(Model.) 2 Sheets—Sheet 1.

C. L. SAGE.

CASTING HOOKS INTO EYES.

No. 390,907. Patented Oct. 9, 1888.

Fig. 1.

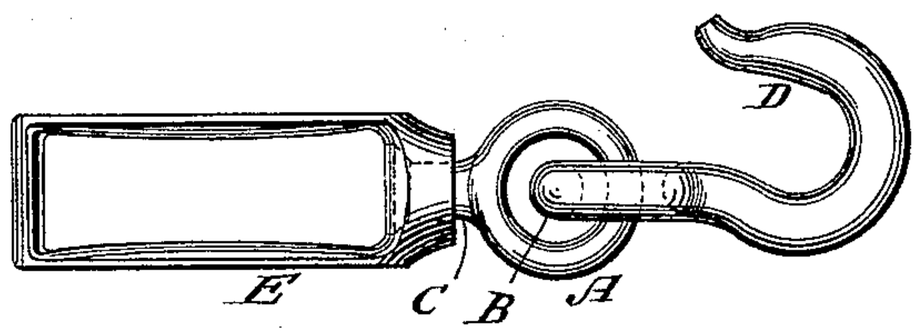


Fig. 2.

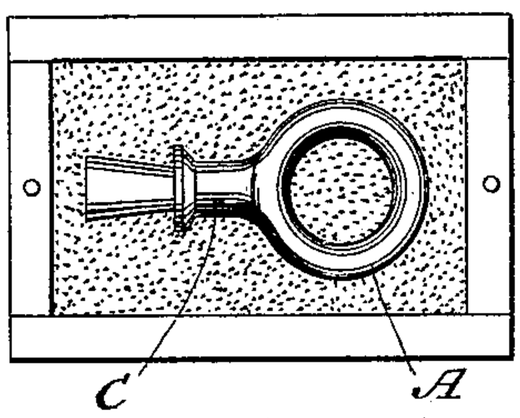


Fig. 3.

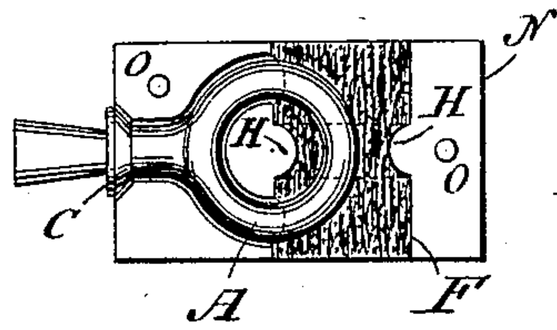


Fig. 4.

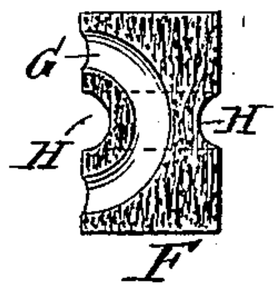


Fig. 5.

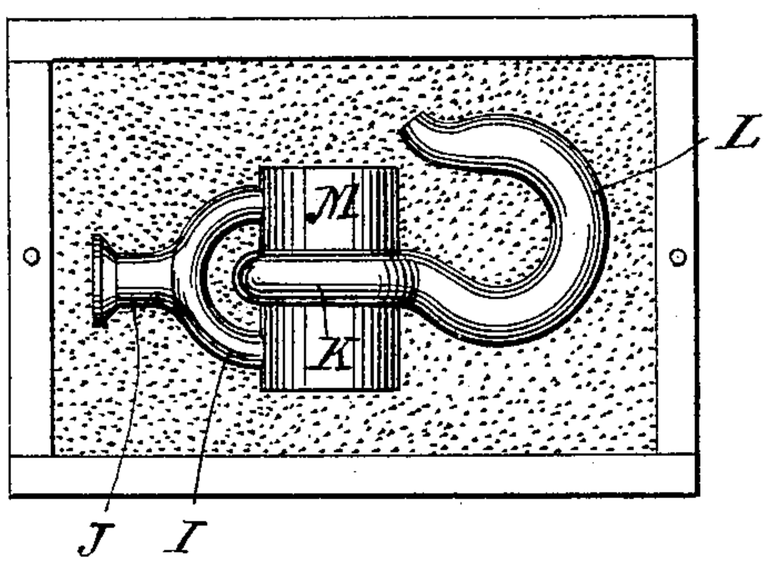


Fig. 6.

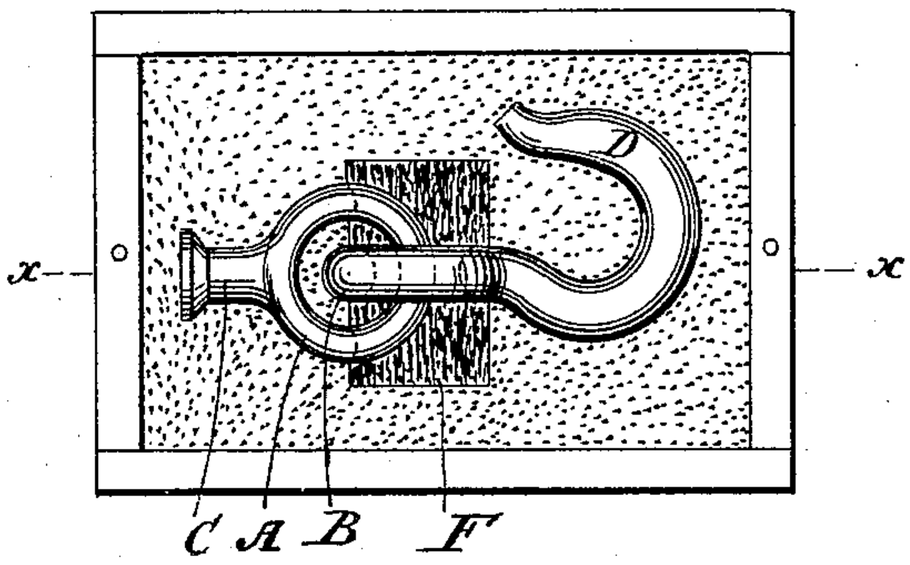
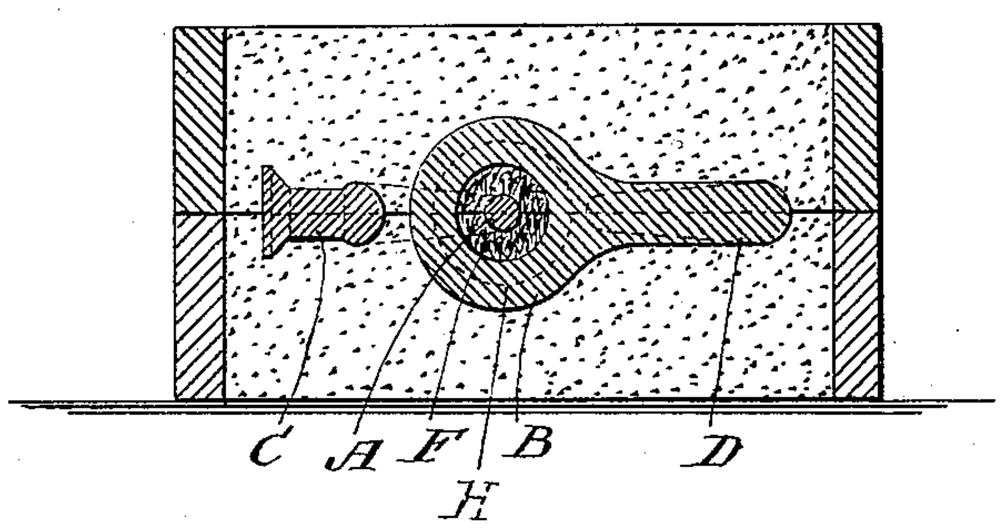


Fig. 7.



WITNESSES:

Eduard Wolff.
William Miller

INVENTOR.

Charles L. Sage.

BY Van Santvoord & Hauff.

his ATTORNEYS.

(Model.)

2 Sheets—Sheet 2.

C. L. SAGE.

CASTING HOOKS INTO EYES.

No. 390,907. Patented Oct. 9, 1888.

Fig. 8.

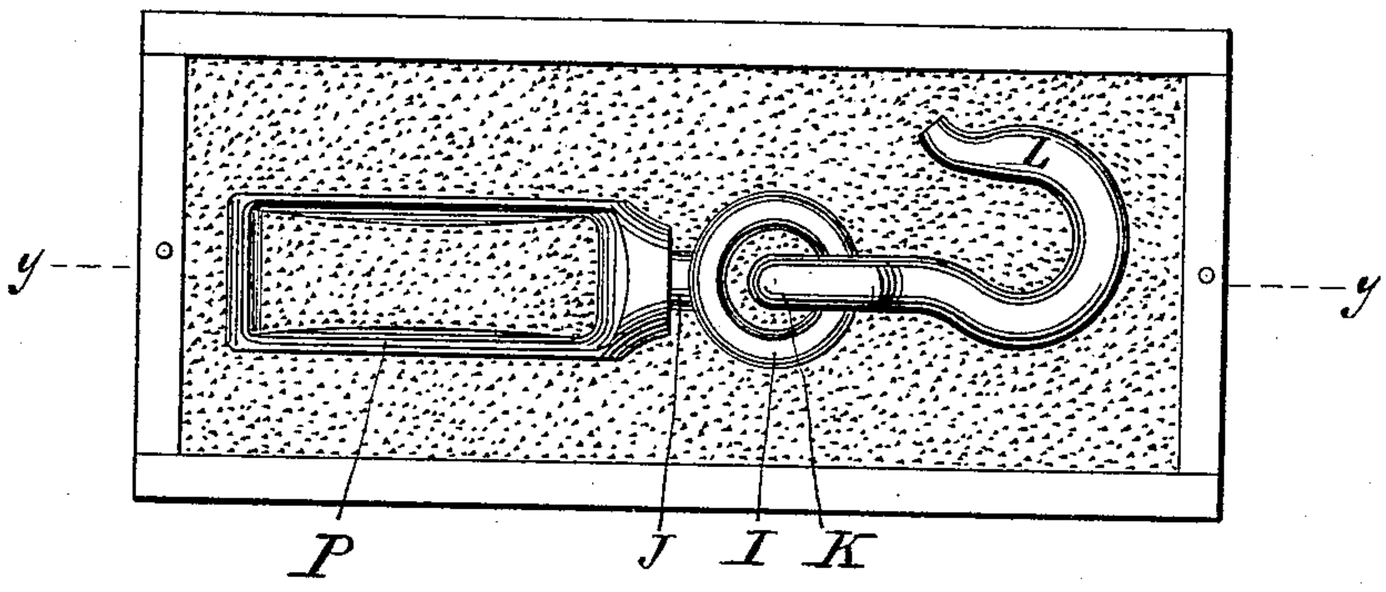


Fig. 9.

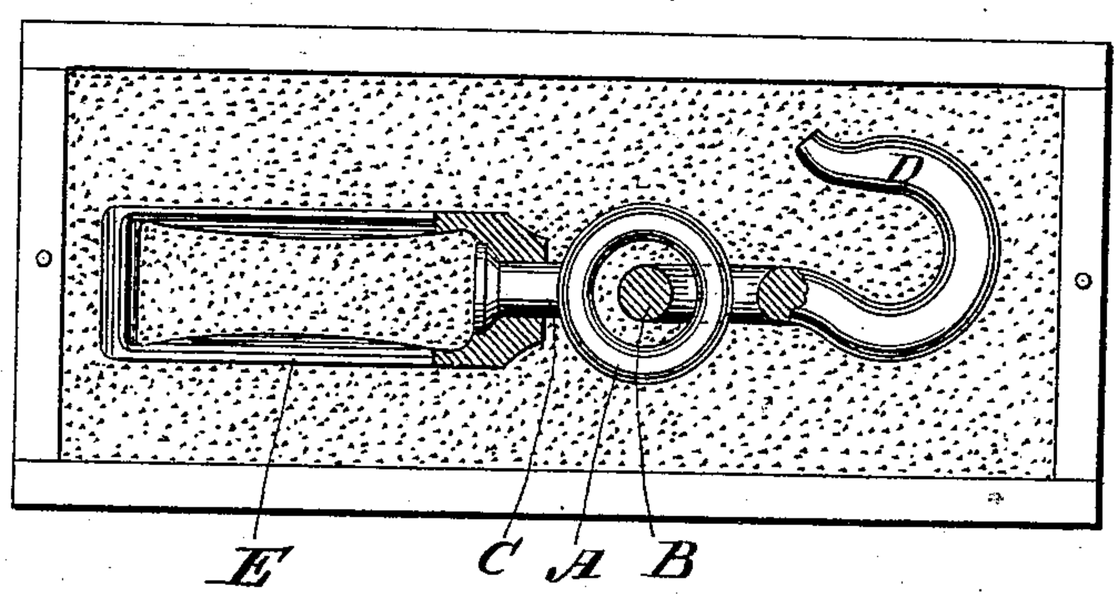
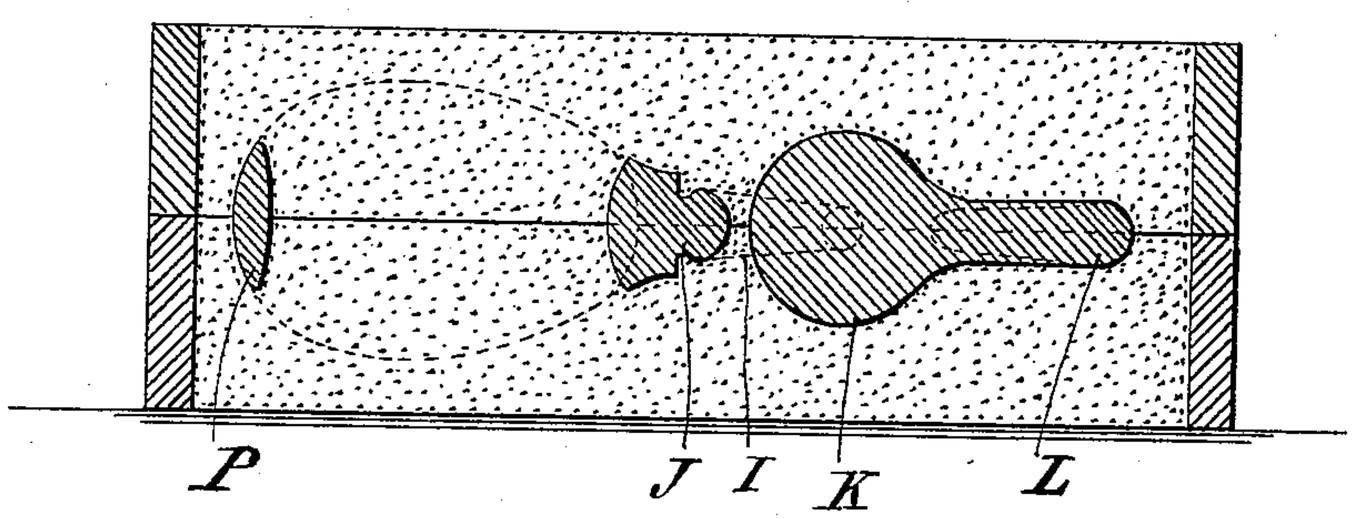


Fig. 10.



WITNESSES:

Eduard Wolff.

William Miller.

INVENTOR,

Charles L. Sage.

BY Van Santvoord & Hauff.

his ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES L. SAGE, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO WILCOX, CRITTENDEN & CO., OF SAME PLACE.

CASTING HOOKS INTO EYES.

SPECIFICATION forming part of Letters Patent No. 390,907, dated October 9, 1888.

Application filed April 5, 1888. Serial No. 269,691. (Model.)

To all whom it may concern:

Be it known that I, CHARLES L. SAGE, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Casting Hooks into the Eyes of Pulley-Blocks and other Articles, of which the following is a specification.

This invention relates to a method of forming castings by which hooks can be cast into eyes, so as to form a durable connection, as hereinafter set forth and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an eye with a hook. Fig. 2 shows a sand pattern for casting an eye. Fig. 3 shows a core-box with sand core and a cast eye. Fig. 4 shows a detail view of a sand core. Fig. 5 shows a sand pattern with cavities corresponding to the eye, the sand core, and the hook. Fig. 6 shows a sand pattern and core with hook cast into the eye. Fig. 7 is a section in the plane *x x*, Fig. 6. Fig. 8 shows a sand pattern with cavities corresponding to the eye, the hook, and an object to be cast onto the eye. Fig. 9 is a sectional view of a hook and an eye with an object attached thereto before removal from the sand pattern. Fig. 10 is a section in the plane *y y*, Fig. 8.

In the drawings, the letter A indicates an eye having a shank, C. A link, B, of a hook, D, is shown cast into the eye. The eye A, with its shank C, is cast in any ordinary way, as by a sand pattern, Fig. 2. The eye and shank are then placed into a core-box, N, made in two sections and formed so as to accommodate the eye and shank and to leave a space which, when filled with sand, will form the sand core F, Fig. 4, having the groove G, formed by part of the eye A, and a groove, H, formed by the core-box N, and which groove H is to receive the metal for the link B, as will be hereinafter shown. The parts of the core-box N are formed in any well-known way, and tongues or depressions O on one part of the core-box will serve for the engagement of depressions or tongues on the other part of the core-box.

In Fig. 5 is shown a pattern having a part, J, corresponding to the shank C, a part, I, corresponding or partly corresponding to the eye A, a part, K, corresponding to the link B, a part, L, corresponding to the hook D, and a part, M, corresponding to the sand-core F. This pattern is pressed into sand, so as to form a sand pattern or cavity, as indicated in Fig. 5. Into this cavity are placed the shank C, eye A, and sand core F, so as to leave a space which, when filled with molten metal, will form the link B and hook D. The molten metal, when poured into the sand core, will flow into the groove H in the sand core and into the cavities in the sand, so as to form the link B and hook D, as indicated in Fig. 7. When the metal has become sufficiently hard or set, the sand core and sand are removed, leaving the link and eye interlocked or linked together.

The shank C can be utilized in various ways—as, for example, in Fig. 1, where a shell, E, for a pulley-block is shown cast or secured to the shank C. In place of a pulley-block shell, any other object may be secured to the eye—such, for example, as a base-plate or attaching-plate—for securing the eye A to any suitable place—as, for example, to a rafter or other support.

To cast an object—such as a shell, E—to the eye A, a pattern is pressed into sand, as seen in Figs. 8 and 10, said pattern having the parts J I K L, corresponding to the parts J I K L of Fig. 5, and also having the form P for the shell E. The eye A, with its shank C, and the link B, with the hook D, are then placed into the proper cavities, as seen in Fig. 9, and the cavity formed by the part P, Fig. 8, being filled with molten metal, the shell E will be formed and will adhere to the eye A or its shank C, as seen in Fig. 9.

I am aware of the Letters Patent No. 47,656, and do not wish to be understood as claiming the method therein described and shown for casting an eye into the eye of a hook. It will be seen that according to my invention the previously-cast eye A is embedded in the sand core F, and the latter is thereby supported internally by the said internal eye or ring, A, which fits a semicircular passage within the core, the object of which is to sustain the core and prevent it from crumbling up when the stream of molten metal is poured upon the core for casting the eye or link B of the hook D in the eye or ring A. In this re-

spect my invention differs, essentially, from prior methods, where the sand core is unsupported internally. A sand core of about three-quarters of an inch in diameter unsupported internally will not withstand the action of a stream of molten metal poured around it and into a groove within it, as in the patent mentioned. By internally supporting the core F by the internal eye or ring, A, embedded therein, according to my invention, the core is sustained, as before stated, and will not crumble up when the eye of the hook is cast around it.

What I claim is--

1. The method, substantially as herein described, of casting hooks into eyes, which consists in first casting the eye, then forming on the eye a sand core, so that the eye constitutes an interior supporting-bar for the sand core, then forming a pattern corresponding to the hook, the sand core, and the eye, then pressing this pattern into sand to form a corresponding cavity, then placing the eye, with the sand core, into the part of the cavity corresponding to the eye and sand core, and casting the hook with its link extending round the sand core.

2. The method, substantially as herein described, of casting a hook into an eye and securing an object to said eye, which consists in casting the eye, forming on the eye a sand core, so that the eye constitutes an interior supporting-bar for the sand core, forming a pattern corresponding to the hook, the sand core, and the eye, pressing this pattern into sand to form a corresponding cavity, placing the eye, with the sand core, into the part of the cavity corresponding to the eye and sand core, casting the hook with its link extending round the sand core, and securing to the eye a suitable object—such as a pulley-block shell.

3. The method, substantially as herein described, of casting a hook into an eye and casting an object onto said eye, which consists in casting the eye, forming on the eye a sand core, so that the eye constitutes an interior supporting-bar for the sand core, forming a pattern corresponding to the hook, the sand core, and the eye, pressing this pattern into sand to form a corresponding cavity, placing the eye, with the sand core, into the part of the cavity corresponding to the eye and sand core, casting the hook with its link extending round the sand core, pressing a pattern into sand to form a cavity corresponding to the eye, the hook, and the object to be secured to said eye, placing said eye and hook into the proper part of the cavity, and finally casting the object into the part of the cavity corresponding to said object.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

CHARLES L. SAGE. [L. S.]

Witnesses:

CHAS. G. R. VINAL,

FREDERIC VINAL.