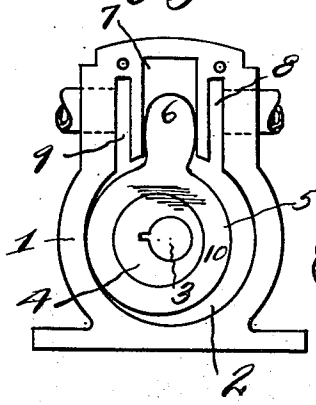
Sept. 8, 1942. F. C. PICUT 2,295,424

PUMP IMPELLER

Filed Dec. 16, 1941

Fig. 1.



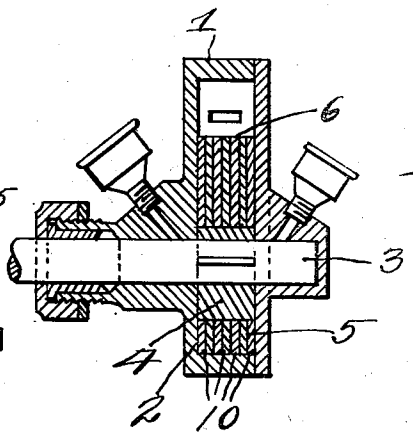


Fig. 2.



Fig. 3.

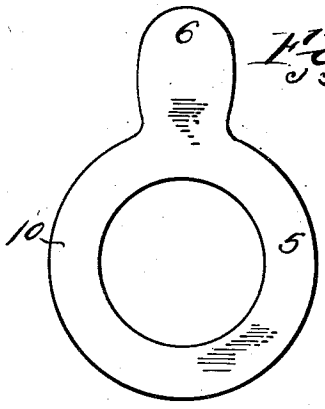


Fig. 4.

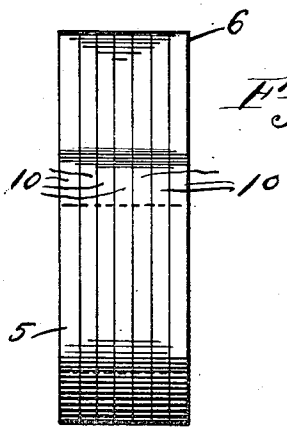


Fig. 5.

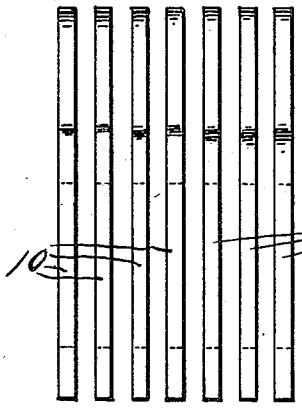


Fig. 6.

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UNITED STATES PATENT OFFICE

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PUMP IMPELLER

Frederick C. Picut, West Orange, N. J.

Application December 16, 1941, Serial No. 423,228

1 Claim. (Cl. 103—132)

The invention relates to rubber impellers used in connection with rotary pumps wherein the impeller is mounted on a rotating eccentric and guided by an extension extending into a guide pocket, and has for its object to form the impeller from a plurality of layers of rubber, vulcanized together to form the complete impeller.

Heretofore impellers of this kind have been made in one piece, either by packing the mould with a soft rubber compound or extruding the compound through a form similar in shape and size to the finished impeller. The amount required is then cut off, placed in a mould, compressed and vulcanized. Any defects in the mass, due to imperfect packing or extrusion develop into a weakness in the finished impeller and under the pressure of pumping, this weakness will spread, usually in a tear form, that destroys the effectiveness of the impeller.

A further object is to provide a method of impeller construction wherein the impeller is formed from a plurality of layers of rubber cut from a pre-formed sheet, and the layers so obtained placed together in a mould, compressed and vulcanized, therefore flaws in any particular layer will not spread to the other layers.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a view looking into a rotary pump showing the impeller therein.

Figure 2 is a vertical longitudinal sectional view through the pump.

Figure 3 is a perspective view of the impeller.

Figure 4 is an end view of the impeller.

Figure 5 is a side elevation of the impeller after the vulcanizing operation.

Figure 6 is a side elevation of the impeller laminations in position to be placed together for compressing and vulcanizing in a mould.

This device is an improvement on Patent No. 2,237,075 issued April 1, 1941.

Referring to the drawing the numeral 1 designates the casing of the pump, 2 a chamber therein and 3 a drive shaft which extends axially through the chamber 2, and has keyed thereon an eccentric 4 rotated for rotating and oscillating the impeller 5. The impeller 5 is provided with a guide extension 6, which extends into a guide chamber 7, and it will be seen as the impeller 5 is moved by the eccentric 4, fluid will be sucked into the chamber 2 from the intake port 8 and discharged from the chamber 2 through the discharge port 9, all of which structure is set forth in the patent above identified.

Impellers heretofore constructed in connection with pumps of this kind have been made either by packing the mould of the desired shape with the soft rubber compound or extruding the compound through a form similar in shape and size to the finished impeller and then cutting off the desired amount, placing the same in a mould and then compressing and vulcanizing the same. It will be obvious that any defects in the impeller so made will be always concealed from view, and as the impeller is used for pumping purposes there is a flexing of the impeller body, consequently these defects will spread in the form of a tear, thereby rendering the same inoperative or ineffective as a pumping element. This is particularly true adjacent the guide extension 6. It has been found this defect can be overcome by forming the impeller from a plurality of layers 10 of rubber. The layers are cut from a sheet of material, milled or rolled to a flat shape insuring a texture free from defects. From this flat sheet shapes are cut out to correspond to the shape of the impeller. A number of these shapes 10 are then placed in engagement with each other as shown in Figure 5 and into a mould, and then compressed and vulcanized. It has been found that an impeller so constructed is stronger as the pressure exerted is against the edges of the combined layers or laminations, and if there is a weakness is one layer it does not spread to the other layers as each limitation has a mass structure all its own.

From the above it will be seen that an impeller method of making the same has been devised which will overcome the tearing defects heretofore experienced with impellers formed from a single piece of material.

The invention having been set forth what is claimed as new and useful is:

A rubber pump impeller for rotary pumps, said impeller comprising an annular body having a radial guide extension at one side thereof which is flexed during operation where the extension joins the body, said impeller being formed from a plurality of registering annular members having radial extensions, said annular members and their extensions being formed of rubber, said annular members and their extensions being vulcanized together to form the completed impeller.

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