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New Industrial Applications of Salicylic

M. R. Wagner, in the Technologist, enumerates a large number of industrial uses to which the newly discovered salicylic acid can be applied in addition to its various medicinal uses. If during the past two years science had made no other discovery than this useful product, it would still have conferred a most important boon upon mankind. We enumerate, briefly, some of these numerous applications:
The Preservation of Food Products.

The antiseptic, tasteless and innocuous qualities of this acid render it of great value in this direction.

Fresh, uncooked meats, washed in an aqueous solution of salicylic acid and afterwards secured in hermetically sealed cans, and placed in a cellar, was kept, by Mr. Wagner, perfectly free from taint from April 28th, 1875, to June 25th.

fectly free from taint from April 20th, 1070, to
June 25th.

When added to salt brines used for the preservation of food, it is found a great assistant
and keeps the brine sweet.

It has been used with great benefit in the
preparation of smoked meats.

One or two parts in one thousand kneaded
into fresh butter will keep that article sweet in
summer time from four to eight times as long
as when nothing but salt is employed.

Its Use in Arts and Manufactures. Its Use in Arts and Manufactures.

In the manufacture of wine it is thought (though not yet tried) that a very small quan-tity placed in each cask will so retard and mod-ify the progress of fermentation as to be of great use in securing and preserving the deli-cate bouquet of that product. If so, its aid will also be valuable in the manufacture of

In the manufacture of glue and gelatin, salicylic acid may be advantageously employed in the macerating vats, also in boiling it appears to facilitate the conversion of the tissues into

to facilitate the conversion of the tissues into gelatin.

The sizing used by weavers and the paste employed by bookbinders, paper-box makers, etc., is preserved from fermentation by this new and useful product.

The albumen of blood or eggs may be preserved by it for an indefinite length of time.

In tanning salicylic acid seems to promise a new and most important agent. Its presence in the "sour bath" prevents putrid exhalations and gives to the hide a decidedly improved appearance. It is also thought that it will facilitate the ordinary action of tanning materials in its action upon the gelatin and in preventing souring of the bark liquors, which produces gallic acid that works a hindrance to the tanning process.

ning process.

Its employment is specially advantageous in the preparation of skins for gloves, and in the preparation of parchment, vellums, gold beat-er's skins, strings for musical instruments, etc. It has also been found of great advantage in the preparation of dyes, inks, perfumery,

The full value of this most important prod-uct is still far from being fully known. Mr. Wagner and other scientific investigators are continuing their researches, and will no doubt continue for a long time to come to announce further applications of this acid in chemical arts and in manufactures.

The New Metal, Gallium, and its Salts.

M. Lecoq, in a communication to the French Academy, states that he has succeeded in obtaining the metal gallium and its salts in a tolerably pure condition.

When sleposited by electric action, gallium forms a very adherent layer; it is hard; it is polished with difficulty by friction with an agate burnisher. The metal thus acquires great brightness, and appears whiter than platinum. When the electric current and the relative dimensions of the electrodes are properly regulated, the gallium presents a beautiful dull surface of silvery white, finely granulated, and interspersed with small brilliant points, which the microscope shows to be crystals.

Gallium, deposited on a platinum plate, is not much oxidized during washing in cold or boiling water, nor on being dried in free air raised to about 200°. It decomposes water acidulated with hydrochloric acid in the cold state, and more rapidly in hot state, with a bright liberation of hydrogen.

acidulated with hydrochloric acid in the cold state, and more rapidly in hot state, with a brisk liberation of hydrogen.

Notwithstanding the undoubted rarety of this new metal, close researches seem to in-dicate that it exists in small quantities in nearly all blends. The extreme sensibility of its spec-tral action is liable to lead to an over-estimate

of its quantity.

M. Lecoq, after enumerating the actions and proportions of the various salts of gallium, adds: "If there is no error as to the nature of this salt. of alum of gallium, the existence of this salt fixes the atomicity of the new element, and attributes to its oxide the same chemical functions as that of alumina. The oxide of gallium, then, will be written Ga₂ O₂.

LOCOMOTIVES WITHOUT STEAM DOMES .- A COT-LOCOMOTIVES WITHOUT STEAM DOMES.—A correspondent of the Scientific American says:

"The Bosten and Albany ratiway company has some 240 locomotives, most of which have no steam domes; and if you ask the men who handle these engines how they carry their water, they will tell you that no engines works will sell you that no engines works. water, they will tell you that no engines work drier steam or less water than they do, under all circumstances. It is well known that much of the track of this line, on the mountain slope between Westfield and Washington, lays on a grade of 83 feet per mile. Steam domes are not only expensive, but are a decided injury to a boiler, and if locomotives work as well, they are certainly much better without them. This company is continually building locomotives without domes, which seems to be the best evidence possible that they are as useless as a steeple to a church." The journal from which we quote remarks upon the above: "There are we quote remarks upon the above: "There are many locomotives which have no steam domes. The celebrated Crampton engines, made in 1847, had none, and gave excellent results. It is usually considered, however, that drier steam is obtained from the top of the dome than from the abeli of the boiler."

Invention Relating to Car Wheels.—A recent invention relating to the casting of chilled car wheels consists in constructing the metallicannular chill with annular air chambers at tallic annular chill with annular air chambers at the points of the interior surface of the chill where the outer periphery of the flange of the wheel is formed, and also at the point where the outer horizontal surface of the tread is formed, by means of which the central portion of the tread, which receives the greatest wear, is allowed to harden; but the other periphery of the flange and the outer surface of the tread are prevented from rapid cooling by the new conducting air chamber, and the metal at these points is molded and preserved in its full strength and tenacity, which is said to be a result to be greatly desired in view of the fact that, while the process of chilling hardens the iron, it greatly impairs its tenacity and strength.

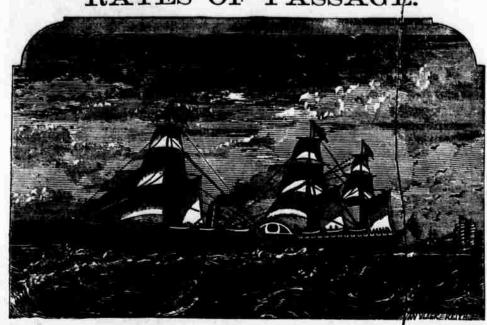
A Passences locomotive is being built in the machine-shop of the Philadelphia & Reading railroad company, at Reading, Pa., for exhibition at the Centennial. It is to be entirely the work of apprentices.

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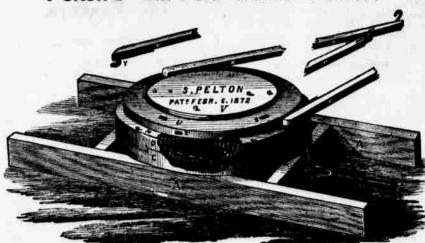
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