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O. D. MUNN, S. H. WALES, A. E. BEACH.

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(Illustrated articles are marked with an asterisk.)

Table listing various articles such as 'Rationale of the Therapeutic Action of Arsenic in Diseases of the Skin', 'Improvement in Portable Reaping and Mowing Machines', etc., with page numbers.

ALUMINUM--A FIELD FOR SCIENTIFIC EFFORT.

The comparatively new metal, aluminum and its alloys, which have lately attracted considerable attention and awakened some curiosity, seem to afford a promising field for the investigations and experiments of scientific men and inventors.

Cryolite a species of clay found abundantly in Greenland and also in the Ural, is preferred as a material for the extraction of alumina. It is a compound of sodium, fluorine, and aluminum.

What we now need is its production in sufficient quantities and cheap enough to be employed in the arts.

THE VALUE AND USES OF WORN-OUT FILES.

Although the invention and use of machines for finishing work in metals has, to a large extent, superseded the employment of files, it is difficult to believe the day will ever come when the file will cease to be an important tool to the metal worker.

But "what shall I do with my worn-out files? shall I have them re-cut? will it pay?" asks one of our correspondents. During an experience of fifteen years we had many opportunities to solve this question.

Yet old files have a use. They make excellent hand turning tools. For this purpose the end merely has to be ground to the proper shape. Probably to the hand-tool turner no implement is susceptible of a greater variety of adaptations than a turning tool made from a triangular or three-cornered file.

Treated in this way, old files may be wrought into dies for screw cutting, punches, small cold chisels, keys, and many other articles and appliances continually needed in the shop.

IMPORTANCE OF STUDYING CAUSE AND EFFECT.--A HINT TO INVENTORS.

A very large proportion of the time, labor, and money usually spent in perfecting new inventions is often needlessly expended in the trial of experiments to determine facts which should be determined without any experiment at all.

Now had the fluid been glycerin, or sperm oil, or any other non-volatile substance, the result anticipated would have been attained; but the gasoline volatilized so rapidly in warm weather, that the fluid was forced entirely out of the upper reservoir when the stopcock in the tube was left open.

Even at this stage the radical fault of the device was not discovered, but the inventor strove to overcome the difficulty

by the use of siphons, tubes bent in the form of the letter S, etc.

The faults of this inventor are not, we are sorry to say, rare ones. They were his imperfect knowledge of the material with which he had to deal, and his tinkering when he should have been thinking, and searching for the information which he lacked.

He only need expect to avoid such follies who thoroughly informs himself in regard to what has been done in the particular department to which his proposed improvement belongs; who can distinguish principles, and avoid confounding them with mechanical details; and who has mastered the philosophy of all the natural phenomena with which he has to deal.

GREAT REDUCTION IN COST OF FOREIGN PATENTS.

The increasing disposition on the part of American inventors to secure their inventions abroad, has induced us to reduce our fees for obtaining patents in all foreign countries to the lowest maximum price.

It is important to the owners, that patents in foreign countries be solicited through some old established and well known agency. We have known parties to meet with great discouragement in trying to introduce their inventions in England, from the fact that the patent was solicited through obscure agents unknown to the manufacturers.

We have in press, which will be issued in June, a comprehensive work on the patent laws of all countries. A pamphlet on foreign patents with terms for obtaining them, may be had by addressing this office.

ETCHING GLASS--ONE OF THE USES OF FLUOR SPAR.

The mineral known as fluor spar or Derbyshire spar from Castleton, Derbyshire, England, where it is found in large quantities, is largely employed in the form of fluorine or hydrofluoric acid, for the ornamental etching of glass.

This mineral is quite extensively manufactured into articles of use and ornament, it being readily wrought in the lathe by skilled workmen. Very handsome specimens of cups, vases, boxes, etc., are produced from the Derbyshire spar, which is frequently found of a rich blue, green, red, or purple color.

"THE WHEEL."

Our readers are aware that we design shortly to print, under the title of "THE WHEEL," such new or surplus correspondence on the Wheel-question as the writers desire to place in print at their own expense.