

H. PARKER.
IMPELLER.

APPLICATION FILED MAR. 22, 1910.

1,004,543.

Patented Sept. 26, 1911.

Fig. 1.

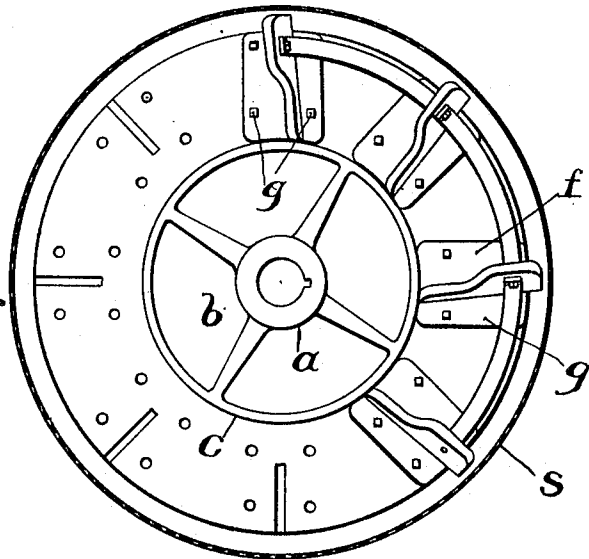


Fig. 2.

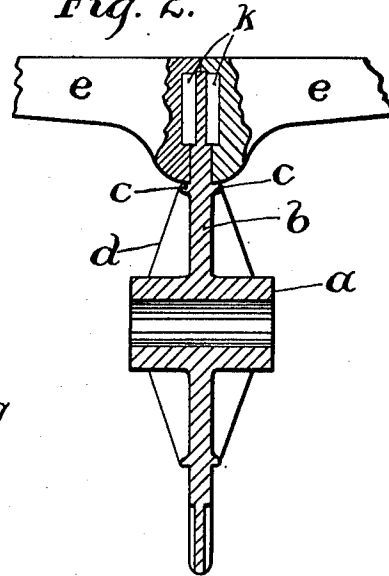
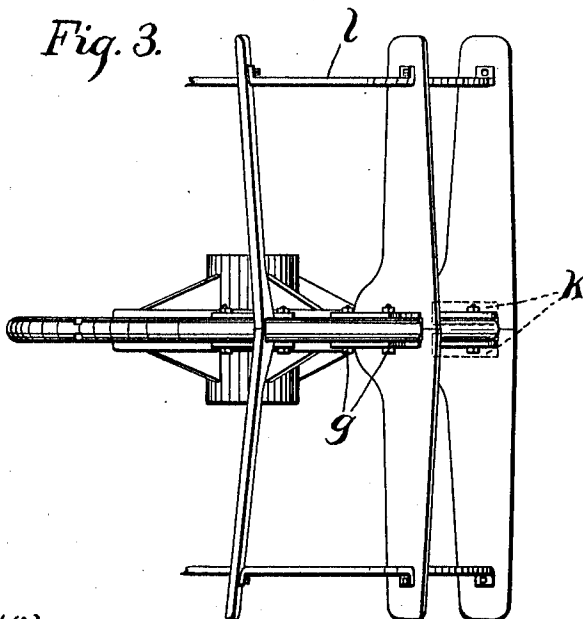


Fig. 3.



Witnesses:

L. E. Berkwith

M. Freimund

Inventor:

Howard Parker.
By H. E. V. Hall
in attornys

UNITED STATES PATENT OFFICE.

HOWARD PARKER, OF NASHUA, NEW HAMPSHIRE.

IMPELLER.

1,004,543.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed March 22, 1910. Serial No. 550,885.

To all whom it may concern:

Be it known that I, HOWARD PARKER, a citizen of the United States, and a resident of Nashua, in the county of Hillsboro, State of New Hampshire, have invented certain new and useful Improvements in Impellers, of which the following is a specification.

The invention is illustrated and described as embodied in an impeller for use in connection with centrifugal pulp separators and it is especially adapted for uses of this sort.

The object of the invention is to produce a structure of the kind described having features of novelty and advantage.

In the drawings—Figure 1 is an end view of a device made in accordance with my invention. Fig. 2 is a detail view in central vertical section of the hub and having parts of the blades broken away to show the method of attachment. Fig. 3 is a side view of the impeller.

My invention will be described in connection with its use in a paper pulp screen, in which apparatus the pulp stock is fed into the interior of a cylindrical screen, which may or may not be rotatable, and is thrown against the screen by the blades of an impeller for the purpose of separating the coarser fibers and slivers from the finer fibers. These impellers usually rotate at a quite high rate of speed and are subjected to a considerable strain.

Referring to the drawings *a* denotes the hub of the impeller, *b* a circumferential flange, *c* circumferential beads on the side faces of the flange *b*, *d* stiffening webs extending from the beads to the hub and *e* the impeller blades which are secured to the faces of the flange in oppositely arranged pairs. As will be seen by reference to Fig. 2 these blades rest on the beads *c* and are arranged opposite to one another, being provided with base pieces *f* through which pass bolts *g* by means of which the blades are secured to the flange.

h are keys fitting into key-ways in the flange and the base of the blades, in order to lock the blades onto the flange and relieve the strain on the securing bolts *g*.

l are spacing-bars located between the outer ends of the blades to give rigidity and stiffness to the structure as a whole.

s indicates the screen of a centrifugal pulp separator against which the pulp is thrown by the impeller blades. As will be seen by reference to Fig. 3 the blades of each pair

are oppositely inclined rearwardly with respect to the direction of rotation of the impeller in order that the pulp stock will not only be thrown outwardly against the screen, but also given a direction of travel toward the ends of the screen, thus forcing the slivers and larger particles of pulp which do not pass through the screen toward each end of the screening drum.

The screening operation is sometimes referred to as a grading of the pulp. If the pulp stock which is fed into the screen is thin, that is to say carries a large amount of water, it can be screened and graded very quickly and in such case blades having a considerable angle of inclination may be used and the rate at which the grading process proceeds can thus be accelerated. If, however, the pulp stock be drier or carry not so much water, a longer time is necessary for the screening operation and in such case blades of less inclination would be used.

By the use of an impeller made in accordance with my invention the blades can be readily changed either for replacement by blades of different inclination or for the purpose of repair in case one or more of the blades become broken. A structure is provided which is extremely rigid and durable and one which can be either stored or shipped in knockdown condition, working great economies in space and in transportation charges. By altering the shape and size of the blades from those illustrated in the drawings this impeller can be put to other uses than that in connection with which the invention is described.

I claim:—

1. A device of the character described comprising a hub, a circumferential flange, pairs of blades removably secured to the opposite faces of said flange.

2. A device of the character described comprising a hub, a circumferential flange, pairs of blades located opposite one another against the faces of said flange, means for securing said blades to said flange, and spacing-bars extending between the outer ends of adjacent blades.

3. A device of the character described comprising a hub, a circumferential flange thereon, bases removably secured opposite one another on the faces of said flange, and blades extending laterally from said bases.

4. A device of the character described comprising a hub, a circumferential flange,

pairs of blades located opposite one another against the faces of said flange, means for securing said blades to said flange, key-ways cut in the opposite faces of said flange and in the bases of said blades, and keys
5 located in said key-ways.

5. A device of the character described comprising a hub, a circumferential flange, circumferential beads formed on opposite
10 faces of said flange, stiffening webs extending from said hub to said beads, a series of pairs of blades which are arranged opposite one another and secured to the side of said
15 flange outside of said bead, bases for said blades, and keys locking said bases to said flange.

6. The combination with a pulp separat-

ing screen, of an impeller mounted to rotate within said screen, said impeller comprising a hub, a circumferential flange thereon, pairs of blades arranged opposite one another and removably secured to said flange, each pair of blades being oppositely and rearwardly inclined, for the purposes
20 set forth.

7. A device of the character described comprising a hub, a circumferential flange thereon, bases removably secured on at least one face of said flange, and blades extending laterally from said bases.

HOWARD PARKER.

Witnesses:

ROBERT A. FRENCH,
C. F. GOLDTHWAITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."