July 9, 1929. G. H. WOOD ET AL 1,720,068

SAND STRIP

Filed Aug. 10, 1927 2 Sheets-Sheet 1

Fig. 1.

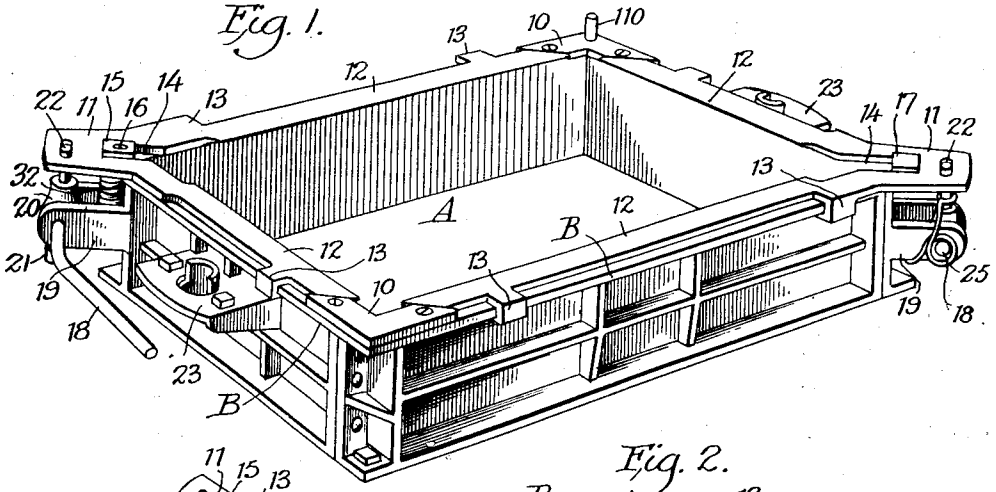


Fig. 2.

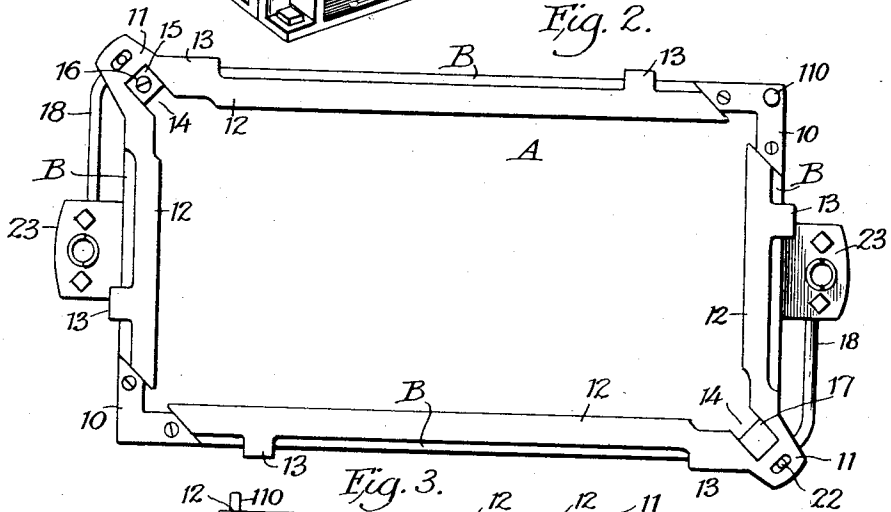


Fig. 3.

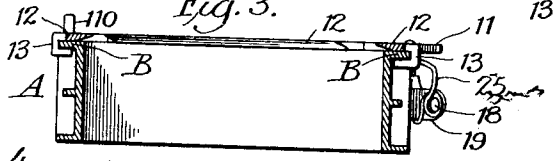


Fig. 4.

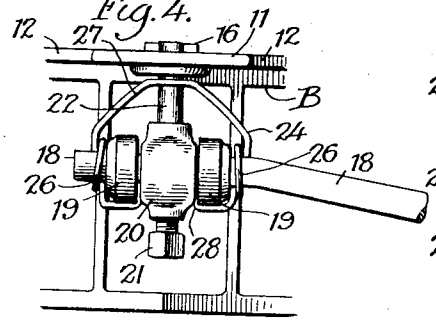
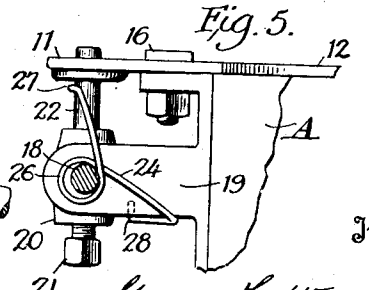


Fig. 5.



Inventors

George H. Wood

and Charles O. Wood

By Henry Orth Jr.

Attorney

July 9, 1929. G. H. WOOD ET AL 1,720,068

SAND STRIP

Filed Aug. 10, 1927 2 Sheets-Sheet 2

Fig. 6.

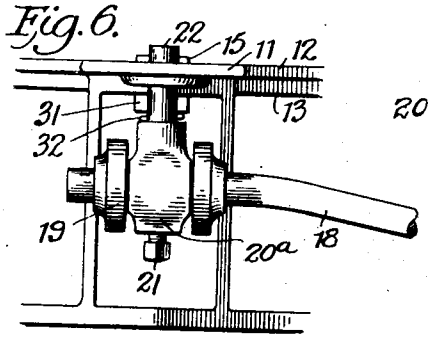


Fig. 7.

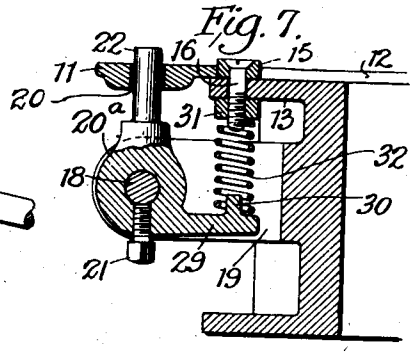


Fig. 9.

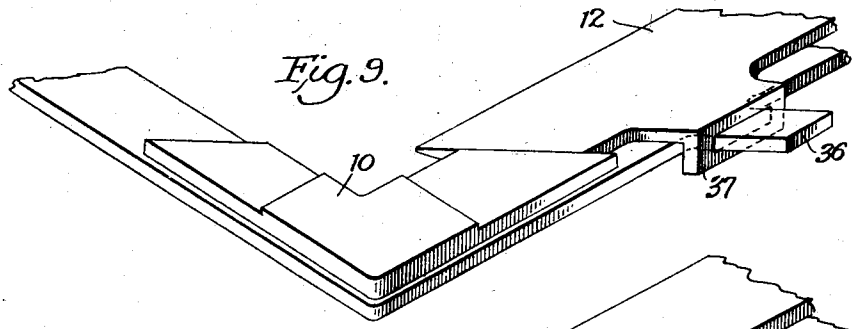


Fig. 10.

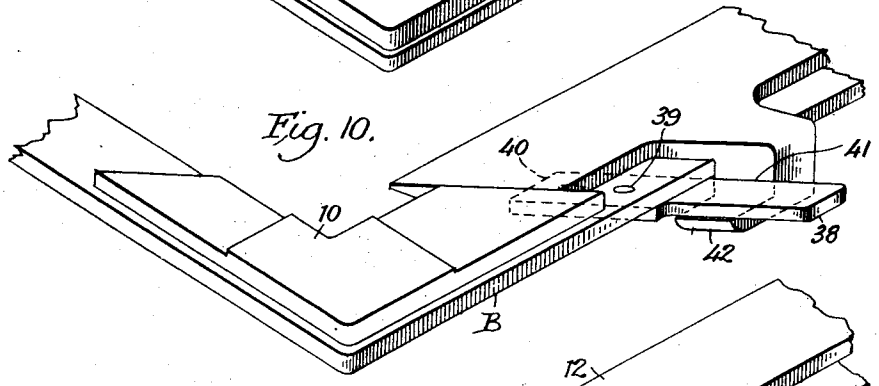


Fig. 11.

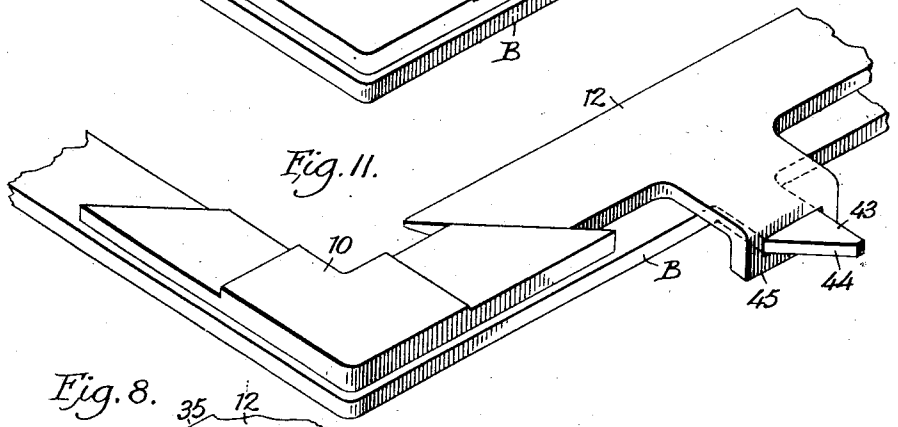
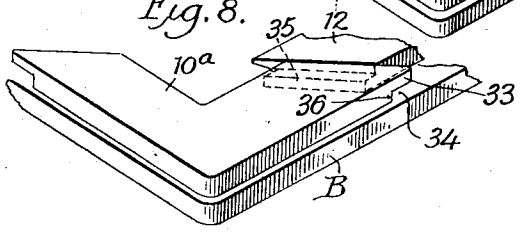


Fig. 8.



INVENTORS
George H. Wood and
Charles O. Wood
BY Henry Orth Jr.
ATTORNEY.

Patented July 9, 1929. 1,720,068

UNITED STATES PATENT OFFICE.

GEORGE H. WOOD AND CHARLES O. WOOD, OF CHAMBERSBURG, PENNSYLVANIA.

SAND STRIP.

Application filed August 10, 1927. Serial No. 212,058.

This invention relates to sand strips for the copes of flasks and cheeks or intermediate members of multiple molders' flasks, and it has for its object the production of such cope or member with an unmutilated edge, and a sand strip having two portions at right angles to one another, in slidable relation to such edge, the sand strip being supported under all conditions of operation by open or closed hooks.

To this end the sand strip has as its primary supporting member or members, one or more open hooks or closed hooks in the form of eyes directed out of the plane of the strip and on the exterior edge of the strip, which hooks engage a flange or equivalent on the exterior of the flask member. Each eye or hook will engage, in metal flasks, either with a flange on the lower edge of the cope or cheek, or with a projection or guide secured to the flask or formed as a part of such flange or lower edge, and forming the supporting means for the strip.

The arrangement is such that the strip ends are guided against mitred corner pieces in a diagonal line, as usual. Such corner pieces support the cheek or cope sufficiently spaced from its lower engaging member or drag to permit the ready operation of the strips.

Referring to the drawings, in which like parts are similarly designated—

Figure 1 is a perspective view of a cope, illustrated in inverted position, to show the improved sand strip and the manner of attaching the same.

Fig. 2 is a plan of Fig. 1.

Fig. 3 is a cross section on a smaller scale, showing the hooks engaging the lower flange of the cope.

Fig. 4 is a front view, and

Fig. 5 a side view of one of the springs.

Fig. 6 is a front view, and

Fig. 7 is a section showing another type of spring.

Fig. 8 shows a modification of the engaging ends of the corner piece and sand strip.

Fig. 9 shows a modification of lug and a closed hook.

Fig. 10 shows a laterally directed hook cooperating with an extension.

Fig. 11 shows a modification of Fig. 9.

In the manufacture of flasks it is a desirable feature to provide an unmutilated edge or rim on which the sand strips are mounted to permit more ready operation of the strip.

With a mutilated edge the slots, passages and eyes fill with sand, jam or wedge the strips and retard their operation, especially so as these mutilations are not self-clearing of the sand.

We provide a secure and efficient holding means for a strip of the character shown and described, so that both legs or sides of the strip, which is pulled from a corner of the flask shall move freely, and there will be little or no opportunity for sand to interfere with the holding means. The inner face of the cope is smooth and has no opening through which sand may pass.

The main supporting means are open hooks or closed hooks in the form of eyes outside of the flask, and all moving parts holding the strip are outside of the flask and movable with the strip, in preference to having any movable strip-supporting parts on the flask member itself.

Referring to Figure 1, which shows a cope in inverted position with our improved sand strip thereon, the usual corner pieces 10, slightly thicker than the strip, space the cope from the drag, so that the weight of the drag will not rest on the strips. The mitred ends of the sand strip are guided against the mitred ends of the corner pieces and each pair of legs 12 has a corner extension 11 at their junction, as in prior constructions.

Our sand strip has no pivotal or other positive means for securing it to the cope, and to this end the legs are provided with open hooks 13, or closed hooks 37 and 45, Figs. 9 and 11. We have shown one hook on the shorter leg and two on the longer leg in Figs. 1 and 2 but are not limited to the number used.

In Fig. 1 open hooks 13 are illustrated directed toward the outwardly extending lower flange B of the cope, that is to say, the hooks are directed inwardly and form the sole supporting means, holding the strip to the cope, and slide on the upper face of this flange. The hooks carry the whole load.

Each corner extension 11 is provided with

a slot 14 preferably having vertical walls, that opens into the angle between the two legs 12 where they join the extension. Secured to the bottom of the cope and lying in the slot 14 is a guide piece 15 held by a bolt or screw 16 and projecting beyond the strip substantially the same distance as the corner pieces 10 to support the cope from the drag at the corners where they are located, i. e. at alternate corners.

In lieu of a rectangular guide piece 15, a preferably square-headed screw or bolt may be used, as shown at 17.

The operating mechanism consists of a handle 18 at diagonally opposite corners, pivoted in spaced corner ears 19 on the cope. Each handle 18 carries a boss 20 secured to the handle by a set-screw 21, or otherwise. Secured in this boss is a radial lever 22 engaging a hole in the corner extension 11 of the sand strip. The free ends of the handles 18 are long enough to reach to and strike the customary bracket 23 for receiving the matching pins on the drag. The construction, therefore, is such that the withdrawing movement of the strips is limited by the brackets 23, when the handles strike them, and the return or inward movement of the strip is limited by the strip guide 15 or 17, or by the hooks against the outer edge of the flange B of the cope, or by both.

The return movement is effected by means of a spring, 24 or 25.

On one of the corner pieces we have a pin 110 designed to enter a hole in the drag, the object of which is to prevent the molder from erroneously matching the cope and drag.

In Figs. 4 and 5 we show a loop spring having two coils or turns 26 through which passes the handle 18, and the loop 27 rests against lever 22. The two ends of the spring lie against the under side of the ears 19 and pass at 28 a short distance up between the ears for the secure fastening of the spring, as shown in Figs. 4 and 5.

In Figs. 6 and 7 the boss 20^a has an arm 29 provided with a lug 30 in line with the end of the screw or bolt 16 that projects past its securing nut 31. Between this extension of the screw or bolt and the lug 30 and held in place thereby is a coil spring 32. This arrangement brings the coil spring between the ears and between the lever arm 22 and the cope, quite out of the way.

With sand strips having exceptionally long legs it has heretofore been the practice to bevel the guiding edge of the corner piece and correspondingly oppositely bevel the mitred edge of the sand strip legs to fit under the beveled mitred edge of the corner piece.

This has been an objectionable feature for the reason that as the strip is withdrawn the tendency is to wedge from the cope flange B and against the beveled edge of the corner piece and make the sand strip hard to withdraw. This is exceptionally the case when using coarse molder's sand.

To obviate this difficulty we form the mitred edge of the corner piece 10^a with a rabbet whose overhanging portion 33 forms a sort of groove 34 with flange B of the cope, Fig. 8.

The mitred end of the sand strip leg 12 is also rabbeted, but oppositely, so that its tongue portion 35 slides under the tongue portion 33 of the corner piece, but preferably not against the vertical wall 36 of the groove 34, the guidance of the end of the sand strip leg being preferably against the edge of the tongue 33.

We use this construction when the legs of the sand strips are exceptionally long or when exceptional ease of operation is required.

When using the coarser grades of sand it is desirable to avoid all undercut surfaces and edges, by reason of the exceptional wear and clogging of the parts. Any engaging parts between sand strip and cope must be self-clearing, and to this end the lower flange of the cope may be provided with laterally extending guides 36, Fig. 9, directed in the line of draft, that is parallel to the mitred end of the sand strip leg and direction of movement of lever 22. The sand strip has closed hooks in the form of eyes 37 that slide on these guides 36.

These guides may be integral with the cope flange or may be applied to existing flasks as in Fig. 10, as a separate piece 38, in which case rivets or screws 39 may be used, the rear end of the piece being mitred across as at 40, so that in placing the guide it will fit close to the outer flask face insuring that its inclined guiding edge 41 shall be properly directed, usually 45°.

In this figure we have shown an open hook 42 laterally directed, that is, the hook is parallel to the sand strip leg of which it is a part and also parallel to the outer edge of the flange B of the cope.

In Fig. 11 the guide piece 43 is integral with and perpendicular to the outer edge of the flange, is mitred at 44 and cooperates with a closed hook or eye 45 laterally projecting from the sand strip leg 12 and turned into a substantially vertical plane at its end and through which the guide piece passes.

Sand strips constructed as shown and described have a great many advantages. The weight of the strips and their hooks is much less than that of other strips of this type, making them easier to operate. They operate without binding. The ledge or flange of the flask member is unmutilated or free of recesses and slots for entrance of sand to cause binding. All operating parts are on the exterior of the flask and of ready access for clearing or cleaning should sand accidentally get into them. The cost of assemblage of a flask is materially reduced and the cost of

making the flask parts themselves is reduced, resulting in a neater and more acceptable working device.

The structure also permits locating the hooks in any position along the sand strip legs to accommodate different structures of flasks and thereby avoid interference with the matching pins or other exterior portions of the flask.

When the sides of the flask are short with correspondingly short sand strip legs, no rabbeted ends of the sand strip legs and corner pieces are required, and these are omitted.

With open hooks any exceptional clearance caused by the sliding of the hooks on the cope flange or guide pieces can readily be taken up by tapping the hooks with a hammer.

We claim—

1. The combination with a flask member having an unmutilated sand strip contacting edge; of a bodily movable sand strip having two legs, means at the junction of such legs for engagement by sand strip operating means, at least one sand strip holding-member on the exterior edge of each leg and co-acting means on the exterior face of the flask member for mutual engagement and forming means for supporting the strip on the flask member.

2. The combination with a flask member having an unmutilated sand strip contacting flange; of a bodily movable sand strip having two legs, means at the junction of the legs for engagement by sand strip operating means, and at least one hook on each leg for engaging the flange on the flask member and forming the supporting means for the strip.

3. The combination with a flask member having an unmutilated sand strip contacting edge and a flange thereat; of a bodily movable sand strip having two legs, means at the junction of said legs for engagement with sand strip operating means and a plurality of hooks on at least one leg for engaging said flange and forming supporting means for the strip.

4. The combination with a flask member having an unmutilated sand strip contacting edge; of corner pieces thereon having rabbeted edges, a bodily movable sand strip having two legs, each leg having its end complementarily rabbeted for co-acting engagement with edges of the corner pieces, and means at the junction of such legs for engagement by sand strip operating means.

5. The combination with a flask member having an unmutilated sand strip contacting edge; of corner pieces thereon having mitred and rabbeted edges, a sand strip having two legs, each leg having its end complementarily mitred and rabbeted for co-acting engagement with edges of the corner pieces, means at the junction of said legs for engagement by sand strip-operating means, a member on the exterior edge of each leg and co-acting means on the exterior face of the flask member for mutual engagement and forming supporting means for the strip.

6. The combination with a flask member having an unmutilated sand strip contacting edge; of corner pieces thereon having mitred rabbeted edges, a sand strip having two legs, each leg having its end complementarily mitred and rabbeted for co-acting engagement with edges of the corner pieces, means at the junction of such legs for engagement by sand strip operating means, a hook on the exterior edge of each leg and a flange on the exterior face of the flask member engaged by said hook and forming the main supporting means for the strip.

7. The combination with a flask member having an unmutilated sand strip contacting edge and corner pieces thereon; of a sand strip having two legs and an extension on the exterior of the sand strip at the junction of such legs and having an opening therein entering the angle between the legs and directed angularly to each leg, the walls of said opening being substantially perpendicular to the faces of the strip, and a guide piece on the flask member projecting through said opening to the height or thickness of the corner pieces.

8. The combination with a flask member having an unmutilated sand strip contacting flange and corner pieces thereon; of a bodily movable sand strip having two legs and a slot opening into the angle between the legs, a guide piece in the slot and hooks on the outer edge of the strip engaging the flange and holding the strip thereon.

9. The combination with a flask member having a flange and matching pin brackets; of a two-legged bodily movable sand strip having hooks on the outer edge of the strip engaging the flange, a slot in the strip at the junction of said legs, a guide piece in the slot, a handle mounted on the flask and a lever thereon engaging the strip, the movement of the strip limited in one direction by the handle striking a bracket and in the other direction by said guide piece.

10. A sand strip corner piece for guiding an end of a sand strip on a flask member and having a pin thereon for entrance into a hole in the other flask member to prevent the mismatching of flask members.

11. A sand strip having hooks on its external edge arranged for sliding engagement with a flange on a flask member.

12. A sand strip having a corner extension for engagement by sand strip operating means, and hooks on the strip forming the sole connecting means between the strip and the flask member to which it is to be attached.

13. In a flask member, a sand strip having a corner extension, ears on the flask member, a handle journaled in the ears, a lever thereon engaging the strip for operation and a spring

operating to retract the handle and strip arranged below the extension and within the confines of such extension.

14. In a flask member having a flange, a sand strip having a corner extension, spaced ears at a corner and a bolt extending through the flange and guiding the strip, a boss between the ears, a lever on the boss engaging the corner extension, an arm on the boss, a spring held between the end of said bolt and said arm, and a handle passing through the ears and boss and secured to the latter.

15. In a flask member having a marginal, laterally extending flange, guides extending outwardly from the flange, and a sand strip having hooks thereon sliding on said guides, said hooks extending parallel to the flange.

16. A flask member having a marginal, laterally extending flange, guides extending outwardly from said flange, and a sand strip having closed hooks at its outer edge forming eyes through which the guides pass.

17. A flask member having a marginal, laterally extending flange, outwardly extending guides secured to said flange, a two-legged sand strip cooperating with said flange and having hooks thereon engaging the flange holding the strip to said member.

18. A flask member, corner pieces having rabbeted ends extending over two sides of the member, a sand strip having hooks thereon holding the strip to the member and whose ends are rabbeted for sliding engagement with the rabbeted ends of the corner pieces.

19. A flask member having an unmutilated marginal flange and a pair of spaced ears at diagonally opposite corners; in combination with two-legged sand strips having corner extensions between the legs and a slot in said extension opening into the angle between the legs, hooks on the outer edge of the sand strip engaging the flange forming the connecting means between the strip and flange, a boss between each pair of ears having a lever engaging said extension, and an arm extending toward the member, a handle journalled in each pair of ears and secured to the boss, a guide bolt on the member in said slot and extending through the flange and a coil spring between the bolt and arm.

20. The combination with a flask member having an unmutilated sand strip contacting edge; of pieces thereon having rabbeted edges, a bodily movable sand strip having two legs, each leg having its end complementarily rabbeted for co-acting engagement with edges of the pieces, and means at the junction of such legs for engagement by sand strip operating means.

21. In combination with a flask comprising two members and with drawable sand-strips; of a pin on one member arranged between the adjacent ends of two sand strips for entrance into a correspondingly situated hole on the other member to prevent mismatching of the members.

In testimony that we claim the foregoing as our invention, we have signed our names hereto.

GEORGE H. WOOD.
CHARLES O. WOOD.