No. 818,413. PATENTED APR. 24, 1906.

H. C. CALDWELL.

COMBINED METAL CORE VENT AND SUPPORT.

APPLICATION FILED MAR. 3, 1904.

Fig. 1.

Fig. 2.

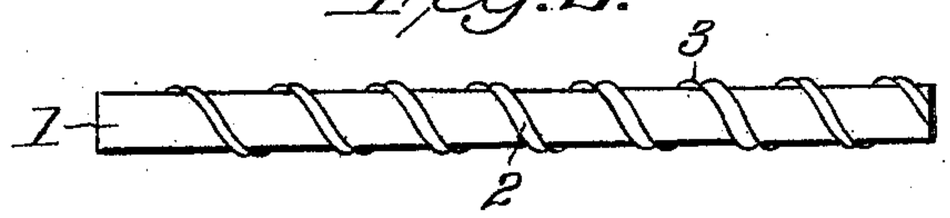


Fig. 3.

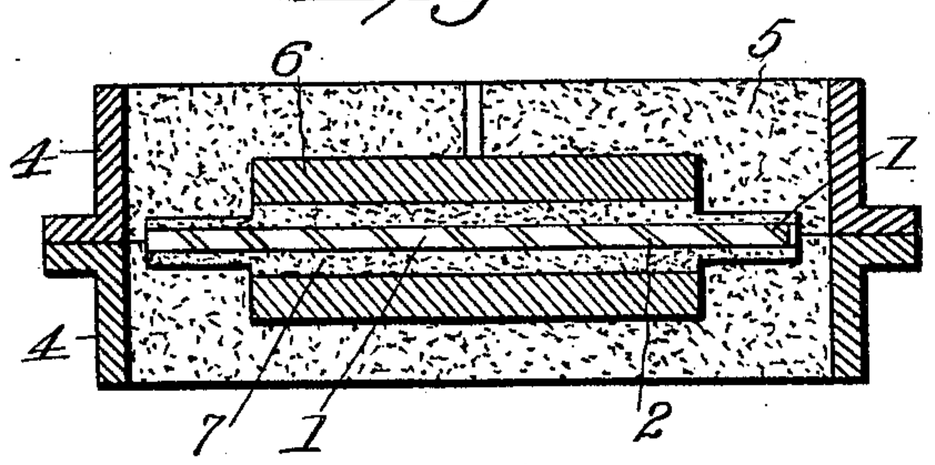
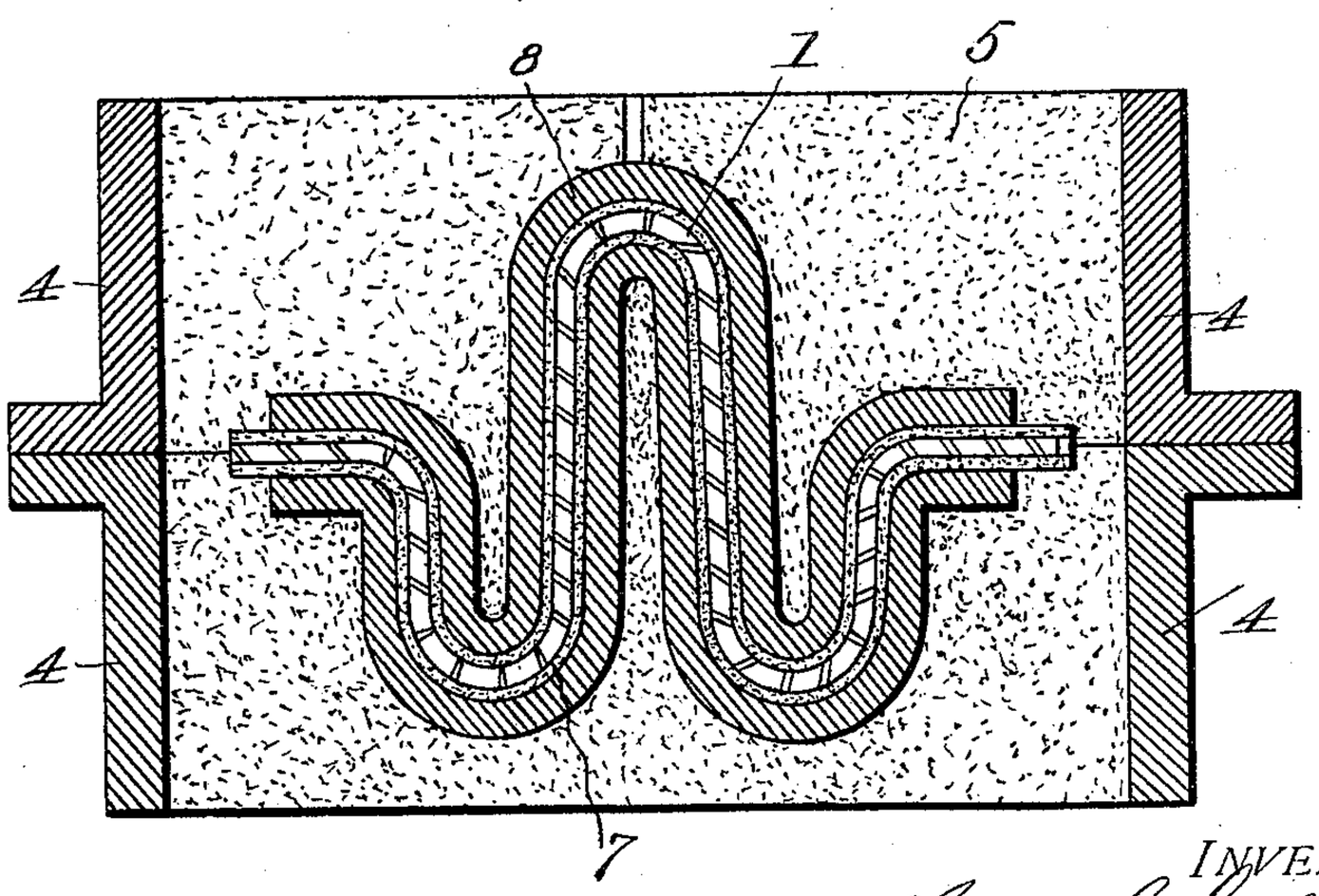


Fig. 4.



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COMBINED METAL CORE VENT AND SUPPORT.

No. 818,413. Specification of Letters Patent. Patented April 24, 1906.

Application filed March 3, 1904. Serial No. 196,453.

To all whom it may concern:

Be it known that I, HENRY C. CALDWELL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Combined Metal Core Vents and Supports; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in vented core-bars for conducting away the gases which accumulate in the casting process; and it consists, substantially, of a broad flat metal strip wound spirally to form a rigid tube, the spiral joint being preferably left open.

My invention further consists in turning up the edges of the flat metal strip before spirally winding the same.

In the drawings, Figure 1 is a view of my improved vented core-bar. Fig. 2 shows a similar view with the edges of the broad flat metal strip turned up. Fig. 3 is a central section of a mold with a straight core containing my improved vented core-bar, and Fig. 4 is a similar view showing a curved core containing my improved vented core-bar.

Referring to the drawings, 1 is my improved vented core-bar, shown as being formed from a broad flat metal strip which has been wound spirally. I preferably leave the edges of the strip a short distance apart to form an open spiral joint 2.

In Fig. 2 I have shown the broad strip having its edges slightly turned up to form spiral flanges 3.

Fig. 3 illustrates the application of my improved vented core-bar to a straight core. In such figure, 4 4 are the twin parts of the flask. 5 is the sand mold. 6 is the casting, in the form of a straight cylinder, and 7 is the sand core. My improved vented core-bar 1 is placed centrally within the core 7 in the usual manner, as shown in the figure.

Fig. 4 illustrates the application of my improved vented core-bar to a core which is employed in the casting of a tube 8 with five bends.

The open spiral joint 2 serves as an outlet for the accumulated gas in both instances. An important feature of my improved vented core-bar is that it serves additionally as a stiffener, owing to the broadness of the flat metal strip, thus doing away with the necessity of separate wires now employed for that purpose and investing my improvement with the double function of vent and stiffener. The turned-up edge 3 of my improved vented core-bar serves a double purpose—first, it affords a gripping edge to insure the retention of the vented core-bar within the core, and, second, when it is desirable to temporarily close the open spiral joint 2 with wax or equivalent material to keep out the sand the turned-up edge will catch and hold the wax, which will afterward melt under the action of the heat employed in baking the core and permit of the discharge of the gases.

The advantages of my improved construction over the coiled-wire type are substantially as follows:

First. In removing the coiled-wire core-bar from the mold its contacting surface, having a corrugated formation, materially increases the resistance offered against a straight pull and practically renders it unfit for further use, and in case of a long core it breaks apart, causing the additional trouble and inconvenience of its removal in sections. The structural strength of my improved core-bar successfully overcomes the above objections.

Second. The extreme flexibility of the coiled-wire type renders it liable to be forced out of operative position in the tamping of the sand around the same, a condition not possible with my improved core-bar.

Third. Where the casting is of a crooked or irregular configuration and it becomes necessary to bend the core-bar into a permanent formation, the flexible coiled-wire type utterly fails to meet the requirements, while it is perfectly obvious that my improved bar, owing to its rigid nature, after being properly bent will permanently retain such bent formation.

Fourth. The rigid feature of my improved

vented core-bar practically does away with the employment of solid rods as stiffeners, thus effecting a considerable saving in expense, as I practically combine in one device a stiffener and a vent.

I claim—

1. A combined rigid metal vented core bar and support, consisting of a broad flat metal strip wound spirally to form a tube.

2. A combined rigid metal vented core bar and support, consisting of a broad flat metal strip wound spirally to form a tube and provided with a spiral open joint.

3. A combined metal vented core bar and support, consisting of a flat metal strip provided with turned-up edges and wound spirally to form a tube.

4. A combined metal vented core bar and support, consisting of a flat metal strip provided with turned-up edges and wound spirally to form a tube, and provided with a spiral open joint.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY C. CALDWELL.

Witnesses:
E. B. SEVERS,
W. T. MILLER.