

**NEW AUTOMATIC FEED WATER PURIFIER.**

Mr. H. Paucksh, in the *Zeitschrift des Vereines Deutscher Ingenieure*, describes a new feed water purifier for steam boilers, sectional views of which are presented herewith. It consists of a cylinder, *a*, Fig. 1, which extends nearly the whole length of the boiler, and which is secured in the cover, *c*, of the passage, *b*. Arranged along the top of the cylinder is a series of tubes, *d*, vertically disposed, and of such a height as to have their upper extremities level with the top row of boiler tubes. The last tube, *f*, Fig. 2, is carried somewhat higher, and differs from the others in having an open orifice, the latter having their apertures partially closed by a perforated cover. All the tubes, *d*, are secured in the cylinder by cast iron riveted rollers, *r*, and washers of wrought iron, *t*. This arrangement admits of the easy insertion of the cylinder through the passage, *b*, while the tubes may be attached or removed by entering the boiler after the cylinder is in place.

The feed water passes in by the pipe, *e*, and rises in the tubes, *d*, after filling the cylinder, escaping at the orifices of the tubes, and gradually fills the boiler. During this time it becomes heated, and the impurities settle at the bottom of the cylinder. To remove the deposit, a pipe, *h*, the lower part of which is channeled, and which has a valve, *g*, on its forward end, is placed near the lower part of the cylinder. On opening the valve, *g*, the pressure of steam in the generator forces out the contents of the tube, together with a quantity of water, which last is, however, compensated for by the supply which enters from the vertical tubes, *d*. The last tube, *f*, through its having an open upper orifice for the admission of steam, serves to augment the force of the current which, on the evacuation of the deposit, is produced in the rear part of the apparatus, and to render the same uniform through the tube, *h*. At the same time the tube, *f*, acts as a kind of safety valve in case of obstructions choking the other tubes.

**New Industries Wanted.**

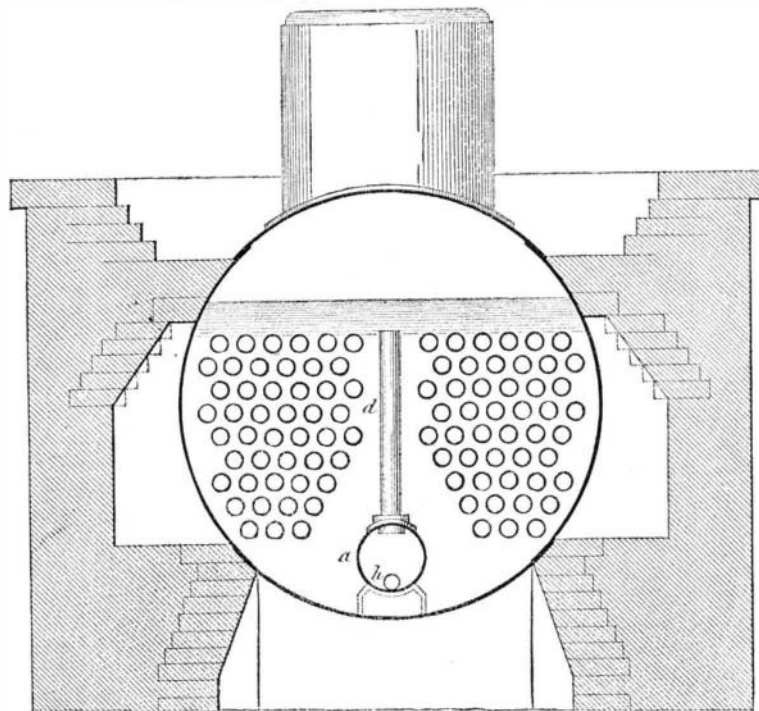
We want in the Mississippi valley the initial step towards the following new industries of her people:

1. Linen manufacture, to save the flax now wasted, also to save the \$25,000,000 annually sent abroad for linen goods.
2. The growth of sugar beets and their manufacture into sugar, to give employment to our people at home, and save the \$100,000,000 in gold now paid to other nations for sugar.
3. The manufacture of earthen, stone, and china ware, to save the \$10,000,000 annually paid to foreign nations.
4. Leather manufacture, gloves, etc., to save the \$10,000,000 of gold sent abroad.
5. The manufacture of silk, to save \$25,000,000 in gold annually sent to France.
6. The manufacture of watches, watch movements, and materials, to save the \$3,000,000 in gold annually paid for these things.

12. We want ten people where there is but one all over this fertile valley to eat our produce and save the millions annually expended in shipping it away. — *Engineering News*.

**Cosina.**

This is the name given to a curious new dye prepared by Dr. Caro, of Stuttgart, Germany. When phthalic acid, obtained by the oxidation of naphthalin and resorcin, which is prepared by heating assafetida with alkalies, are heated together, a fluorescent substance is produced. From the latter, treated with reducing agents, fluorescin, a colorless base is derived. The new dye stuff is produced from fluorescin by treatment with bromine in combination with potash, and



**PAUCKSH'S FEED WATER PURIFIER.—Fig. 1.**

its solutions in alcohol are of a delicate rose color in transmitted, and a pure yellow in reflected, light. The shades produced on wool, also on silk, resemble those of cochineal. On silk, the dye shows red or yellow according as the fabric is viewed. The material is now very expensive, being worth \$100 a lb.

**American Potatoes Abroad.**

The *Journal of the Royal Agricultural Society*, of late issue, contains a valuable article, by Mr. H. W. Bates, F.S.L., on the Colorado potato beetle. Mr. Bates thinks that the introduction of the pest into England is not at all probable, and doubtless the opinions which he advances will do much toward removing the uneasiness felt regarding, as well as the restrictions laid upon the importation of, American potatoes

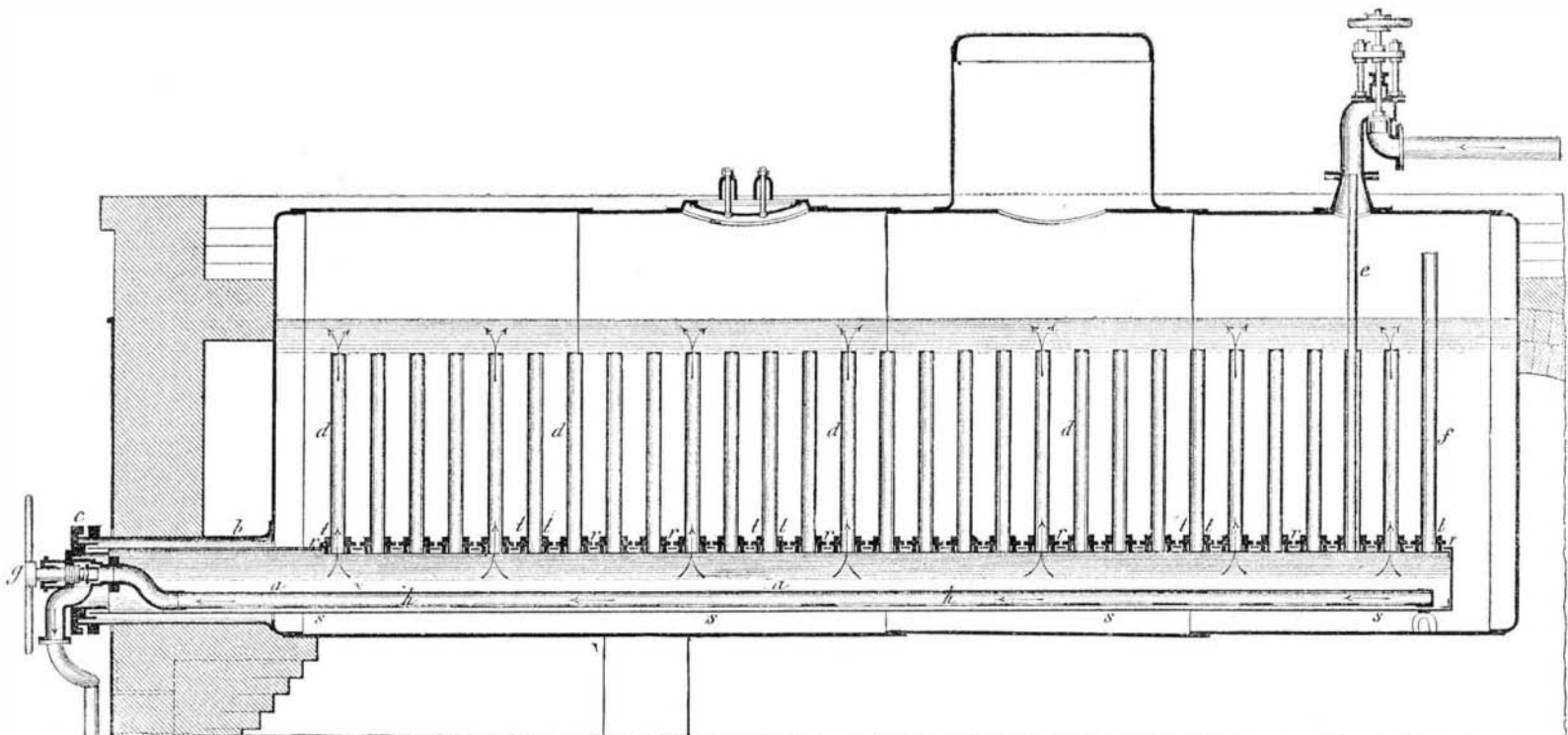
**English Grease Butter.**

The butter and cheese dealers of this city, who opposed oleomargarin in the markets on the alleged ground of its being used as an adulterant for genuine butter, instead of its being sold on its own merits, will seem to most people ultra-fastidious beside their English and Scotch brethren, who have permitted the existence of such an establishment as the *Glasgow News* recently has unearthed. That journal discovered a trade circular issued by a firm established in Leith and Glasgow, offering to reclaim old butter, however foul, and to return the same increased in weight, at a cost of \$1.87 per cwt., in casks. Reporters, personating customers, prepared for treatment a sample of the following delectable mixture: A Coleraine butt of grease butter, sold for lubricating purposes, was purchased, and there was incorporated with it a small quantity of Russian tallow, some of which had passed through the printing office machinery, and had absorbed particles of blacklead and mineral oxides from contact with the bearings of the shafting. A common tallow candle, from which the wick had been removed, was also added. The compound and the tallow candle were carefully melted into the grease butter; and notwithstanding the offensive character of these additions, the butter was so decomposed as completely to disguise them. Thus prepared, the firkin was sent to the works, with a request that it be turned into "lumps of a bright yellow color, for sale in the English market, and with a stubble-grass smell." The firm characterized the sample as very bad, but promised to do their best with it. In the course of a few days the butter was returned re-converted, its weight on return being 51½ lbs., against 47½ lbs. when sent for treatment. Were it not for some mineral particles discovered on strict examination, it would hardly have been possible to have identified the sample, so remarkable was the change in the whole composition. These statements are verified by the city analyst, who described the original butter as "in the last stage of rotteness, having a disgusting odor, covered with green mold, and maggoty."

It was found that the establishment was doing a large business and producing 3,920 lbs. daily, which was sold over the entire kingdom. What the treatment consisted in is not explained. Oleomargarin at least was clean, and its ingredients, so far as our examination extended, were pure.

**A New Crystallized Hydrate of Hydrochloric Acid.**

There is an abundant crystallization produced in hydrochloric acid at -13° Fah., when a current of nearly dry hydrochloric acid gas is passed through it. The authors deduce a new way of making a freezing mixture by mixing 2 parts of snow with 1 part commercial hydrochloric acid. The temperature obtained will be -25.6° Fah. By previously cooling the acid to -5° or -4° Fah., a temperature of -31° Fah. will be reached. This is difficult to maintain, but -13°



**PAUCKSH'S FEED WATER PURIFIER.—Fig. 2.**

7. The manufacture of tin plate to save the \$13,000,000 in gold annually paid out for them.
8. We want an increase in the manufacture of cotton goods to help save the \$30,000,000 in gold annually paid to support the people of other nations.
9. An increase in the manufacture of glass and glass ware, to save the \$6,000,000 annually sent abroad.
10. We want an increase in the manufacture of woolen goods to give employment to our people and save the \$50,000,000 in gold annually paid to support the people of other nations.
11. We want an increase in smaller manufactures of all kinds to keep the people employed and rich, and hungry for the farmer's products.

abroad. "American potatoes," he says, "are imported into Britain only for seed purposes, and in remarkably clean condition. Newly arrived casks which I saw opened contained not a particle of refuse, and no pellet of soil large enough to contain a hibernating beetle." If, however, beetles should fly on board ship, in the harbor of New York, and find a snug lodging for the voyage, they might fly off at Liverpool; but even in this ultra-hypothetical case, Mr. Bates thinks "there is little probability of their propagating and spreading in this country."

The surest remedy for chapped hands is to rinse them well after washing with soap, and dry them thoroughly by applying Indian meal or rice powder.

or -15° Fah. may be steadily kept by successive additions of snow and slightly cooled acid.—*M. J. Pierre and E. Puchot*.

The black dogwood or the berry-bearing alder make the best charcoal, willow is next, and common alder third in rank. Small wood of about ten years growth is in all cases to be preferred for charcoal for making gunpowder. Alder and willow of this age will be probably 4 or 5 inches in diameter, dogwood about 1 inch.

The kangaroo has been introduced on several large estates in France, and is now hunted in that country as game. It readily adapts itself to the climate.