J. H. SEBALD.

CENTRIFUGAL PUMP.

APPLICATION FILED MAY 4, 1912.

1,046,115. Patented Dec. 3, 1912.

Fig. 2

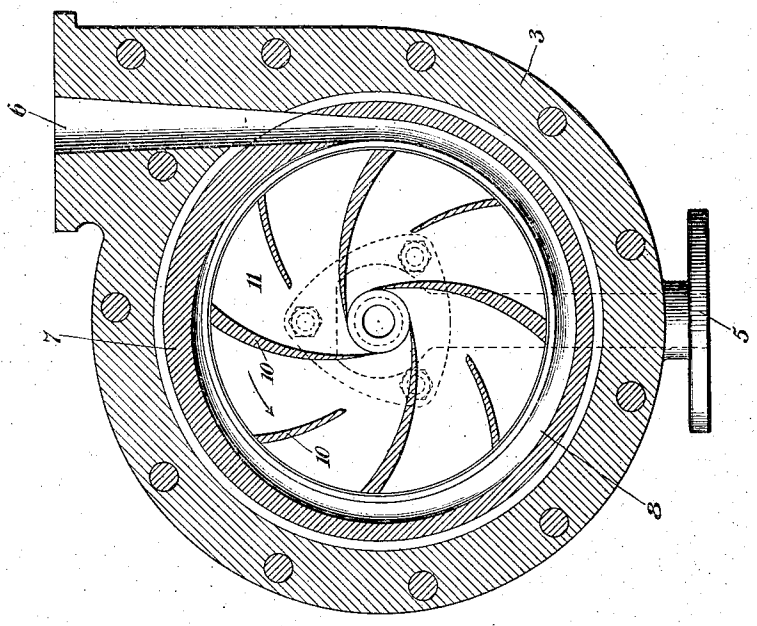
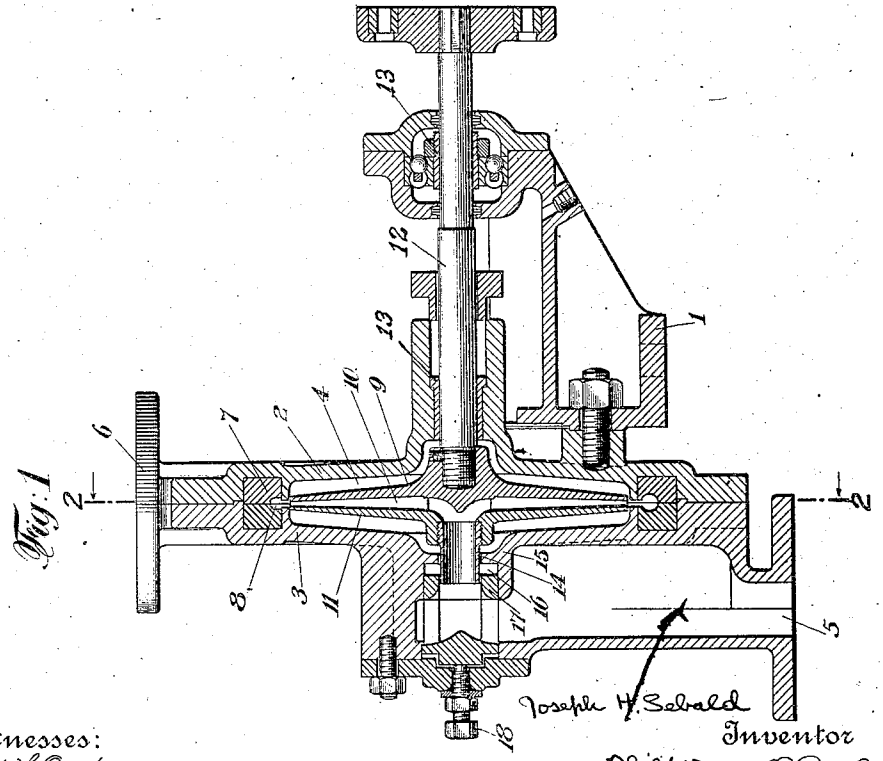


Fig. 1



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UNITED STATES PATENT OFFICE.

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CENTRIFUGAL PUMP.

1,046,115. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed May 4, 1912. Serial No. 695,034.

To all whom it may concern:

Be it known that I, JOSEPH H. SEBALD, a subject of the Emperor of Austria-Hungary, having taken out my first naturalization papers in the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Centrifugal Pumps, of which the following is a specification.

This invention relates to centrifugal pumps and has for its object the increasing of the efficiency of such pumps and improving the construction thereof.

In centrifugal pumps of the types used at present, the shell of the pump is generally made up of two halves bolted together forming a chamber in which the impeller runs. The volute into which the impeller discharges is cast directly into the metal of these halves, and on account of its peculiar shape it is almost impossible to get the smoothness in the cast iron which is essential to efficient operation.

The object of the present invention is to obviate this difficulty and also to render the volute replaceable with others of the same or different sizes, without renewing the whole pump.

With this object in view and others that will later appear I have devised a machine, a practical embodiment of which appears in the accompanying drawings in which—

Figure 1 is a longitudinal vertical section showing the complete device, and Fig. 2 is a transverse vertical section through line 2—2 of Fig. 1 looking in the direction of the arrow.

The pump comprises a foot 1 to which is secured the pump casting which consists of two halves 2 and 3 bolted together leaving a chamber 4, with an inlet 5 and exhaust 6. In each half of the casing in the faces which contact are annular depressions which register with each other, and in each of these depressions is inserted a ring of a more easily worked material containing half of the volute depression. This ring may be of a material such as lead, in which case it may be cast directly into the casing or it may be of a material such as wood, in which case it is merely inserted in and the two halves of the casing are bolted together so that the two depressions forming the volute register and make a smooth surface.

In the chamber 4 and discharging through its periphery into the volute is the impeller consisting of a disk 9, blades 10 and a cover 11. The disk is secured to a shaft 12 which rotates in bearings 13 on the foot 1. The cover 11 is provided with a throat 14 which fits closely against a ring 15 integral with the casing 2 and projects into the inlet chamber 5 leaving an annular stuffing gland 16. Into this projects a stuffing sleeve 17 which is arranged to be adjusted by a screw 18 on the outside of the casting.

The advantage of having the volute formed in an easily removable ring is obvious. In the first place the ring may be formed of an easily workable material which could not be used for the casing, or if of a harder material it can be manufactured with much greater ease separately. Then, it is replaceable when worn and the same casing may be used with different sized volutes by a change merely in the rings.

Another necessary feature of my design is the stuffing box around the throat of the impeller cover. This is absolutely essential to efficiency in a high pressure pump.

It is to be understood that the pump herein shown and described covers but one modification of my invention which contemplates all modifications and changes in design whether in a single or multiple impeller pump, within the scope and spirit of the invention as expressed in the claims.

What I claim is:

1. In a centrifugal pump, a divided casing, forming an impeller chamber, an impeller in said chamber, annular depressions in each part of said casing forming an annular chamber in line with the periphery of said impeller, and removable rings in said annular chamber having depressions forming a volute into which said impeller discharges.

2. In a centrifugal pump, a casing made up of two parts with contacting flanges, annular depressions in the contacting faces of said flanges, and a ring of easily worked material in each of said depressions, said

rings having contacting faces with grooves therein, said grooves forming a volute.

3. In a centrifugal pump, a casing made up of two parts with contacting flanges, annular depressions in the contacting faces of said flanges, and a ring of soft metal cast into each of said depressions, said rings having contacting faces with grooves therein, said grooves together forming a volute.

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