(No Model.) 2 Sheets—Sheet 1.

G. DELMONTE.

POWER GENERATING APPARATUS.

No. 559,969. Patented May 12, 1896.

FIG. 1.

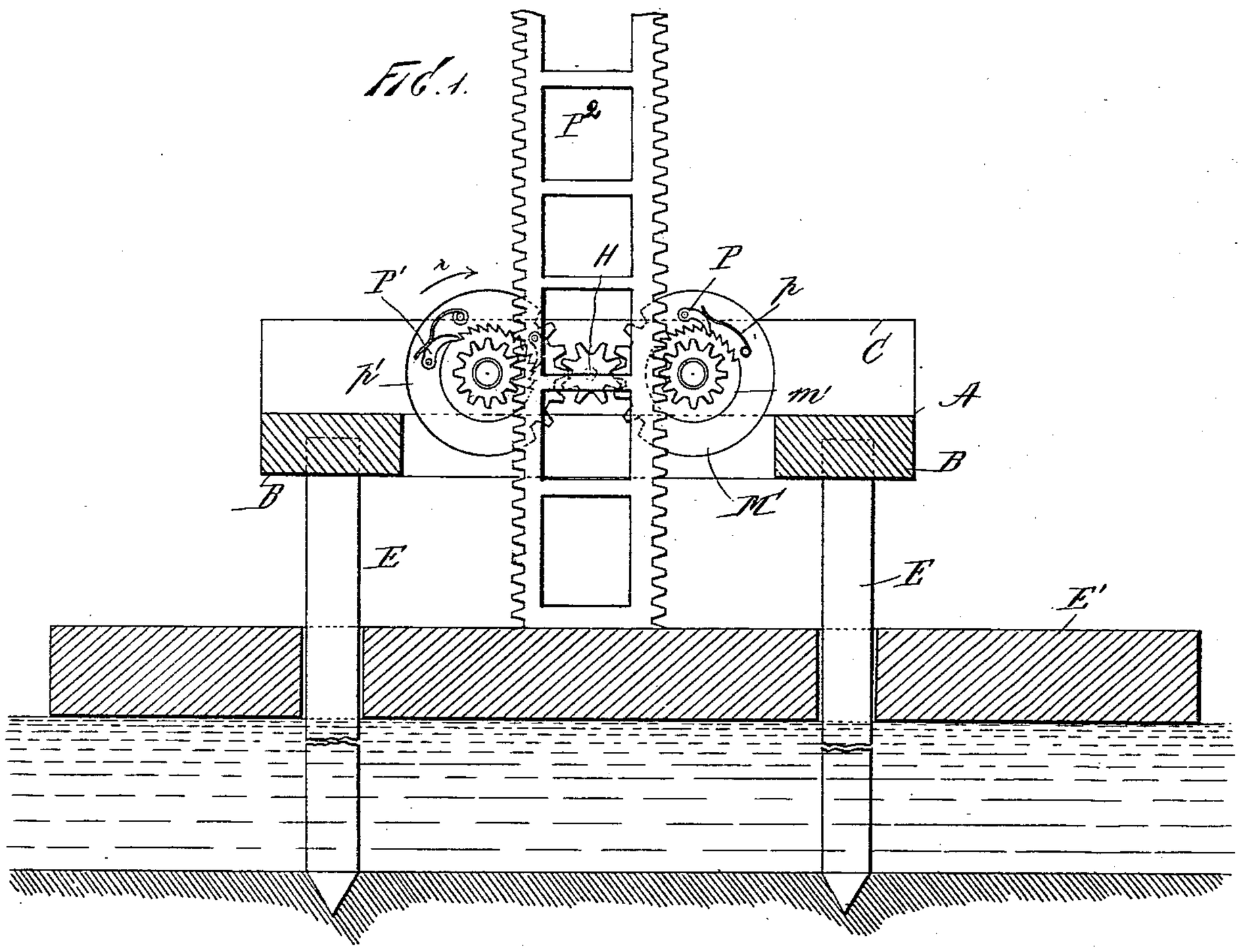
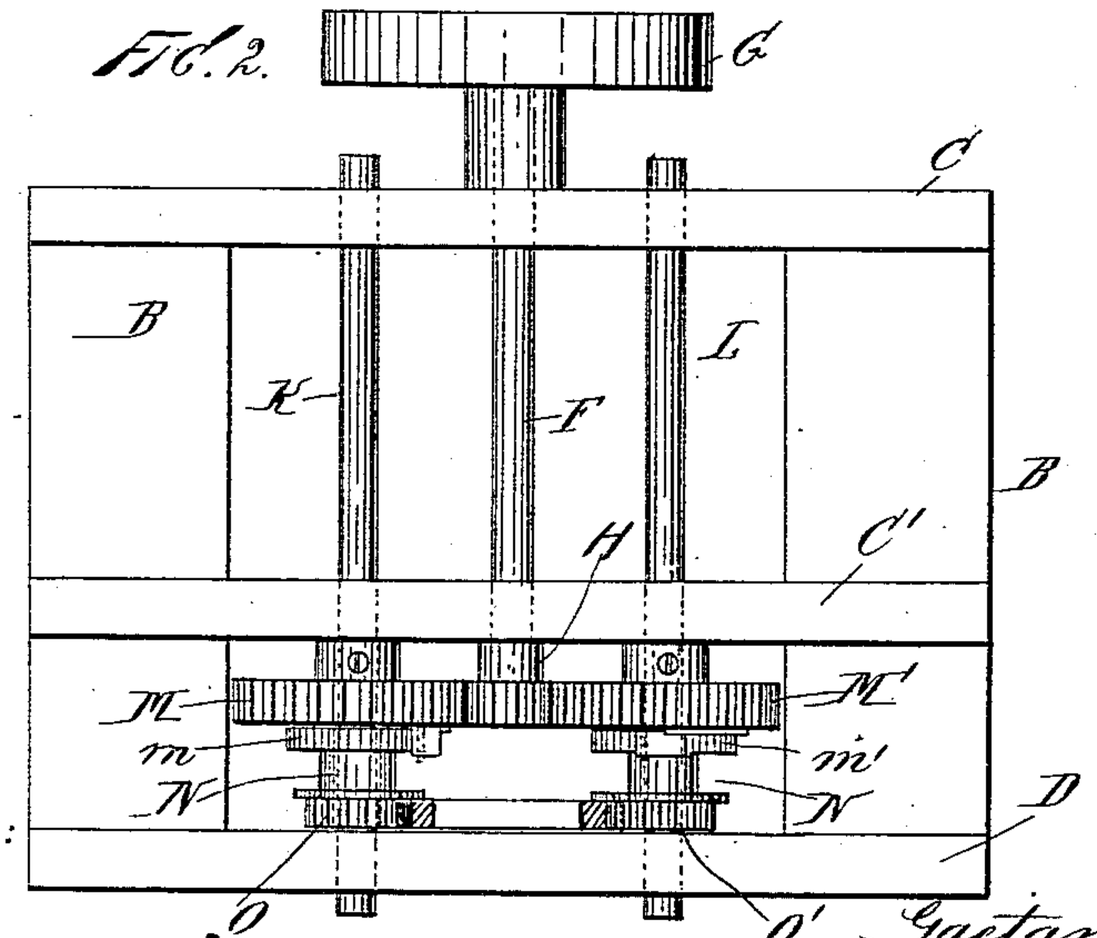


FIG. 2.



WITNESSES:

John Buckler,

L. M. Muller.

INVENTOR

Gaetano Delmonte,

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

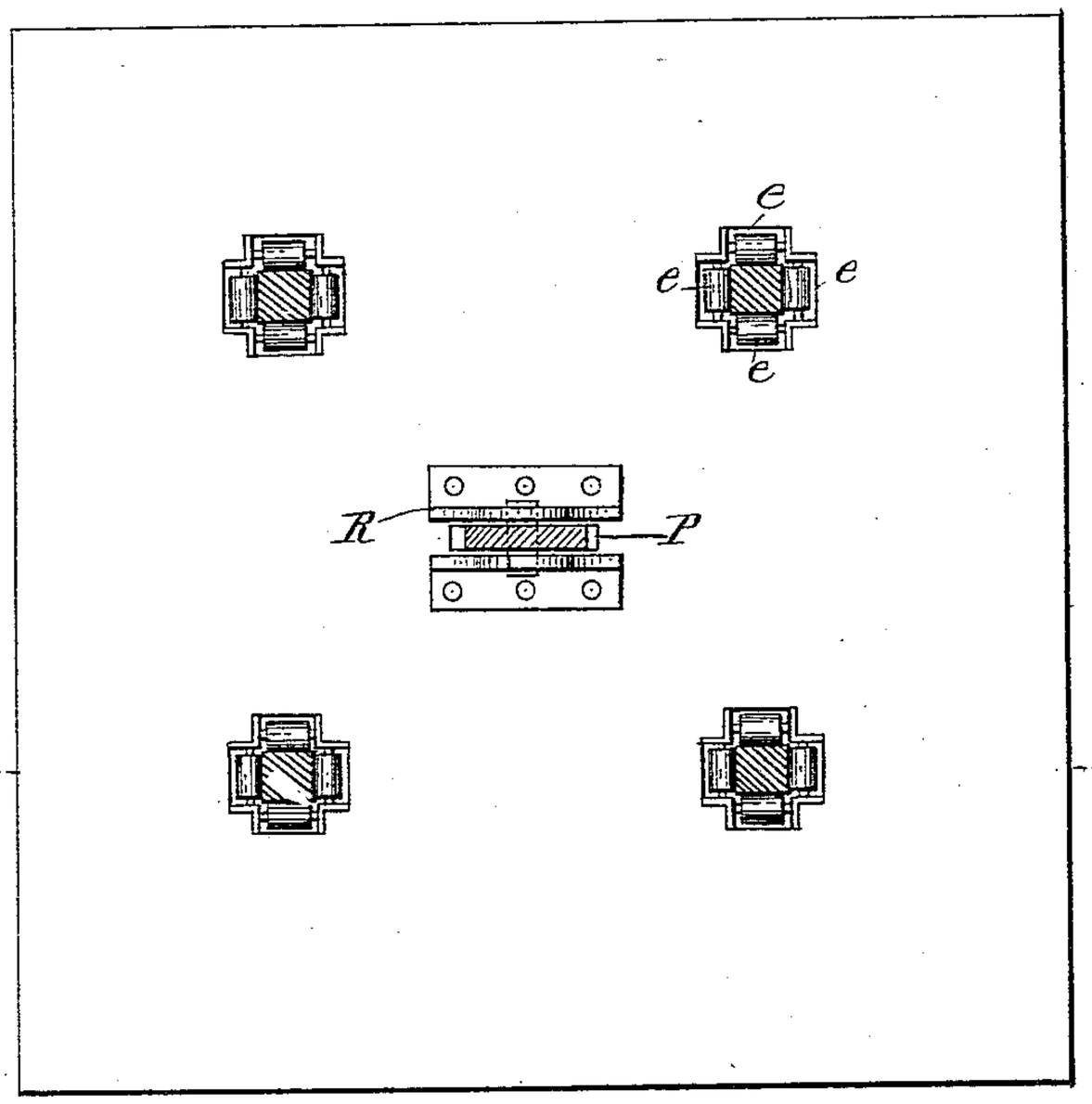
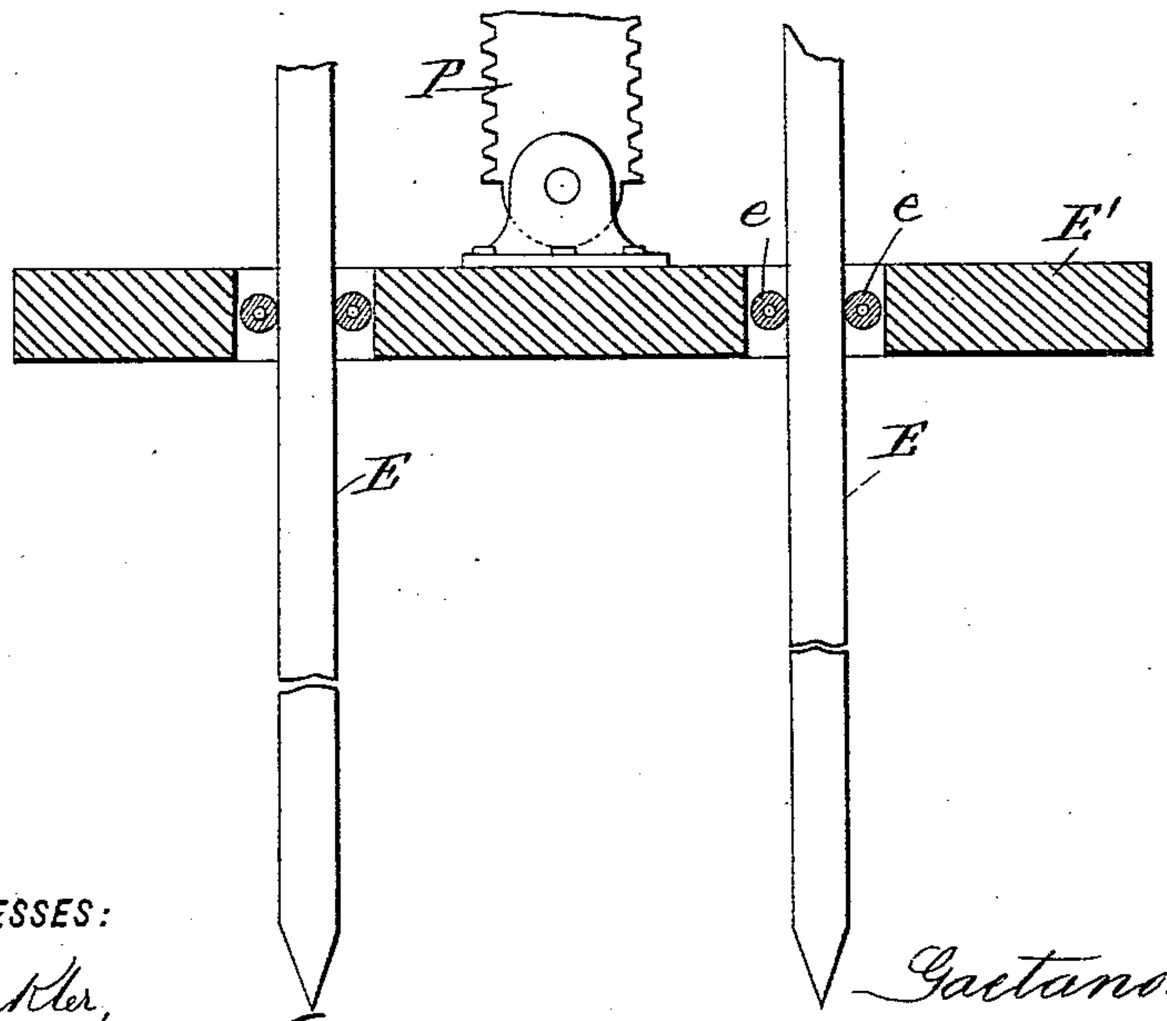


FIG. 4.



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UNITED STATES PATENT OFFICE.

GAETANO DELMONTE, OF NEW YORK, N. Y.

POWER-GENERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 559,969, dated May 12, 1896.

Application filed July 13, 1895. Serial No. 555,831. (No model.)

To all whom it may concern:

Be it known that I, GAETANO DELMONTE, a citizen of the United States, and a resident of New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Power-Generating Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

This invention relates to power-generating mechanism, and particularly to that class thereof which is operated by the waved motion of the sea; and the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, and in which—

Figure 1 is a sectional end elevation of my improved power mechanism; Fig. 2, a plan view thereof. Fig. 3 is a plan view of a float which I employ, showing portions of the apparatus in section; and Fig. 4, a section on the line 4 4 of Fig. 2.

In the practice of my invention I employ a frame A, consisting of side bars or plates B and cross bars or plates C, C′, and D, the cross-bars C′ and D being adjacent and closer together than the cross-bars C and C′. The frame A is supported above the water and near or adjacent to the beach or sea-shore by means of legs or posts E, which are firmly connected therewith in any desired manner, as will be readily understood, and a float E′, of any desired size, form, or material, is provided, through which the legs or posts E extend, and the said float E′ is provided with openings by means of which it is freely movable on the said legs or posts and is adapted to rise and fall with the waves, being guided in said movement by said legs or posts, which are firmly embedded in the ground, as will be readily understood.

Mounted in the cross bars or plates C and C′ is a shaft F, the outer end of which is provided with a power-wheel G and the inner end of which, adjacent to the cross bar or plate C′, is provided with a small gear-wheel H.

Adjacent to the shaft F, on each side thereof and at a predetermined distance therefrom and parallel therewith, are two shafts K and L, and mounted thereon between the cross bars or plates C′ and D are gear-wheels M and M′, each of which is adapted to mesh and operate in connection with the gear-wheel H. Mounted on said shafts K and L, between the gear-wheels M and M′ and the cross bar or plate B, are ratchet-wheels *m* and *m′*, each of which is provided with a hub N, the outer ends of which are provided, respectively, with gear-wheels O and O′, and between the gear-wheels O and O′ and adapted to operate in connection therewith is a double rack bar or frame P^2, one side of which is adapted to engage and operate in connection with the gear-wheel O and the other to similarly engage and operate in connection with the gear-wheel O′. The gear-wheel M, its hub N, and the gear-wheel O are formed integral and revolve together, as hereinafter described, and the same is also true of the ratchet-wheel *m′*, the hub N, and the gear-wheel O′.

Secured to the outer side of the gear-wheel M′ is a pivoted pawl P, adapted to operate in connection with the ratchet-wheel *m′*, and also secured to said gear-wheel M′ is a spring *p*, adapted to operate in connection with said pivoted pawl and to keep it in contact with said ratchet-wheel, and secured to the opposite gear-wheel M is a corresponding ratchet-pawl P′ and a similar spring *p′*, the pawl being adapted to operate in connection with the ratchet-wheel *m′*.

In operation the float E′ rises and falls under the influence of the waves, as hereinbefore described, and the rack-bar P^2, which is rigidly secured thereto, is also caused to rise and fall therewith, and as the said bar rises the gear-wheel M will be turned in the direction opposite to that indicated by the arrow *r* in Fig. 1, as will be readily understood, and the gear-wheel H, together with the shaft F and the power-wheel G, will be revolved to the right thereby, as will also be readily understood, while the ratchet-wheel *m′* will be revolved independently of the gear-wheel M′. As the float falls, carrying with it the rack-bar P^2, the gear-wheel M′ will be revolved by the ratchet-wheel *m′*, thus revolving the shaft

F and the power-wheel G to the right, as hereinbefore described, while the gear-wheel M will remain stationary, these operations of the ratchet-wheels *m* and *m'* and the gear-wheels M and M' being produced as the rack-bar rises and falls by the pawls P and P' and springs *p* and *p'*, and it will thus be observed that the power-wheel G is always revolved in the same direction, the upward movement of the rack-bar P^2 operating to revolve it to the right by means of the gear-wheel M and in the downward movement operating to revolve it to the right by means of the gear-wheel M', and it will thus be seen that I accomplish the object of my invention by means of a device which is simple in construction and operation and positive in the results produced.

In Fig. 3 I have shown another form of construction, which differs slightly from that shown in Fig. 1 in that the float E' or the openings therein, through which the posts or legs E pass, are each provided with rollers *e* on each side thereof, which renders the movement of the float more regular and even, and which prevents the cramping and twisting thereof as it is raised and lowered by the action of the waves, and in this construction the rack-bar P^2 is also pivotally connected with the float, by means of which the operation thereof is made more effectual and regular and the movement thereof made vertical at all times. It is evident that if this were rigidly secured to the float, as shown in Fig. 1, there would be a slight twisting or lateral motion, and this effect is avoided by pivotally connecting the rack-bar with the float, as above described, which is done by means of vertical shoulders or projections R, which are rigidly secured to the float.

Although I have described my improved power apparatus as being operated by the waves of the sea, it is evident that the same may be operated by the movement of the tides, and this result may be accomplished by a combination of gear-wheels in connection with the gear-wheels M and M' and the gear-wheel H, and a similar combination of power-wheels in connection with the power-wheel G.

It is evident that the mechanism herein shown and described may be applied to other purposes and to operate other forms of machinery, and it is also evident that changes and alterations in the form, construction, and combination of the various parts may be made without departing from the spirit of my invention, and I therefore reserve the right to make such alterations therein as fairly come within the scope thereof.

Having fully described my invention, I claim and desire to secure by Letters Patent—

In a power-generating apparatus of the character described, the combination of the supporting-frame provided with depending legs or supports, of a float provided with openings adapted to receive said supports, said openings being provided with antifriction-rollers, a double rack-bar secured upon the upper surface of said float, a horizontal shaft mounted in said frame and provided at the outer end thereof with a power-wheel G, and upon the inner end with a gear-wheel H, additional shafts K and L upon each side of the first-mentioned shaft and carrying gear-wheels M and M', meshing with a gear-wheel H on the first-mentioned shaft, said shafts K and L also carrying ratchet-wheels *m* and *m'* mounted on hubs carrying gear-wheels O and O', adapted to mesh with said rack-bar, and spring-actuated pawls carried by the gear-wheels M and M', and adapted to engage the teeth of the ratchet-wheels *m* and *m'*, to prevent the reverse movement of the former, substantially as herein set forth and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of June, 1895.

GAETANO DELMONTE.

Witnesses:
L. M. MULLER,
A. M. CUSACK.