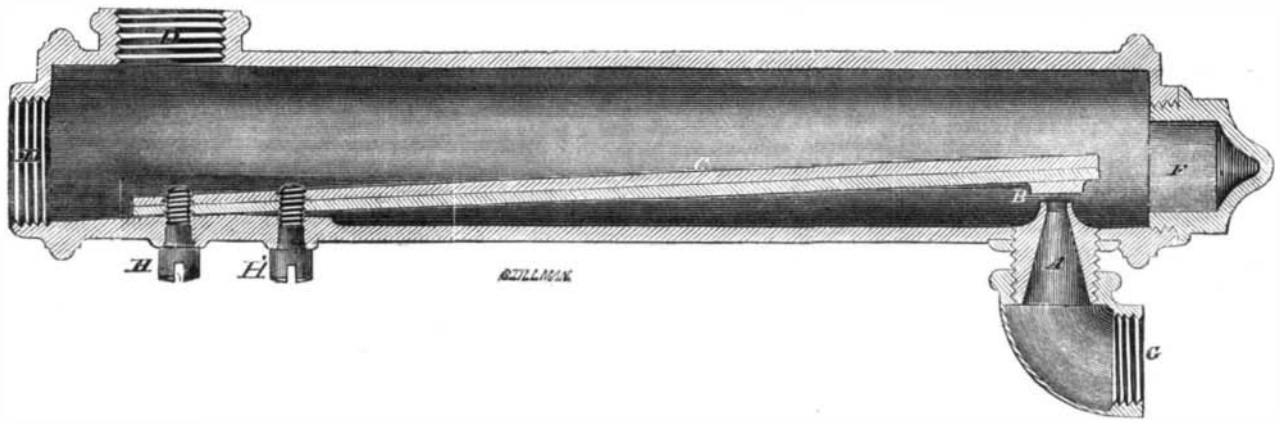
Improved Steam Trap.

The object of this invention is to remove air and condensed water from all kinds of steam apparatus, for which purpose it is claimed to be invaluable. This trap is self-acting, the valve remaining open for the escape of air and water as long as any remains, and closing, by a simple and beautiful device, on the approach of steam. The details are as follows:—D D are inlets, tapped to receive one-inch gas pipe; either may be used at pleasure; the one not used to be closed with a plug. A is a brass nipple or cone screwed into the body of the trap; the inner end is faced and forms the valve seat; the outside is screwed to receive the elbow, G, to which a pipe is connected to conduct the condensed water wherever desired. C is the spring, the upper leaf brass, and the lower steel; the two are closely riveted together. B, the valve, is a plate of common solder, raised on the under side of the steel leaf of the spring. H and H′ are screws for securing the spring and adjusting the valve to a proper hight above its seat.



WILSON'S STEAM TRAP.

The operation is as follows:—The air or condensed water enters through the inlet, D, from the steam pipe or apparatus, and readily escapes through the outlet, A. The steam follows, and its high temperature closes the valve, B, by means of the differential expansion of the two metals of which the spring is constructed. Thus: brass expands at a lower temperature and to a greater degree than steel; the upper leaf of the spring is brass—when the steam comes in contact with it, it raises its temperature and causes it to expand. Being secured at H and H′ by the screws, it can only expand in the direction of B; the steel leaf not being so sensitive, holds back against the expansion of the brass. The result of the opposite direction of these forces is to cause the valve end of the spring to describe a curve, until the the valve, B, is forced and firmly held on its seat, preventing the escape of any steam. Any condensed water afterwards collecting in the trap, cools and contracts the brass leaf, and opens the valve until the water has escaped, when the steam following at a higher temperature again closes it.

The seat of the spring from H to H′ is slightly rounded, enabling the valve end of the spring to be elevated or depressed, which is accomplished as follows:—By unscrewing H and screwing up H′ the valve, B, will be depressed, and by unscrewing H′ and screwing up H the valve will be raised. Where there is a large quantity of condensed water, or a very high pressure of steam used, the valve should be adjusted higher than when there is less condensation or less pressure of steam. The traps are all tested and adjusted, for any ordinary use, at the factory. They will very seldom require any re-adjusting. The cap, F, may be unscrewed for the purpose of removing any obstruction that may lodge in the chamber of the trap, or for taking the valve out for repairs, which may be made by any one who can use a soldering iron.

These traps have been in operation for six years, and have required no attention since they were put up. For further information address Greenwood Pipe Company, sole manufacturers for the United States, corner of Walnut and Canal streets, Cincinnati, Ohio, proprietors of the patent.

An object in motion will appear to be at rest when its motion in a second is to its distance as 1 is to 1,400.

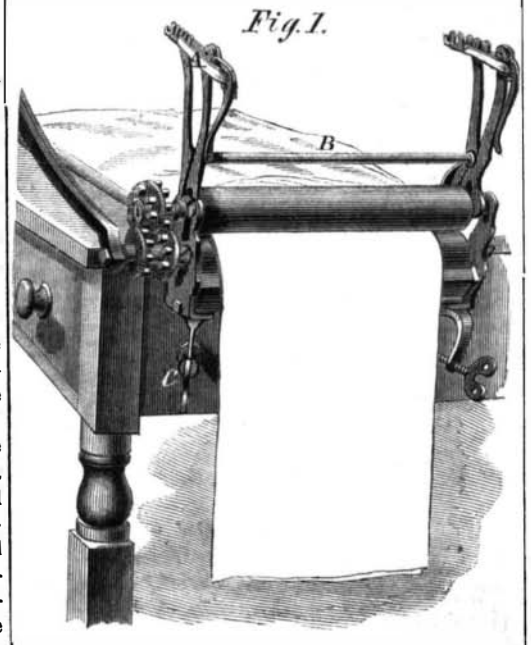
Tank Engines.

Tank engines will, no doubt, some day claim a page in history. The earliest steam carriages, however, carried their own water and fuel, and the first tramway and railway engines would have been equally independent of a "tender" but for the weakness of the trams and rails originally laid down, and over which it was therefore necessary to distribute the weight as much as possible. The *Novelty*, of 1829, was a tank engine; and so was Dr. Church's engine, the *Eclipse*, of 1837. An impression exists, however, that tank engines are of modern origin, and they have been widely attributed to Mr. W. Bridges Adams. He employed them, to some extent, where the whole weight did not exceed 10 tuns, but he publicly recorded his objections against their use for heavy trains. Tank engines came into extended use between 1847 and 1850 for branch traffic, and for service about stations, and there is reason for believing that they will be much more generally employed in future practice than they have yet been.—*Colborn's History of the Locomotive Engine.*

PALMER'S COMBINED WRINGER AND MANGLE.

During the last few years much progress has been made in lessening the labor and vexation of washing. Many good washing machines have been introduced, and the wringer is one of the most popular household utensils. But in the matter of ironing little advance has been made.

Fig. 1.



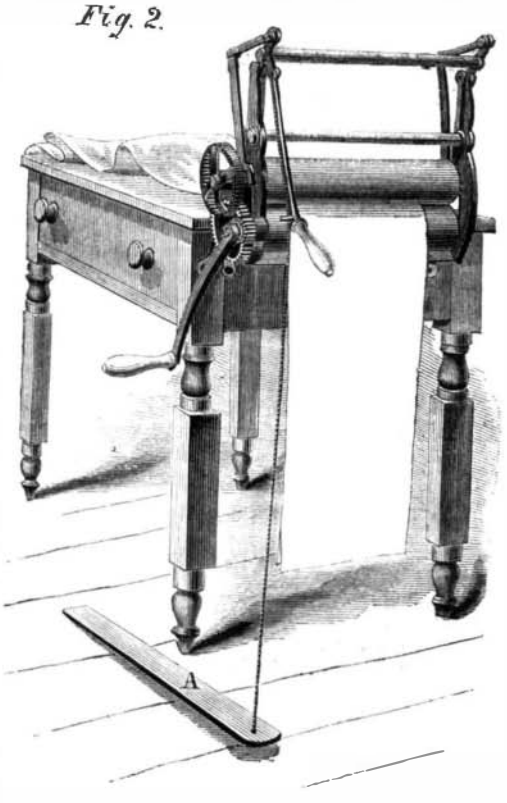
The machines shown in the engraving are very simple, and seem well designed for family use. Mangles, or machines for ironing without heat, or by pressure solely, are not new, but owing to their great cost, size and weight, their use has been confined to large hotels, laundries, etc., where they are considered indispensable. The economy of this method of ironing, both in time and fuel, is very considerable, as no heat is required, and the articles are ironed as quickly as they would be run through a wringing machine. The object of the inventors of these mangles is to place this method within the reach of all by furnishing effective machines occupying but little space at a low price.

Fig. 1 shows a machine which can be used either for wringing or ironing clothes. To this end it is provided with two sets of rolls—one of hard non-elastic rubber,, or wood for ironing, and one of soft rubber for wringing. The change is made in a moment by simply removing the bands, A, when the levers, B, are removed, and the rods can be taken out to put in. For ironing the machine is fastened to the ironing table by means of the removable clamps, C, Fig. 1. For wringing it is fastened to the tub or any similarly shaped vessel, by the swivel clamp.

Fig. 2 is a larger machine made to attach to any table for families, hotels, laundries, etc. The pressure is given through powerful compound levers, by placing the foot on the treadle.

These machines do the work in the most perfect manner, giving a brilliancy of luster and prominence of figure to table and towel linens not obtainable by the ordinary method. The hard rubber is perfectly

Fig. 2.



adapted to this purpose, and does away with the only serious obstacle to the general use of small sized mangles; wood dents and gets rough, while metal rolls cut the fabric or get rusty. These have the required hardness combined with the necessary elasticity. Application for a patent on this roll is now pending. Patented Nov. 14, 1864. For further information address the sole proprietors, S. W. Palmer & Co., Auburn, N. Y.

Varnishes for oil Paintings and Lithographs.—1. Dextrine 2 parts, alcohol 1 part, water 6 parts. 2. Varnish for drawings and lithographs—dextrine 2 parts, alcohol ½ part, water 2 parts. These should be prepared previously with two or three coats of thin starch or rice boiled and strained through a cloth.

Siphons were used in Egypt at least as early as 1450 B. C.