No. 840,137.

PATENTED JAN. 1, 1907.

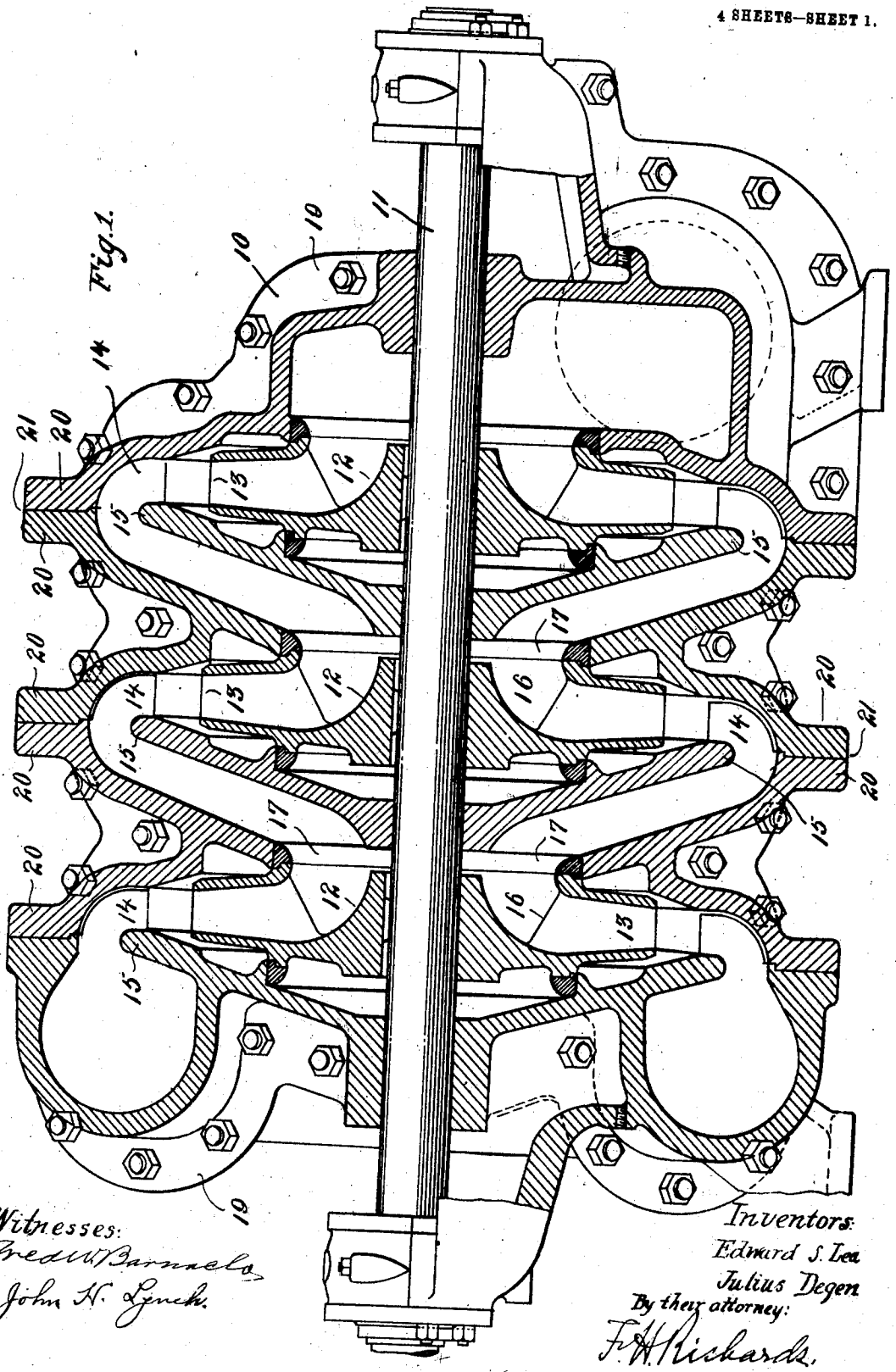
E. S. LEA & J. DEGEN.

MULTIPLE SECTION PUMP CASING.

APPLICATION FILED MAY 27, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Fred W. Barnacle
John N. Lynch.

Inventors:
Edward S. Lea
Julius Degen
By their attorney:
F. W. Richards.

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4 SHEETS—SHEET 2.

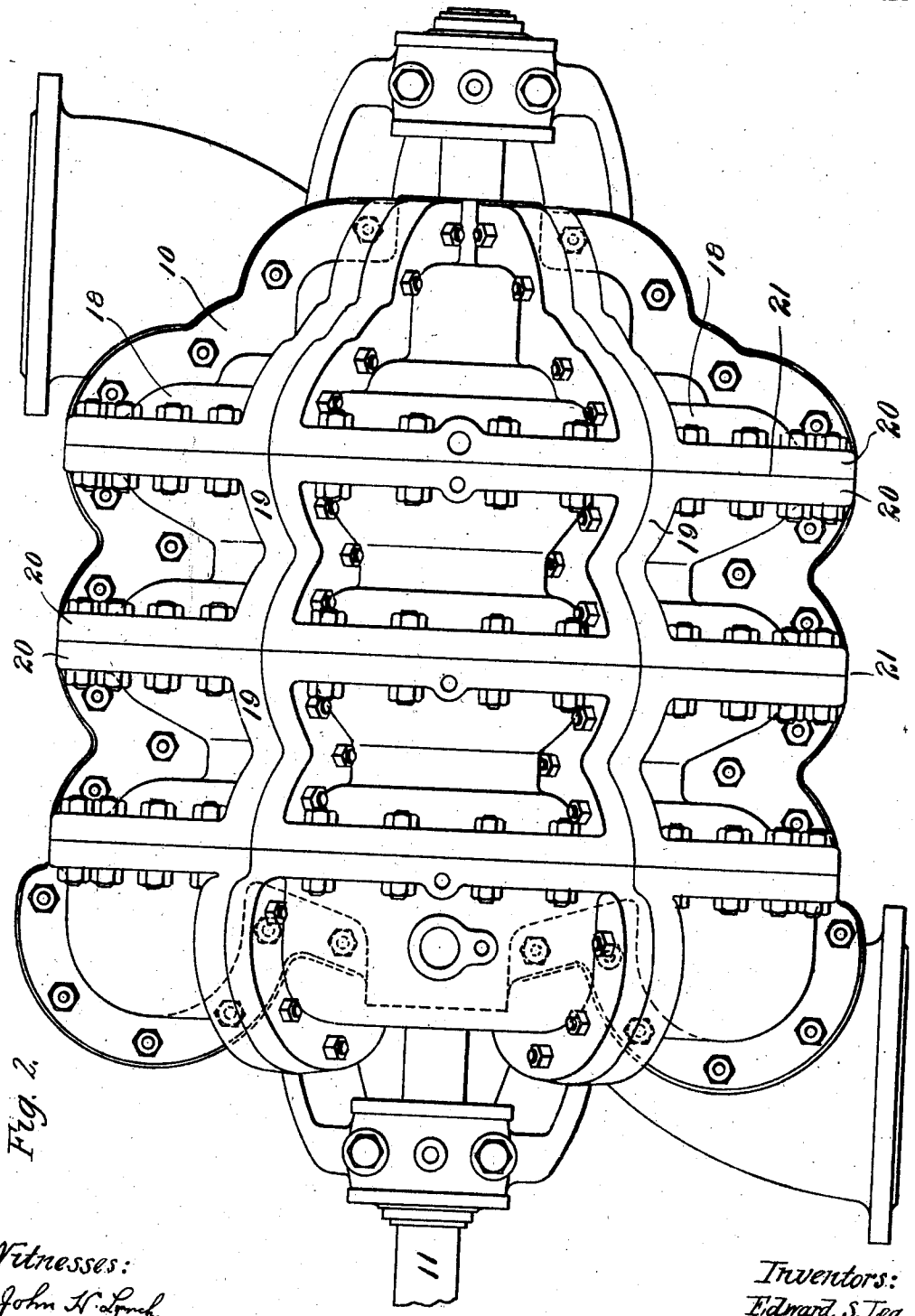


Fig. 2.

Witnesses:
John H. Lynch.
Fredk. W. Barnacle

Inventors:
Edward S. Lea
Julius Degen.
By their attorney:
F. W. Richards.

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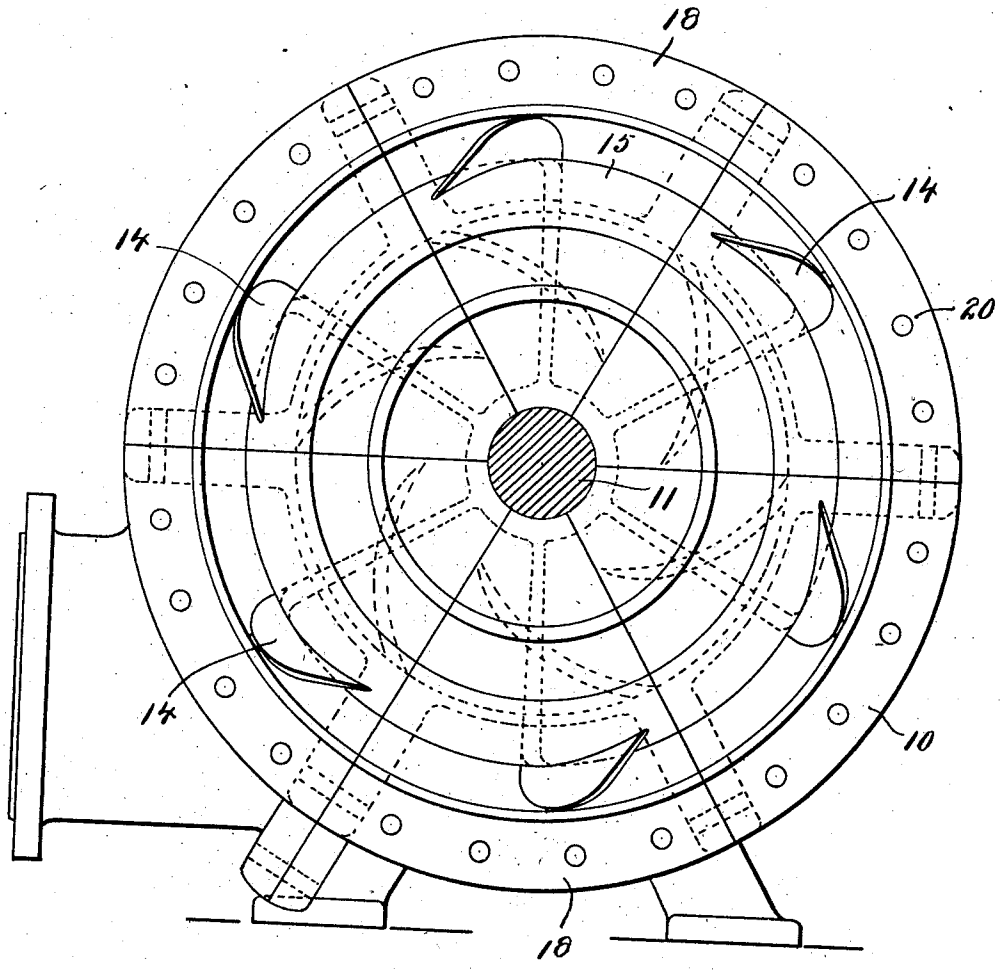
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APPLICATION FILED MAY 27, 1905.

4 SHEETS—SHEET 3.

Fig. 3.



Witnesses:
C. C. Linn.
Fred'k Barnacle

Inventors:
Edward S. Lea,
Julius Degen:
By their attorney,
F. H. Richards.

No. 840,137.

PATENTED JAN. 1, 1907.

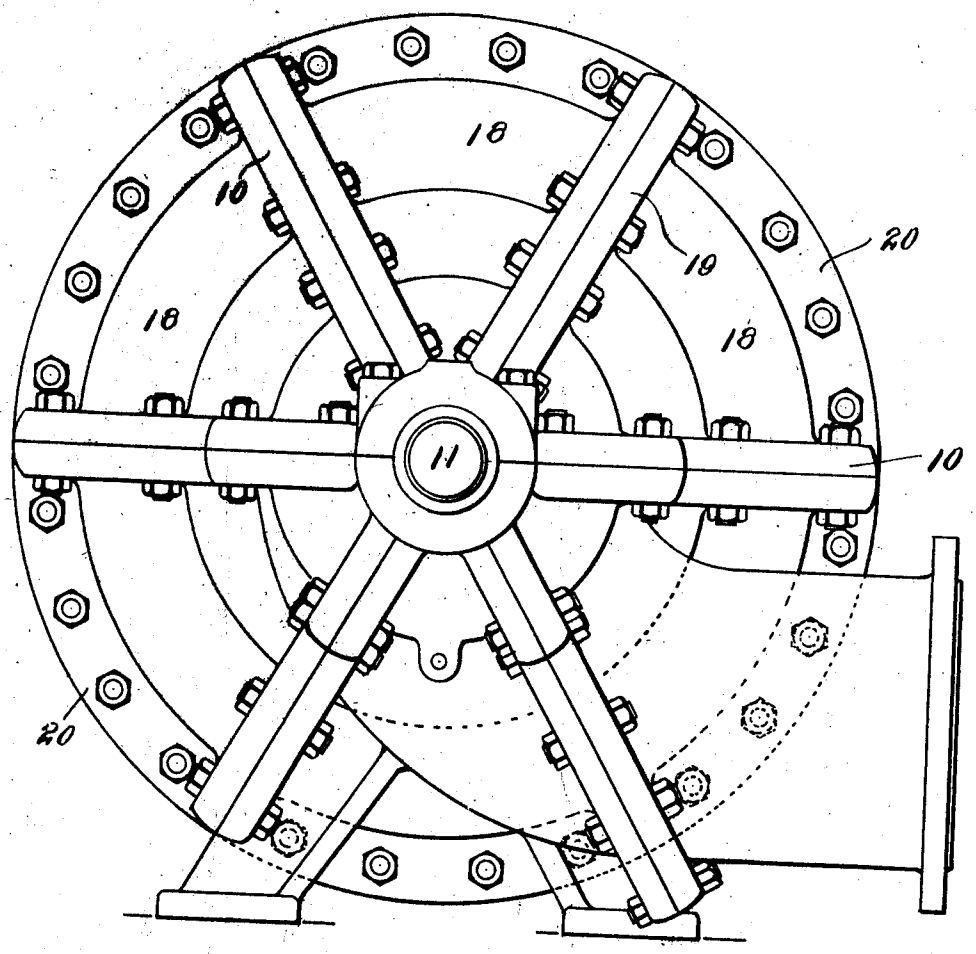
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APPLICATION FILED MAY 27, 1905.

4 SHEETS—SHEET 4.

Fig. 4.



Witnesses:
C. C. Tussi.
Fred'k W. Barnicle.

Inventors:
Edward S. Lea;
Julius Degen;
By their attorney:
F. A. Richards.

UNITED STATES PATENT OFFICE.

EDWARD S. LEA AND JULIUS DEGEN, OF TRENTON, NEW JERSEY, ASSIGNORS, BY MESNE ASSIGNMENTS, TO LEA-DEGEN PUMP COMPANY, OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MULTIPLE-SECTION PUMP-CASING.

No. 840,137. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed May 27, 1905. Serial No. 262,609.

To all whom it may concern:

Be it known that we, EDWARD S. LEA, a citizen of the United States, and JULIUS DEGEN, a citizen of the Republic of Switzerland, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Multiple-Section Pump-Casings, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal sectional view of a pump embodying our invention. Fig. 2 is a plan view of Fig. 1. Fig. 3 is an end elevation of the pump, a portion of the casing being removed; and Fig. 4 is a view of the suction end of the pump.

The object of our invention has been to provide a centrifugal pump-casing in which the passages leading from an impeller and the deflectors forming such passages may be cast with such ease that comparatively perfect surfaces may be obtained and that the friction in the pump may thereby be reduced; and to such ends our invention consists in the multiple-section pump-casing hereinafter specified.

In carrying our invention into practice, as illustrated in the drawings, we provide a casing 10, having bearings for a shaft 11, that carries one or more impellers 12. As the water leaves the mouth 13 of an impeller it is caught by the beak 14 of a deflector, the said beak being substantially tangent to the direction of the water in leaving the impeller, and is carried over a partition 15 and down into the mouth 16 of the next impeller. The deflector extends from the beak 14 to the exit 17 of the passage-way formed between the adjacent deflectors and between the partition and the casing. In order that the best efficiency may be obtained, the surfaces of the deflectors and other parts forming the passages for the water must be as smooth as possible, and to enable such surfaces to be as perfectly cast as may be we divide the casing into segments, as illustrated in Fig. 3, and provide one segment for each deflector, so that both sides of each deflector may be reached laterally and a comparatively simple problem in casting be presented. The various casing-segments 18 are provided with flanges 19, by which they may be united together, as by bolts, to form a casing-section. The casing-sections formed by a complete circle of the segments are united by transverse flanges 20, so that the casing is made up of sections separated in transverse planes 21, there being one section for each impeller and a suction-head and delivery-head in each casing.

The casing above illustrated has the advantage that with one set of patterns pumps of any number of stages can be formed and that not more than one deflector is formed in any one casting, so that the surfaces of the said deflector can be most perfectly cast.

It is obvious that our invention is applicable to other forms of pump-casing, and we do not desire to be limited to the precise construction illustrated.

Those features which are common to the present case and our application for the reissue of our Letters Patent No. 790,795, granted May 23, 1905, are not claimed in the present case, but are claimed in the said reissue application.

Having thus described this invention, we claim—

1. A centrifugal pump, comprising a casing, a shaft, an impeller on said shaft, a partition forming with the casing a chamber in which the impeller may rotate, and deflectors uniting said partition with said casing and forming water-passages, said casing being divided into segments, there being but one segment for each deflector.

2. A centrifugal pump, consisting of the combination of a casing, a shaft mounted in said casing, a plurality of impellers on said shaft, partitions forming with the casing chambers in which the impellers may rotate, deflectors supporting said partitions from said casing and forming therewith water-passages, said casing being formed in segments, there being but one segment for each deflector, whereby the water-guiding surfaces may be most perfectly formed.

3. A centrifugal pump, consisting of the combination of a casing, a shaft mounted in said casing, a plurality of impellers on said

shaft, partitions forming with the casing chambers in which the impellers may rotate, deflectors supporting said partitions from said casing and forming therewith water-passages, said casing consisting of sections meeting in planes substantially perpendicular to its axis, each of said sections being divided along substantially radial planes into segments, there being but one segment for each deflector, and said casing as a whole being divided substantially parallel to the shaft.

EDWARD S. LEA.
JULIUS DEGEN.

Witnesses as to Edward S. Lea:
HARRY WETHERALD,
FRED. W. BARNACLO.

Witnesses as to Julius Degen:
EMIL DIETLER,
JOHN O. SEIFERT.