Nov. 20, 1923. 1,474,889

F. BRINER

FEEDING HEAD

Filed May 6, 1921

Fig. 3.

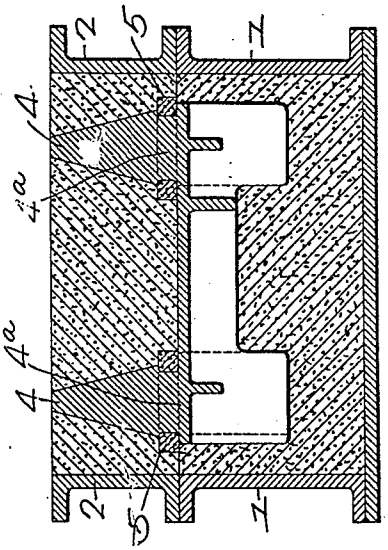


Fig. 1.

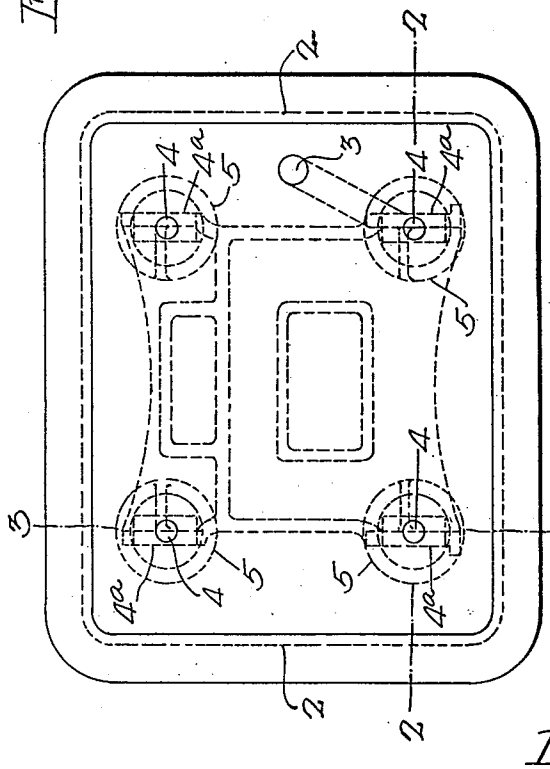
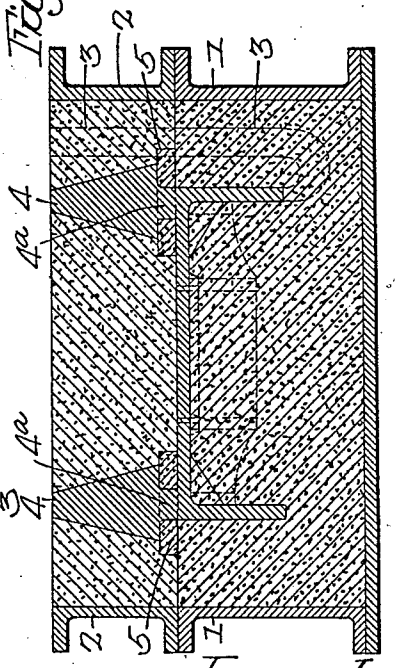


Fig. 2.



Inventor-
Frank Briner
by his Attorneys-
Howson & Howson

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UNITED STATES PATENT OFFICE.

FRANK BRINER, OF CHESTER, PENNSYLVANIA, ASSIGNOR TO PENN SEABOARD STEEL CORPORATION, OF CHESTER, PENNSYLVANIA, A CORPORATION.

FEEDING HEAD.

Application filed May 6, 1921. Serial No. 467,400.

To all whom it may concern:

Be it known that I, FRANK BRINER, a citizen of the United States, residing in Chester, Pennsylvania, have invented certain Improvements in Feeding Heads, of which the following is a specification.

My invention relates to improvements in feeding heads in molds for steel castings, one object of my invention being to provide an improved head insuring sound and homogeneous castings by reducing to a minimum the internal stresses or strains. A further object is to reduce the amount of metal required in the feeding head for properly performing its functions; and a still further object is to simplify the operation of shaking out the castings from the flasks after pouring, and incidentally to reduce the breakage of flask equipment due to the shaking out operation to a minimum.

My invention will be more readily understood by reference to the attached drawings, in which:

Figure 1, is a plan view of a mold having feeding heads made in accordance with my invention, and

Figs. 2 and 3, are respectively sectional elevations on the lines 2—2 and 3—3, Fig. 1.

In illustrating my invention, I have shown in the present instance a mold of well known form comprising a drag flask 1 and a cope 2. The casting in the present instance is underpoured, there being provided a pouring head 3 which, as shown in Fig. 2, extends downwardly through the cope and into the drag and communicates with the pattern opening at a suitable point at the bottom thereof. In the present instance, four feeding heads 4, are employed which extend upwardly through the cope sand and are each in the form substantially of a truncated cone, having at the bottom where the feeding head communicates with the pattern opening a portion 4^a of reduced cross sectional area, said reduced portion being formed in the present instance by means of a ring 5 of core sand disposed in a suitable recess in the sand of the cope at the base of the cone-shaped feeding head.

In operation, the metal is poured in the pouring head 3 in the usual manner until the molten metal rises to or near the top of the feeding heads 4. Due to the shape of the feeding heads, normal contraction of the metal therein is permitted while cooling, due to the fact that all castings when cooling contract toward a common center, and in feeding heads of this shape, the contraction causes the metal in the feeding head to draw away from the sand at the sides of the cone and allows the casting unrestricted contraction, which eliminates much of the internal stresses and strains experienced in the cooling of cast metals. It has been found that with feeding heads of this general shape and so proportioned approximately that the height of the heads is one-quarter again greater than the diameter of the base of the cone, with the diameter of the top of the cone one-quarter that of the base, these proportions having been found satisfactory, a saving of approximately 35% of the metal formerly required in feeding heads to secure sound and homogeneous castings is possible. It has also been found that after pouring, the shaking out of the castings from the flask is greatly simplified, and that the castings readily leave the sand, due to the effect obtained in the feeding heads, and it follows that the breakage of flask equipment in the shaking out operation is greatly reduced.

It will be understood that the feeding head is not confined to use with any particular kind of mold or with any particular kind of pouring system, and with feeding heads of this shape the above described effects will be obtained regardless of the application or the conditions of use.

I claim:

1. In a mold for metal castings, the combination with a drag flask, of a cope flask having an opening substantially in the form of a truncated cone the base of which lies substantially at the bottom of the cope and a recess constituting a seat for a core restricting the area of the base of the cone and forming a channel communicating with the pattern opening.

2. In a mold for metal castings, a feeding head communicating with the pattern opening and comprising a chamber substantially in the form of an upright truncated cone so proportioned that the height of the cone is one-quarter again greater than the diameter of the base thereof, with the diameter at the top of the cone one-quarter that of the base.

FRANK BRINER.