

# UNITED STATES PATENT OFFICE.

JOHN CARRINGTON SELLARS, OF BIRKENHEAD, ENGLAND.

## IMPROVEMENT IN METAL-FOUNDERS' BLACKING.

Specification forming part of Letters Patent No. **114,978**, dated May 16, 1871.

*To all whom it may concern:*

Be it known that I, JOHN CARRINGTON SELLARS, of Birkenhead, in the county of Chester, England, have invented certain new and useful Improvements in Metal-Founders' Blacking, of which the following is a specification:

To provide metal-founders with a blacking possessing good sleeking and heat-resisting properties, and to enable them to produce castings with smooth skins of desired hues, I mix sea-weed, sea-grass, or sea-plants—hereafter, for brevity, called "sea-ware"—in any convenient or desired proportion, with still-coke, peat charcoal, soft-wood charcoal, gas-coke, coked coal, oil-retort coke, coal-dust, soot, hard-wood charcoal, or other suitable coke or charcoal, or with lime, chalk, or clay, or with a mixture of two or more of these substances.

The said sea-ware may be added in the newly-cut, partially-dried, dried, or dried-and-pulverized state to the said coke, charcoal, lime, chalk, or clay, the latter being either in a rough or ground condition.

The addition of sea-ware to coke, charcoal, lime, chalk, and clay, in every proportion, so long as the moisture is insufficient to cause the mixed mass to form a paste in the process of reducing or grinding, or to cause the particles of the blacking, when finished, to adhere and form lumps, is beneficial, either, first, for improving the quality, or, second, for reducing the cost. Thus still-coke, peat charcoal, soft-wood charcoal, and like carbonaceous materials, when mixed with sea-ware, are made to yield molders' blacking of excellent quality, suitable for the finest castings; gas-coke, coked coal, oil-retort coke, coal-dust, soot, lime, chalk, and clay to yield a cheap and useful blacking for common casting; and hard-wood charcoal is greatly reduced in price without being materially deteriorated in quality.

In carrying my invention into practice I prefer to use the substances, and the quantities thereof, and to adopt the modes of preparation now to be described, premising that in all cases it is advantageous to wash the sea-ware in fresh water, and to reduce it by a root-pulper or other suitable machine before mixing it with the carbonaceous or other substances above mentioned.

A. When newly-cut or moist sea-ware—that is, sea-ware after the free water has been allowed to drain away—is to be used, I employ it with the substances now to be named, in the proportions set forth. Twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts still-coke, preferably granular; thirty parts newly-cut or moist sea-ware, by weight, to seventy parts peat charcoal, preferably hard and in pieces; thirty-five parts newly-cut or moist sea-ware, by weight, to sixty-five parts soft-wood charcoal, preferably in a rough state; twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts gas-coke, preferably granular; twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts coked coal, preferably granular; twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts oil-retort coke, preferably granular; twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts coal-dust in a rough powder; forty parts newly-cut or moist sea-ware, by weight, to sixty parts burned unslaked lime; twenty-five parts newly-cut or moist sea-ware, by weight, to seventy-five parts soot; fifteen parts newly-cut or moist sea-ware, by weight, to eighty-five parts hard-wood charcoal in the rough state.

The substances named are mixed and reduced under edge-runners, and afterward finish-ground between horizontal or other mill-stones, or in any other suitable mill. Should the coke or charcoal be hot, the quantity of sea-ware may be slightly increased.

B. When partially-dried sea-ware—that is, sea-ware dried by currents of air or other means until it feels dry to the touch—is to be used, I add it in the following proportions, and reduce and grind it in the manner set forth under the above head A: Twenty-five parts partially-dried sea-ware, by weight, to seventy-five parts still-coke, preferably granular; forty parts partially-dried sea-ware, by weight, to sixty parts peat charcoal, preferably hard and in pieces; forty parts partially-dried sea-ware, by weight, to sixty parts soft-wood charcoal, preferably in a rough state; twenty-five parts partially-dried sea-ware, by weight, to seventy-five parts gas-coke, preferably granular; twenty-five parts partially-dried sea-

ware, by weight, to seventy-five parts coked coal, preferably granular; twenty-five parts partially-dried sea-ware, by weight, to seventy-five parts oil-retort coke; thirty parts partially-dried sea-ware, by weight, to seventy parts coal-dust in a rough powder; thirty parts partially-dried sea-ware, by weight, to seventy parts soot; twenty-five parts partially-dried sea-ware, by weight, to seventy-five parts hard-wood charcoal in a rough state; fifty parts partially-dried sea-ware, by weight, to fifty parts burned unslaked lime.

C. When dried sea-ware—that is, sea-ware sun-dried or dried by artificial heat until the moisture remaining does not exceed twenty-five per cent. of the whole weight—is to be used, I add it in the following proportions, and reduce and grind it in the manner set forth under the above head A: Twenty-five parts dried sea-ware, by weight, to seventy-five parts still-coke, preferably granular; thirty parts dried sea-ware, by weight, to seventy parts peat charcoal, hard and in pieces; fifty parts dried sea-ware, by weight, to fifty parts soft-wood charcoal in the rough state; twenty-five parts dried sea-ware, by weight, to seventy-five parts gas-coke, preferably granular; twenty-five parts dried sea-ware, by weight, to seventy-five parts coked coal, preferably granular; twenty-five parts dried sea-ware, by weight, to seventy-five parts oil-retort coke, preferably granular; twenty-five parts dried sea-ware, by weight, to seventy-five parts coal-dust in a rough powder; twenty-five parts dried sea-ware, by weight, to seventy-five parts soot; twenty-five parts dried sea-ware, by weight, to seventy-five parts hard-wood charcoal in the rough state; sixty parts dried sea-ware, by weight, to forty parts burned and unslaked lime.

D. When dried and pulverized sea-ware—that is, sea-ware made perfectly dry, or until there is not more than five per cent. of water contained in it, such ware being reduced to a fine state of division by grinding after drying, or by cutting or reduction at any stage of the drying—is to be used, (and this is the condition in which I ordinarily prefer it,) I add it in the proportions hereafter set forth to any of the carbonaceous or other substances mentioned, such substances being either in the rough or fine-ground state. If in the rough state, the mixed mass is preferably reduced under edge-runners and passed between mill-stones; but if in the fine-ground state, intimate mixing will be sufficient. In all cases, however, it is beneficial to grind the mixed mass between horizontal or other millstones, or in a suitable mill. Twenty-five parts of dried and

pulverized sea-ware, by weight, to seventy-five parts still-coke; thirty-five parts of dried and pulverized sea-ware, by weight, to sixty-five parts peat charcoal; thirty-five parts of dried and pulverized sea-ware, by weight, to sixty-five parts soft-wood charcoal; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts gas-coke; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts coked coal; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts oil-retort coke; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts sea-ware, charcoal, or coke; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts coal-dust; fifty parts of dried and pulverized sea-ware, by weight, to fifty parts burned slaked lime and about three per cent. of water; fifty parts of dried and pulverized sea-ware, by weight, to fifty parts powdered chalk and about ten per cent. of water; fifty parts of dried and pulverized sea-ware, by weight, to fifty parts clay (preferably fire-clay) and about three per cent. of water; twenty-five parts of dried and pulverized sea-ware, by weight, to seventy-five parts hard-wood charcoal, five per cent. of water being added.

Having now described the nature of my said invention and particularized the same by details which secure desired results, I would have it understood that I do not claim as of my invention any of the machines or apparatus used in the preparation of the blacking. I would also have it understood that I do not confine myself to employing the sea-weed, sea-grass, or sea-plants in any particular state, although, as mentioned, I prefer them in the dried and pulverized state. Neither do I confine myself to the cokes, charcoals, or carbonaceous substances named, as others can be used, nor to any particular lime, chalk, or clay, or condition of any of the substances.

What I do claim is—

The manufacture of metal-founders' blacking by adding to and mixing sea-weed, sea-grass, or sea-plants with coke, charcoal, coal-dust, or carbonaceous matter, or lime, chalk, or clay, or any two or more of these together, in the manner and in about the proportions herein set forth.

In testimony whereof I, the said JOHN CARRINGTON SELLARS, have hereunto set my hand and seal this 27th day of March, A. D. 1871.

JOHN CARRINGTON SELLARS. [L. S.]

Witnesses:

J. P. KING,

R. A. MOSS.