

UNITED STATES PATENT OFFICE.

HANSON WRIGHT, OF WESTFORD, NEW YORK.

IMPROVEMENT IN PREPARING PATTERNS FOR MOLDING.

Specification forming part of Letters Patent No. 31,051, dated January 1, 1861.

To all whom it may concern:

Be it known that I, HANSON WRIGHT, of the town of Westford, county of Otsego, and State of New York, have invented a new and Improved Process for Finishing Cast-Iron Patterns to Mold From; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in giving to cast-iron patterns to mold from a very close, hard, smooth, and durable surface, being entirely water-proof, not liable to rust, as it is not affected by the dampness of the molding-room and is capable of withstanding a great amount of heat. The smoothness of the surface of castings depends much upon that of the pattern used in making the mold. When a high degree of perfection is desired the usual process is to make the surface as smooth as possible and then cover it with a very thin coating of beeswax; but this does not protect the iron surface underneath from the weather so as to prevent oxidation. The effect of that oxidation in the first place is to render the surface of the pattern rough, to smooth which such patterns are usually brushed with some kind of coating, which thickens the patterns, thus rendering the castings heavier than desired, which renders it necessary to remove the wax coating and clean up the pattern. These inconveniences are remedied by my improvement.

In order to enable those skilled in the art to make and use my invention, I will proceed to state the ingredients used by me for that purpose and the manner in which they are employed.

To a proper quantity of pure india-rubber gum I add enough spirits of turpentine to cut or dissolve the whole. When dissolved I melt the requisite quantity of beeswax, and, in order to purify it, I usually add to it saleratus in the proportion of half of an ounce to one pound of wax. I then heat an iron rod red hot and stir and burn the wax till the grease is all burned out, when it will usually cease to blaze. The relative amount of rubber and wax depends upon circumstances. When the surface of the pattern is finely and smoothly finished previous to the application of the composition, as hereinafter named and described, I generally prefer about one ounce of rubber to one pound of wax. If the surface of the pattern

is rougher, a larger proportion of rubber will be necessary, so that on coarse castings or patterns as much as two or three ounces to the pound of wax may be necessary to produce the best results. While the wax is in a melted state I add to it the rubber dissolved, as above stated, and, after being allowed to get nearly cool, pour the whole into a vessel containing water, in which I boil it for about two hours. This boiling separates the spirits of turpentine by evaporating it. The wax, also, by this boiling is hardened and also purified. The saleratus having let the dirt loose, the light dirt and impurities will rise to the top and the heavier will settle to the bottom. The whole should then be set away to cool. When cool the composition will be found on the top or surface of the water, and can be readily removed. The composition should then be remelted and well stirred, when sulphur should be added in the proportion of about one-half an ounce to each pound of wax used, when the whole should be well mixed, and it is ready for use.

The pattern is prepared to receive this composition in the following manner: It is first immersed in dilute sulphuric acid, either hot or cold. This will dissolve a small portion of the iron, and when taken out of the acid it must be washed off in an alkali, to neutralize the acid and leave a coating of plumbago or carbon in a finely-divided state. If the acid is hot, the immersion should only continue for about one minute. When cold acid is used the immersion should continue much longer. The acid thus applied corrodes and dissolves any sharp points or irregularities which are found upon the surface of the pattern, and the fine powder of plumbago which is left upon the surface unites with and gives body to the composition, which is to be applied in the manner hereinafter described. The patterns should then be heated sufficiently to readily melt the composition when rubbed upon its surface. When the whole surface is well coated with this compound, and while the pattern is still quite hot, I place it in a vessel containing hot water and brush it thoroughly while in the water. This smooths the surface and brings out a polish on the india-rubber, which will be found on the surface, and which by this process will dress so close that it seems to be actually in the surface instead of on it.

It is not absolutely necessary that patterns

should be treated with acid in the manner above described. A very desirable finish can be produced by applying the compound directly to the cast-iron pattern which has not been prepared in the acid.

The wax may be purified by other means, or it may need no purification. The india-rubber may also be dissolved in some other liquid than spirits of turpentine with perhaps equal success. In various other particulars the details of the process above given may be varied without materially affecting the result. I do not therefore limit myself to these precise details; nor do I wish to confine myself to the exact proportions of the ingredients of which my composition consists, as above indicated. These may be considerably varied without materially affecting its utility. All these details and proportions are given to show the manner in which I prefer to form the compo-

sition employed by me in carrying out the process which I claim to have invented; but

. What I regard as the essential part of my invention, and desire to secure by Letters Patent, is—

1. The process of preparing the surfaces of cast-iron patterns to be molded from by coating the heated surfaces of those patterns with a composition of matter consisting of bees-wax, india-rubber, and sulphur, substantially in the manner above set forth.

2. So coating such patterns after they have been previously prepared by immersing them in dilute sulphuric acid, substantially as above described.

HANSON WRIGHT.

Witnesses:

CHAS. MASON,
EDM. F. BROWN.