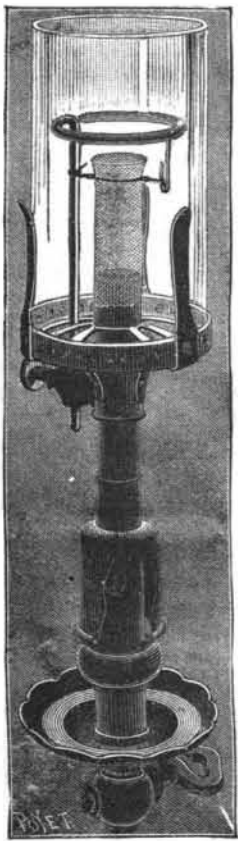


**INCANDESCENT BURNER OF DR. AUER.**

The peculiar feature of the gas lamp of Dr. Auer von Welsbach consists in the incandescence of certain metallic salts placed in the middle of the flame



**NEW INCANDESCENT GAS BURNER.**

of a Bunsen burner. The principle is not new; it is the same as that in the Diamond lamp, in which, as may be remembered, the incandescent substance is formed by a little thimble of magnesia threads. On the other hand, the arrangement of the Auer burner is very simple, and appears to possess many advantages. It consists of an ordinary Bunsen burner, the end of which is covered by a hood of cotton or woolen tissue washed in a special preparation. The hood, about 6 or 7 centimeters in height, is slightly flaring and is held by a platinum thread which passes around it and is fixed to two rods of iron connected with a ring above. The longer of the two is held by a thumb screw to the pipe which supports the burner.

As soon as the burner is lighted, considerable heat is generated within the hood, which, in a few seconds, becomes aglow with a whitish blue light, remarkable for its steadiness and intensity.

It is not perfectly well known how the hood is made, but here are a few details from the patent of Dr. Auer, which throw some light on the subject: Take a solution of zircon and nitrate or acetate of lanthanum or yttrium, and soak in it the woolen or cotton that is to form the hood. The tissue is then carbonized, and leaves a sort of network, which is applied to the Bunsen. The nets thus procured appear more favorable to the production of light than the massive cylinders of zircon tested in 1868 by Tessie de Mottay on oxyhydrogen burners.

According to the inventor, each hood costs about 1 cent, and will last 1,000 hours, or until the dust of the atmosphere is sufficiently incrustated thereon to diminish the strength of the light. Finally, with equal lighting power, the consumption of gas in the Auer burner will be about one-half less than that of an ordinary burner, which should show an economy of 50 for 100, but these figures ought to be verified. The

durability of the hood ought also to be determined by exact tests.—*La Nature.*

**JOSEPH ECHELETER'S DESIGN FOR A GRANT MONUMENT.**

Fourteen competitive designs for a monument to General Grant, to be erected in New York, have been sent in, and among these the design of a German who has lived in America for two years is especially noteworthy. Thinking that many of our readers may be interested in the design of Joseph Echeleter, we give a cut of it, taken from the terra-cotta model.

The monument is to be about 71 or 72 ft. high, the lower part consisting of a mausoleum. It will cost about half a million dollars. The mausoleum is crowned by an equestrian statue of Grant. This represents the General as commander, riding to battle on a rearing horse, his cloak flying, and his head turned to look back, while he points in the direction of the enemy with a field glass held in his right hand.

At the four corners of the cap or upper part are four female figures representing: Peace and Prosperity, Industry and Invention, Commerce and the Marine, Statesmanship and Law. On the front is a battle scene, Grant with outstretched sword riding at the head of a column of infantry, while at the left the cannoners are busy firing the guns. At the back of this upper part, the North and South are represented as engaged in a mortal hand to hand combat, and in the midst of the confusion of the battle rises the imposing figure of a commanding general of the Southern army.

The group in the middle part of the monument is specially well conceived; two female figures, the North and the South, grasp hands in token of eternal friendship. The North is represented as having beautiful classic features and wearing the Phrygian cap—she is laying the palm branch of peace on the shattered weapons of war; while the South is characterized by features of the Southern type and light clothing, the figure being partly nude—she is laying a laurel wreath at the feet of an eagle whose outstretched wings spread over the scene. The background of this principal group is filled with an architectural design of arches.

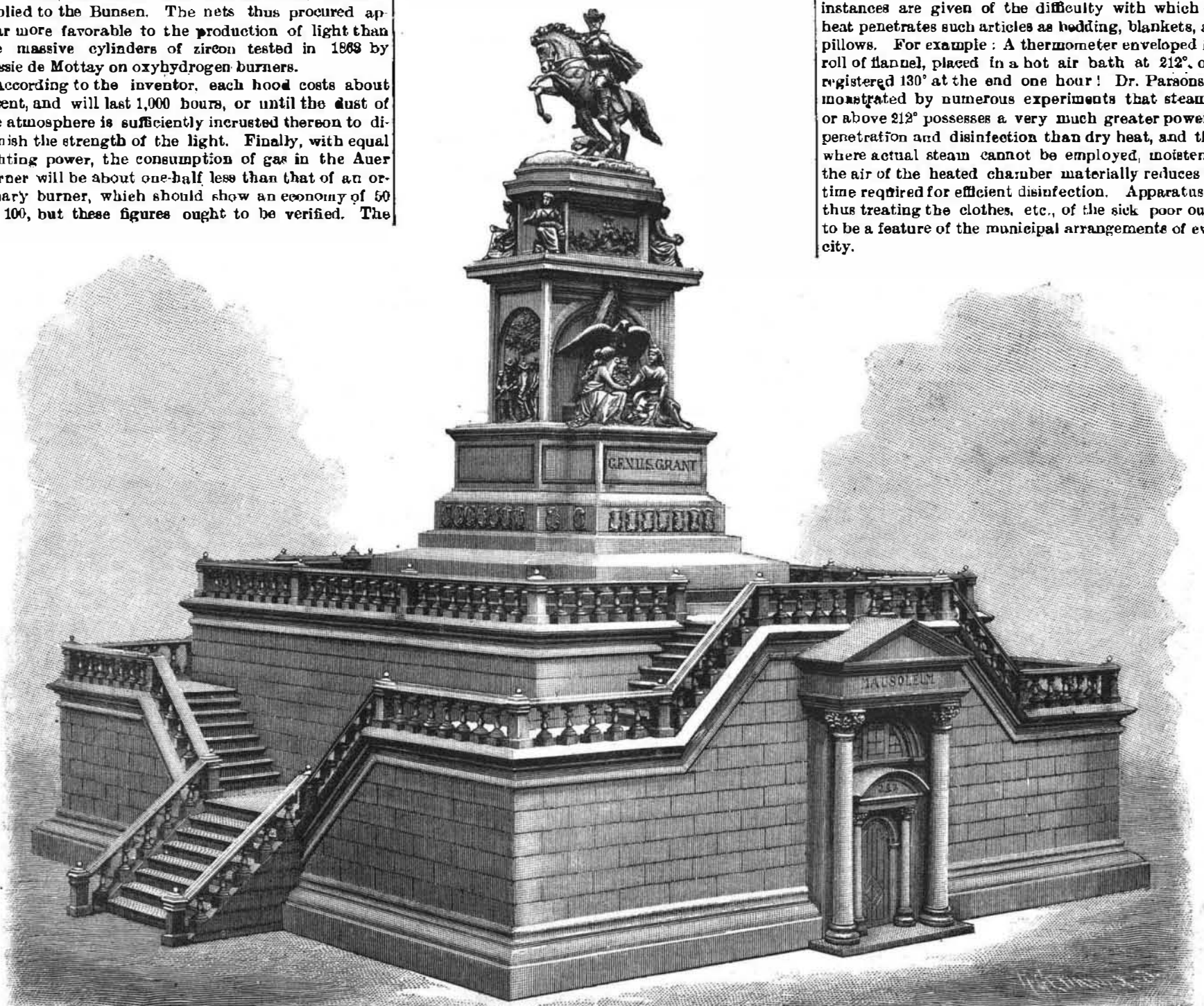
On the opposite side of this part of the monument is the figure of General Grant in uniform and fully equip-

ped for war. He is seated with his left hand on his sword, and about him and on a staircase behind him are grouped the members of a negro family. The negro, on whose wrist the fetters are still visible, raises her hands to Grant, praying him to deliver her from slavery, while the negro tries to express his gratitude by pressing the General's hand, resting his left hand on the forearm of his deliverer. In the foreground a little negro boy is playing with the broken chains. The left face of this portion represents, in high relief, the scene under the memorable tree at Appomattox, where General Lee surrendered his sword to the victor Grant. In high relief, at the right, the artist has shown the steps of the White House at Washington. On the upper step Grant is taking the Presidential oath before Chief Justice Chase, while in the background stand Grant's predecessor, Johnson, and several Senators, as witnesses. The front of the principal part of the monument bears the inscription, "Gen. U. S. Grant." The coats of arms of the different States are arranged on the under socle.

The mausoleum, which is 59 feet in depth, is provided in front and at the back with three terraces. The cap of the monument, the main part of the mausoleum, the portals, and the balustrades are to be made of polished granite, the foundation of rough-hewn stone, and the figures and coats of arms of the best bronze. The completion of the work would require about five years.—*Illustrirte Zeitung.*

**Disinfection by Heat.**

The disinfection of articles of clothing, and of dwellings, after infectious ailments, is admittedly one of the most important duties which attends the work of preventing disease. A recent report of the medical officer of the local government board, London, presents the entire question of the destruction of germ life in a new aspect, including, as it does, a memoir on disinfection by heat, from the pen of Dr. Parsons. The degree of dry heat necessary to kill the germs of diseases well known to be infectious was first investigated. The bacilli of splenic fever, for example, were killed by exposure for five minutes in a dry heat varying from 212° to 218° F., but their spores did not yield to two hours at 220°. One hour at 245°, and four hours at 220°, achieved the result. Some very remarkable practical instances are given of the difficulty with which dry heat penetrates such articles as bedding, blankets, and pillows. For example: A thermometer enveloped in a roll of flannel, placed in a hot air bath at 212°, only registered 130° at the end one hour! Dr. Parsons demonstrated by numerous experiments that steam at or above 212° possesses a very much greater power of penetration and disinfection than dry heat, and that, where actual steam cannot be employed, moistening the air of the heated chamber materially reduces the time required for efficient disinfection. Apparatus for thus treating the clothes, etc., of the sick poor ought to be a feature of the municipal arrangements of every city.



**ECHELETER'S DESIGN FOR THE GRANT MONUMENT NEW YORK**