

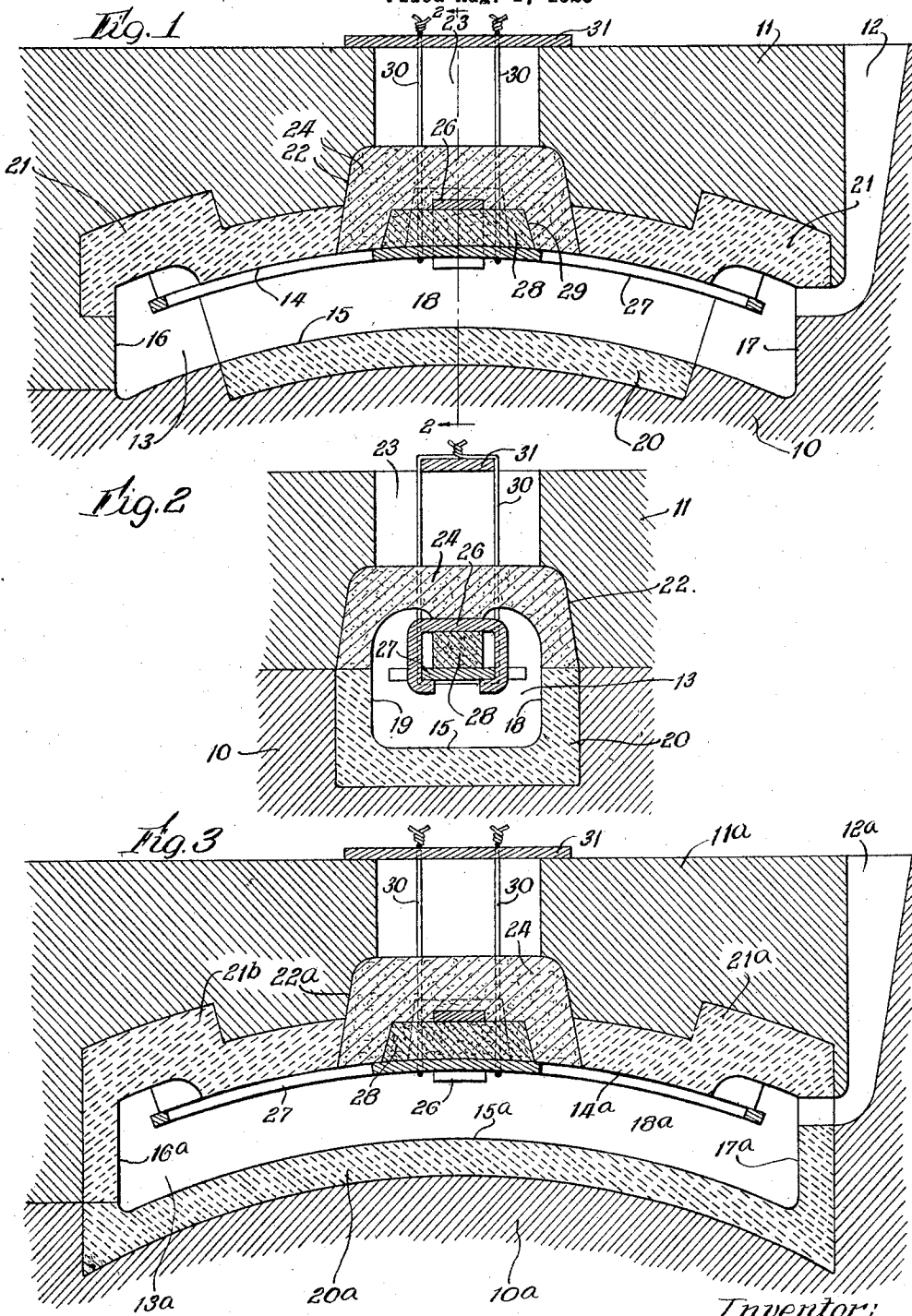
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J. S. THOMPSON

BRAKE SHOE MOLD

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UNITED STATES PATENT OFFICE.

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BRAKE-SHOE MOLD.

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To all whom it may concern:

Be it known that I, JAMES S. THOMPSON, a citizen of the United States, residing at Pelham, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Brake-Shoe Molds, of which the following is a specification.

This invention relates to the manufacture of brake shoes and more particularly to the mold in which the brake shoe is cast, and its object is broadly to enable a brake shoe to be cast in a permanent mold as well as it can be cast in a sand mold with a saving of time and a reduction in cost.

A further object of my invention is to provide a permanent mold of the character described having improved means for permitting the gases to escape from the mold cavity during the casting operation.

A still further object of my invention is to provide improved means for supporting or securing in place in the mold cavity the parts which are to be embedded in the shoe casting.

Other objects of my invention will become apparent as the detail description progresses, reference being had to the accompanying drawing showing a selected embodiment of the invention and in which—

Fig. 1 is a central longitudinal section through a permanent mold embodying the novel features of my invention, the mold being adapted to produce a brake shoe of approved type with an integral composite wearing face.

Fig. 2 is a transverse section taken on line 2—2 of Fig. 1, and

Fig. 3 is a central longitudinal section through a permanent mold embodying the novel features of my invention but being adapted to produce brake shoes of substantially uniform texture.

The mold shown in Figs. 1 and 2 comprises a drag 10 and a cope 11 having a pouring gate 12 at one end. The mold cavity 13 is formed partly in the drag and partly in the cope and it has a top wall 14, a bottom wall 15, end walls 16 and 17 and side walls 18 and 19. A refractory section 20 is seated snugly in the bottom wall of the mold cavity and refractory sections 21 are seated in the top wall of the mold cavity to prevent the metal of the mold from hav-

ing a chilling effect upon the casting at the places where these refractory sections constitute wall surfaces of the mold cavity. The refractory section 20 is of less length than the length of the mold cavity and end portions of the bottom wall of the mold cavity as well as the end walls 16 and 17 of the mold cavity are left bare, as shown, so that the hot metal of the casting will contact directly with the metal of the mold to produce a shoe having chilled end portions. This type of mold is constructed for casting an approved type of brake shoe with an integral composite wearing face having chilled end portions and an intermediate unchilled portion.

The cope 11 is provided with a recess 22 and an opening 23 which extends through the top of the cope. The side walls of the recess are tapered and the side walls of the opening are substantially straight. A sand plug is adapted to be inserted in the recess from the inner side of the cope and it is shaped to fit snugly in the recess. The sand plug is provided with a recess 29 to form the attaching lug of the brake shoe and this recess is suitably shaped to receive the steel lug 26 and the sand core 28 and to provide for the hot metal to run up about the lug for embedding it with the body of the shoe to form the attaching lug. The reinforcing back 27 is also engaged with the lug 26 and this back and lug and sand core are held in place against the plug and with the reinforcing back against the top wall of the mold cavity by wires 30 which engage the parts to be embedded in the shoe and pass up through the sand plug and are engaged with a cross bar 31 extending across the opening 23 in the cope. In practice it is convenient to assemble the reinforcing back, the core and the lug with the sand plug as a unit and then arrange them in their proper position in the mold, as shown in Fig. 1, after which the wires may be engaged with the cross bar 31. The wires may be passed through the sand plug before or after the unit is inserted in the mold. The sand plug is of sufficient size to permit the attaching lug of the shoe to be cast therein. After the sand plug and its associated parts have been secured in the cope the latter may be arranged in operative position on the drag and the mold is then

ready for pouring. The gases produced during the casting operation are permitted to escape through the sand plug and the opening 23.

5 While it is customary to provide a baked sand core for forming the opening in the attaching lug of the shoe, and while I contemplate using a relatively non-porous core for this purpose, it is to be distinctly understood that I may employ a core of any suitable shape and of any suitable material without departing from the spirit of my invention.

15 In Fig. 3, I have applied my invention to a permanent mold which permits a brake shoe to be cast having a substantially uniform texture throughout the body of the shoe. The mold comprises a drag 10^a, and a cope 11^a. A pouring gate 12^a is shown 20 located at one end of the mold and the mold has a mold cavity 13^a formed therein. This mold is adapted to produce a shoe of substantially the same shape as that produced by the mold shown in Figs. 1 and 2. 25 The cope 11^a is adapted to receive a steel attaching lug 26, a steel reinforcing back 27 and a sand core 28, these parts being identical with the similarly designated parts of Figs. 1 and 2. The mold shown in 30 Fig. 3 is also provided with a porous plug 24 seated in a recess 22^a formed in the cope 11^a, the porous plug 24 being identical with the porous plug 24 of Figs. 1 and 2. And wire loops 30 suspended from a bar 31 are 35 also employed in the mold of Fig. 3 to secure the reinforcing unit and the porous plug 24 in their proper positions in the cope member 11^a. However, the mold of Fig. 3 differs from the mold of Figs. 1 and 2 in that the walls of the mold cavity 40 13^a are formed entirely of refractory sections forming parts of the mold, together with the porous plug 24 in which the attaching lug is formed. The cope member 45 10^a is provided with a refractory section 20^a which forms the bottom wall 15^a, the end wall 17^a, and the side walls 18^a and 19^a (not shown) of the mold cavity 13^a. The cope member 11^a is provided with refractory sections 21^a and 21^b. The refractory section 21^a forms a portion of the 50 top wall 14^a of the mold cavity 13^a, and the refractory section 21^b forms another portion of the top wall 14^a and also forms 55 the end wall 16^a of the cavity. This construction prevents the hot metal from coming into contact with the metal of the mold and the brake shoe produced in the mold is of substantially uniform texture.

60 My invention can be employed for making castings other than brake shoes and I consider myself entitled to make all such changes in the form, construction and arrangement of parts as may be necessary or 65 desirable for this purpose and for making

different kinds, shapes and sizes of brake shoes, which fairly fall within the scope of the following claims.

I claim—

1. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and means extending through said porous plug and through said opening for securing in place in the mold cavity the parts to be embedded in the casting. 70 75

2. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and wires embedded in the porous plug for securing in place in the cavity the parts to be embedded in the casting. 80 85

3. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and means extending through the porous plug for securing in place in the cavity the parts to be embedded in the casting. 90 95

4. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and means for securing in proper positions the porous plug and the parts to be embedded in the casting. 100 105

5. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and common means for securing the porous plug in the recess and for securing in the mold cavity the parts to be embedded in the casting. 110 115

6. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity and having an opening communicating with said recess, a porous plug seated in said recess, and supporting means associated with said porous plug for securing in the cavity the parts to be embedded in the casting, said supporting means comprising a looped wire having its legs extending through said porous plug, and a transverse supporting bar engaging the outer end of the loop. 120 125

7. A permanent mold for making cast- 130

ings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity, a porous plug adapted to be inserted in said recess from the inner side of the cope and to be seated in said recess and means extending through said porous plug for securing in place in the cavity the parts to be embedded in the casting.

8. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a recess communicating with the mold cavity, a porous plug adapted to be inserted in said recess from the inner side of the cope and to be seated in said recess, and common means extending through said porous plug for securing it in the recess and for securing in the cavity the parts to be embedded in the casting.

9. A mold for casting a brake shoe, and comprising a drag and a cope having a mold cavity therein, said cope having a recess therein communicating with the mold cavity, a porous plug adapted to be inserted in said recess from the inner side of the cope and to be seated in said recess, said porous plug having a recess therein adapted to receive a relatively non-porous core for forming the opening in the attaching lug of the shoe, and common means extending through said porous plug for securing it in said recess in the cope and for securing in said recess in the porous plug a part to be embedded in the shoe casting.

10. A mold for casting a brake shoe, and comprising a drag and a cope having a mold

cavity therein, said cope having a recess therein communicating with the mold cavity, a porous plug adapted to be inserted in said recess from the inner side of the cope and to be seated in said recess, said porous plug having a recess therein adapted to receive a relatively non-porous core for forming the opening in the attaching lug of the shoe, and means extending through said porous plug for securing in place the parts to be embedded in the shoe casting.

11. A mold for casting a brake shoe, and comprising a drag and a cope having a mold cavity therein, said cope having a recess therein communicating with the mold cavity and having an opening communicating with said recess, a porous plug adapted to be inserted in said recess from the inner side of the cope and to be seated in said recess, said porous plug having a recess therein adapted to receive a core for forming the opening in the attaching lug of the shoe, and common means extending through said plug for securing it in said recess in the cope, for securing said core in the recess in the plug and for securing in the cavity the parts to be embedded in the shoe casting.

12. A permanent mold for making castings, and comprising a drag and a cope having a mold cavity therein, said cope having a tapered recess communicating with the mold cavity and an opening extending from said recess to the top of the cope, and a tapered porous plug adapted to be inserted in said recess from the inner side of the cope.

JAMES S. THOMPSON.