C. B. ANDREWS.

CENTRIFUGAL PUMP RUNNER.

APPLICATION FILED JUNE 17, 1919.

1,320,031. Patented Oct. 28, 1919.

Fig. 1.

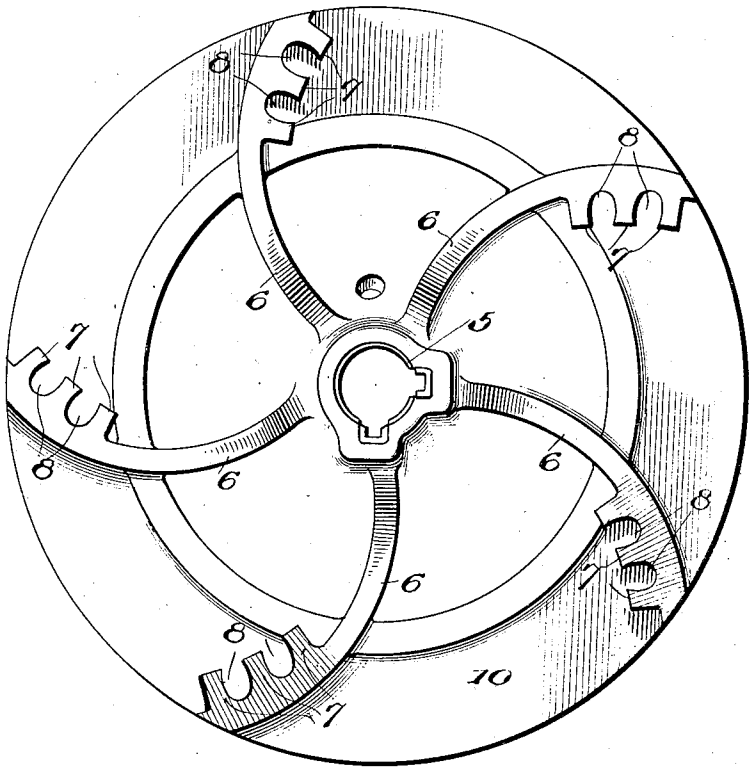
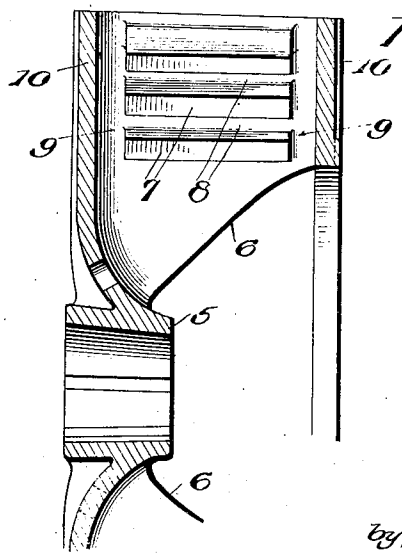


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CENTRIFUGAL-PUMP RUNNER.

1,320,031. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed June 17, 1919. Serial No. 304,742.

To all whom it may concern:

Be it known that I, CHARLES B. ANDREWS, citizen of the United States, residing at High Bridge, in the county of Hunterdon and State of New Jersey, have invented certain new and useful Improvements in Centrifugal-Pump Runners, of which the following is a specification.

This invention relates to runners for centrifugal pumps and the like.

It has been the standard practice of late years to cast such elements from manganese steel, and, in the larger sizes, it has been necessary to fasten weights by means of rivets to the outer ends of the vanes to balance the runners since they revolve at high speeds when in service. The rivets which fasten the weights are necessarily made of soft steel and are located at the point of greatest wear so that they soon wear through and leave holes which enlarge rapidly with the result that there is considerable dissatisfaction with this design.

My invention aims to overcome this trouble and generally stated it resides in a pump runner whereof the vanes or impellers are provided with integers or coupons cast with the vanes and spaced apart from each other and from surrounding parts so that one or more of the coupons in each set, or fractional parts thereof, can be burned off if necessary in order to balance the runner.

The nature, characteristic features and scope of the invention will more readily be understood from the following description taken in connection with the accompanying drawings, forming a part hereof, wherein—

Figure 1 is an end view of a pump runner embodying my invention.

Fig. 2 is a sectional-elevational view thereof.

Referring to the drawings, the numeral 5 represents the hub element, and 6 represents radial webs, vanes or impellers, of a pump runner consisting of a single casting of manganese steel. The vanes 6 are provided on the side not exposed to wear with integers or coupons in the form of alined ribs or offsets 7 cast integral with the vanes. There are clearance spaces 8 between the coupons, and spaces 9 between the ends of the coupons and the sides 10 of the vanes, which spaces admit of the introduction of an oxy-hydrogen flame, or the like, for the purpose of burning off one or more coupons or fractional parts of coupons of each set in order to balance the runner.

It is evident that with my invention the balancing provisions cannot become fugitive, are not exposed to wear, and insure perfect balance of the runner.

Having described the nature and object of the invention, I claim:—

1. A pump runner whereof the vanes are provided with integers or coupons freely accessible for trimming purposes.

2. A pump runner whereof the vanes are provided on the side not exposed to wear with integers or coupons constituting balancing provisions.

3. A pump runner consisting of a manganese steel casting and whereof the vanes are provided on the side which receives no wear with integral ribs or offsets freely accessible for trimming purposes.

4. A pump runner consisting of a manganese steel casting and whereof the vanes are provided with spaced integral ribs or offsets constituting balancing provisions.

5. A pump runner consisting of a manganese steel casting and whereof the vanes are provided with integral ribs or offsets constituting balancing provisions, said ribs spaced apart from each other and from surrounding metal parts whereby they are freely accessible for trimming purposes.

In testimony whereof I affix my signature.

CHARLES B. ANDREWS.