

**Improved Mill for crushing Cane, Fruit, &c.**

Our engraving is a representation of an improved mill for crushing fruits or cane, for the purpose of securing the juice of the same. It consists of a stout wooden framing, A, in which are mounted the crushing rollers, B; part of the framing being removed at the side in order to show their position. These rollers are fitted with two others, C, termed cleaners, whose teeth are of a peculiar shape. These cleaners are actuated by the crushing rollers, and as the latter revolve by power, the cleaners' projections work into them in a similar manner to the teeth of gears. The object of this arrangement is to remove the pomace or other waste from the crushing rolls, as it sometimes collects in large quantities, and very greatly impairs the efficiency of the mill. We think this a decided improvement, and one of general utility in every cider mill. The hopper, D, contains the material to be operated on, and it has a small slide at the bottom to regulate the quantity which passes down to the roll. Below, on the frame, are the tubs and press, worked by the long screw, E, for squeezing the pomace or must, after it has been ground by the crushers. The trough at the end directs the fluid into any receptacle placed at that point. This apparatus is portable.

A patent for the invention was procured through the Scientific American Patent Agency, by J. H. Ellis, of Brooklyn, Pa., on February 4, 1862; further information can be had by addressing the inventor, as above.

**AUTO-TYPOGRAPHY.**

The above is the name of a new art, described in the London *Photographic News* by its inventor, George Wallis.

It consists in making drawings of subjects with a peculiar hard ink, upon glass, gelatine or paper, and then transferring impressions of those drawings, by pressure, to a metallic plate, from which copies are printed. A peculiar glutinous-colored ink is made, containing some very fine emery; and with this a drawing is executed upon a sheet of transparent gelatine—that being a good material for drawing upon. The ink is laid on the drawing in reverse to the colors of an oil-painting, that is, the higher relief parts are to form the shadows of the printed copy, because these make the deepest impressions on the plate when transferred. After the drawing is executed and the ink has become dry and hard, the sheet of gelatine is placed upon a plate of glass imbedded upon a sheet of india-rubber laid in a recess formed in a steel bed-plate. A plate of smooth Britannia metal is then placed upon the drawing, and the two plates are run between graduated pressure rollers. By this operation an impression of the drawing is made on the plate of Britannia metal, which is afterwards employed in the same manner as engraved steel plates that are employed in bank-note printing. But by the new mode the impression is made direct from the drawing to the plate, while the old mode is simply employed to duplicate costly engravings. Six plates have been obtained from one drawing; but, as these are much softer than steel, a very small number of prints can be taken from them. This invention contains the germs of great usefulness, and it may be developed by further improvements to become an important art.

**Collodion for Photography.**

The following is the method practiced by M. F. Zuchs of Paris, in manufacturing collodion for photographic purposes:—Into a glass vessel put 20 pounds of common sulphuric acid and 9 pounds of saltpeter reduced to powder and stir the mixture with a glass rod. At the expiration of ten minutes add 1 pound of finely-carded cotton, and allow it to

remain covered with the mixture—stirred occasionally—for about ten minutes, at a summer temperature, then lift and thoroughly wash it in soft water. No traces of acid must be left in it. It is then pressed between the folds of a cotton cloth, so as to remove all the water and leave it slightly moist, when it is placed in a vessel containing alcohol and allowed to remain 24 hours. It is next squeezed to press out

the animal, by throwing the strain on the place where the power is exerted to the best advantage; it can also be accommodated to suit any horse, and does not chafe or wear the skin or cause sores by friction. By referring to our description the reader will readily understand the operation and adjustment of the collar. It consists of the two side-pieces, A, connected at the top and by leather straps, B, and of the hames, C, working in hinged joints, D, secured to the side-pieces. On the upper part of the side-pieces are secured the rings through which the reins pass, and at the bottom those to which the pole straps are fastened. The hames have long curved ends, which pass around to the breast of the horse and are there fastened to each other by a strap. It will be seen that on letting out or taking up the straps at the top or bottom of the collar, as occasion requires, the same may be readily adjusted to any horse; and, also that, each side being independent of the other, it has none of that sliding, oscillating motion so trying to the skin of the beast. All chafing is prevented, says the inventor, by the adoption of this collar—a thing of no small importance to the owners of fine animals. Also, by the position of the hames and their independent motions, which conform to the natural workings of the horse's shoulders, his power is exerted most favorably on the work, and he is consequently less tried and harassed by his duty. The hames also serve, in a measure, to hold the collar in place on the animal's neck and contribute further to reduce the friction on the same. These seem to be desirable features and are accomplished fully by the invention.

The patent for this invention was procured through the Scientific American Patent Agency, on July 17, 1860, by Mr. C. J. Fisher, of Waukou, Iowa, and further information can be had by addressing him at that place.

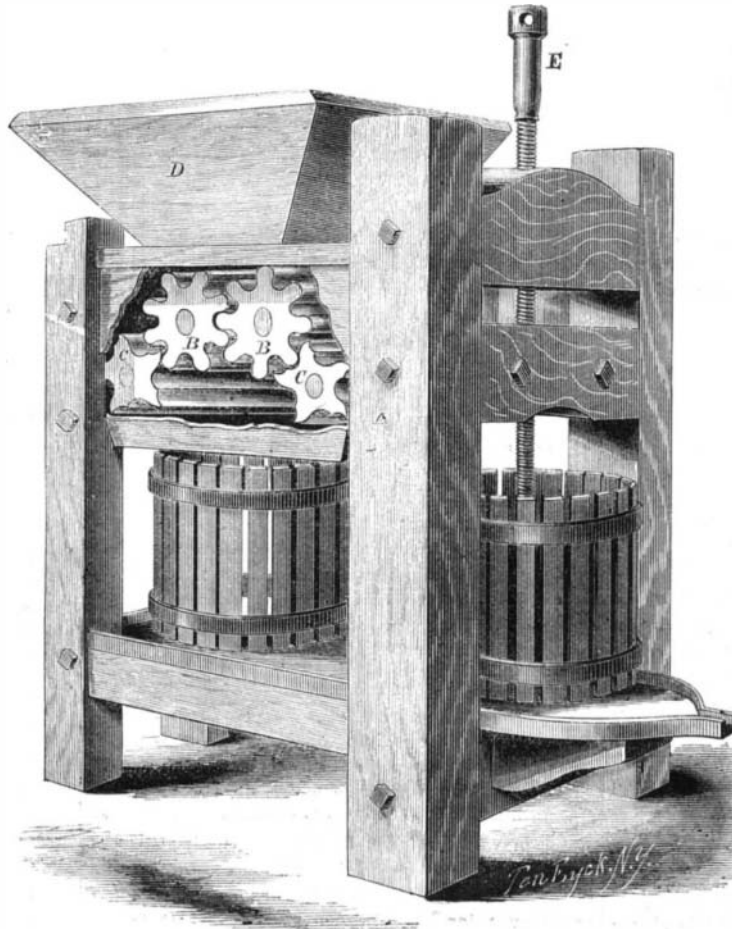
**THE VALUE OF SMALL PATENTS.**

The value of small inventions is aptly illustrated in the following paragraph. Probably not even the inventor himself realized the value of his idea when he first conceived it:—

"Three million pairs of metal tips are annually applied to the toes of children's shoes. It is claimed that one pair will outwear three pair without tips; this would make an annual saving of nearly six million dollars to those that use them, an important item at the present time. An individual who has three children says that since he commenced buying metal-tipped shoes (one year ago) he has saved the price of new boots for himself."

**BEE-ROOT SUGAR IN AUSTRIA.**—At the present time there are 126 beet-root sugar manufactories at full work in the Austrian dominions, and eleven more in course of erection, seven of which are in Bohemia and four in Moravia. Of those now at work, sixty are situated in Bohemia, twenty-seven in Moravia, twenty-one in Hungary, ten in Austrian Silesia, five in Austrian proper, and three in Galicia. These 126 establishments last year worked up 13,876,721 centners of beet-root, and paid to their Government 5,246,125 florins for duty. As compared with the previous year, these figures show a falling-off of 319,130 centners of beet-root and 119,874 florins less duty.

At one of the largest tin and copper mines in West Cornwall, England, lately, while nine men and a boy were ascending to the surface in a tram-wagon, the chain broke when they had nearly reached the top, and they were hurled down the incline at an ever-increasing velocity, to the bottom of the shaft, and every one killed on the spot.

**ELLIS'S PATENT CIDER MILL.**

the alcohol then introduced into a mixture of 2 parts alcohol, of 90 degrees strength and 20 parts double rectified ether of the specific gravity 0.730. In this the prepared cotton dissolves and forms an excellent quality of collodion.

**FISHER'S PATENT HORSE COLLAR.**

The subjoined engraving is a representation of a



new horse collar which contains some desirable features not hitherto observed by us in appurtenances of this kind. It adds materially to the efficiency of