ends.

An improved glove-button fastening, patented by Mr. S. Oscar Parker, of Littleton, N. H., has a tubular shank with a sharp edge; in the end of the shank a short tubular piece, having its outer edge turned outward, is driven after the shank has been passed through the glove material. The sharp edges of the shank are also turned outward and into the hollow ring formed at the outer end of the tubular piece by turning the edge outward. Wide washers may be interposed between the shoulders of the button and the glove.

Mr. Joseph Watts, of Coalburg, Ohio, has patented an improved device for preventing the loosening of nuts by continued shocks or vibrations. The invention consists in a nut provided with a projection on the inner surface, this projection fitting in a corresponding aperture in a washer provided with one or more projections on the inner surface, which projections snap into grooves in the outer surface of an additional washer placed against the object held by the bolt, this grooved washer resting against flanges or projections of the object united, or one of its corners are bent over to prevent rotation of this inner washer-plate, and consequently of the outer washer-plate and the nut.

An improved method of ornamenting the surface of jewelry, etc., has been patented by Mr. Willis H. Howes, of New York city. The object of this invention is to facilitate and cheapen the ornamentation of buttons and other articles of jewelry. It consists in coating the surface of the article to be ornamented with borax and water or other flux, applying a layer of suitable solder filings, a layer of filings of gold or other metal, and another layer of solder filings, and heating the article sufficiently to melt the solder and fasten the gold filings in place.

An improved device for registering the games and the points thereof in whist and other games has been patented by Le Roy B. Haff, of Englewood, N. J.

An improved buckle attachment has been patented by Mr. Robert A. Chapman, of Glymont, Md. The invention consists in a U-shaped frame with a loop at the end for receiving the central or end transverse piece of the buckle that is to be held to the strap, the strap being passed longitudinally into or through the U-shaped frame which is secured to the strap by means of rivets or by means of a swinging tongue pivoted on the frame and passing through a suitable aperture in the strap.

Mr. George Bradish, of Bay Side, N. Y., has patented an improvement in burners for burning paint from wood and metal work. It is so constructed that the paint can be softened and removed from a panel without affecting the moulding, and from a moulding without affecting the panel, from surfaces of any shape, and from crevices, and that may also be used for burning the putty from window sash without affecting the sash rails.

An improved snell for fish hooks has been patented by Mr. M. D. Beach, of Litchfield, Conn. The invention consists in a wire stem attached to the end of the snood and provided with a loop that is passed through the eye of the fish hook, and is then closed by means of a nut that is screwed on the stem and over the looped end of the same.

Safety Nitro.

The *San Francisco Bulletin* gives an account of the completion and inspection by its officers and shareholders of the Safety Nitro Company's Works at Pinole Point, on San Pablo Bay:

"In the main building are four furnaces in which sulphur and nitrate of soda are burned for the manufacture of sulphuric acid. The fumes are conducted by means of a pipe 28 inches in diameter into two tanks located on the upper floor of the building adjoining, each of which is 20 feet long, 16 feet wide, and 13 feet in height. Into these tanks steam is introduced by means of a pipe 1½ inches in diameter, leading from the engine-room, some 30 feet distant. The tanks are made of lead, 1-32 of an inch in thickness, and supported by wooden scantlings. From these tanks a 1-inch pipe leads to another building, in which the surface-heater is located. The surface-heater is a flat tank, 18 feet long, 7 feet wide, 12 inches deep, and made of very thick lead. Into this open tank the sulphuric acid is conveyed by means of a pipe, while a fire is continually sweeping over its surface. From the tank the acid is conveyed into an adjoining building, into glass retorts. The acid, after its concentration, is never allowed to cool; the retorts are put to the highest test of heat, after which the acid is allowed to cool and put into carboys. The process is continually in operation. The amount manufactured at present is 120 carboys per day.

In another building are the retorts for the manufacture of nitric acid. Fifteen thousand pounds a day are at present made. Nitro-glycerine is also made. Several experiments were made by Dr. Dean. Eight grammes of black powder were put into a lead cone and set off, without any injury to the cone. He then took a cone, in which two grammes of nitro were put, which, on being exploded, slightly bulged the cone. Taking, however, two grammes of nitro and eight grammes of common black powder, the effect of the explosion was a complete demolition of the cone.

The experiments were considered very satisfactory as establishing the force when mixed and the safety of these explosives when separate.

Large Locomotives for the West.

The Rhode Island Locomotive Works have lately finished and shipped for New Mexico the first installment of an order for ten monster locomotives for the Atlantic and Pacific Railroad Company.

These locomotives when in running order will weigh 60 tons each, and the tanks have a capacity of 3,500 gallons of water. The tenders weigh 35 tons each. The length of the locomotives over all is 60 feet. The cylinders are 20 inches in diameter, with 26 inch stroke. There are four pairs of couple drivers 50 inches in diameter and one four wheel truck. The fire box is 10 feet long and 43½ inches wide. The boiler is 58 inches in diameter, wagon top, and contains 200 2¼ inch tubes. There are a set of steam gauge cocks for the fireman located at the back head of the boiler, and another set for the engineer, inside the cab. The tops of the cabs of these locomotives are higher than the smoke-stacks of the engines used on the Eastern railroads. The height of the smokestacks from the top railing is 16 feet 6 inches. Either hard or soft coal can be burned. The great size and weight of the engines are made necessary by the heavy grades they will have to overcome.

Silk Mills in Philadelphia.

Philadelphia is becoming a notable center of silk manufacture. Sixty silk factories are counted by the *Times*, nine of them spinning mills. The others running looms produce a great variety of silk goods. The product of the sixty mills for the year ending June 30, 1881, was valued in round numbers as follows:

Upholstery coverings.....	\$2,000,000
Chenille fringes and dress trimmings.....	2,000,000
Other fringes and tassels.....	1,500,000
Dress silks.....	500,000
Ribbons.....	250,000
Total.....	\$6,250,000
Spun silk.....	1,000,000
Aggregate.....	\$7,250,000

Postage Stamps.

Postage stamps are printed from engraved plates under a hydraulic press on paper especially prepared for this purpose.

Two hundred stamps are printed on one sheet at each motion of the press. The colors used in the inks are ultramarine blue, prussian blue, chrome yellow and prussian blue (green), vermilion, and carmine.

The sheets are gummed separately; they are placed back upward upon a flat wooden support, the edges being pro-

tected by a metallic frame, and the gum—composed of an aqueous solution of gum dextrine with a little acetic acid and alcohol—is applied with a wide brush. It dries quickly, and then the sheets are pressed. Each sheet is cut in half, and is then ready for the perforating machine.

This perforating machine was invented and patented by a Mr. Archer in 1852. The patent was purchased by the government for twenty thousand dollars. The perforations are effected by passing the sheets between two cylinders provided with a series of raised bands which are adjusted to a distance apart equal to that required between the rows of perforations. Each ring on the upper cylinder has a series of cylindrical projections which fit corresponding depressions in the bands of the lower cylinder; by these the perforations are punched out, and by a simple contrivance the sheet is detached from the cylinders in which it has been conducted by an endless band. The rows running longitudinally of the paper are first made, and then by a similar machine the transverse ones.

The sheets are finally subjected to heavy pressure, by which the roughness caused by the punching operation and other manipulations is removed.

The Ill-fated Dotterel.

It will be remembered that a few months ago the British ship of war *Dotterel*, while quietly lying at anchor in the Straits of Magellan, suddenly blew up and sank, only a few individuals of the entire crew escaping alive. None of the survivors had any knowledge of the cause of the explosion; people on shore and on other vessels near by, who witnessed the catastrophe, believed it to have been occasioned by the firing of the magazine in some unknown manner. A British war vessel, with divers on board, has lately been sent to the spot, and a preliminary examination of the wreck has been had.

The divers found the *Dotterel* sunk in nine fathoms of water, her bows being toward the west and her stern toward the east, but with an open space of about 20 meters between the two. It is believed that owing to the explosion the ship was broken in two, the stern separating from the body of the vessel, all the part of which occupied by the engines is completely knocked to pieces. The base upon which the boilers rested appears still to occupy its proper position, but of the boilers themselves there is not a trace remaining. The whole stern part, from the mizzen mast backward, is intact. On either side of the stern are boats, well secured on their davits, and hanging from the stern is the captain's gig, in a perfect state of preservation. A great many corpses are scattered over the deck, not all of which are complete, and some being only fragments of bodies. Up to the present about fifty have been seen, but the divers have not yet been able to inspect the state rooms, where it is supposed there will be some more. The hull of the *Dotterel* was almost covered with small fish of different kinds. It is intended to take up the bodies and have them decently buried as soon as the coffins are ready on shore. It is now believed that the occasion of the explosion was the bursting of the boiler, but how that could have reached the magazine is still a mystery, and is likely to remain so, those who might have explained it being the first victims.

A Steam Passenger Catamaran.

The new steam catamaran which John Evertsen, of Troy, N. Y., is intending to put on the route between Westerly and Watch Hill as a passenger boat, lately arrived at Providence, so says the *Journal* of that city. She is of very light draught, of only forty-five tons burden, with hull sixty feet long and beam six feet, and a carrying capacity of over 400 persons. The following are some of the novelties of her construction: First, the propeller, which is hung amidships and between the hulls of the vessel, the power being supplied by a double engine; second, the manner of working the engine, which the pilot does from the pilot-house, where a starting lever and reversing lever are located, dispensing with customary signals by bells, though the services of an engineer are required for all other purposes. There are two decks, main and promenade. On the former, which is elliptical in form, are the cabin, engine and boiler-room, and the steward's pantry, with a broad sheep-path all around, and rail of usual height. A companionway leads to the upper deck, which is broad and open, with only the pilot-house and captain's room to break the space. How fast the boat is, is yet to be shown. The owners claim that this is the first boat of its class to which steam has been successfully applied, four having been previously built, none of which operated satisfactorily.

A Trap for Sheep-killing Dogs.

The *Lynchburg Virginian* describes an ingenious trap devised by a Virginia farmer to capture sheep-killing dogs. Having suffered severely from the depredations of dogs upon his sheep-fold, he built around a number of sheep that had killed an inclosure of rails twelve feet high and about ten feet square at the ground, the sides of the trap sloping inward until an opening was left about five feet square. Any dog could easily climb such a sloping fence and enter the pen, but not even a greyhound could jump out of it. In three nights the farmer captured forty-six dogs, including fifteen or twenty that had never been seen before in that neighborhood. This, after there had been a public slaughter of all dogs suspected of sheep-killing, save one, whose master could not be convinced of his guilt. The trap was built for his especial benefit, and it caught him the first night.