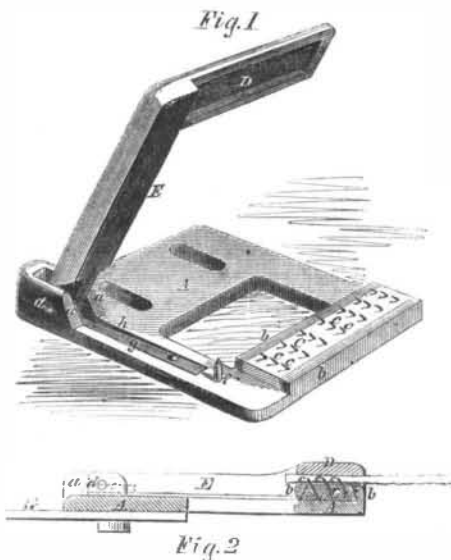


TILTON'S IMPROVED TEMPLE.

There is probably no other piece of mechanism of equal simplicity which has been the subject of so much study as the power loom. There being thousands of these machines in constant operation, under the supervision of skillful and intelligent mechanics, every part and motion has, under the impulse of the patent laws, been the theme of a great deal of thought and contrivance. As the cloth is woven, it is necessary that the sides should be stretched apart to prevent the web from becoming narrow and uneven, and the mechanism by which this office is performed is called a temple. The fact that there are several classes of these little implements, illustrates, in a forcible manner, the truth of our assertion in regard to the invention which has been bestowed upon the power loom. The improvement which we here illustrate is in that class of temples known as the spur plate temple. The inventor says that, though it seems to be the plan which a person would naturally adopt at first for making a temple, its production has cost him five years of reflection and experiment; an additional proof to the thousand others of the general tendency towards simplicity in mechanism.

Fig. 1 of the annexed cut is a perspective view of the whole implement, and Fig. 2 is a sectional view, showing the manner in which it grasps the cloth. The invention consists in inserting the teeth of the temple into a piece of wood, which is fitted to the plate of the temple in such a manner as to be removable for the purpose of renewing the teeth when worn out or injured.



The piece of wood, C, is made of both tapering and dovetailed shape, to fit into the space of corresponding form between the two projections, *b b*, which rise above the surface of the plate, A. Passing through the wood from the lower side, are the pointed steel teeth, *c c*. These teeth have both a forward inclination towards the breast beam, and an outward inclination toward the side of the loom, which position prevents the cloth from slipping back, and also prevents it from slipping off the teeth in a lateral direction, as it is stretched by the action of the reed when the latter beats up the filling. The piece of wood, C, being easily removable, it can be renewed with a set of teeth when these are worn out, or any broken or injured tooth can be replaced without taking the temple from the loom.

The cap, D, which is made in one piece of metal with the arm, E, confines the cloth to the teeth, *c c*; it has a depression over the teeth so as not to come in contact with the latter, and it is held either open or closed by the spring, *g*, which presses against its short arm beyond the fulcrum pin, *d*. A short stud, *f*, fits into a hole in the arm, E, to hold the cap securely in place when the temple is closed. The temple is attached to the breast beam of the loom by the stout spring, G.

To persons wholly unacquainted with the matter, this may seem a small modification to be secured by Letters Patent, but those who understand the value of improvements in even the details of mechanism which is in extensive use, will readily believe that it may be a means of independence to the ingenious inventor.

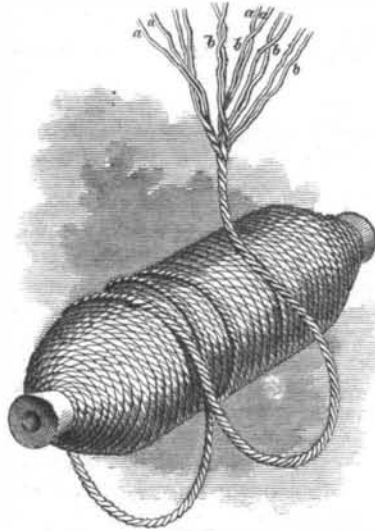
The patent for this invention was granted, through the Scientific American Patent Agency, Dec. 11, 1860, and further information in relation to it may be ob-

tained by addressing the inventor, Jeremiah C. Tilton, at Sanbornton Bridge, N. H.

WORTENDYKE'S IMPROVED WICKS FOR CANDLES.

The object of the invention here illustrated is the production of a wick which will burn in tallow candles, as well as in those of less fusible material, without snuffing. This wick also requires less weight of material than those in common use.

For accomplishing these objects, the simple plan resorted to is to make the wick of several strands, *b b b b*



(see cut), each of which is formed of two or more yarns, *a a a a*; the strands being twisted in the same direction as the yarn, and the wick being twisted in the opposite direction to the strands.

When we consider the immense number of candles which are consumed in this broad country, we shall realize that a decided improvement in wicks is an invention of very great value.

The patent for this invention was granted, through the Scientific American Patent Agency, on Jan. 1, 1861; and further information in relation to it may be obtained by addressing the inventor, C. A. Wortendyke, at Godwinville, N. J.

Death of Professor Hackley.

We regret to announce the decease, on the 10th inst., of Professor Charles W. Hackley, of Columbia College, this city. At a comparatively early age, he was cut off in the full vigor of his intellect, and called away from scenes of great usefulness at 52 years of age. He was educated at the military academy of West Point, and was teacher of mathematics there for several years. From 1833 to 1839 he filled the chair of mathematics in the University of New York; then he became president of Jefferson College, Mississippi, from which place he came to Columbia College in 1843, and at his death was professor of astronomy. He was the author of several elementary works on science, and took an interest in all that related to astronomy and mathematics. He exerted himself in directing the attention of the public to the importance of erecting an astronomical observatory in this city. Applying the principles of acoustics to rooms designed for public speaking, he projected the method which has lately been introduced into several churches of the city, consisting of a sounding board which throws forward the voice of the speaker among the audience. His death was occasioned by a nervous fever. He leaves a large circle of friends, whom he had won by his kindness of heart, his gentleness of manners, and his useful life.

FRATERNAL.—The *Country Gentleman*, published at Albany, N. Y., by the veteran Luther Tucker and his son, in alluding to the prosperity of its agricultural cotemporaries, the *Maine Farmer*, *Moore's Rural New Yorker*, the *American Agriculturist*, and *Miner's Rural American*, says that "among our non-agricultural exchanges, the *Home Journal* and the *SCIENTIFIC AMERICAN* are to be ranked among the most perfect specimens of the art of printing we receive in newspaper form." This is certainly a high compliment, the correctness of which, as applied to this journal, our readers can judge. From our own knowledge of the *Home Journal*, we are certain that the *Country Gentleman* is correct. Messrs. Morris & Willis, and their famous *Home Journal*, are known everywhere. A new volume has just been commenced.

Human Power over Brute Force—Rarey's Method of Taming Horses.

The mode by which J. S. Rarey, the world-renowned subduer of wild and vicious horses, accomplishes his marvelous feats has been very widely discussed, and it is now being practically exhibited by him at Niblo's Garden, in this city, by the taming of the very worst horses that can be found. His treatment consists in two things—first, in showing the horse that he is in the man's power, and second, in convincing him that the man means him no harm. In order to obtain absolute physical power over the horse, the simple plan is adopted of bending his fore legs and securing them by straps in this bent position. This of course throws the horse upon his knees, in which position he remains but a short time before he becomes so much fatigued that he rolls over upon his side. The tamer now handles him gently, patting and stroking him, fondling his head, putting it under his arm, turning him about on his side, &c., until the horse is thoroughly satisfied that the man is kindly disposed towards him, and has no design of doing him any injury. When these two ideas are fully implanted in the horse's mind, that the man can do what he will with him, and that he will not use this irresistible power to the horse's hurt, the work is done—the horse is subdued. To overwhelming power, combined with perfect kindness, he yields prompt and absolute submission.

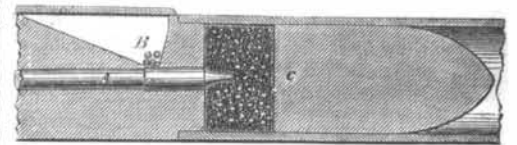
At Mr. Rarey's first exhibition in this city, a muzzled horse was lead in by two grooms, which was such a vicious animal that he had not been used in four years. He had both the wicked habits of kicking and biting. In just thirteen minutes from the entrance of the horse upon the stage, Mr. Rarey laid his head between the horse's heels and placed his arm in the horse's mouth!

Fitzgerald & Bate's Method of Igniting the Charge in Ordnance, &c.

This invention of Mr. Fitzgerald, of Cambridge-street, and Mr. George Bate, of Great George-street, consists in firing the charge in cannons, muskets, and other firearms, by means of two chemical substances or compounds, by which fire is generated as soon as the substances come into contact with each other, by percussion or otherwise. By way of exemplification, we will describe one arrangement of gun and one set of chemical substances, which the inventors find to answer well in carrying this invention into effect.

In an angular direction through the breech is formed a tubular aperture, and to the front of the hammer of the lock is hinged a pin or bolt, which fits accurately in this aperture. Over and opening into this aperture, at a point in front of the inner end of the bolt, when the hammer is drawn back or at full cock, is placed a reservoir or hopper, and in this hopper globules formed of a mixture of chlorate of potash and sulphuret of antimony, in or about the proportion of two parts (by weight) of the former to one of the latter, with a sufficient quantity of gum, gelatin, or other like suitable agent, as a vehicle for forming the composition. The opening from the hopper is so calculated as to allow passage to one globule only at a time into the tubular aperture, and then only when the hammer is at full cock.

The back end, or the paper intended for application



to the back end of the cartridge, is prepared by applying a coating of a composition formed of about one part of phosphorus (by preference amorphous phosphorus), one part of sulphuret of antimony and two parts of emery powder, with liquid glue, gelatin, gum, or other like agent. These materials are compounded under a degree of heat sufficient to melt the phosphorus. In some cases they apply the paper to a wad at the back end of the cartridge. In the accompanying engraving, A is the plunger in connection with the trigger of the gun, B is the reservoir for the globules, and C is the cartridge. In the case of ordnance, the patentees prefer to ignite the charge by inserting in the vent hole a tube partially lined with the prepared paper described, which is brought into frictional contact with a portion of the compound used for making globules.