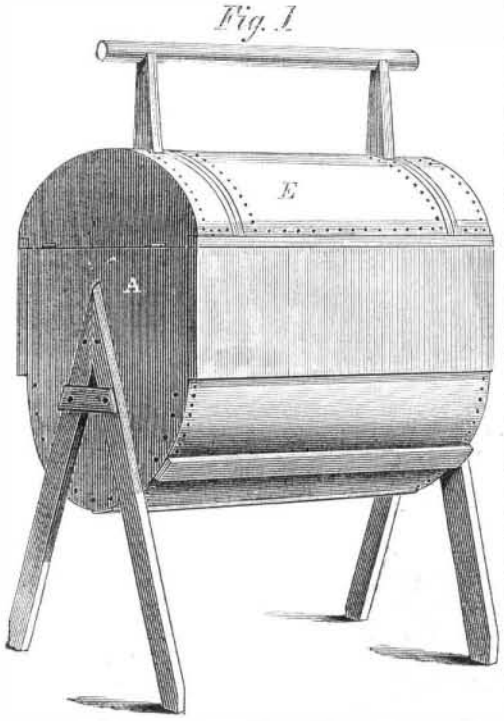
LUTES'S WASHING MACHINE.

Exactly how long man, or woman kind rather, were content to toil and moil over the washtub before they provided themselves with improved machines for the purpose, history does not record, but the horrors of washing day are within the memory of all. The reek of suds, the smell of boiling linen, the saponaceous vapors that lower darkly over all—who has not seen and smelt them? Who does not desire a release from them? One and all, we answer, forever and forever.

In many kitchens and laundries washing machines

Fig. 1

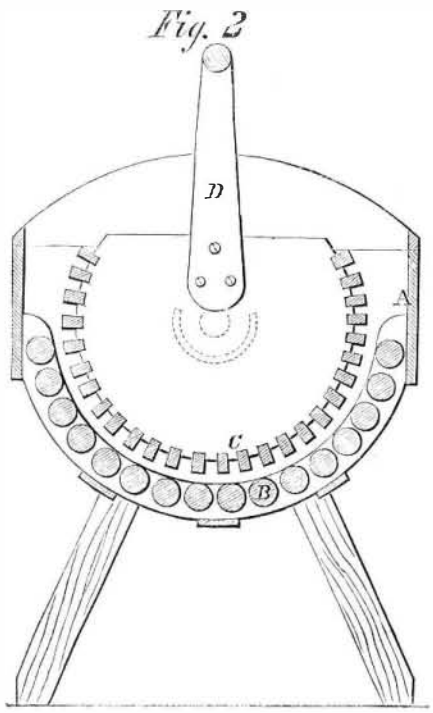


have entirely supplanted the ancient affair, and after a few minutes of vigorous "swashing" about in a tub of hot suds, the garments are pronounced to be more thoroughly cleaned, by good housewives, than they could be by hand.

We give an illustration of a washing machine which the inventor claims to be an improvement on those in general use, by its convenience and rapidity of action.

It is a semicircular case, A, having a zinc bottom

Fig. 2



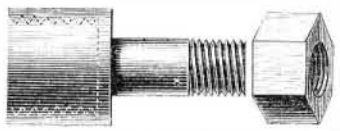
and a series of rollers, B, disposed over the same as shown in Fig. 2. These turn freely on their axes. Inside of the case is a slotted rubber, C, which is hung on centers and is worked by the arm, D. When the clothes are put into this machine they are carried alternately up and down by the action of the rubber and the rollers, and thoroughly wrinkled, so to speak, which both loosens the dirt and squeezes it out. This, in connection with the hot suds, soon obtains the result expected. In order to avoid the evils of steam and the splash which would otherwise occur, the inventor makes a cover which is in three parts, leaving small openings the width of the handle, for the same to work in. The center, E, of the top can be lifted out to put in the clothes and the two end pieces turned back on hinges, thus affording easy access to the interior.

Patented April 10, 1866. For further information address Philip Lutes, Platte City, Mo.

Correspondence

Spur Chuck.

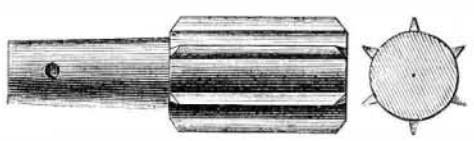
MESSRS. EDITORS:—Many contrivances are resorted to by wood turners, to hold their work fast to the mandrel, without disfiguring it, while turning it in the air. When a piece of plank has to be turned, it is not unfrequently held by a screw or gimlet-head chuck. This is very liable to cut out of the hole made for it, and it is very difficult to reverse the work, and turn the other side true to the first center. As many kinds of work allow the turner to drill a hole through the plank, a very efficient chuck is made with a shank of the size of the hole drilled; the wood is pushed on to it, and held fast by a screw on the end of the shank by means of a nut and washers of different thicknesses, as in the engraving.



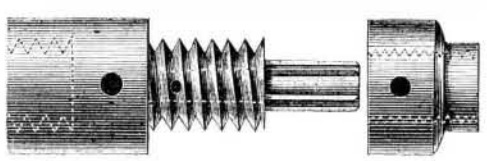
A variety of chucks, with drills to correspond, of this pattern, are very useful to a wood or even metal turner. The work can be reversed correctly, and ornamented on both sides; and I have made a great number of boxes and ornaments on this style of chuck; one was an oval work basket, with drilled work and eccentric cutting.

The last kind of chuck I have made, and which I call the "spur chuck," was suggested by an instrument called "the spur," employed in a manfactory of spools, to hold the drilled and rounded piece of wood while cutters shaped it, to hold the thread to be wound on it. The rapidity and firmness with which these prepared pieces were chucked and turned suggested the idea of using the same kind of spur to a chuck for a foot lathe. It has proved so handy and reliable a chuck for work, that I recommend its adoption by mechanics in general.

The "spur" is a steel bar, with six knife-shaped blades projecting about one-sixteenth of an inch. The blades are three-fourths of an inch long. The other end of the bar is made a trifle tapering, to fit a tapering hole in the chuck, and is fastened into the hole by a rivet or by solder; best of all, by both. The spur I describe will enter a three-eighth hole in soft wood, or a five-sixteenth hole in hard wood, such as rosewood. A view is here given.



Each turner will make the spurs of the strength and size he requires. The blades can be filed out, but are more accurately cut by a planing machine, and should be tempered to a blue color. The chuck, after it is put together, is here represented.



To use the chuck, bore a three-eighths of an inch hole in a piece of plank, or in the end of a short stick of wood, the hole to be three-eighths of an inch deep. You now drive the wood on to the spur with a mallet, or, which is much better, force it up with the screw of the back center, and then it is ready to turn; but previously put the loose nut on to the screw end of the chuck. Your work will rest against the large or small end of the nut, as you may wish it.

After turning your work, you force it off the spur by turning back the nut, and you can then reverse your work and turn the other side.

This is extremely useful for turning small patterns for the founder; but I have used it for elaborate turning and machine cutting in hard wood, without the least shake. For very many purposes it is the most handy chuck I ever used. It is not necessary that the hole should go through the entire thickness of the wood, unless you wish to reverse it.

If any of your readers will take a short piece of pinion wire, and file the teeth sharp and a little tapering to make an entrance, then drill a hole in a piece of soft wood, drive in the pinion wire, and put the projecting end of the piece of pinion wire into a scroll chuck, they will get an idea of the efficiency of the "spur chuck." E. J. W.

Lenox, Mass.

Gas Explosion.

MESSRS. EDITORS:—As I am suffering from a burn caused by the explosion of gas, it would be interesting to me to know your opinion in regard to the origin of the gas. I was at work on a copper cylinder four feet long by 16 inches diameter, with cast iron heads; it was a dresser cylinder, used for drying yarn with steam, but had been used for a number of years. Through the journals on each end is a half-inch hole to receive steam and let out condensed water. The arrangements in the cylinder being out of repair, I took off one of the journals. In doing this I took Tyler's burning fluid, composed principally of naphtha and suet, around the heads of four screw bolts, that were packed with lead and oil when put in; not a drop could possibly have got inside. The bolts being out and the journals fitting tight in a recess turned in the head of the cylinder, I put a little more around that to loosen them, also a few drops half way through the bolt holes to act between the journal and cylinder, to loosen them; after getting the journal off, it left about a three inch-hole. I rolled up my sleeves to my elbows so that I could get my hand in to adjust the scoop. After working nearly a half hour I took an oil lamp and in attempting to place it within the cylinder the gas that was within the cylinder exploded and blew the skin entirely from my arm between my wrist and elbow, and badly burned my hand.

There was about two quarts of water in the cylinder, which had been there since it was used. Now, was this gas produced by the fluid I used or could it be caused by this water becoming stagnant, and the two metals acting upon it or upon themselves, thereby producing a gas that would be so powerful as to make a report as loud as a gun? Can you give me the facts through your journal?

E. W. DEAN.

Norwich, Ct., April 30, 1866.

[To account for the explosive mixture it is only necessary to know that about an ounce of the naphtha got inside of the cylinder; this is the most plausable theory. The decomposition of water theory requires that the water of the cylinder should have been corrosive to iron. We have known of several similar accidents, where there was no doubt that naphtha or petroleum was the cause.—EDS.

A Body Falling Through the Earth.

MESSRS. EDITORS:—Being a constant reader of the SCIENTIFIC AMERICAN, and having seen much on the subject in its columns, I would like to inquire of some of its readers that may know more on the subject than I do, what would be the shape of the line or figure described by a ball let fall through the earth from the equator, supposing the ball was to oscillate from side to side several times as it would in a vacuum? A READER.

[It is not in the power of the present knowledge of mankind to answer this question. The motion of the ball would be modified by the rotation of the earth on its axis, by its revolution around the sun, and by the translatory motion of the solar system among the stars. It is probable that the motion of the solar system is in a vast orbit, the center being in the vicinity of the Pleiades, but the form of the