F. HACHMANN.

CASTING MOLD.

APPLICATION FILED JULY 5, 1918. RENEWED MAY 15, 1920.

1,356,715. **Patented Oct. 26, 1920.**

Fig. 1.

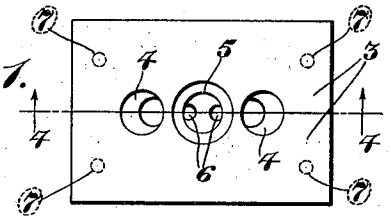


Fig. 2.

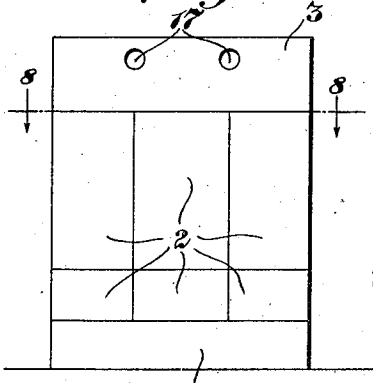


Fig. 3.

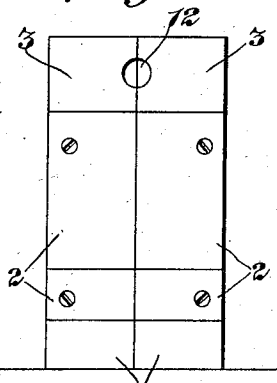


Fig. 4.

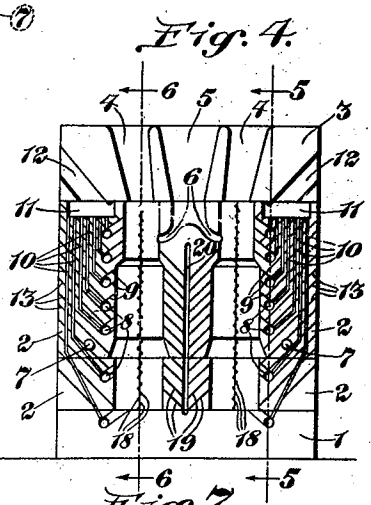


Fig. 5.

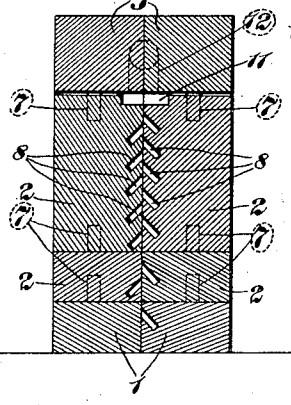


Fig. 6.

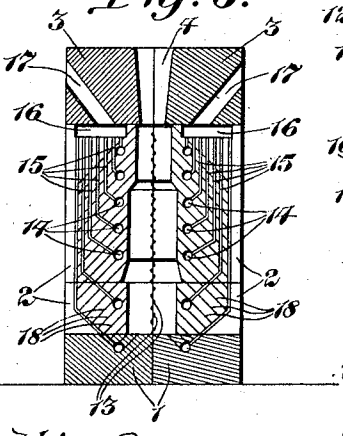


Fig. 7.

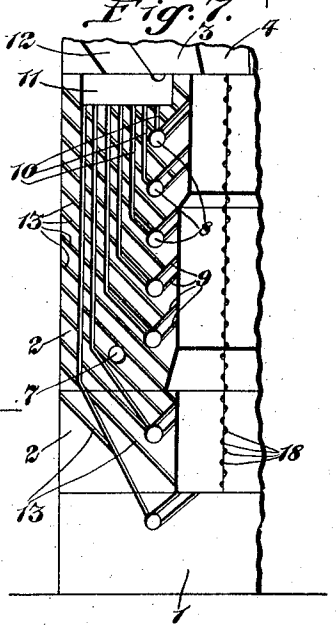
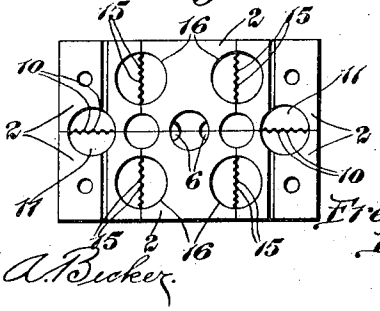


Fig. 8.



Attest.

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His Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK HACHMANN, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NATIONAL METAL DIE MOLD COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

CASTING-MOLD.

1,356,715. Specification of Letters Patent. Patented Oct. 26, 1920.

Application filed July 5, 1918, Serial No. 243,279. Renewed May 15, 1920. Serial No. 381,744.

To all whom it may concern:

Be it known that I, FREDERICK HACHMANN, a citizen of the United States, residing at the city of St. Louis and State of Missouri, have invented a new and useful Casting-Mold, of which the following is a specification.

This invention relates to casting molds.

An object of the invention is to provide a casting mold having a mold cavity adapted to form a casting and having one or more pockets or chambers adapted to contain a substance which, when subjected to heat of the mold, will be converted into a volatile carbonaceous matter, and passages for conducting the carbonaceous matter into the mold cavity where it will adhere to the wall of the cavity and prevent adhesion of the casting.

Another object is to provide an improved casting mold having novel and efficient means for producing and conducting to the wall of the mold cavity a volatile carbonaceous matter that will prevent adhesion of the casting.

Other objects will appear from the following description.

Figure 1 is a plan view of a mold constructed in accordance with my invention.

Fig. 2 is a side elevation.

Fig. 3 is an elevation looking toward another side of the mold.

Fig. 4 is an elevation of a portion of the mold viewed along the line 4—4 of Fig. 1.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Fig. 6 is a sectional view on the line 6—6 of Fig. 4.

Fig. 7 is an enlargement of a portion of the elevation shown in Fig. 4.

Fig. 8 is a view looking along the line 8—8 of Fig. 2.

The mold body is composed of adjacently disposed sections and comprises bottom members 1 which support the sections forming the mold cavity; members 2 having matching recesses which, when said members are properly placed, form a mold cavity; and a top composed of members 3 removably supported by the members 2. In the particular embodiment illustrated the mold body has two cavities adapted to form castings and the top has riser openings 4. The top also has an opening 5 into which the material to be cast is poured and from which the material is conducted to the mold cavities through gates or passages 6. The several members composing the mold body are held together by pins 7 on certain of the members engaging in holes in the other members.

The members 2 forming the mold cavities are provided with one or more pockets or chambers 8 adapted to contain a lubricant or other substance which, when subjected to the heat of the mold, will form a volatile carbonaceous matter to be applied to the wall of the mold cavity and thereby prevent adhesion of the casting. From each of the pockets or chambers 8 one or more upwardly inclined passages 9 is provided to the mold cavity for conducting the volatile carbonaceous matter to the mold cavity for the purpose stated. Each of the pockets or chambers 8 is also provided with an inlet or supply passage 10 communicating with a receiving chamber 11 having an inlet passage 12 through which the lubricant or other substance may be delivered into the chamber 11. It will be noted that the passages 9 are upwardly inclined, so that the points at which they open into the mold cavity are considerably above the walls of the pockets 8. This inclination of the passages 9 prevents the lubricant or other substance in the pockets 8 from passing or flowing through said passages, while at the same time permitting the volatile carbonaceous matter to rise from the pockets and enter the mold cavity.

In order to insure escape of the gases from the mold cavity during the casting operation, a number of passages 13 are provided, the same communicating with the mold cavity either directly or through the passages 9 as will be understood by reference to Fig. 7.

In addition to the pockets 8 another series of pockets 14 are provided in the mold body, the same having supply passages 15 communicating with a receiving chamber 16 adapted to receive oil or other material through passages 17. In this instance a plurality of passages 18 open from the passages 15 into the mold cavity. The passages 18, illustrated diagrammatically in Fig. 6, extend obliquely upwardly from the passages 15; and wherever the said passages 15 intersect the pockets 14, the inner ends of such intersecting passages are considerably above

the level of the substance in said pockets, so that it is impossible for such substance to flow or pass into the mold cavity. However the volatile carbonaceous matter, which is the result of the substance in the pockets being heated, is free to pass into the mold cavity where it adheres to the wall of said cavity and prevents the adhesion of the casting.

It will be noted that it is impossible for the lubricant or other material that might be used to pass into the mold. This is a desirable result as I have found that in many instances where the lubricant passes into the mold cavity spots and imperfections on the casting are the result; whereas, when volatile carbonaceous matter alone is delivered into the mold cavity no such spots or imperfections result.

As shown in Fig. 4 a number of venting passages 19 from each mold cavity open into an outlet passage 20 in order to give further assurance that the gases may escape from the mold cavity during the casting operation.

It is apparent that the specific construction and arrangement illustrated may be varied widely without departure from the principle of the invention which consists in supplying a volatile carbonaceous matter to the wall of the mold cavity and preventing the material from which such carbonaceous matter is formed from entering the mold cavity. The venting passages constitute an additional feature of advantage so that the mold is of high efficiency insuring the escape of the gases from below the level of the material being cast during the casting operation.

I claim:

1. A casting mold, comprising a mold body having a cavity adapted to form a casting, a plurality of pockets formed in said mold body adapted to contain a substance for forming volatile carbonaceous matter, and passages for conducting the carbonaceous matter from said pockets to the mold cavity.

2. A casting mold, comprising a mold body composed of separable sections arranged in position to form a mold cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, pockets arranged to contain a substance for forming volatile carbonaceous matter, passages for conducting volatile carbonaceous matter from said pockets to the mold cavity, and venting passages through the mold wall adapted to insure the escape of the gases from the mold cavity during the casting operation.

3. A casting mold, comprising a mold body composed of separable sections arranged in position to form a mold cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, pockets arranged to contain a lubricant for forming volatile carbonaceous matter, passages for conducting the volatile carbonaceous matter from said pockets to the mold cavity, said passages being inclined upwardly from said pockets to prevent said lubricant from flowing from said pockets into the mold cavity, and venting passages through the mold wall adapted to insure the escape of the gases from the mold cavity during the casting operation.

4. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in the mold body adapted to contain a substance to form volatile carbonaceous matter, passages for conducting said substance into said pockets, and passages for conducting the volatile carbonaceous matter formed by said substance from said pockets into the mold cavity.

5. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in said body adapted to contain a substance to form volatile carbonaceous matter, passages for conducting the substance into said pockets, and passages from said pockets for conducting the volatile carbonaceous matter from said pockets into the mold cavity, said last-named passages being inclined upwardly from said pockets whereby the substance in said pockets is prevented from flowing into the mold cavity while the volatile carbonaceous matter is permitted to pass into the mold cavity.

6. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in said body adapted to contain a substance to form volatile carbonaceous matter, passages for conducting the substance into said pockets, passages from said pockets for conducting the volatile carbonaceous matter from said pockets into the mold cavity, said last-named passages being inclined upwardly from said pockets whereby the substance in said pockets is prevented from flowing into the mold cavity while the volatile carbonaceous matter is permitted to pass into the mold cavity, and venting passages through the mold wall adapted to insure the escape of the gases from said cavity during the casting operation.

7. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in the mold body adapted to contain a substance that will form volatile carbonaceous matter, passages for conducting the substance into said pockets, passages for conducting the volatile carbonaceous matter from said pockets into the mold cavity, venting passages communicating with said last-named passages for con-

ducting the gases from the mold cavity during the casting operation, and a series of additional venting passages adapted to insure the escape of the gases from the mold cavity during the casting operation.

8. A casting mold, comprising a mold body having a cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, pockets in the mold body adapted to contain a substance to form volatile carbonaceous matter, passages extending obliquely upwardly and inwardly from said pockets for conducting the volatile carbonaceous matter into the mold cavity, a series of downwardly inclined venting passages from each mold cavity, and a passage for receiving the gases from the venting passages whereby the gases are discharged during the casting operation.

9. A casting mold, comprising a mold body composed of a series of separable sections arranged to form a mold cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, a series of pockets adapted to contain a substance to form volatile carbonaceous matter, passages from said pockets for conducting the volatile carbonaceous matter into the mold cavity, venting passages intersecting said passages adapted to insure escape of the gases from the mold cavity during the casting operation, and a series of additional venting passages from the mold cavity for conducting the gases therefrom during the casting operation.

10. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in said body, upwardly inclined passages from said pockets for conducting volatile carbonaceous matter from said pockets into the mold cavity, venting passages intersecting said first-named passages adapted to insure escape of the gases from the mold cavity during the casting operation, a discharge passage in the mold body for discharging gases, and a series of venting passages from the mold cavity opening into said discharge passage and adapted to insure escape of the gases from the mold cavity during the casting operation.

11. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in the mold body adapted to contain a substance to form volatile carbonaceous matter, passages from said pockets to the mold cavity for conducting the volatile carbonaceous matter from said pockets to the mold cavity, said passages being inclined upwardly from said pockets to prevent the substance in said pockets from flowing therefrom into the mold cavity, a receiving chamber, a passage for conducting said substance into the receiving chamber, and passages from said receiving chamber to said pockets respectively for conducting said substance from said receiving chamber to said pockets.

12. A casting mold, comprising a mold body having a cavity adapted to form a casting, pockets in the mold body adapted to contain a substance to form volatile carbonaceous matter, passages from said pockets to the mold cavity for conducting the volatile carbonaceous matter from said pockets to the mold cavity, said passages being inclined upwardly from said pockets to prevent the substance in said pockets from flowing therefrom into the mold cavity, a receiving chamber, a passage for conducting said substance into the receiving chamber, passages from said receiving chamber to said pockets respectively for conducting said substance from said receiving chambers to said pockets, and venting passages through the mold wall adapted to insure the escape of the gases during the casting operation.

13. A casting mold, comprising a mold body having a cavity adapted to form a casting, a pocket formed in said mold body adapted to contain a substance for forming carbonaceous matter, and a passage from said pocket to the mold cavity above the level of the substance in said pocket whereby the carbonaceous matter will be conducted from said pocket to the mold cavity, and the matter in said pocket will be prevented from passing into the mold cavity.

14. A casting mold, comprising a mold body composed of separable sections arranged in position to form a mold cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, a pocket in the mold body arranged to contain a substance for forming volatile carbonaceous matter, a passage for conducting volatile carbonaceous matter from said pocket to the mold cavity, said passage being above the level of the substance in said pocket, whereby the volatile carbonaceous matter may pass into the mold cavity while said substance is prevented from passing into the mold cavity.

15. A casting mold, comprising a mold body composed of separable sections arranged in position to form a mold cavity adapted to form a casting, a passage for conducting the material to be cast into the mold cavity, a pocket in the mold body arranged to contain a substance for forming volatile carbonaceous matter, a passage for conducting volatile carbonaceous matter from said pocket to the mold cavity, said passage being above the level of the substance in said pocket, whereby the volatile carbonaceous matter may pass into the mold cavity while said substance is prevented from passing into the mold cavity, and venting passages through the mold wall adapted

to insure the escape of the gases from the mold cavity during the casting operation.

16. A casting mold, comprising a mold body having a cavity adapted to form a casting, a pocket formed in said mold body adapted to contain a substance for forming carbonaceous matter, a passage from said pocket to the mold cavity above the level of the substance in said pocket whereby the carbonaceous matter will be conducted from said pocket to the mold cavity, and the matter in said pocket will be prevented from passing into the mold cavity, and venting passages through the mold wall adapted to insure the escape of the gases from the mold cavity during the casting operation.

17. A casting mold, comprising a mold body having a cavity adapted to form a casting, a pocket in said mold body adapted to contain a substance for forming volatile carbonaceous matter, and a passage from said pocket for conducting the volatile carbonaceous matter to the mold cavity.

18. A casting mold, comprising a mold body having a cavity adapted to form a casting, a pocket in the mold body adapted to contain a substance for forming volatile carbonaceous matter, a passage for conducting said substance into the pocket, and a passage from the pocket opening into the mold cavity.

FREDERICK HACHMANN.