

New Inventions.

Rifles.—Their Construction for Active Use.

The following is selected from one of our foreign exchanges, and is part of a letter from a soldier in the Crimea, who seemingly has a good knowledge of mechanics. Our armorers may gain some valuable hints from his remarks:—

"It may be as well to echo 'the voices from the ranks' respecting the new Enfield rifle. As it is admitted to be nearly a perfect weapon, there is no reason why the very few defects alleged to be in it should not be pointed out. In the first place, the men—and not only the men, but intelligent armorer-sergeants—say, that the new way of securing the barrel to the stock is not as good as the old way. We have adopted the French plan of metal bands round the barrel and stock, instead of the old English fashion of passing bolts through the wood and through eyes projecting into the stock from the barrel. The armorers say that the wood expands, and prevents the removal of the barrel in wet weather—that the iron in summer is too loose, and in winter is too tight. The men say the same. In the next place, they object to the ramrod, notwithstanding the recent improvement introduced into it by making the upper part below the ramming end of a greater diameter, so as to project beyond the rest of the ramrod into the fluting, because the ramrod is still subject to stick from the swelling of the wood, whereas it came out easily from the old metal sheath as long as it was kept clean. Thirdly, there is an objection on the part of men to the new plan, copied from the French (and Russians) of fixing the bayonet by a movable ring, instead of retaining the spring of the Minie rifle. It is true that the spring sometimes broke or became weak, but there is an advantage to be derived from its retention, it is this:—Every officer of experience knows the excessive thirst produced by the saltpeter and sulphur of the gunpowder getting into the mouth each time a man bites the cartridge. In hot weather this thirst is nearly insupportable, and interferes with the steadiness of the men in firing. But the action of biting off the cartridge end not only causes at all times a little 'loosening' of the ranks, but strains the teeth and hurts the gums after some sixty or seventy pulls at tough paper. Necessity obliges the regimental surgeon to refuse all recruits who have not good front teeth, though they may be otherwise quite serviceable. Would it not be a boon to the service if this thirst and fatigue were prevented, and the necessity for biting the cartridge obviated, provided that no change were produced in the drill, and no inconvenience created by the alteration? It certainly does strike one that the answer ought to be in the affirmative. Well, Surgeon Tweeddale devised a very simple remedy. The end of the bayonet spring of the Minie is flattened out so as to afford space for the pressure of the thumb in forcing it back. Dr. Tweeddale had a slit filed down in this portion of the spring, so as nearly to divide it vertically. By pressing the waste end of the cartridge against this slit with the thumb, and jerking gently the left hand, in which it is held, the paper is at once cut or torn off, and the cartridge is ready for use. The hands are still in the proper position; there is no violent alteration of drill, and the change can be made without a farthing's expense by the regimental armorers."

The Persia.

This splendid British steamer started from New York on her return voyage to Liverpool, on the 20th Feb. She burns 108 tons of coal per diem, at which rate her consumption for a fourteen-day voyage would be 1512 tons. We suppose she carries, for safety, fuel enough for 18 1-2 days, or 2000 tons. Her registered capacity is 3,600 tons, but she carries over 5000 tons. The cabins of the *Persia* are not so richly finished as many of the American steamers.

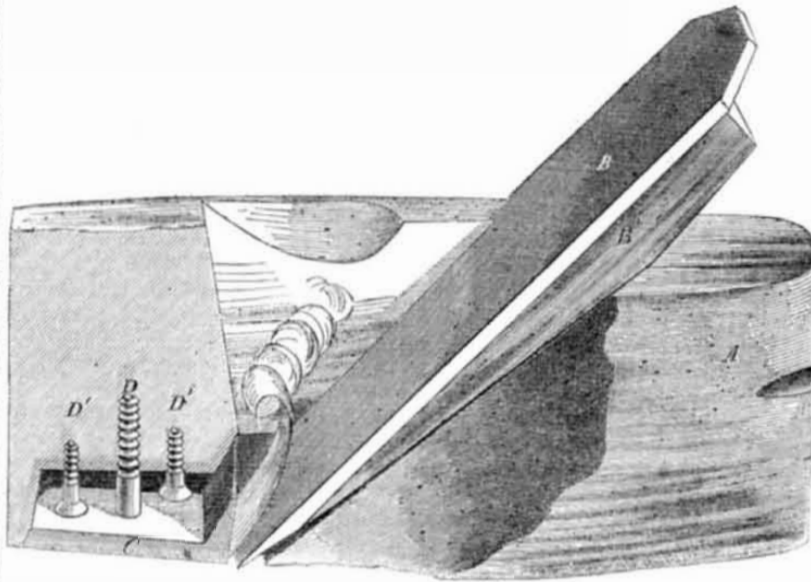
The Locomotive.

Elihu Burritt, the learned blacksmith, says: "I love to see one of these creatures, with

sinews of brass and muscles of iron, strut forth from his smoky stable, and, saluting the long train of cars with a dozen sonorous puffs from his iron nostrils, fall back gently into his harness. There he stands, champing and foaming upon the iron track, his great heart a furnace of glowing coals, his lymphatic blood is boiling in his veins, the strength of a thousand horses is nerving his sinews—he pants to be gone. He could 'snake' St. Peter's across

the desert of Sahara if he could be fairly hitched to it; but there is a little, sober-eyed tobacco-chewing man in the saddle, who holds him in with one finger, and can take away his breath in a moment should he grow restive or vicious. I am always deeply interested in this man, for, begrimed as he may be with coal, diluted in oil and steam, I regard him as the genius of the whole machinery, as the physical mind of that huge steam horse."

IMPROVED WOOD PLANE.



Patent Finishing Plane.

This invention is intended for use where it is desired to impart a very fine, smooth, and glossy surface to the wood; but it is applicable, with advantage, to all kind of carpenter's planes. The novelty consists in placing the cutting chisel, or bit, in front of the wedge, instead of behind, as in common planes; also in applying a metallic mouth piece to the face of the plane, in front of the chisel, which mouth piece serves as the rest for the chisel, and confines the throat of the plane.

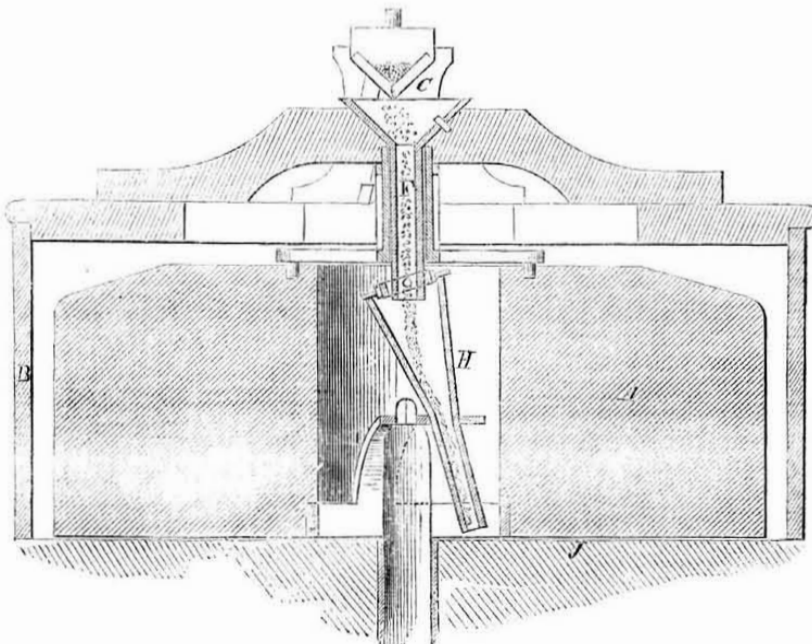
In our engraving, A is the plane, one portion of which is broken away in order to show the arrangement of the parts. B is the bit or chisel, B' wedge, C mouth piece, D D' screws for adjusting and securing the mouth piece to the face of plane.

The mouth piece, C, is so arranged as to leave a slight opening between it and the bit, B, and through this aperture the shavings rise, as shown. But the mouth piece is so close to the edge of the bit, as to prevent the plane

from ripping or splintering the wood in the least degree. Indeed, we have seen the implement applied to the planing of wood against the grain, and transversely to the grain, leaving the wood perfectly smooth. So perfect is the operation of this instrument that it may be applied to the planing of veneers—with entire success—a thing which cannot safely be done by the common plane. The peculiar arrangement of the mouth piece, bit, and wedge, affords a complete and firm bearing for the bit throughout its whole length, and dispenses, under all circumstances, with the use of a cap or double bit.

This is a very simple and effective improvement, destined, we have no doubt, to find its way into every carpenter's shop in the land.—No tool chest is complete without it. The inventor is Mr. Wm. C. Hopper, of Pennsylvania, and his patent bears date Jan. 16, 1855. Mr. Joseph Ludwig, the agent, No. 31 Pine st., room No. 10, New York, will furnish any further information.

IMPROVEMENT IN GRAIN MILLS.



New Method of Feeding Grain.

The common method of feeding mill stones consists in simply dropping the grain through the eye of the upper or running stone, and allowing it to fall of its own gravity upon the lower stone. Thence it finds its way in between the two stones and is ground. This plan is objectionable owing to the fact that the grain is likely to fall against the sides of the eye of the upper stone, and in consequence of the centrifugal force of the stone, to remain here, accumulate, and at last clog up the ap-

erture. This is more particularly the case when the grain is a little damp.

The object of the present improvement is to avoid the difficulty named. This is done by conveying the grain down to the lower or stationary stone by means of tubes which pass through the eye of the upper stone.

Referring to the engraving, A is the upper or rotating mill stone, and J the lower or stationary stone. C is a hopper, from whence the grain drops down through the stationary tube, F, into the tube H, and thence on to the lower

stone. All contact of the grain with the eye of the upper stone is thus avoided. The tube, H, revolves with a wabbling motion, being connected at its upper end with tube F, by a universal joint, and its lower end passing, through a strap connected with the bail, I, of the upper stone. The lower end of tube H is thus caused to sweep around in a regular circle, and deposits the grain evenly upon the lower stone.

Small burr stones, with increased number of revolutions, are gradually taking the place of the large and slower moving stones. But one of the objections heretofore attendant upon the use of small stones, is the adherence of the grain to the upper stone, by reason of the centrifugal force. The apparatus we have described works with the same effectiveness, whether the speed be slow or fast. Indeed, it will feed the grain with regularity under all circumstances, and is particularly useful where the motion is irregular, in consequence of the presence of ice upon the water wheel, &c.

The above appears to be an excellent improvement. It will commend itself, by its simplicity and utility, to the attention of millers, and no doubt find a very extensive adoption. It can be applied, for a trifling sum, to the mills in common use. It is the invention of Messrs. M. & C. Painter, of Owing's Mills, Md., who will be happy to give any further information desired. Application has been made for a patent.

Launch of the Steam Frigate Niagara.

At 11 A. M., on Saturday last (the 23rd,) as promptly as the signal gun sounded, the appointed hour, this noble vessel commenced moving on her ways, and like a mountain rushing with the velocity of a cataract, she leaped forth into the watery element. This launch is stated to have been the most beautiful and prompt that has ever taken place in our country. Thousands were present to witness it. All things were well managed, and not an accident occurred to mar the joyful excited feelings of the multitude. The cannon of the *North Carolina* thundered forth notes of welcome to the young *Sea Queen*; her band struck up "Hail Columbia;" ten thousand cheers shook the "welkin," and the launch was successfully accomplished.

The *Niagara* is of huge proportions; and, although called a frigate, she will be the largest line of battle ship in our navy. Her extreme length is 345 feet; her extreme breadth 55, and depth of hold 31 feet 3 inches. The weight of her hull is 2750 tons—total weight, at 23 feet displacement, 5440 tons. Her lines are beautiful; she sits graceful as a swan on the water; her entrance is fine and sharp; her stern is round, and she is destined to be a very fast sailer. Her builder is George Steers, constructor of the yacht *America*. The victory of that vessel has placed him in his true position as a naval architect.

Of the six new war steamers which were provided for by act of Congress, this is the only one constructed by a private builder. She is larger than any of the others, and is said to be better built and of a finer model. Her frame is of live-oak, the planking is of yellow pine, and the metal plating or bracing is on the outside of the frame, not on the inside, as in the other frigates.

The *Niagara* is to be a propeller; her machinery is being built at the Works of Messrs. Pease and Murphy, this city. We hope that her engines, rigging, and accoutrements will be promptly put in, and that none of those delays hitherto so peculiar to our navy yards, will interfere to hinder her from being pronounced "ready for sea" by next August, at the furthest.

Anticipated Floods.

Great floods are expected this spring in the valleys of the various western rivers. The snow never was known to be so deep before; therefore, sudden rains would cause terrific freshets. We hope the snow will be dissolved by continued mild weather, instead of severe rain storms; but those who live in these valleys should make preparations for the worst emergencies.

We regret to state that, at the time of going to press, no intelligence had been received of a missing steamship *Pacific*.