

H. JONES.  
 MEANS FOR HOLDING INSERTS IN PLACE IN MOLDS.  
 APPLICATION FILED OCT. 23, 1911.

1,016,273.

Patented Feb. 6, 1912.

3 SHEETS—SHEET 1.

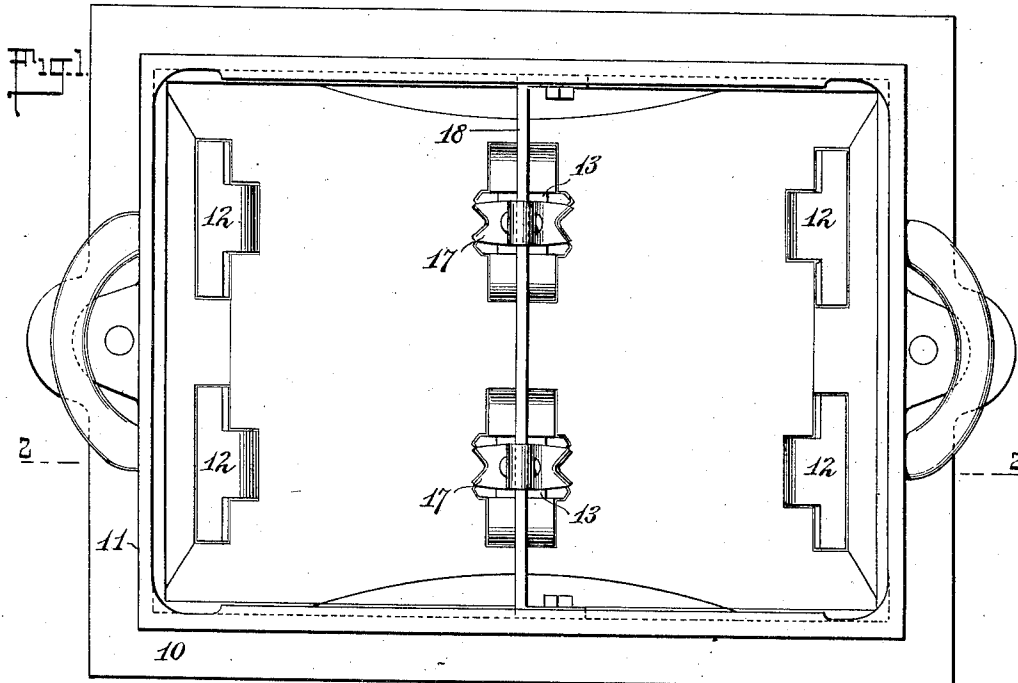
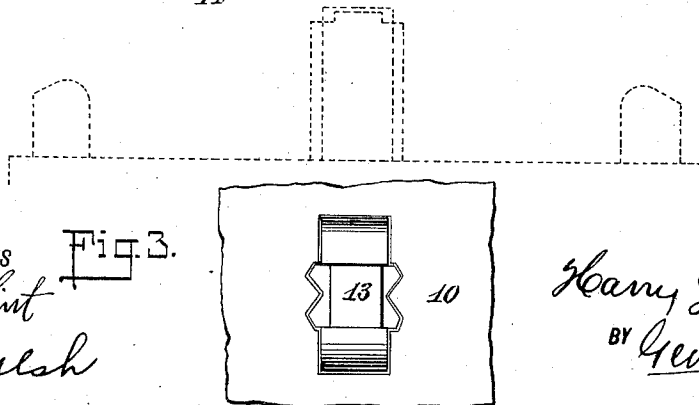
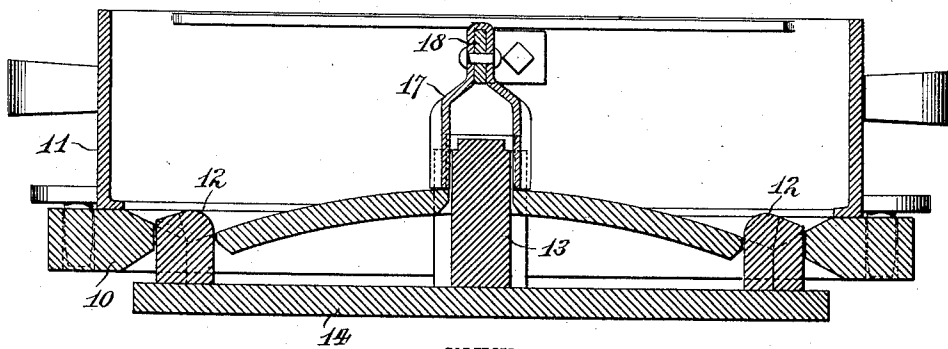


Fig. 2.



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Fig. 3.

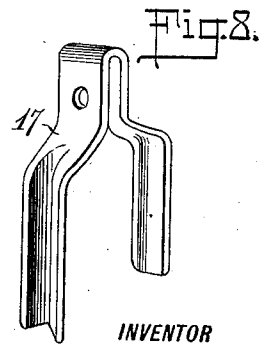
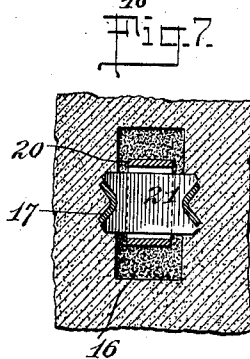
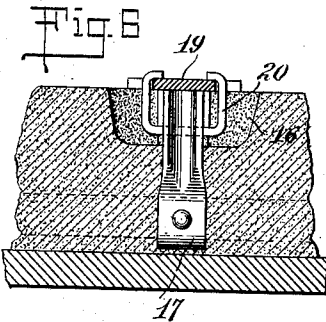
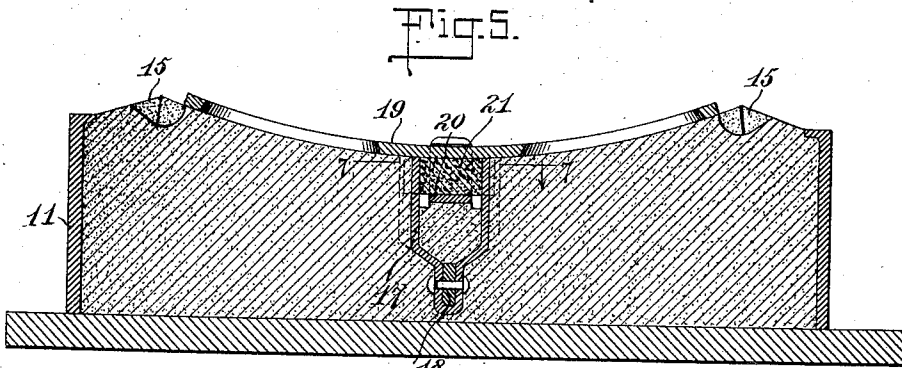
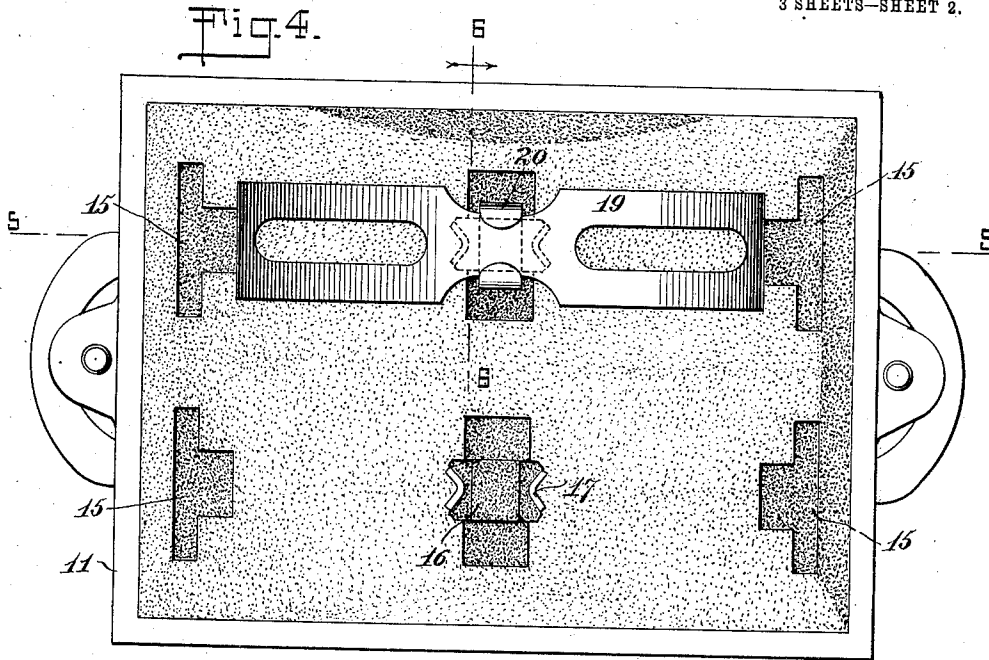
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3 SHEETS—SHEET 2.



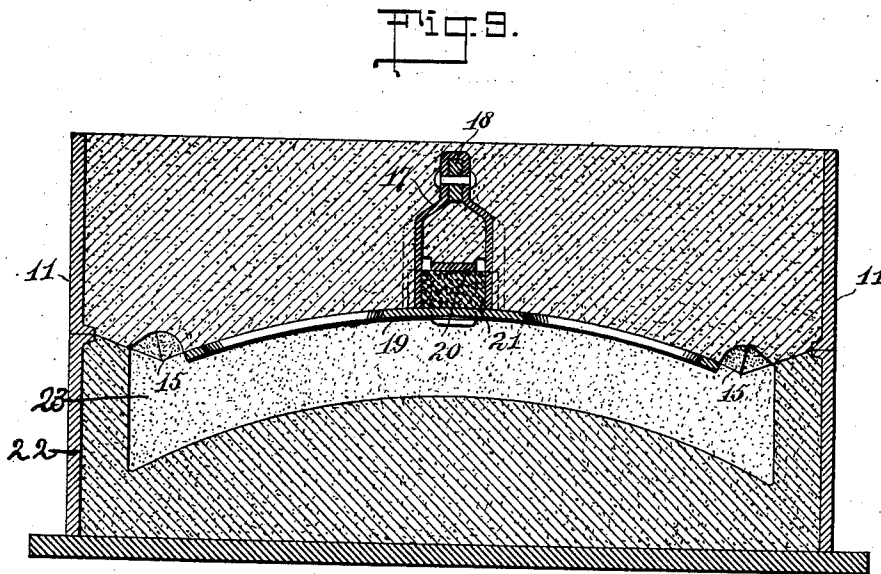
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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MEANS FOR HOLDING INSERTS IN PLACE IN MOLDS.

1,016,273.

Specification of Letters Patent.

Patented Feb. 6, 1912.

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*To all whom it may concern:*

Be it known that I, HARRY JONES, a citizen of the United States, and a resident of Suffern, in the county of Rockland and State of New York, have made and invented certain new and useful Improvements in Means for Holding Inserts in Place in Molds, of which the following is a specification.

My invention relates to the manufacture of cast metal articles having an insert, formed usually from wrought metal such as wrought iron or steel, embedded in them, and consists in improved means for holding the insert in proper position within the mold in which the article is formed while the molten metal is being poured therein.

My invention is disclosed in connection with a device for forming brake shoes, and as applied and used for the purpose of holding steel backs in place within a mold, which backs become embedded in the shoe as the same is cast, although it is equally applicable for the purpose of holding inserts to be embedded in articles of other and various kinds.

With the purpose above mentioned in view, my invention consists in the improved means for holding inserts to be embedded in cast metal articles as the latter are formed, hereinafter described and claimed, and illustrated in the drawing accompanying and forming a part of this application, and in such variations and modifications thereof as will be obvious to those skilled in the art to which my invention relates.

In the drawings wherein the preferred embodiment of my invention is illustrated: Figure 1 is a view showing a portion of a molding machine in plan with a section of a two-part flask resting thereupon and illustrating my invention as applied thereto; Fig. 2 is a view showing a section upon a vertical plane indicated by the line 2—2, Fig. 1; Fig. 3 is a view showing a detail; Fig. 4 is a view showing the upper part or cope of a sectional flask filled with sand to form part of a sectional mold, a steel back being shown as secured in position, the surface of the same shown being that in contact with the table of the molding machine as the section is formed; Fig. 5 is a view showing a section upon a vertical plane indi-

cated by the line 5—5, Fig. 4; Fig. 6 is a fragmentary view showing a section upon a vertical plane indicated by the line 6—6, Fig. 4, looking toward the right; Fig. 7 is a fragmentary view taken upon a horizontal plane indicated by the line 7—7, Fig. 5, looking down; Fig. 8 is a view showing an element or fork forming a part of my device in perspective; and Fig. 9 is a view showing a complete multiple part sectional mold for producing a brake shoe having a steel back embedded therein, the mold being equipped with my improved means for holding the steel back for the shoe in place.

Referring to the drawings, the reference numeral 10 designates the table of a molding machine, upon which the cope 11 of a sectional flask is placed, preparatory to filling the same with sand to form one part of a sectional mold in which a brake shoe or other article is formed, my invention being disclosed as used in connection with a mold for producing brake shoes, although it is capable of use in other arts and in the manufacture of other devices and therefore not limited in its application to the specific art referred to.

The upper surface of the table 10 determines the contour of the lower face of the upper portion of the mold after the cope 11 has been filled with sand and properly rammed, and 12, 13 are blocks supported from a reciprocating support 14, which is a part of the molding machine, the blocks being movable through openings formed in the table 10, said blocks being in their upper position illustrated in Fig. 2, while the cope 11 is being filled with sand, after which they are lowered preparatory to removing the upper part of the mold thus formed from the table of the molding machine. The purpose of these blocks is to form recesses 15, 16 in the lower surface of the sand within the cope, the recesses 15 providing projecting abutments upon the back of a brake shoe, and the recess 16 providing a lug by means of which the shoe is secured to a brake head in the specific embodiment of my invention illustrated.

The reference numeral 17 indicates a metallic supporting member embedded in the sand and serves to support the insert to be embedded in the article, this support being shown as in the form of a fork having de-

pending sides or arms V-shaped in cross-section, and preferably secured to a cross-bar 18 extending across, and the ends of which are supported from the sides of the cope, as shown in Figs. 1 and 2, although it will be understood that said supporting member may be supported entirely and solely by the sand in which it is embedded.

The location of the supporting member 17, in the specific embodiment of my invention illustrated, is such that the lower ends thereof straddle the upper end of the block 13, and lie in V-shaped grooves formed in the sides thereof, as best shown in Fig. 2, so that the lower ends of said members lie in side walls of the central recess 16 in the finished upper portion of the sectional mold, as shown in Fig. 4.

The insert to be supported within a mold and embedded in the article produced is shown as comprising a steel back 19 which becomes embedded in the back of a brake shoe, and a stirrup or support 20 which becomes embedded in the lug formed as molten metal flows into the recess 16, as the shoe is formed, the insert in the embodiment of my invention illustrated being shown as made up of separate parts, although it may obviously be made integral, the element 20 in such case taking the form of a loop of metal projecting from the steel back and formed therewith from a single piece of metal.

The metallic insert above referred to is supported from, or by, the supporting member or fork 17 through or by means of an intermediate supporting element 21, which supporting element or core is commonly made from a non-metallic composition such as is used in the manufacture of cores in foundry practice, although it may be made from metal, or may comprise a metallic center with a non-metallic coating or mantle to afford protection from the heat of the molten metal, in case such protection is needed; in the embodiment of my invention illustrated it is shown in the form of a block having V-shaped slots at its ends, which block is held in place by and extends between the lower ends of the fork and through the stirrup 20, as shown, whereby in addition to acting as a supporting element it performs the further function of forming a core to prevent the molten metal from filling the loop 20, and at the same time provides an opening through the lug for receiving a key used in securing the shoe to the brake head. The insert to be embedded in the article produced is thus supported within the mold by the supporting member or fork 17 through the supporting element or block 21, the fork itself being protected from the action of the molten metal as it is poured into the mold by the sand in which it is embedded, and by the

supporting block 21, the molten metal being thus prevented from coming into contact with the fork.

Fig. 9 shows a complete multiple part sectional mold of a form or type suitable for producing a brake shoe, the same being equipped with a form of my invention suitable for holding a steel back in place within the mold, so that the same becomes embedded in the back of the shoe as the latter is cast. With the cope above referred to, is employed a novel or drag 22, the two parts inclosing a cavity 23 into which molten metal is poured, as will be understood.

In making use of my invention for the purpose of producing brake shoes having a steel back and a securing lug embedded in them, the cope 11 of a two-part flask, the same being provided with a cross-bar 18 and a fork 17 as explained, is placed upon the table 10 as shown in Fig. 2, the relative arrangement of the parts being such that the lower ends of the fork fit in slots in the sides of the middle block 13. The cope is next filled with sand, and the same compacted by ramming or otherwise, whereupon the blocks 12 and 13 are lowered into a position below the upper surface of the table 10. The upper part of the mold, thus formed, is next lifted from the table and the lower surface thereof exposed, whereupon a steel back 19 with a non-metallic block 21 extending through its stirrup 20 is taken, and the block forced between the lower ends of the fork 17 to bring the steel back into contact with the lower surface of the sand within the cope. The lower portion of Fig. 4 shows the under surface of the mold as formed by the molding machine, the upper portion thereof showing a steel back secured in place.

While I have referred to the element 11, and the sand contained therein, as forming the upper part of the sectional mold in which the shoe is formed, it will be understood that this is not essential, and that the same may be so placed as to form the lower or other portion of the mold, and also that the insert to be embedded in the article to be produced may be supported either in contact with or spaced from the inner surface of the mold. Also, while I have referred to the mold as formed from sand, it will be understood that this term is to be understood as applying to and comprehending such materials as are commonly known and used in foundry practice for the purpose of forming molds.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. The combination with a foundry flask within which a mold is formed, of a supporting member embedded in the sand in said flask; and an element supported by

said supporting member and adapted to support an insert in position within the mold to be embedded in the article produced during the process of casting, said supporting member and insert being independent of one another.

2. The combination with a foundry flask within which a mold is formed, of a supporting member supported from said flask and embedded in the sand therein; and an element supported by said supporting member and adapted to support an insert in position within the mold to be embedded in the article produced during the process of casting, said supporting member and insert being independent of one another.

3. In combination, a section of a multiple part mold having a supporting member embedded therein and which member terminates adjacent a surface of said section with which molten metal contacts when the mold is used; and an element associated with said supporting member and adapted to hold an insert in position to be embedded in the article formed in the completed mold.

4. The combination with a foundry flask within which a mold is formed, of a metallic supporting member embedded in the sand in said flask; and a non-metallic element supported by said supporting member and adapted to support a metallic insert in position within the mold to be embedded in the article produced during the process of casting, said supporting member and insert being independent of one another.

5. The combination with a foundry flask within which a mold is formed, of a metallic supporting member supported from said flask and embedded in the sand therein; and a non-metallic element supported by said supporting member and adapted to support a metallic insert in position within the mold to be embedded in the article produced during the process of casting, said supporting member and insert being independent of one another.

6. The combination with a foundry flask within which a mold is formed, of a cross-bar extending across and the ends of which are supported from the walls of said flask; a metallic supporting member attached to said cross-bar and having depending arms; and a non-metallic block held in place between said arms and adapted to hold a metallic insert in position within the mold to be embedded in the article produced during the process of casting.

7. The combination with a foundry flask within which a mold is formed, of a cross-bar extending across and the ends of which are secured to the walls of said flask; a metallic supporting member attached to said cross-bar and having depending arms V-shaped in cross-section; and a non-metallic block having a V-shaped groove in each its

ends designed to fit and extend between said arms and adapted to hold a metallic insert in position within the mold to be embedded in the article produced during the process of casting.

8. A section of a multiple part mold, the same comprising a flask section filled with sand; a metallic supporting member embedded in the sand and terminating adjacent a surface of said section with which molten metal contacts when the mold is used; and a non-metallic element associated with said supporting member and adapted to hold a metallic insert in position to be embedded in the article formed in the completed mold.

9. A section of a multiple part mold, the same comprising a flask section filled with sand; a metallic supporting member supported from said flask section and embedded in the sand and terminating adjacent a surface of said section with which molten metal contacts when the mold is used; and a non-metallic element associated with said supporting member and adapted to hold a metallic insert in position to be embedded in the article formed in the complete mold.

10. A section of a multiple part mold, the same comprising a flask section filled with sand and having a recess into which molten metal may flow; a metallic supporting member supported from said flask section and embedded in the sand and extending into said recess; and a non-metallic element located in said recess and associated with said supporting member and adapted to hold a metallic insert in position to be embedded in the article formed in the complete mold.

11. A section of a multiple part mold, the same comprising a flask section filled with sand and having a recess into which molten metal may flow; a metallic supporting member supported from said flask section and embedded in the sand and comprising a fork member the sides or arms of which extend into said recess and lie in opposite side walls thereof; and a non-metallic element extending across said recess and the ends of which are held by said arms, and which member is adapted to hold a metallic insert in position to be embedded in the article formed in the completed mold.

12. In combination, a section of a multiple part foundry flask; a table upon which said section may rest; a supporting member having depending arms supported from said flask section and terminating adjacent said table; and a recess forming block located between the lower ends of said arms.

13. In combination, a section of a multiple part foundry flask; a table upon which said section may rest; a cross-bar the ends of which are supported from the walls of said flask; a supporting member supported from said cross-bar and having depending arms V-shaped in cross-section and which termi-

nate adjacent said table; and a recess forming block having V-shaped grooves located between the lower ends of said arms.

14. In combination, a section of a multiple part foundry flask; a table upon which said section may rest, the same being provided with an opening; a removable recess forming block extending from beneath said table upwardly through said opening; and a supporting member having depending arms supported from said flask section and terminating adjacent said table, the relation of the parts being such that said block may lie between the lower ends of said arms.

15. In combination, a section of a multiple part foundry flask; a table upon which said

section may rest, the same being provided with an opening; a reciprocating recess forming block extending through said opening; means for reciprocating said block; and a supporting member having depending arms supported from said flask section and terminating adjacent said table, the relation of the parts being such that said block may lie between the lower ends of said arms.

Signed at Suffern in the county of Rockland and State of New York, this 17th day of October A. D. 1911.

HARRY JONES.

Witnesses:

H. P. WINGERT,

F. J. SEYMOUR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."