March 29, 1949. E. MARBURG 2,465,977

SECTIONAL HOT TOP FOR LARGE MOLDS

Filed April 3, 1947 2 Sheets-Sheet 1

FIG. 1.

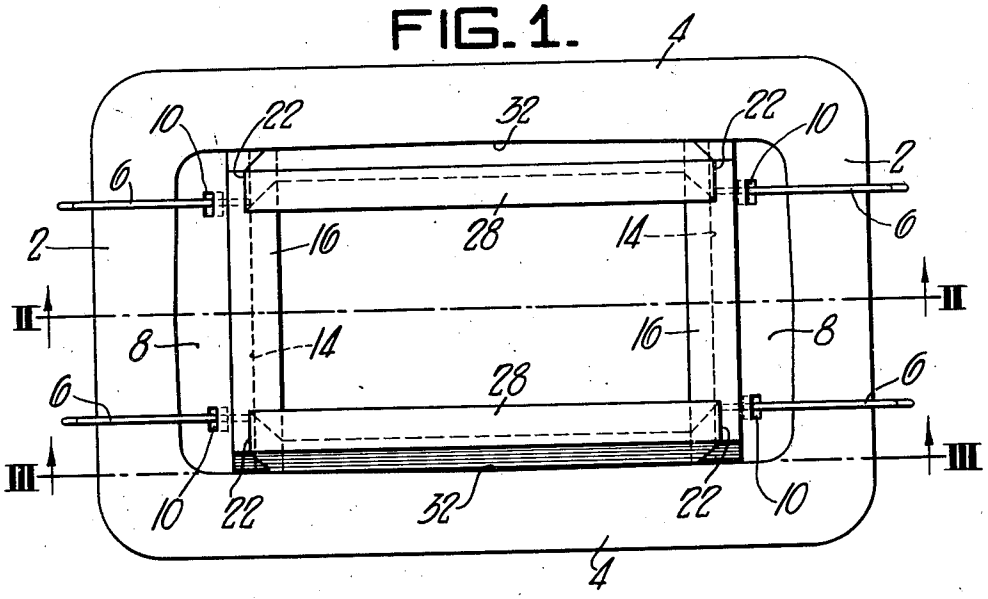


FIG. 2.

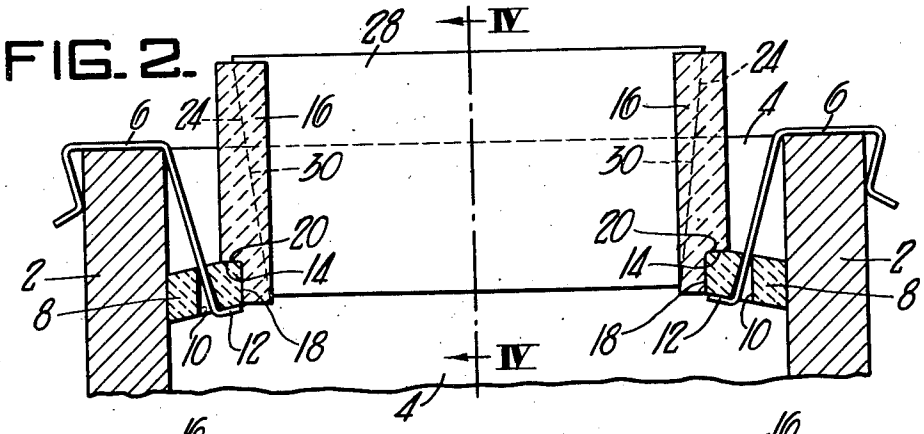
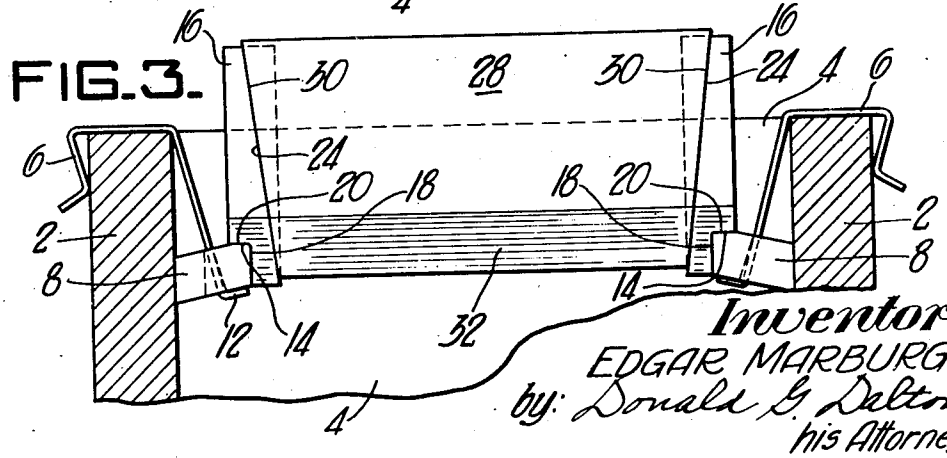


FIG. 3.



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FIG. 4.

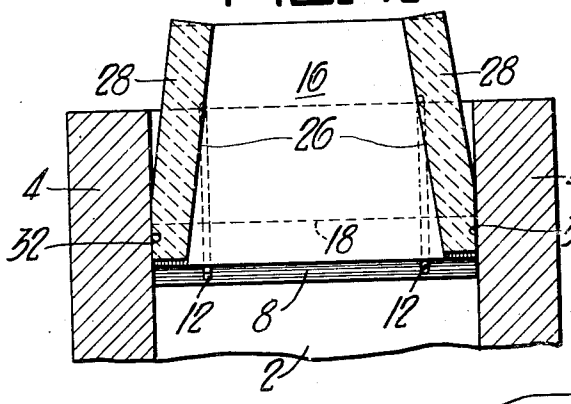


FIG. 5.

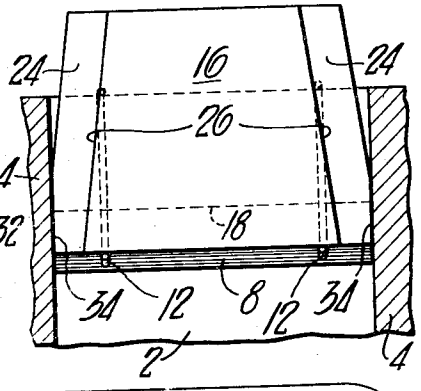


FIG. 6.

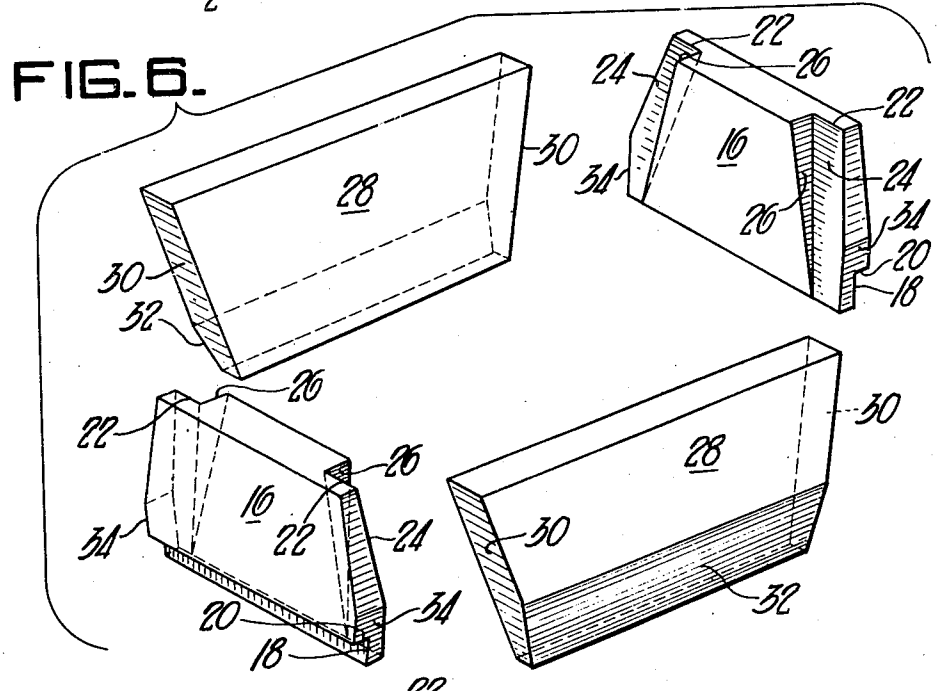
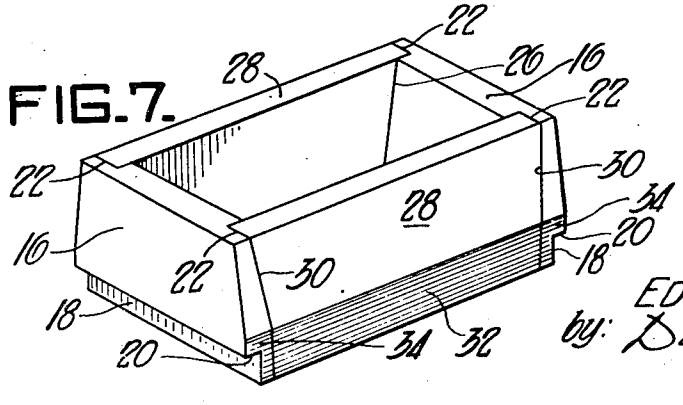


FIG. 7.



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UNITED STATES PATENT OFFICE

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SECTIONAL HOT TOP FOR LARGE MOLDS

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Application April 3, 1947, Serial No. 739,140

6 Claims. (Cl. 22—147)

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This invention relates to a sectional hot top for large molds and more particularly to ingot molds having a rectangular shape with the sides being longer than the ends. In conventional hot tops extending the full inside width and length of such molds it has been found that the amount of metal in the hot tops is excessive so that the top discards from 21" x 38" ingots average about 18%. A certain minimum height is necessary in the hot top to obtain sound, i. e. pipe-free slabs, so that it is impossible to reduce the discard by decreasing the height of the metal in the hot top. Conventional hot tops for large molds are also hard to handle and store because of their size. The present invention describes a hot top whose long dimension is substantially less than the inside length of the mold. By use of this hot top, sound slabs have been produced from 21" x 38" ingots from which only 12" top discard has been taken.

It is an object of my invention to provide a hot top for large molds which is shorter than the hot tops ordinarily used.

Another object is to provide a sectional hot top which can be easily installed in the mold without the use of a crane.

Another object is to provide a sectional hot top which may be stored in much less space than conventional hot tops.

These and other objects will be more apparent after referring to the following specification and attached drawings in which:

Figure 1 is a plan view of the hot top in place on the mold;

Figure 2 is a sectional view taken on the line II—II of Figure 1;

Figure 3 is a sectional view taken on the line III—III of Figure 1;

Figure 4 is a sectional view taken on the line IV—IV of Figure 2;

Figure 5 is a view similar to Figure 4, but with the side slabs removed;

Figure 6 is an exploded perspective view of the end and side slabs assembly; and

Figure 7 is a perspective view of the end and side slabs in assembled position.

Referring more particularly to the drawings, the reference numeral 2 indicates the end walls of a rectangular ingot mold having elongated side walls 4. Supported from the top of each end wall 2 by means of a pair of bent wire support hooks 6 is a support slab 8. Each wire support hook 6 extends through an opening 10 in the slab 8, the hook portion 12 at the bottom thereof supporting the slab 8. One edge of the

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slab 8 bears against the wall 2 while the other edge extends toward the opposite wall 2. A shoulder 14 is formed on the upper portion of the slab 8 for supporting an end slab 16 which has a recessed portion 18 at the lower end thereof adjacent its supporting slab 8. The recessed portion 18 forms a shoulder 20 which rests on the shoulder 14 of the slab 8 to support the end slab. A substantially L-shaped recessed portion 22 is formed at each end of the slab 16 on the side opposite the recessed portion 18, each of the L-shaped portions forming two wedging shoulders extending from the top to the bottom of the end slabs. One of said wedging shoulders 24 faces the opposite end slab and the other wedging shoulder 26 faces the side wall of the mold, the distance between the shoulders 26 being greater at the bottom than at the top of the slab. Side slabs 28 extend along each side of the mold between the end slabs 16, each of the side slabs being longer at the top than at the bottom to form a wedging surface 30 at each end thereof. The lower outside portion of each side slab 28 has a bevelled portion 32 which engages the mold wall while the end slab has a similar bevelled portion 34 at each end. The wedging surfaces 30 of the side slabs engage the wedging surfaces 24 of the end slabs to push toward the end walls of the mold and the inner surfaces of the side slabs engage the wedging surfaces 26 of the end slab to wedge the side slabs against the mold walls, thus locking the slabs in place.

In assembling the hot top, the slabs 8 are supported by means of the wire support hooks 6 in the manner shown, thus serving to support the hot top and to close the space between the hot top and the ends of the mold. The end slabs 16 are then placed with their shoulders 20 resting on the inner edges of the support slabs 8 as best shown in Figures 2 and 3. The end slabs may optionally be tilted backward to rest temporarily against the inside top edge of the mold wall 2. The side slabs 28 are next put in place between the end slabs and when pushed downwardly they wedge between the two end slabs pushing them outwardly and between the surfaces 26 of the end slabs and the side walls of the mold, thus insuring a tight wall joint which prevents steel leakage. If the wedging of the side slabs 28 should occur preferentially between the transverse shoulders 26 of the end slabs and the mold wall rather than between surfaces 24 of the end slabs 16, there may be too little friction to hold the end slabs in place against the upward pressure of the metal along

their lower edges. To prevent the end slabs from floating upward in these circumstances, they are positively locked in place by making the thickness of the end slabs at the bottom of the recessed portion 18 greater than at the top of the recessed portion as best shown in Figure 3, thus positively locking the end slabs in place. The rapid chilling of the metal adjacent the mold wall prevents the side slabs from floating upwardly so that no additional arrangements need be made to prevent such floating.

While one embodiment of my invention has been shown and described, it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. A sectional hot top for rectangular molds comprising a pair of support slabs, means for supporting said slabs one at each end of the mold, each of said slabs bearing against the end of the mold and extending from side to side of the mold, an end slab spaced from the end wall of the mold and resting on each support slab, each of said support slabs extending from the adjacent end wall of the mold to the adjacent end slab, a side slab extending along each side of the mold between the end slabs, and wedging surfaces at the ends of said end and side slabs for wedging the slabs in place.

2. A sectional hot top according to claim 1 in which there is a recessed portion forming a shoulder at the lower end of each end slab adjacent its support slab, each end slab being supported on the adjacent support slab by means of said shoulder, the thickness of each end slab being greater at the bottom than at the top of said recessed portion.

3. A sectional hot top according to claim 1 in which the lower outside portion of each side slab is bevelled to engage the mold wall.

4. A sectional hot top for rectangular molds comprising a pair of support slabs, means for supporting said slabs one at each end of the mold, each of said slabs bearing against the end of the mold and extending toward the other slab, an end slab resting on each support slab, a substantially wedge-shaped recessed portion at each end of each end slab on the side facing the opposite end slab, each of said wedge-shaped recessed portions forming two wedging shoulders extending from the top to the bottom of said end slabs, one of said wedging shoulders facing the opposite end slab, the second of said wedging shoulders facing the side wall of the mold, the distance between the second of the wedging shoulders of each end slab being greater at the bottom than at the top of the slab, a side slab extending along each side of the mold between the end slabs, each of asid side slabs being longer at the top than at the bottom to form a wedging surface at each end thereof, the wedging surfaces of the side slabs

engaging the first named wedging shoulders of the end slab to push them toward the end walls of the mold between the end slabs, each of said slabs engaging the second named wedging shoulders of the end slabs to wedge the side slabs against the mold walls and lock the slabs in place.

5. A sectional hot top according to claim 4 in which there is a recessed portion forming a shoulder at the lower end of each end slab adjacent its support slab, each end slab being supported on the adjacent support slab by means of said shoulder, the thickness of each end slab being greater at the bottom than at the top of said recessed portion.

6. A sectional hot top for rectangular molds comprising a pair of support slabs, means for supporting said slabs one at each end of the mold, each of said slabs bearing against the end of the mold and extending toward the other slab, an end slab at each end of the mold, a recessed portion forming a shoulder at the lower end of each end slab adjacent its support slab, each end slab being supported on the adjacent support slab by means of said shoulder, the thickness of each end slab being greater at the bottom than at the top of said recessed portion, a substantially L-shaped recessed portion at each end of each end slab on the side opposite the first recessed portion, each of said L-shaped recessed portions forming two wedging shoulders extending from the top to the bottom of said end slabs, one of said wedging shoulders facing the opposite end slab, the second of said wedging shoulders facing the side wall of the mold, the distance between the second of the wedging shoulders of each end slab being greater at the bottom than at the top of the slab, a side slab extending along each side of the mold between the end slabs, each of said side slabs being longer at the top than at the bottom to form a wedging surface at each end thereof, the lower outside portion of each side slab being bevelled to engage the mold wall, the wedging surfaces of the side slabs engaging the first named wedging shoulders of the end slabs to push them toward the end walls of the mold and the inner surfaces of the side slabs engaging the second named wedging shoulders of the end slabs to wedge the side slabs against the mold walls and lock the slabs in place.

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REFERENCES CITED

The following references are of record in the file of this patent:

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2,433,775	Marburg	Dec. 30, 1947
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Certificate of Correction

Patent No. 2,465,977. March 29, 1949.

EDGAR MARBURG

It is hereby certified that errors appear in the printed specification of the above numbered patent requiring correction as follows:

Column 3, line 59, claim 4, for "asid" read *said*; column 4, line 3, claim 4, strike out the words and comma "between the end slabs, each of said" and insert instead *and the inner surfaces of the side*;

and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of October, A. D. 1949.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.