

New Inventions.

Breech-Loading Firearm.

The accompanying figures represent the improved breech-loading gun of Frederick D. Newbury, on which patents have been granted at various times. Mr. Newbury is the inventor of eight distinct improvements in fire-arms, on which he has secured as many patents, all of which are consolidated and in the hands of a company; one-fifth of the stock in which is offered for sale for \$10,000.

This firearm has a peculiar breech-closing arrangement, and it cocks itself when the breech closer is moved to load the piece. It has a perfectly close self-adjusting gas-tight breech. It is a self-primer, the priming tape being moved forward for every new charge, by the motion of the breech closer.

Figure 1 is a side elevation of the gun; fig. 2 an enlarged vertical longitudinal section, and figs. 3 and 4 parts of the breech-closing cone.

The breech closer is a movable hollow metal arm, A, hinged to a hollow box, B, which has vertical sides, so that the arm can be snugly shut up within it; to the front end of which box, the barrel of the gun is screwed. To the front end of the arm is attached a metal cone, C, turned so as to fit the conical or taper bore of the rear end of the barrel, which is made conical for that purpose. This cone is continued by a soft copper ring, upon which again lies a thin cup-shaped valve of finely tempered steel, D, (figure 4,) with its concave face outward. This valve is the proper breech closer, and is called the concave breech seat. It is a segment of a sphere, and may be either a single cup, or of two cup-shaped pieces of metal (fig. 3) with radial clips in the edges, placed one over the other, and breaking joints. The object of this cup-shaped terminal is to furnish an elastic stop, which, if not perfectly tight when in position, may, by the pressure of the gas in firing, have its edge forced up against the surface of the charge chamber, so that the more violent the recoil the tighter the valve will fit.

The hammer, trigger, and the springs lie within the hollow metal arm, to which the breech closer is attached; the hammer being placed in reverse, and lying in front of the trigger striking upward upon the cone, which is placed under the barrel for that purpose.

The apparatus for cocking the hammer, H, by the movement of the arm, is simply a stud, E, which projects downward from the barrel, beyond the cone, its back edge having a forward curve or slope so adjusted, that when the arm is thrown down for the purpose of loading, the extreme point of the hammer being pressed against it, shall, by its inclination, be thrown downward, that is, back on its own axis, and thereby locked into the trigger, T, so that when the arm is brought back into its box, the piece will be cocked for firing.

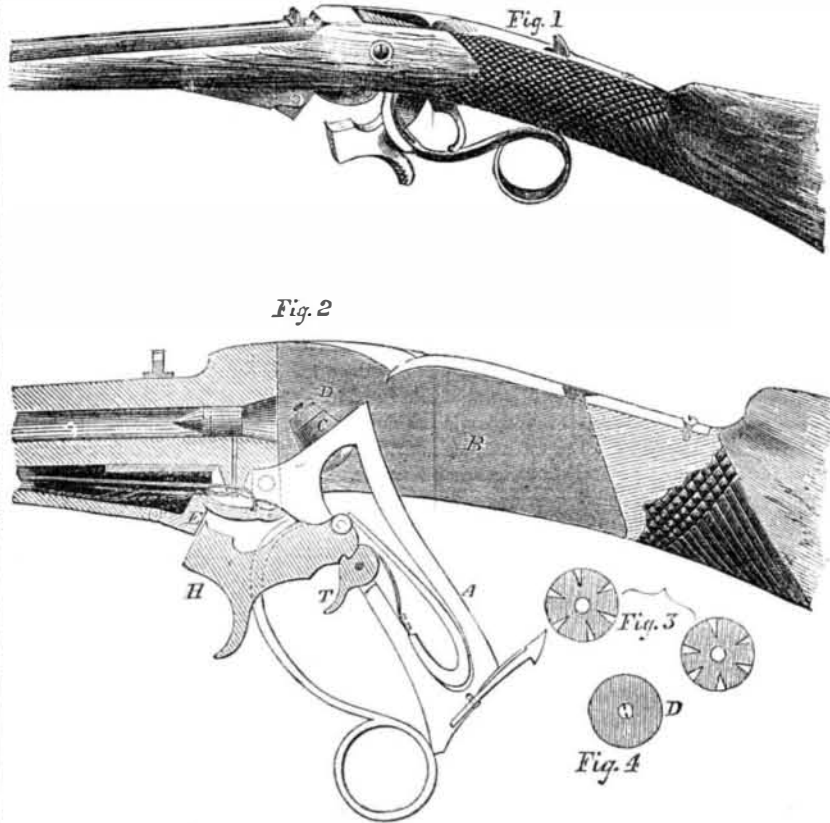
The priming apparatus is a groove in the under part of the stock, forward of the stud which is covered by a thin metal cover, or else a metal tube attached to the under side of the barrel; within this tube, a piece of tape priming (known as "Maynard's Tape Priming,") lies the end of the tape projecting through a slot in the stud, with one of its priming over the cone. It is held in position by a small spring attached to the stock, and projecting backward, so as to press the tape slightly against the bottom of the slot in the stud. To the lower end of the hinge of the arm, A, by a small pin, a sliding rod, lying above the tape, so hooks, that with every movement of the arm the rod is moved back and forth. To the front end of the rod is fixed a spring piece, projecting downward and backward, acting as a pawl or ratchet upon the tape priming, when moving forward, sliding over the tape which is kept from receding by the spring in the stud, and when moving backward, slipping the tape forward in proportion to the distance of the pin from the hinge of the arm. This proportion being arranged to meet the distance of the pelicles of priming in the tape from each other; it will be seen that every movement of the arm, which cocks the hammer, will bring a fresh

priming over the cone, and it will be noticed, that this apparatus does not prevent the use of percussion caps for priming. To prevent explosions and clear away the successive portions of the tape as they are exploded, the

point of the hammer, H, is formed with a chisel edge.

This improvement in fire-arms is applicable to carbines, rifles, shot guns, and pistols. To load this gun, the spring button at the end of

NEWBURY'S BREECH LOADING GUN.



arm A, is thrown out of catch, and drawn down to the position shown in figure 2, by its swinging on its swivel or axis pin; the cartridge is now thrust in, as shown, the arm pushed up again, when it locks itself, and it is ready to be discharged, as it both caps and cocks itself automatically, by the simple acts of pulling down and up the arm, A.

This is a valuable improvement in breech-loading arms, allowing them to be loaded with great ease and rapidity; and all the parts are simple, and not liable to get out of order.

More information may be obtained by letter (or otherwise) addressed to the agent of the company, Richard V. Dewitt, 56 State st., Albany, N.Y.

Improvement in Gas Retorts.

The accompanying engravings represent an improvement in gas retorts, for which a patent was granted on the 20th of last May. One object of the improvement is to enable the head of the retort to be easily attached and detached to allow the retort to be quickly charged and discharged. Another object is to allow the fastening of the head of the retort to be readily attached from a worn out retort and applied to a new one.

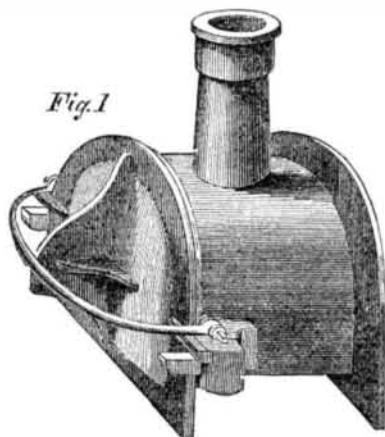
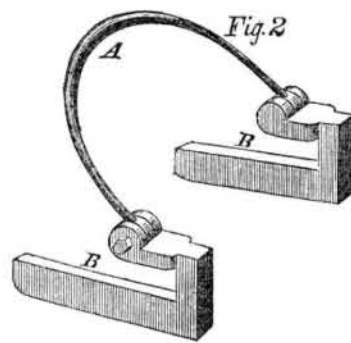


Fig. 1 is a perspective view of a gas retort with its head secured tight by the fastener; fig. 2 is a perspective view of the fastener, composed of the bail, A, and the side hooks, B. On the neck of the retort, a lug is cast on each side close to the mouth; each lug has a square hole in it, and the hooks, B B, are passed through these holes. The head of the retort is cast with a center wedge rib on it, and a short arm at each side. The hooks are thrust through the holes of the lugs from the back side, to project in front, and the side arms of the retort head rest upon them as in fig. 1. The bail or handle, A, being jointed, is then forced down over the central wedge rib, and thus the head is firmly secured to its seat.

When a charge is distilled in the retort, the handle or bail, A, has but to be driven upwards over the neck of the retort, when the head may be easily taken off. When the contents of the retort are taken out, and a new

charge put in, the head is put on, and the bail, A, driven down over the wedge rib, and the retort is ready for another operation. This improvement is simple, convenient and beautiful. The bail is made of wrought iron; the hooks, B B, may be made of malleable iron. To detach this fastener from a retort when the latter is burned out, all that is required is to throw the bail upon the neck of the retort, and drive back the hooks, B B, out of the side lugs with a hammer, and then apply it to a new retort.



This is an economical device. This kind of fastening may also be applied to the man-hole covers of boilers. The patentee, John G. Hock, of Newark, N. J., has also taken out patents in Europe for this invention, and also for an improvement in Gas Retort Benches. Being engaged in the business of manufacturing illuminating gas, he is well acquainted with the defects of common apparatuses, and knows what improvements are required.

More information may be obtained of him by letter (or otherwise) addressed at Newark, N. J.

Deodorizing Bilge Water and Foul Drains.

On board of some vessels virulent fevers and cholera have broken out, and have been traced to the foul effluvia arising from bilge water. The most effectual disinfectant for the removal of this effluvia is a salt to decompose the foul liquid. The chloride of zinc—the solution described on another page for preserving wood—has been found to be a most simple and effectual disinfectant of liquids.

In a letter of Sir Wm. Burnet to the Chief

of the Medical Department in the British Navy, he describes the beneficial effects of this solution in various vessels. He asserts that, "Its value as a sanitary agent has been established by the most unequivocal proofs."

It is well known that by the leakage in vessels of salt pork, beef, &c., used as provisions, that the bilge water oftentimes becomes very offensive, and whenever a foul odor exists there is danger of disease of some kind. The matter which causes the foul odor should be at once removed or neutralized.

The chloride of zinc is a salt which enters into combination with animal and vegetable fibrine, and forms an insoluble compound which is odorless, therefore this solution is truly a sanitary agent for vessels, and no less so for foul drains in buildings. It is our opinion that every passenger ship should be compelled to carry and use it from time to time. Recently a great number of vessels which have arrived at this port from Europe have been affected with cholera, small pox, and other diseases, and on some of them 20, 30, and 40 passengers have died. With a better system of ventilation, like that recommended in another article, (and the use of chemical sanitary agents) as deodorizers, ships would be perfectly healthy—ship fever and other diseases which oftentimes break out on the short voyages from Europe would be unknown.

Skin Diseases in Animals.

Scabies is a pestiferous disease, whether it affects the horse, the ox, the sheep, swine, or poultry, inflicting a loss not easily estimated; hence the maxim of every intelligent farmer is to avoid it. With him "prevention is better than cure," and therefore his grand desideratum is to guard against contagion. Sheep are, perhaps, more subject to it than any of the other animals, arising as much from the nature of their skins and coats as from the fecundity of the *acarus ovis*, and the greater vicissitudes of the weather to which they (sheep) are exposed. Certain parts of the body are more liable to be affected than others; and so is an unhealthy skin than a healthy one. Indeed, it has been said that an unhealthy skin will itself produce scabies (?), but this conclusion does not appear to be well founded, for a disease dependent upon the presence of living parasites can never arise spontaneously, but must be effected by contagion, either by means of their eggs, or the insect in some other stage of its existence.

Now, from what has just been said, it will appear obvious that cleanliness, a healthy skin and state of the body, and a separation from foul animals and ground, are the means necessary to avoid contagion.

[The above is from the *American Veterinary Journal*, and it is a useful injunction to our farmers at this season of the year. During the summer and the season when animals have plenty of grass for food, they are not generally troubled with cutaneous diseases—it is during winter that they prevail. The above hints, we hope, will not be forgotten, because they are important truths.]

American Dentists in Europe.

It is formally announced in *Galvani's Messenger* that Dr. T. W. Evans, the American dentist to the Emperor and Empress, has returned to his residence in Paris from a journey to Moscow, where he had been summoned to attend the Emperor Alexander II. and the imperial family of Russia, all doubtless with disordered teeth, after so much good living at the coronation.

SPLENDID PRIZES.—PAID IN CASH.

The Proprietors of the *SCIENTIFIC AMERICAN* will pay, in *Cash*, the following splendid Prizes for the largest Lists of Subscribers sent in between the present time and the first of January, 1857, to wit

For the largest List,	\$200
For the 2nd largest List,	175
For the 3rd largest List,	150
For the 4th largest List,	125
For the 5th largest List,	100
For the 6th largest List,	75
For the 7th largest List,	50
For the 8th largest List,	40
For the 9th largest List,	30
For the 10th largest List,	25
For the 11th largest List,	20
For the 12th largest List,	10

Names can be sent in at different times and from different Post Offices. The cash will be paid to the order of the successful competitor, immediately after the 1st of January, 1857.

See Prospectus on last page.