any requisite velocity may be given to the refrigerant liquid, without disturbing the regular progression of those opposite series of temperature, which exist in the adjacent coils, or permitting the particles of the two fluids to escape mutual influence; an advantage which, for obvious reasons, it is impossible to realize with the common worm.

The inventor of the above described apparatus, obtained his first patent for the essential parts of the same in 1824; Yandal's refrigerator, remotely allied to it in principle, was patented in Great Britain in 1826 and 7; and though considered a valuable invention, it omits some of the most important features, and possesses only *one-third* of the refrigerating power of the American apparatus, as can be easily demonstrated. A bare inspection of the drawings of both will show, that only one out of the three laminæ of the former is employed in transferring caloric, whilst in the latter, the *whole* metallic surface may be rendered effective. Moreover, the two fluid laminæ being subjected to each other's influence, on both sides instead of one, the effect will be equal with a double width of the channels, and with an equal width, greater from this cause alone, than in the European apparatus. The access which may, (from the facility of applying a cover,) be afforded to the interior, and which is done in the latter modifications by the inventor, also gives it a great advantage for some purposes, as in the manufacture of beer; where a glutinous substance adheres to the inner surface, which, in this apparatus may be effectually removed, by the introduction of an instrument resembling a spatula or a small spade, covered with some elastic substance. As a refrigerator for worts, this occupies about the one five hundredth part as much space in the building, as the ordinary cooler; and in warm weather especially, reduces the worts to a lower temperature, and in a shorter time, and always *without* the least exposure to atmospheric air.

Do not theory and experience concur in showing, that the worts are frequently injured by the atmospheric oxygen, so extensively applied in the ordinary mode of cooling?

It would be easy to point out numerous useful applications of this invention; as the heating of mash in distilleries, salt water in the manufacture of muriate of soda, water for steam boilers, and air for various purposes.

The aggregate, as well as internal form of the apparatus, the arrangement of its passages, and the relatively small extent of its external, compared with its internal surface, give it an unparalleled power of insulating the temperature of its contents, with little loss, by conduction and radiation. This property not only increases its value in its application to some of the useful arts, but also renders it an important instrument, for many experimental researches on caloric, and especially for determining the specific heat of liquids, vapours and gasses. Perhaps this may be the subject of some future communication.

Remarks by the Editor.—We were particularly pleased with the principle of Yandal's apparatus for cooling worts and other fluids,

which was the subject of a patent in England, and was published in this Journal, vol. 4, p. 184. We were not then aware that the merit of the original invention belonged to our own country, and, was the property of Professor Joslin. Yandal's patent was sealed August 24th, 1826, and enrolled February, 1827. The foregoing article, referring back to the records of the United States' Patent Office, to the year 1824, plainly puts this question at rest.

A second patent, for a very similar apparatus, was obtained in England, by Robert Wheeler, a Brewer; his patent was sealed in November, 1827, and enrolled in May, 1828. The patentee calls it "*Archimedes' Condenser or Refrigerator*; the peculiar novelty of which, consists in forming the chambers for the passage of the fluids in spiral channels, winding round a central tube, through which spiral channels the hot and cold fluids are to be passed in opposite directions."

This, like Yandal's, it is proposed to use as a condenser for stills, and for other purposes. It appears, indeed, to be the same thing, varied in form only, and, although it might possibly be sustained as different, according to the practice under the English law, we are convinced, that with us they would be considered as identical. Our concern, however, does not relate to this point, but to the fact, that the invention is American; and, although it is very possible that it may have been invented in England also, it is much more probable that it was taken either from New York, or from the United States' Patent Office, as has been the case with *many* other inventions, which have been patented in England.

We have seen many certificates of the value of Professor Joslin's apparatus; from these we give some extracts, as they may serve to make a valuable invention more extensively known.

"Joslin's patent Condenser succeeds well, and I believe it to be a very useful invention.

WILLIAM THOMPSON, Superintendent of a distillery.
Lenox, Madison county, New York, Sept. 8th, 1826."

"Manlius, September 14th, 1826.—The Condenser put up in my distillery by Dr. Benjamin F. Joslin, is yet in successful operation; and the longer I use it, the more perfectly I am convinced of the great importance of the invention. ORLANDO SMITH."

Under date of September 19th, 1826, HENRY POLHEMUS, of Auburn, states, that the Condenser "makes twenty degrees difference in the temperature of the spirits."

Several others of subsequent date might be given, but as they are to the same effect, we add the following only, from a brewer.

"New York, April 12th, 1828.—Having one of Professor Joslin's refrigerators in operation in my brewery, in this city, I am satisfied that it is a very valuable invention for cooling Worts, and far superior to any other with which I am acquainted.

HENRY BUNCE."