Dec. 22, 1925. 1,566,568

R. WILLIAMS

APPARATUS FOR FORMING CONCRETE SLABS

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Fig. 1.

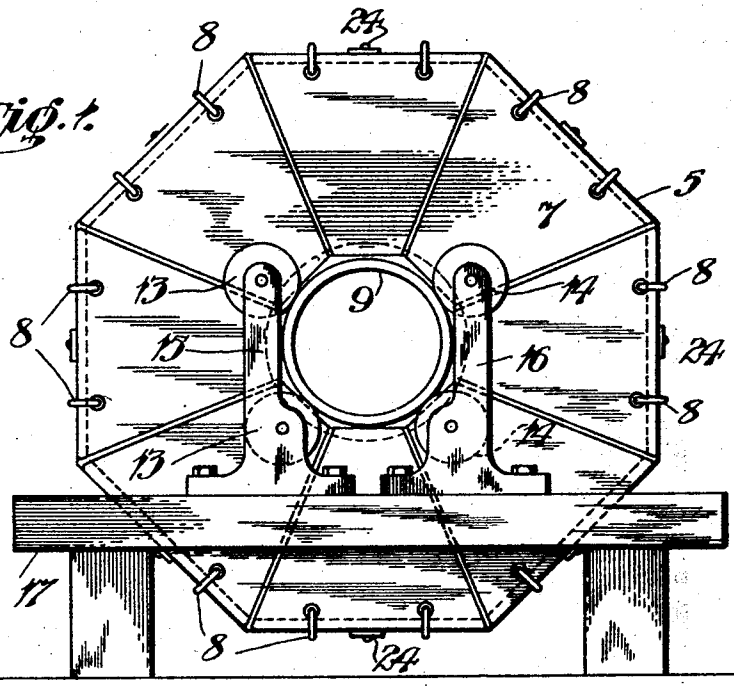
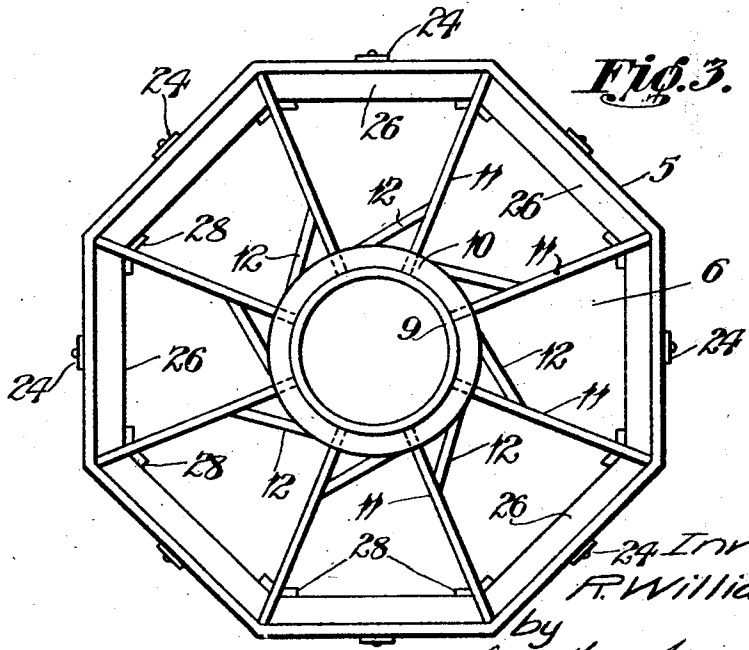


Fig. 3.



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Fig. 2.

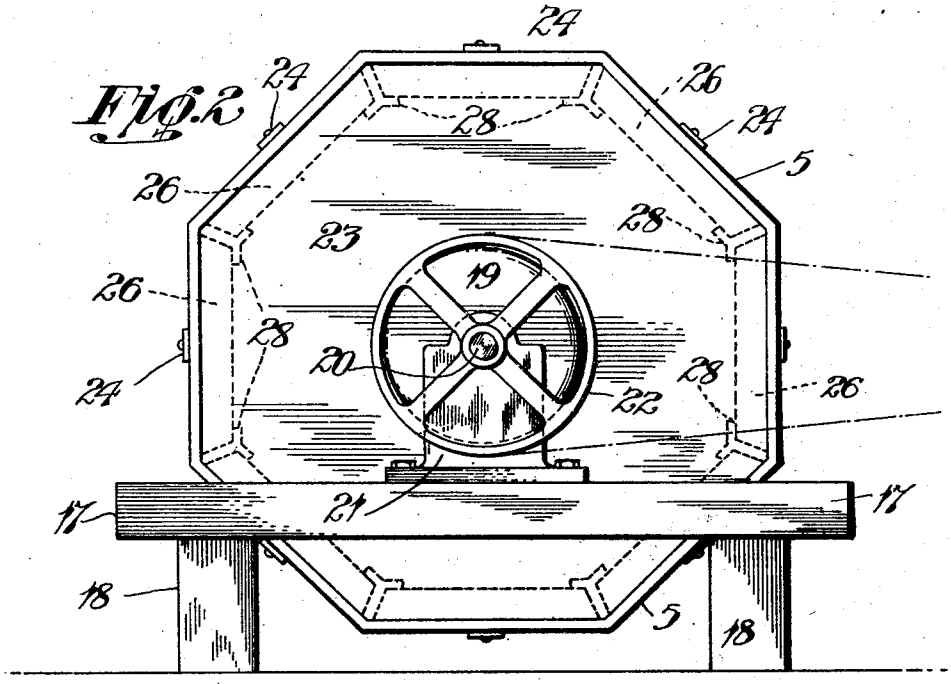
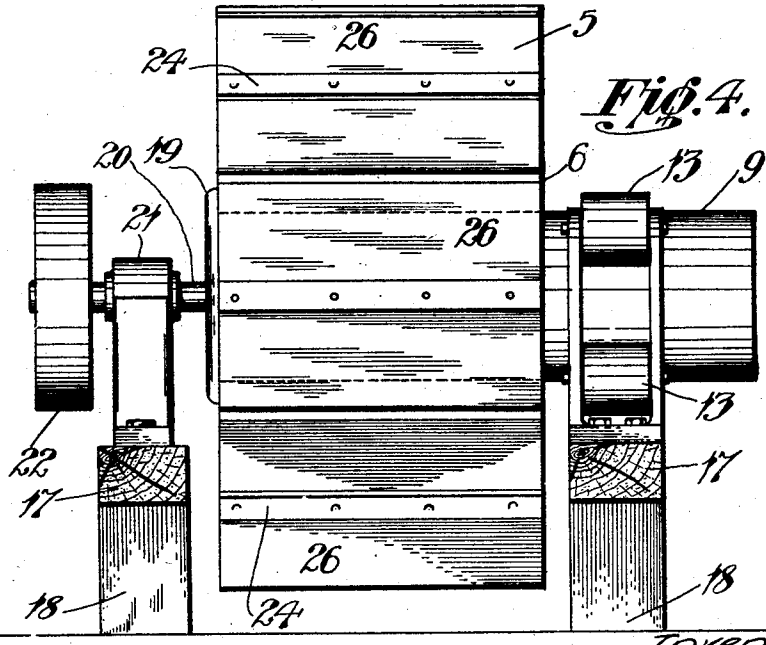


Fig. 4.



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Fig. 5.

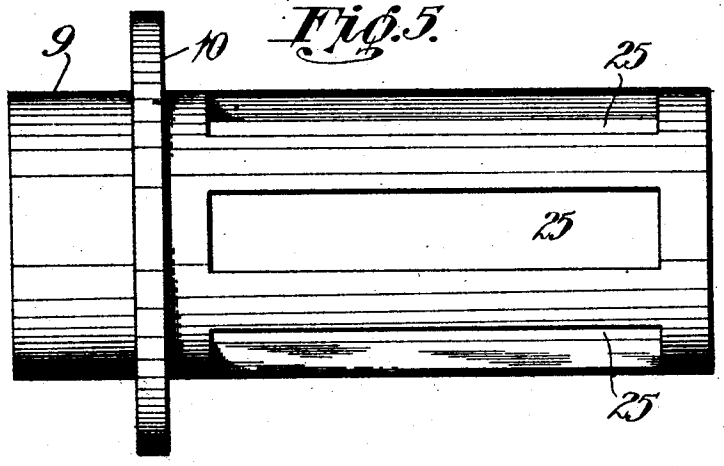


Fig. 6.

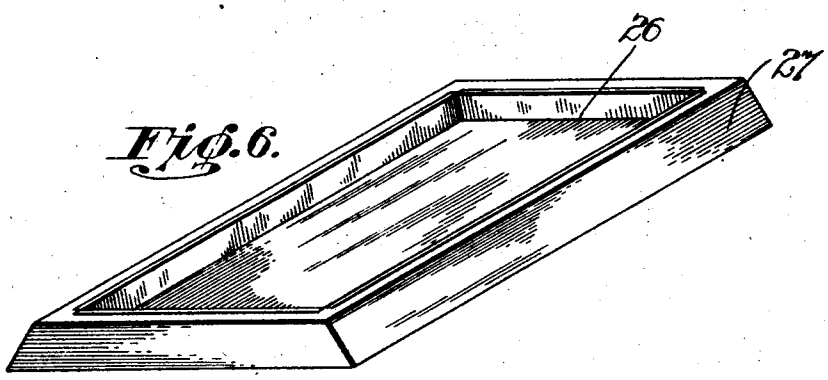
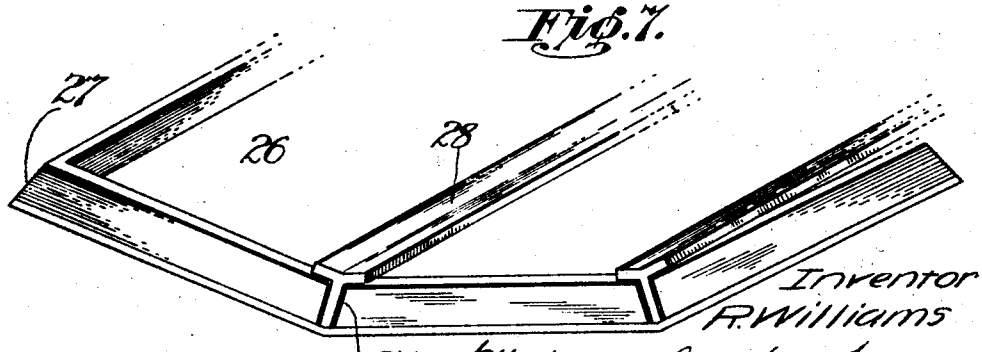


Fig. 7.



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Patented Dec. 22, 1925. 1,566,568

UNITED STATES PATENT OFFICE.

RALPH WILLIAMS, OF RICHMOND, AUSTRALIA.

APPARATUS FOR FORMING CONCRETE SLABS.

Application filed December 1, 1924. Serial No. 753,262.

To all whom it may concern:

Be it known that RALPH WILLIAMS, a citizen of the Commonwealth of Australia, and resident of Richmond, in the State of Victoria, Commonwealth of Australia, has invented a certain new and useful Apparatus for Forming Concrete Slabs, of which the following is a specification.

This invention refers to apparatus for forming concrete slabs and the like and has for its object to provide apparatus which will considerably facilitate the manufacture of slabs or the like, and further will produce a slab having unique characteristics, it being an essential characteristic of the invention, that all articles, other than pipes or cylinders, can be manufactured, the invention being more particularly directed to the manufacture of articles having plane, angular, or other surfaces on bodies applied in architectural or other constructional purposes.

According to this invention I provide a rotatable element having a plurality of tangential sides or surfaces each of which is of sufficient area to carry a mould which is detachably affixed thereto.

I support this element centrally, one supporting end consisting of a stub axle affixed to a hub member forming part of the element such stub axle being supported in a plummer block of any desired type, the other side being supported by means of a feeding drum which enters the elements for a length equal to the width of the element, such feeding drum passing to the exterior of the machine and being supported upon trunnions or other suitable members which will allow of the easy rotation of the whole of the apparatus with as little friction as possible.

On one side of the rotatable element radial arms are arranged, the outer ends of which connect the outer frame work whilst the inner ends of the arms connect a flange on a feeding and supporting drum.

This feeding drum serves also to provide a positive means of feeding the cement to the interior of the element such material being automatically distributed to the various moulds arranged tangentially about the feeding drum but positioned therefrom, said feeding drum being formed with a plurality of openings to allow of the cement and other material passing therethrough and to the moulds.

I will now describe my invention with reference to the accompanying drawings in which:—

Figure 1 is a view in elevation showing the feeding side of the machine.

Figure 2 is a view of the reverse sides of Figure 1.

Figure 3 is a view as in Figure 1 but showing construction of machine.

Figure 4 is an end view of the machine.

Figure 5 is a view of the feeding drum.

Figure 6 is a view in perspective of a mould; and—

Figure 7 is a view showing method of detachably fixing moulds to machine.

According to my invention, a multi-sided element is provided having sides 5 which are formed from angle or other iron bent to shape and on the feeding side 6 of which doors or flaps 7 are provided, being hingeably mounted as at 8 to allow of their easy removal for inspection of the moulds within the element or other purposes.

Entering the element at the feeding side is a drum 9 provided with a flange 10 to which arms 11 are fixed to effect the necessary rigidity required by the structure and also secured to these arms 11 are struts 12 which connect the flange 10 on the drum.

The drum 9 projects at the feeding side of the machine as shown and is supported by means of rollers 13, 14 which are carried in pedestals 15, 16 secured to a beam member 17 carried on legs 18 whilst the other side of the element is formed of a boss 19 fitted with a stub axle 20 passing into a bearing 21, and carrying the driving pulley 22 on the outer end thereof, said driving pulley being in communication with any suitable driving means.

The face 23 of the element is a plain metal sheet supported on the iron frame member and connecting the frame portions are transverse bars 24 adapted to support each of the sides and prevent them from closing in or tending to twist during the rotation of the machine.

The feeding drum 9 where it enters the rotating element is formed with a plurality of openings 25 which are adapted to deliver the cement and other material into the moulds 26 which are carried on each surface 5 of the element. The sides of the moulds 26 are bevelled as at 27 so as to enable them being neatly fitted about the rotating element and these moulds are adapted to be slid

into position by passing the top surface over Y or T shaped guides 28 which are secured to the framework of the element.

As soon as the moulds are in position the flaps 7 are closed and secured in position in any suitable way, the material being then fed into the drum 9 to be distributed over the entire surface of the rotating element.

In practice this central surface would be one continuous line of moulds so that the material would be delivered to each and every mould in equal quantities. The action of the centrifugal force created by the rotating element and the material being in a more or less flowable state, causes the material in each mould to assume a concave shape on the upper surface whilst the action of the centrifugal force tends to segregate the heavier material from the lighter material and throw the lighter material to the outside of the mould. This being so, the finished product has a face and edges without any interstitial openings or other malformations and each angle is clearly defined, the surface of the moulds being previously treated with zinc, sheet metal, or other suitable material to ensure a good, clean, surface to the finished article.

It is submitted that forming slabs of cement by means of centrifugal force, is a considerable advance in the manufacture of units or integers adapted for use in building various shaped structures, and, further, the formation of an arch on each slab considerably strengthens the whole mass and it is thought that the use of a slab so formed would be highly advantageous in the construction of roadways and pavements or in other places subjected to various weights and conditions.

Any suitable means may be employed for feeding the material from a suitable mixing department to the feeding drum 9 such as, for instance, a hopper in communication with a conveyor which would enter the mouth of the feeding drum and deliver thereto, at predetermined periods or continuously, a supply of cement or other material.

I do not wish to limit myself to any particular shape of element as I may use a circular element, if necessary, and have the moulds around the inner surface thereof, and it is desired to be understood that other various modifications and improvements may be embodied without departing from the spirit and scope of the invention.

What I claim as my invention and desire to secure by Letters Patent is—

1. Apparatus for forming concrete slabs and the like for architectural and constructional purposes, comprising, a rotatable hollow element, a plate on one end of the element, a boss and stub axle carried by the plate, a bearing and support for the axle, a drive pulley on the axle, a plurality of hinged doors on the other end of the element permitting free access to the interior of the element, a feed drum disposed in the element and having one end projecting outside the element, a flange on the drum, rollers supporting the projecting end of the drum, reinforcing means interconnecting the flange and the element, angular flanges in the element, a plurality of moulds formed to be positioned on the inner surface of the element and held in position by the angular flanges, and a plurality of feed openings in that part of the drum which is within the cylinder for permitting feed of material by centrifugal force, from the drum to the moulds carried by the element.

2. An apparatus for moulding concrete slabs, comprising, a rotatable hollow shell, an axle and drive means at one end of the shell, a drum in, and projecting from the other end of, the shell, holding flanges in the shell, a plurality of moulds formed to be held on the inner surface of the shell by the flanges, roller supports for the projecting end of the drum and slots in that part of the drum which is within the shell for permitting feed of material from the drum to the moulds within the shell, by means of centrifugal force.

Signed at Melbourne, Victoria, Australia, this 31st day of October 1924.

RALPH WILLIAMS.