

Science and Art.

New Alloy for Sheathing Ships.

A patent has recently been taken out in England by Mr. Arthur Wall, of London, for a combination of metals possessing different electric characters for the sheathing of ships. The alloy is made by melting two and a half parts of copper in one crucible; in another nine parts of zinc, eighty-seven of lead, one part of mercury, and a half a part of bismuth; then mixing the contents of both crucibles, covering the surface with charcoal dust, and stirring well until all are incorporated. It is stated that the mercury in this alloy protects both the zinc and copper from the action of sea water. The contents of the crucible are run into ingots, and rolled into sheets.

The same inventor has also obtained a patent for protecting the bottoms of iron ships from the action of sea water, by the use of a composition of litharge made into a smooth thin paste with turpentine, to which is added an equal weight of resin. The whole is then put into a close iron vessel placed over a fire, naphtha added through an aperture in the lid from time to time, and the boiling kept up slowly for about two days, until the whole has assumed a tenacious adhesive character and a creamy consistency. It is then fit to be applied to the iron of the vessel as a primary coating. A second coating is given to the iron with a composition of resin, combined with one-fifth of its weight of an oxyd of mercury and powdered charcoal mixed in turpentine. This outer coating fills up all cracks or gaps left in the first application, and the nature of the composition is stated to be such that it prevents barnacles adhering to the iron, and resists the corroding action of salt water. The protection of the bottom of iron ships is a matter of great consequence in Great Britain where there are so many built, but is not of so much importance here at present, yet it is of some consequence to us also, as we have a few iron vessels, and the probability is that their number will always keep increasing.

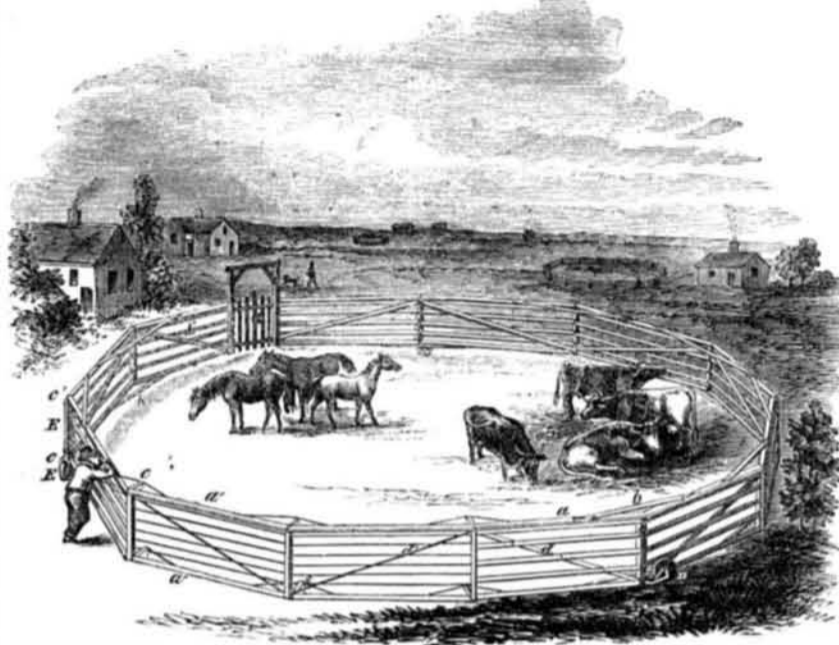
Improved Portable Fence.

The importance of any improvement in fences can be appreciated when we think of the vast amount of time and labor required in building and repairing fences in our rural districts, which consume a great quantity of timber. It is said that in Pennsylvania alone there are fences to the value of a hundred million dollars, and keeping them in repair costs annually ten million dollars. In the West the expense of fences is proportionately greater, and many plans have been tried to avoid fencing. Within the last few years many portable fences have been patented, and the subject of our engraving is one of these, the object of which is to provide for more easily moving the fence, and to render the use of other fences unnecessary. This fence is put up in strong, light pens of circular or polygonal form, of any size desired, as seen in the perspective view of the fence fixed on the prairie. It is braced so that it can be raised off the ground and supported by three or more wheels, on which it may be moved altogether in any direction to the spot selected, and there, by simply unengaging the wheels, it will rest firmly in the spot where it is fixed. It can be constructed either of boards, wire, or strap iron. The engravings show a pen made half of iron and half of boards, and illustrate the construction of each, which is nearly the same, only it is found that the boards are too heavy when there are more than nine or twelve panels, but when made of wire or strap iron it may be much larger and more easily moved. If made of boards the posts are three cornered, and the boards are nailed on the inside of a post at one end, and on the outside of the next post, so that the boards reach clear across the post, and the posts can be quite small without any danger of splitting from the nails.

Fig. 1 is a top view of the fence. Figs. 2 and 3 show a panel respectively of iron and wood. Figs. 4 and 5 show the method of attaching the wheels. Similar letters refer to similar parts in each.

On the top of the top board (when made of wood) there is nailed a cap board, *a*, seen in cross section near Fig. 3, having a T-shape,

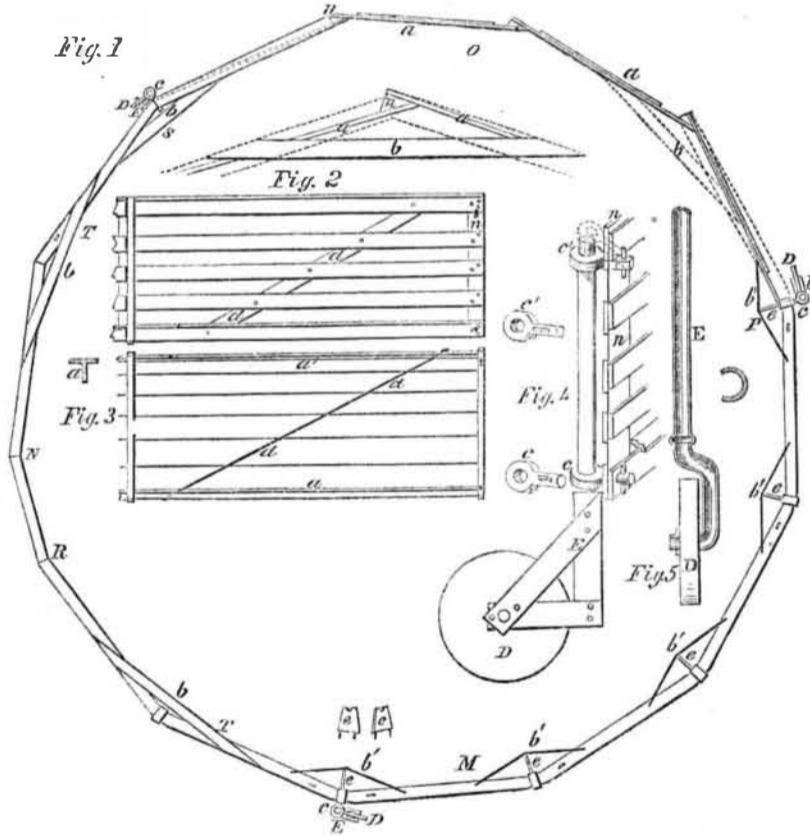
HOGG'S PORTABLE PRAIRIE FENCE.



between the wheels, *D*. When constructed of iron the rails, *a'*, can be made of two boards, forming a T-shaped rail, or a square piece mortised into the posts, and connected together by the braces, *b'*, which are held out from the posts by the blocks, *e*, that serve to make the connection more substantial than when the braces are straight. The brace, *d*, serves the same purpose as in Fig. 2. *G* is a small

and the bottom board is capped in the same way, these are for the purpose of giving lateral strength to the panel. The middle of each panel is connected, at top and bottom, with the middle of the next panel by the braces, *b* *b*, passing under the cap pieces, *a*, and nailed to them. Each panel is also braced by a tie, *d*, which keeps the fence from "swagging"

gate for taking stock in and out. It will be seen from the arrangement of these ties and braces that the panels are perfectly rigid and firm, and cannot drop between the wheels. The wheels, *D*, are attached to crooked levers, *E*, which pass through an eye, *c*, secured in a round hole at the bottom of the post, so that the lever, *E*, may be used to raise up the fence; and when the end of *E* is turned up parallel



with the fence, it can be hitched into another eye, *c'*, at the top and held fast by it in a vertical position as seen at Fig. 4; so that when the lever is up, the fence rests on the wheels, and when the lever is down, the fence rests on the ground. The lever, *E*, is made crooked like a castor, so that it can turn round and allow the fence to be moved in any direction; it can be made of corrugated iron Fig. 5, or wood, Fig. 4, as experience may dictate; *n* is the end post of the panels, and *S T N R T* show the portion of the fence made of wood, *M* to *P* the portion made of strap iron, and *P O S* the portion made of wire.

It will be seen that this fence does not damage or take up any land, and it can be

shifted from pasturage to pasturage without moving the cattle, as the farmer may find it convenient. The method of confining cattle in a limited pasture has been found to improve the land and crops without any detriment to the cattle, and for such and other purposes any farmer will see the manifold advantages of this fence. It is the invention of Thomas Hogg, of Waynesburg, Pa., and was patented by him on Dec. 9th, 1856. We should consider this fence specially important in prairie land at the West. He will be happy to furnish any additional particulars.

We are informed that the fresh juice of honeysuckle rubbed on the part stung by a bee, instantly removes the pain.

The Coal of Western Virginia.

From a long article on this subject in the *Lynchburg Weekly Virginian* we glean the following valuable information, which tends more and more to show that the mineral wealth of our country is greater than any other in the world:—From what has already been discovered, it has been calculated that there is enough coal in this section of the country to supply the whole Mississippi valley with fuel for a thousand years, and fresh discoveries are being made in the Kanawha valley every day. All the coal yet discovered there is of a superior quality, both bituminous and cannel, and when the navigation is made more easy, and capital has turned its attention to that quarter, we have no doubt that coal from this region will find its way to every city in the Union, for it has already made its appearance in the Cincinnati market.

Steam Fire Engines.

We perceive by an exchange that the insurance companies of St. Louis have just determined to purchase two new steam fire engines, they having become satisfied regarding the superiority of such fire-extinguishers by the operation of two which have been used for some time in that city. In Cincinnati steam fire-engines are now exclusively employed, and Chicago has either one or two. Our Eastern corporations are rather foggy on this subject.

The first woolen mill on the Pacific Coast has been set in operation in Salem, Oregon. It runs four hundred and eighty spindles.



INVENTORS, MANUFACTURERS, AND FARMERS.

THIRTEENTH YEAR:

PROSPECTUS OF THE SCIENTIFIC AMERICAN.

This work differs materially from other publications, being an Illustrated Periodical, devoted to the promulgation of information relating to the various MECHANICAL and CHEMICAL ARTS, MANUFACTURES, AGRICULTURE, PATENTS, INVENTIONS, ENGINEERING, MILL WORK, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Every number of the SCIENTIFIC AMERICAN contains eight pages of reading matter, abundantly illustrated with from five to eight ENGRAVINGS—all of which are expressly engraved for this publication.

All the most valuable patented discoveries are delineated and described in its issues, so that, as respects inventions, it may be justly regarded as an *Illustrated Repertory*, where the inventor may learn what has been done before him in the same field which he is exploring and where he may bring to the world a knowledge of his own achievements.

Reports of American Patents granted are also published every week, including Official Copies of all the PATENT CLAIMS. These Patent Claims are furnished from the Patent Office Records expressly for this paper, and published in the SCIENTIFIC AMERICAN in advance of all other publications.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and people in every profession of life, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them hundreds of dollars, annually, besides affording them a continual source of knowledge, the value of which is beyond pecuniary estimate. Much might be added to this Prospectus, to prove that the SCIENTIFIC AMERICAN is a publication which every Inventor, Mechanic, Artisan, and Engineer in the United States should patronize; but the publication is so thoroughly known throughout the country that we refrain from occupying further space.

Southern, Western and Canadian money or Post Office stamps, taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription, to pre-pay postage.

TERMS OF SUBSCRIPTION—Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

- Five Copies, for Six Months.....\$4
- Ten Copies, for Six Months.....\$8
- Ten Copies, for Twelve Months.....\$15
- Fifteen Copies, for Twelve Months.....\$22
- Twenty Copies, for Twelve Months.....\$28

For all clubs of Twenty and over, the yearly subscription is only \$1 40. Specimen copies will be sent gratis to any part of the country.

MUNN & CO., Publishers and Patent Agents, No. 123 Fulton street, New York.