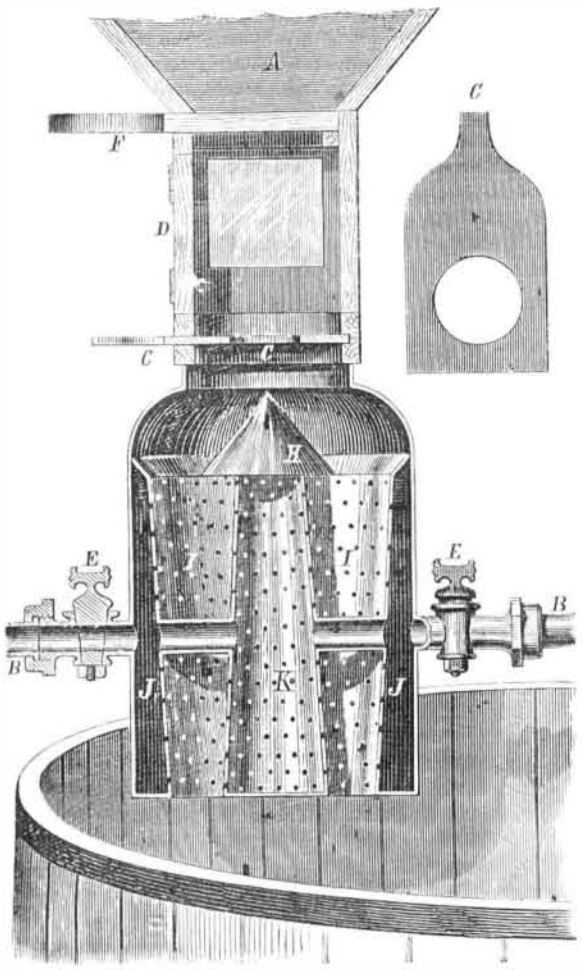
HARRIS' PATENT SELF-ACTING MASHING MACHINE FOR THE USE OF BREWERS.

This machine, after having been tried for a considerable length of time in one of the largest breweries in this city with success, and its merits thoroughly tested, is claimed to be a great improvement upon any other machine now in use, and its construction to be founded upon a more scientific basis.

From the porous structure and absorbent nature of malt, all that is really requisite to produce complete saturation is to bring each separate crushed grain or particle of grain into conjunction with the mashing water. More than this, such as violently striking or stirring the malt with quickly-revolving arms, rakes, or oars, does positive injury. It destroys the pores, beats the grain into a paste, and prevents the water



from flowing readily into and dissolving its soluble parts.

Before proceeding, however, to describe this new invention it may be well to give a slight sketch of the different means heretofore employed.

Up to the present time there have been three methods of mashing, each method having various modifications. The original course was to mash by hand with oars (stout bars of wood with sundry cross pieces at the end). The great objection to this was that the cover necessarily being off the tub, the temperature of the mash fell too low, rendering the ale produced from it liable to sour, besides the impossibility of properly stirring the contents of a large tub towards its center. Machinery was then introduced to do the work while the tub was kept closed, and the loss of heat avoided. These machines were of a variety of forms, but nearly all of expensive and complicated construction. The principle was the same in all—namely, to thoroughly mix the malt and water together in a closed tub. So far they succeeded, but it was afterwards discovered that the presence of machinery in the tub, among other evils, was a great hindrance to drawing off the whole of the extract. Water sprinkled on the top, instead of equally permeating the grain, dissolving, and carrying with it all the soluble portion, would form channels, and run down cracks and fissures, caused by the shafting preventing the grain from evenly rising through the sprinkling water.

The next improvement was to mash the malt and water together as they passed through a machine before entering the tub, leaving the latter clear of machinery. This machine consisted of a cylinder, down the center of which passed a shaft with cross arms made to revolve with immense rapidity. The malt and water coming together and flowing through the cylinder, were in this way completely mixed. The very rapid motion necessary, however, has been found to prove destructive to the internal structure of the grain, beating it too much into the form of a paste, and preventing the sprinkling water from properly permeating its pores.

An efficient machine that would be unaccompanied with any of these drawbacks has been a want felt by all thoughtful and scientific brewers; the being able to dispense with the aid of extraneous power being a further desideratum.

Such a machine, it is claimed, has now been invented. Its construction is shown in the accompanying engraving. The mode of working is as follows:

The ground malt being put in the hopper, A, and the water being heated to the proper temperature in a boiler or vessel (placed on an upper floor), from which the pipes, B, lead, one of a set of slides, C, having different sized openings, according as a thick or thin mash is desired, is inserted. The door, D, is closed, the two cocks, E, are opened to their fullest extent, and the slide, F, drawn out to the edge of the box. The malt runs down past the window, G, enabling the operator to see that it is working properly, and notifying him when it is all down. The malt falls on to the conical cap, H, dividing and passing on in a narrow stream to the space, I. Here it is met with, and has to pass through a large number of fine jets of water, discharged with great force from the vessel, J, and chamber, K, thoroughly saturating the grain, but without injuring its porous structure. The mash then falls into the proper tub placed under the machine. As soon as the malt is all through, the water is shut off, the slide, F, pushed in, the open slide, C, withdrawn, and a blank one inserted. This fitting in a double frame effectually prevents the escape of steam. The door, D, offers a convenient means for afterwards washing the machine off with a hose or sponge.

Among other things, the inventor claims these important advantages:

Simplicity of construction and cheapness, as no belting or connecting machinery is required. The machine being self-acting, all expense for steam or other driving power is absolutely saved; while the result is greatly superior—a much larger extract being obtained from the same amount of grain than when mashed by any of the old methods.

Patented, July 12, 1870. Machines manufactured at John Trageser's Steam Copper Works, 447 to 453 West Twenty-sixth street, New York city, where all information regarding them can be obtained.

PATENT METALLIC POST BUTT.

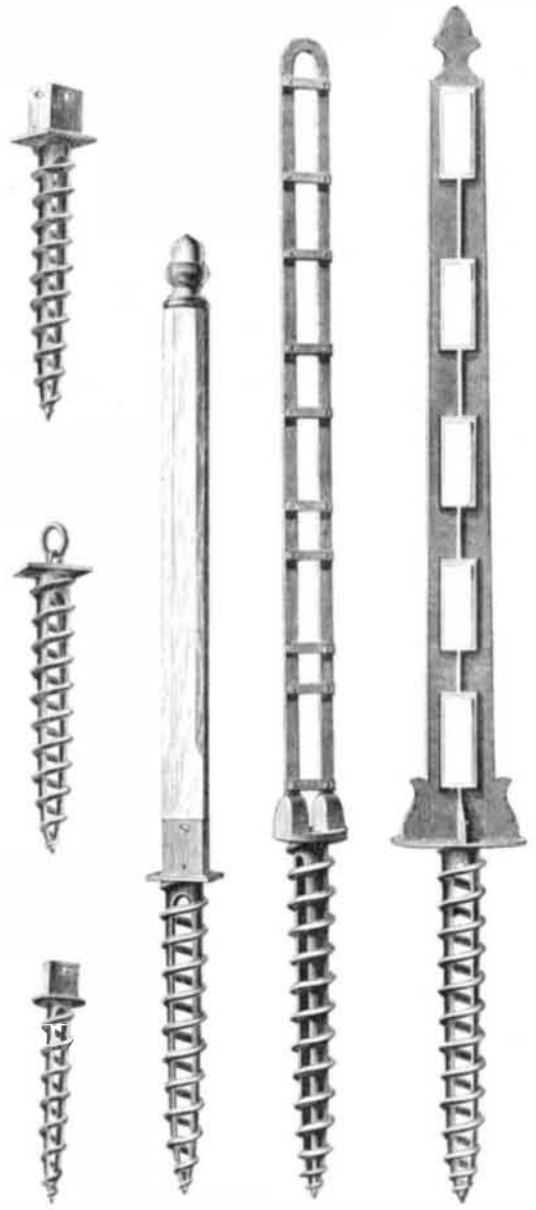
It is well known that a wooden post, having the butt sunk into the ground, will last for a few years only; the part in the earth will rot while the body of the post remains good. Many devices to make a cheap and durable post butt have been tried, but most have failed to give satisfaction.

The patent metallic screw post butt, shown in the accompanying illustrations, is designed to supply this want, and while it makes a cheap and durable post butt, it has another merit equal to, if not greater than its durability, and that is, that it can be put down without digging, saving time and labor.

This butt consists of a screw and a water-proof socket, having a flange that fits to the ground when the butt is sunk into the earth. The screw is gimlet-pointed and skeleton in form, so that in entering the earth the ground fills up the inside of the screw, making the butt solid. The body of the post is fitted into the socket with a small shoulder, when the post is complete, having a metallic butt that will last a long time.

The body of the post may be of any cheap wood, or the entire post may be cast iron, or the top wrought iron cast into the butt, as shown in the different engravings.

These butts are made of different sizes, and are equally well adapted for all kinds of fences, awnings, and hitching posts,



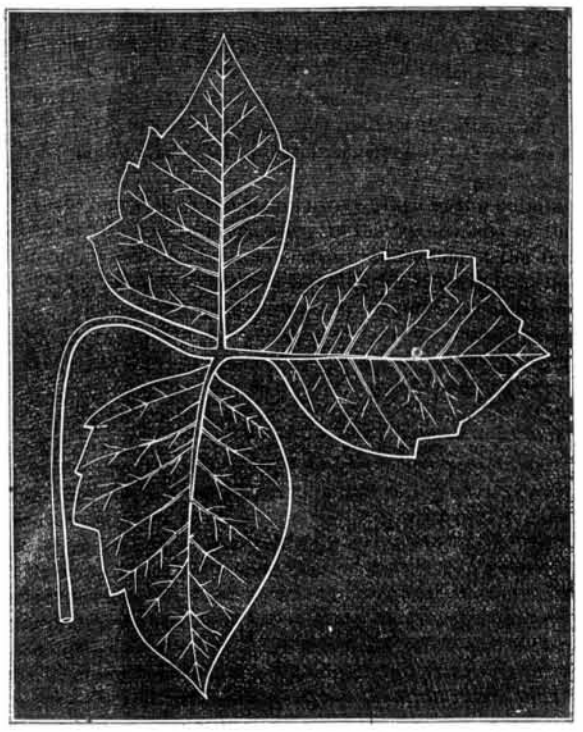
trellis work for yards and gardens, grape arbors, vineyards, telegraph poles, hop poles, ornamental seats for yards and parks, and for every purpose for which the old style of wood or iron post is used. The hitching post can be put down by removing but half a brick.

These butts are especially suitable for grape arbors and vineyards, as no digging around the roots is necessary. For prairie fences they are gotten up with a wrought-iron top for wood or wire. Those for ornamental seats have been adopted by the Superintendent of the State Capital Park, at Harrisburgh, Pa. We are informed these butts have been tested thoroughly for various purposes, giving entire satisfaction for strength, durability, and convenience.

A company to manufacture these butts has been formed, of which W. O. Hickok, of the Eagle Works, Harrisburgh, is President. Parties wishing to manufacture on royalty may address for further particulars the Harrisburgh Patent Screw Post Manufacturing Co., 411 Market street, Harrisburgh, Pa

Poison Ivy.

I will pluck a leaf with a pair of fire-tongs, at arm's length, press it dry so as to make an exact drawing of it, and write a full account of this venomous plant. I will try to make the whole matter so plain that everybody can detect and avoid the vile thing which is making me so much trouble. These were some of my midnight thoughts, as I feverishly turned



in bed while suffering from its effects. Water saturated with salt, was my only remedy. The poison was followed by two generous crops of boils, about fifty in number, lasting for over two weeks. Now I can only look at the plant with a sort of subdued feeling, as though it were more than a match for me. Look out for *Rhus toxicodendron*, which trails in the sand, or among the bushes, or lurks in the grass like a treacherous serpent! To touch it means a face swollen to blindness, great irritation, itching, and smarting, and burning of the parts affected.

Poison ivy, or poison oak, is a humble shrubby vine, with light-green leaves and clusters of greenish flowers, looking something like the flowers of the grape vine. The leaves are compound, consisting of three leaflets, the size and shape of which are shown in the annexed cut, which illustrates the veins of the underside. It belongs to the sumach family, a group of plants which has rather a bad reputation, on account of several poisonous species it contains.

To some people it is harmless, even when the sap is rubbed on the skin, while others are sure to be affected even by touching the naked stems and buds. I have known instances in which some members of the same family were easily poisoned while others were not at all affected. Why do we not get vaccinated, as it were, and never get poisoned a second time? Do our entomological friends find any insects that can eat the leaves?

The plant most likely to be mistaken for poison ivy is the Virginia creeper.—*Entomologist.*

A 35-tun Gun.

We abstract from the London *Standard* the following description of the forging of a double coil which is to form a part of a 35-tun gun, now making at the Royal Gun Factory at Woolwich:

"Prior to the celebration of the chief work of the day the visitors present were taken to see the operation of coiling a 7-tun iron bar, drawn red-hot over a previous coil weighing about 4½ tuns. This coil was intended for one of the 10-inch guns, or 400-pounders, of which nearly one hundred will be made in the course of the present financial year. Some of them also took a glance at the colossal boring machine, where the trunnion-hoop of the 35-tun gun was being bored with a cylindrical aperture sufficiently large to receive the breech coil. The weight of the metal is twenty tuns, and the diameter of the aperture, as produced by the punching, is 40 inches. This is several inches too small for the gun, and the aperture is brought to its proper dimensions by the process of boring.

"About four o'clock the visitors were taken in the building known as 'the forge,' preparatory to the appearance of the great coil, which had been subjected to the action of the furnace for 24 hours. The men being all at their posts, and the gigantic tongs of 12 tuns weight being brought into position, the iron door of the furnace was raised. The tongs, swinging from one of the steam cranes, and manned by nearly twenty men, were thrust into the furnace, and drew out the massive coil. This being slewed round, the coil was thereby carried to its place, and deposited under the steam hammer.