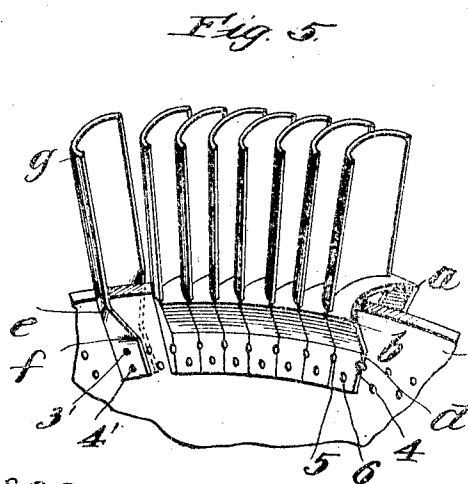
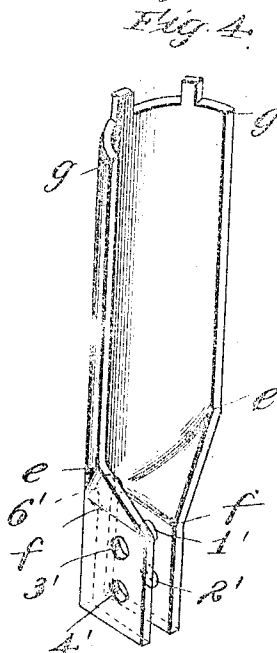
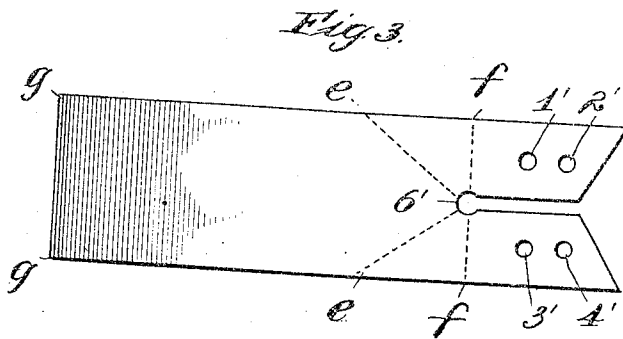
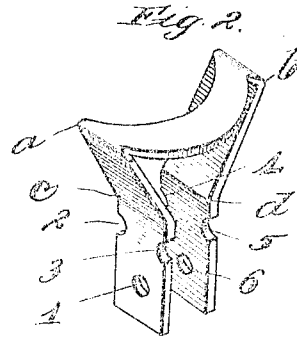
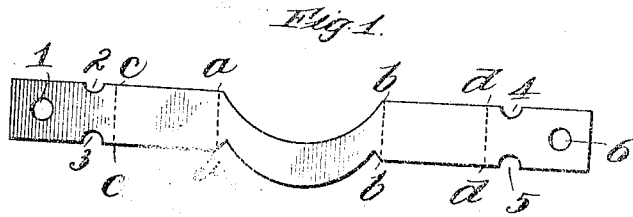


926,442.

C. H. SMOOT.
TURBINE BUCKET.
APPLICATION FILED DEC. 23, 1907.

Patented June 29, 1909.



Witnesses:

D. W. Ambroschmidt.
L. J. Dumais

Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES HEAD SMOOT, OF LA GRANGE, ILLINOIS.

TURBINE-BUCKET.

No. 926,442.

Specification of Letters Patent.

Patented June 29, 1909.

Application filed December 23, 1907. Serial No. 407,858.

To all whom it may concern:

Be it known that I, CHARLES HEAD SMOOT, citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Turbine-Buckets, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved form of turbine buckets, though I do not wish to be limited in the application of this invention to turbines.

My invention has as its object the blading of steam turbines and other fluid operating machines.

By means of my invention I provide a bucket which can be made, if desired, from sheet metal, can be securely attached to the periphery of a wheel, and presents a smooth passage to the flow of steam through said buckets. This construction permits the use of a wheel having a light periphery for a given thickness of bucket material, and is characterized by the use of two principal parts, one of which forms the curved portion of the bucket proper, the other part forming a spacing plate or shield, which at the same time, serves to stiffen and reinforce the bucket proper in its right position and furthermore, forms a smooth channel for the passage of the impelling fluid.

I will explain my invention more fully by reference to the accompanying drawings.

Figure 1 shows the separating plate or shield developed on a plain surface. Riveting holes and notches 1, 2, 3, 4, 5, and 6 are shown at either end of separating plate, by means of which it is attached to the wheel. In shaping this plate to its final form, the plate is bent downward through the dotted lines, *a-a*, and *b-b* and outward through the dotted lines, *c-c* and *d-d*.

Fig. 2 shows the separating plate or shield as bent into its final shape. The lines *a*, *b*, *c* and *d* correspond to lines of similar letters in Fig. 1.

Fig. 3 shows the bucket blade developed on a plain surface. The finished bucket blade is obtained from this by curving upward the portion between the dotted lines, *e* and *e* and the left hand extremity, *g-g*, this curvature being in any form desired, usually to a por-

tion of a cylindrical surface. The plate is also bent upward along the dotted lines, *e* and *e* and then outward along the dotted lines, *f* and *f*. The process of bending produces the complete blade as shown in perspective Fig. 4. The lower portion of the blade below the dotted lines, *f* and *f* are two flat parallel surfaces, known as the bucket tangs, by means of which the bucket is attached to the periphery of the wheel, by means of rivets passing through the holes 1', 2' and 4'. The dotted lines *e*, *f* and *f* shown in Fig. 4 correspond in their location on the strip of material to the dotted lines of similar letters in Fig. 3.

In Fig. 5 is shown a portion of a wheel to which has been attached some of the above described buckets and separating plates. *A* indicates a portion of the wheel. *g* indicates the blade described in detail in Figs. 3 and 4. *a* indicates the spacing plate shown in detail in Figs. 1 and 2. Nos. 4, 5 and 6 indicate the location of rivets which pass through the lower extremity of the spacing plates, blade tangs and periphery of the wheel, uniting all three parts firmly together.

I do not want to be restricted to riveting as the means of attaching the spacing plates and buckets to the wheel, as substitutes for riveting are obvious to those skilled in the art.

Having thus described my invention I, claim as new and desire to secure by Letters Patent:—

1. In a wheel carrying buckets a hollow rim extending above the periphery of the wheel proper through which buckets emerge.

2. In a wheel carrying buckets a hollow rim held astride on the wheel periphery through which buckets emerge.

3. In a wheel carrying buckets a hollow rim made in sections and buckets emerging between each section of the hollow rim.

4. In a wheel carrying buckets held astride on its periphery a hollow rim through which buckets emerge.

In witness whereof, I hereunto subscribe my name this 16th day of December A. D., 1907.

CHARLES HEAD SMOOT.

Witnesses:

S. BATTA,
MURRY NELSON, Jr.