

IMPROVED AUTOMATIC TANK FILLER.

Mr. Augustus Haerle, of Cincinnati, Ohio, has recently (March 7, 1876) patented an improved device for filling water, beer, oil, and other tanks. It consists of cocks in the filling pipes, and a cock in a relief or signal pipe, attached to the filling pipe and connected with a float in the tank in such manner that the float closes the cocks of the filling pipe and opens the one in the relief pipe when the tank is full; and when the water falls a little, the float opens the filling pipe and closes the other, and thus automatically maintains the required quantity in the tank.

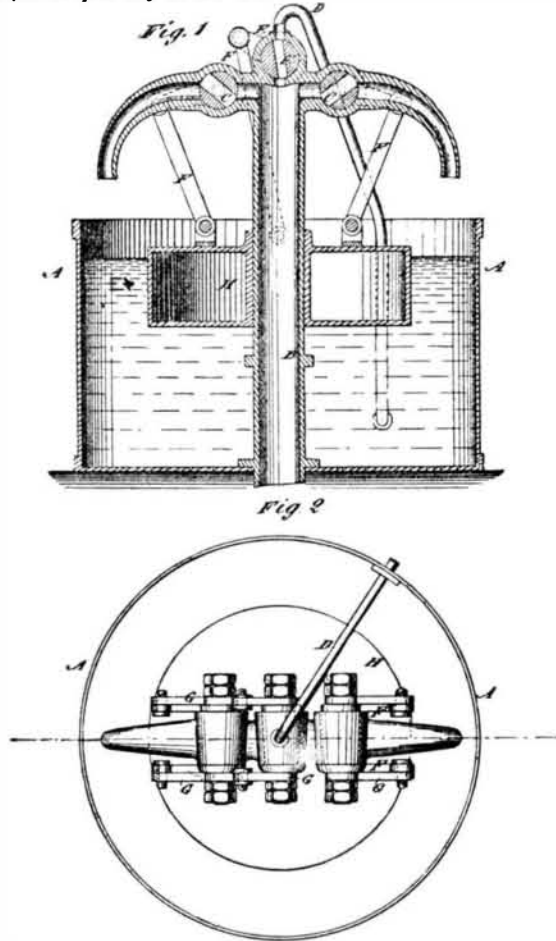


Fig. 1 is a sectional elevation, taken on the line, *x x*, of Fig. 2; and Fig. 2 is a top view. A is the tank, for water, beer, or other liquid. B is the filling tube; C, the cocks in the same for shutting off the supply when the tank is full. D is the relief or signal pipe for the escape of the liquid when cocks, C, are closed, to relieve the feed pipe of the pressure, and to show, by the liquid running through it, that the tank is full. E is the cock in the relief pipe, and H is the float. The cocks are connected to the float by an arm, G, and rod, F, which are so adjusted that cock, E, opens a little before cocks, C, close, so as not to shut off the escape of the liquid, and cause pressure to rise in the filling pipe, and in the reverse operation, the cocks, C, open a little before cock, E, closes, for the same purpose. Besides relieving the pipe, B, from undue pressure, the escape pipe, D, shows, as above explained, when the tank is full.

African Hippopotamus Hunters.

The late Dr. Livingstone, in his "Last Journals," gives the following interesting account:

"At the Loangwa of Zambo we came to a party of hereditary hippopotamus hunters, called *makombos* or *akombos*. They follow no other occupation, but when their game is getting scanty at one spot they remove to some other part of the Loangwa, Zambesi, or Shiré, and build temporary huts on an island, where their women cultivate patches: the flesh of the animals they kill is eagerly exchanged by the more settled people for grain. They are not stingy, and are everywhere welcome guests. I never heard of any fraud in dealing, or that they had been guilty of an outrage on the poorest; their chief characteristic is their courage. Their hunting is the bravest thing I ever saw. Each canoe is manned by two men; they are long light craft, scarcely half an inch in thickness, about eighteen inches beam, and from eighteen to twenty feet long. They are formed for speed, and shaped somewhat like our racing boats. Each man uses a broad short paddle, and as they guide the canoe slowly down the stream to a sleeping hippopotamus not a single ripple is raised on the smooth water; they look as if holding their breath, and communicate by signs only. As they come near the prey, the harpooner in the bow lays down his paddle and rises slowly up, and there he stands erect, motionless, and eager, with the long-handled weapon poised at arm's length above his head, till, coming close to the beast, he plunges it with all his might in towards the heart. During this exciting feat he has to keep his balance exactly. His neighbor in the stern at once backs his paddle, the harpooner sits down, seizes his paddle, and backs too to escape; the animal, surprised and wounded, seldom returns the attack at this stage of the hunt. The next stage, however, is full of danger.

"The barbed blade of the harpoon is secured by a long and very strong rope wound round the handle: it is intended to come out of its socket, and, while the iron head is firmly fixed in the animal's body, the rope unwinds, and the handle floats on the surface. The hunter next goes to the handle and hauls on the rope till he knows that he is right

over the beast: when he feels the line suddenly slacken, he is prepared to deliver another harpoon at the instant when hippo's enormous jaws appear with a terrible grunt above the water. The backing by the paddles is again repeated, but hippo often assaults the canoe, crunches it with his great jaws as easily as a pig would a bunch of asparagus, or shivers it with a kick by his hind foot. Deprived of their canoe, the gallant comrades instantly dive and swim to the shore under the water; they say that the infuriated beast looks for them on the surface, and, being below, they escape his sight. When caught by many harpoons, the crews of several canoes seize the handles and drag him hither and thither, till, weakened by loss of blood, he succumbs.

"This hunting requires the greatest skill, courage, and nerve that can be conceived—double armed and threefold brass, or whatever the *Æneid* says. The *makombos* are certainly a magnificent race of men, hardy and active in their habits, and well fed, as the result of their brave exploits; every muscle is well developed, and, though not so tall as some tribes, their figures are compact and finely proportioned; being a family occupation, it has no doubt helped in the production of fine physical development. Though all the people among whom they sojourn would like the profits they secure by the flesh and curved tusks, and no game is preserved, I have met with no competitors to them except the *wageye* of Lake Ngami and adjacent rivers.

"I have seen our dragoon officers performing fencing and managing their horses so dexterously that every muscle seemed trained to its fullest power and efficiency, and perhaps had they been brought up as *makombos* they might have equalled their daring and consummate skill; but we have no sport, except, perhaps, Indian tiger shooting, requiring the courage and coolness this enterprise demands. The danger may be appreciated if one remembers that no sooner is blood shed in the water than all the crocodiles below are immediately drawn up stream by the scent, and are ready to act the part of thieves in a London crowd, or worse."

The Solar Protuberances.

For some time past the protuberances on the sun's surface have appeared less numerous. Father Secchi states that the minimum is, however, not yet attained, and this is shown by the sudden changes in the phenomenon. On one day, scarcely more than three protuberances can be found, while on the following day they may be counted by dozens, evidencing the fact that the solar activity in course of diminution, suddenly, from some unknown cause, renews itself. Father Secchi also notes the rectilinear form of the hydrogen eruptions, which, with a thickness of several seconds, rise without deviation to a distance of two or three minutes (equal to 60 terrestrial diameters) from the sun's edge. The solar atmosphere is now so calm that the expansion, which takes place at the extremity of the incandescent columns, appears perfectly symmetrical on the two sides of every jet.

A SIMPLE FLOWER VASE.

Everybody is, perhaps, aware that a very tasteful hanging basket for growing plants can be made from a wire ox muzzle lined with sod or moss. A variety of wire baskets of

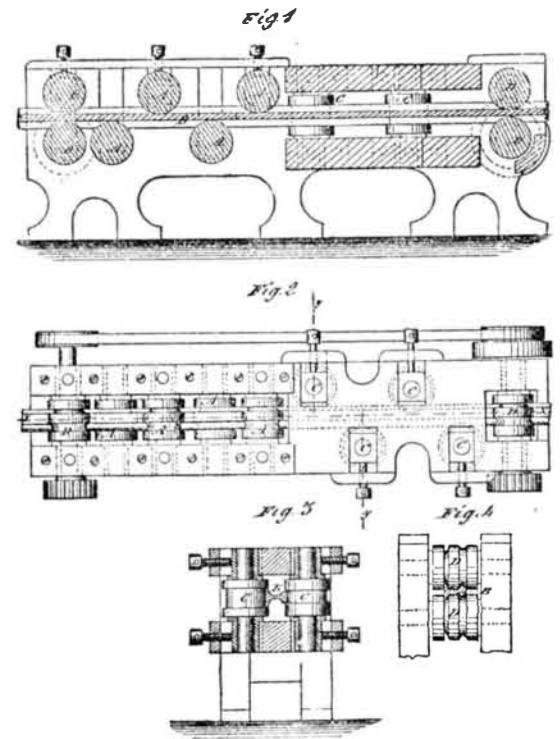


elegant patterns, for the same purpose, are also sold in hardware stores; but these, however, lack the charm which always attaches to an article which is the product of one's own handiwork. About the simplest and most ingenious plan for making flower baskets and pots which has come under our notice is that recently patented by Alfred D. Lee, of Scio, Ohio. A web or plat of sod is first cut of sufficient size to form the vessel when folded in proper shape. A mold of the desired form being previously made of wood, the sod is wrapped about it; and then turns of cord or wire, preferable the latter, are wound spirally about the exterior so as to confine the sod. The ends of the wire are then tightly secured, the mold removed, and the empty space left by the latter, filled with loam, in which the plants are imbedded. The appearance of the finished pot is excellently shown in the an-

nexed engraving. Any desired shape can be made, and the pots themselves may be ornamented with vines and flowers planted on their outer sides. In propagating and transplanting, the pot may be set directly in the bed, when the roots of the plant will find their way through the turf. The latter also holds water and aids in nourishing the plants enclosed.

IMPROVED MACHINE FOR STRAIGHTENING METAL BARS.

In the annexed engraving is represented a new machine for straightening metal bars, which involves a novel arrangement of rollers, which, it is claimed, enables the work to be done with less power and less strain on the machinery than when done simultaneously in both directions by alternate



horizontal and vertical rollers. Fig. 1 is a longitudinal section, Fig. 2 a plan, Fig. 3 a transverse section, and Fig. 4 an end elevation. A represents the series of horizontal rollers for bending or straightening the bars, B, vertically. C represents the series of vertical rollers for bending or straightening the bars horizontally, and D represents the drawing rollers for forcing the bars between the straightening rollers. The upper horizontal rollers are adjusted, and have adjusting boxes and adjusting screws for setting them for bars of different sizes, and the vertical rollers of both sides are adjustable for the same purpose. In this example, the rollers are grooved suitably for bending railroad rails, for which the machine is more especially designed; but it is also applicable for bars of any form, the grooves being shaped accordingly.

Patented through the Scientific American Patent Agency, February 22 1876, by Messrs. Aquila Howells, John K. Howells, and William Garrett, of Cleveland, Ohio.

Dye Leaves.

We do not remember ever having seen mention in the public prints of the leaves from which a dye is extracted. This quality in certain plants is an interesting one for the botanists who occasionally sojourn with us for awhile, hunting up orchids and other specimens of the vegetation of this locality. A study and analysis of the merits of these may be of vast worth to him who is first in the examination of the subject, and the leader in making their value known to the commercial world.

Of the leaves that are made use of by our country people is one of a class commonly called the china. From it a red tint is extracted, with which the straw hats, from the vicinity of Penonome, are dyed. To all appearances it is a fixed dye, which exposure to rain and sun does not materially alter. We are not acquainted with the secret of the mixture, that is, if there be any mordant employed to give it its fixity. If it be a fixed dye, not needing a mordant to give it a permanency and inalterability, it may prove to be of great value in commerce and the arts; for of all the vegetable dyes thus far known and tested, there is but the single exception of indigo which possesses the quality of durability without the necessity of a base or mordant to make it a lasting dye that does not fade away easily. Should this china turn out to be permanent and not readily deteriorate by the action of temperature and moisture, it may become a valuable acquisition in the manufacture of textile fabrics, and render the making up of cotton cloths something cheaper than what it is at present.

This china is a wild plant that is found in abundance in many of the mountainous districts of the Isthmus. It is a vine (*bejuco*) that attaches itself to tall trees, and the leaves are shed in the dry season. There is no trouble in collecting them, as the time of the year is propitious for such work. It is only left to be seen whether they be a fixed dye; and if that fact be established by a competent analysis, they may be made to take a place as one of the exportable products of the country.—*Panama Star and Herald*.

It is said that eggs may be preserved for six months by dipping them in linseed oil, and so placing them in a layer of sand that they do not touch.