No. 796,820. PATENTED AUG. 8, 1905.

F. M. CUMMINGS.

CURRENT MOTOR.

APPLICATION FILED AUG. 25, 1904.

2 SHEETS—SHEET 1.

Fig. 1,

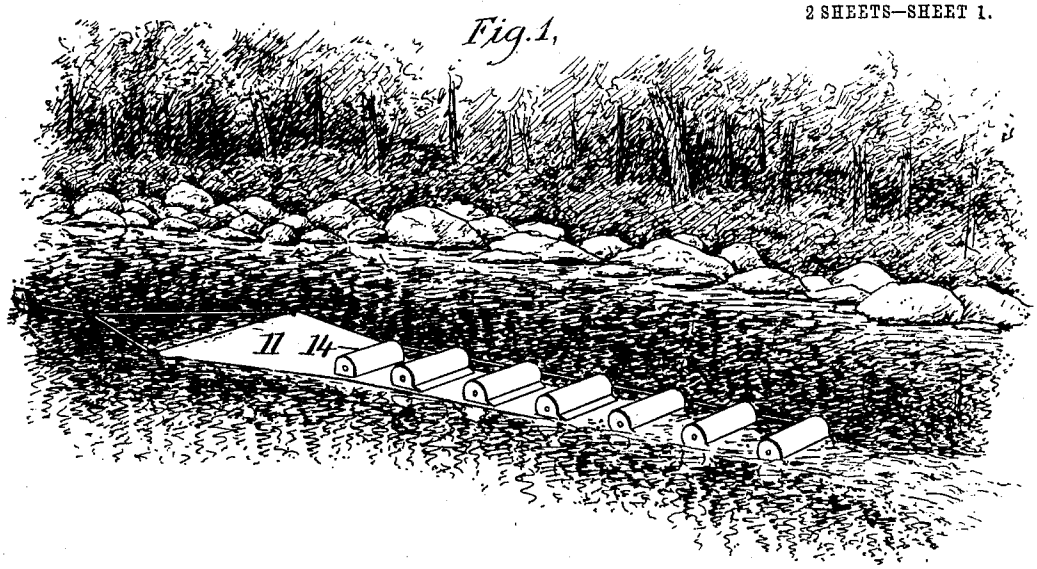


Fig. 2,

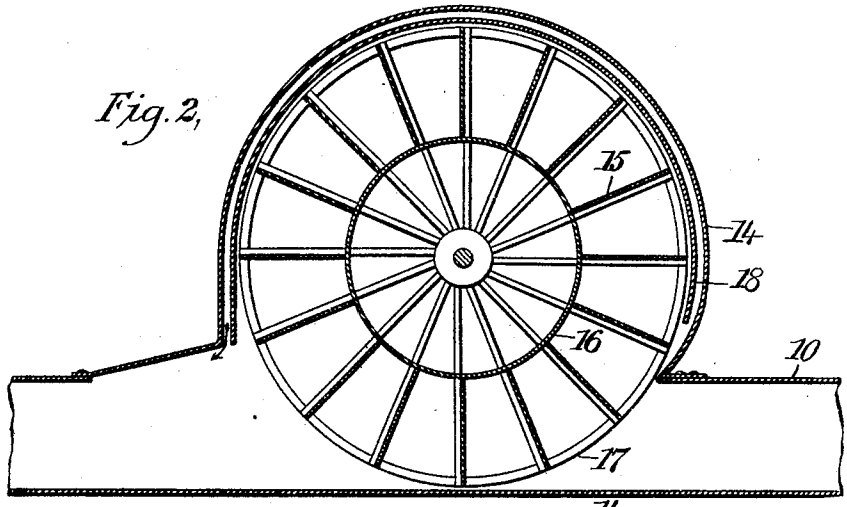
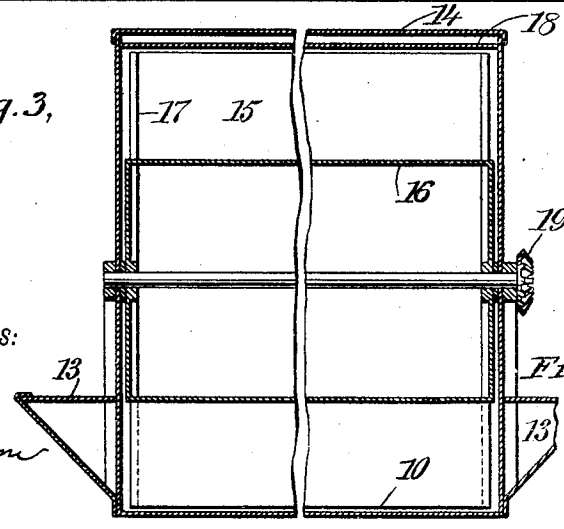


Fig. 3,



WITNESSES:

E. Thorpe.

C. R. Ferguson

INVENTOR

Francis M. Cummings.

BY

ATTORNEYS

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

No. 796,820. PATENTED AUG. 8, 1905.

F. M. CUMMINGS.

CURRENT MOTOR.

APPLICATION FILED AUG. 25, 1904.

2 SHEETS—SHEET 2.

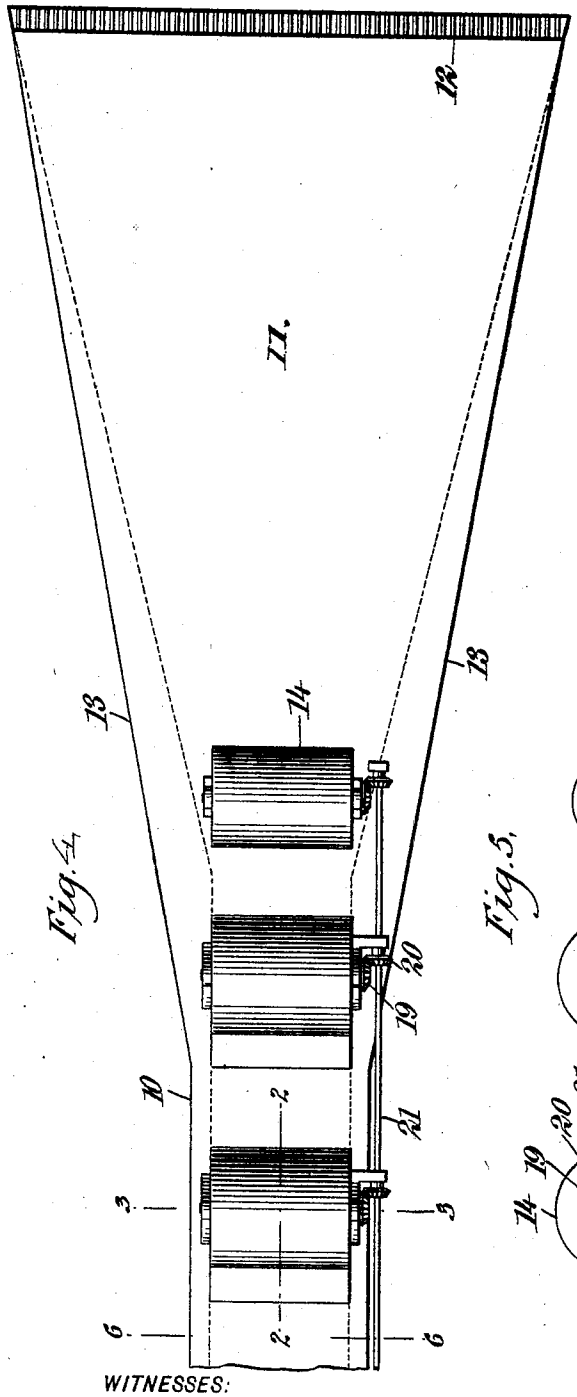


Fig. 4.

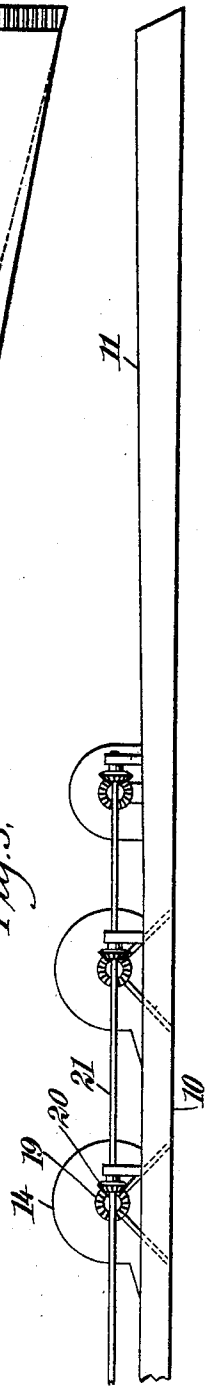


Fig. 5.

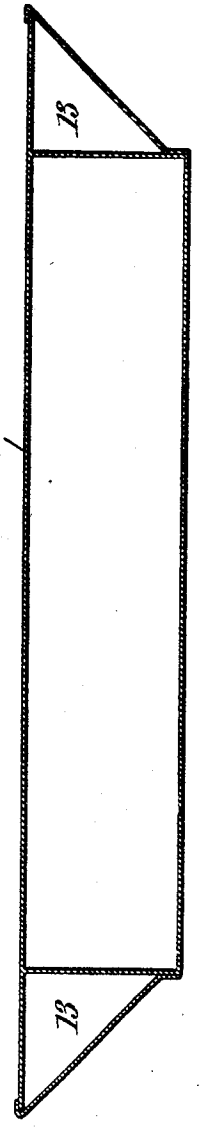


Fig. 6.

WITNESSES:

Edward Thorpe.

C. A. Ferguson

INVENTOR

Francis M. Cummings

BY Munn & Co.

ATTORNEYS

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANCIS M. CUMMINGS, OF LEWISTON, IDAHO.

CURRENT-MOTOR.

No. 796,820. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed August 25, 1904. Serial No. 222,091.

To all whom it may concern:

Be it known that I, FRANCIS M. CUMMINGS, a citizen of the United States, and a resident of Lewiston, in the county of Nez Perces and State of Idaho, have invented a new and Improved Current-Motor, of which the following is a full, clear, and exact description.

This invention relates to improvements in motors adapted to be operated by water-currents for driving pumps, dynamos, or other machinery, the object being to provide a current-motor of comparatively simple and inexpensive construction and in which the efficiency or power will be considerably increased over the normal power of the water-current.

I will describe a current-motor embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a current-motor embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 4. Fig. 3 is a section on the line 3 3 of Fig. 4. Fig. 4 is a plan view of the device. Fig. 5 is a side elevation, and Fig. 6 is a section on the line 6 6 of Fig. 4.

The device comprises a flume 10, closed at its top, bottom, and sides and of any desired length to accommodate the required number of wheels, to be hereinafter described. The inlet end of the flume is widened out or funnel-shaped, as indicated at 11, so that there can be a comparatively large inlet of water to force the same through the contracted portion of the flume with great force upon the paddles of the wheels. The mouth of the inlet 11 is provided with guard-bars 12 to prevent the entrance of floating matter that will be apt to clog the operation of the device. The inlet end of course is to be arranged upstream and suitably anchored.

Extended along the opposite sides of the flume and along the inlet end are air-tight compartments 13, which will provide sufficient buoyancy for the flume. It will be noted, however, in Fig. 1 that the outlet end is somewhat lower than the other parts of the flume, and the said outlet end is submerged, thus preventing any possible entrance of air at the outlet.

Arranged along the top of the flume and suitably spaced apart are wheel-houses 14, in which the paddle-wheels 15 operate. Each paddle-wheel has its blades extended from an air-tight drum or hub 16, and the outer ends are secured together by means of bands 17. Arranged between the outer wall of each wheel-house and the periphery of the wheel is an inner wall 18, the space between which and the outer wall forms a passage for the discharge of air. On the shaft of each wheel is a bevel-gear 19, meshing with a bevel-gear 20 on a driving-shaft 21, which connects with a device to be driven—such, for instance, as a pump, dynamo, or the like.

In the operation the water entering the enlarged inlet will pass through the flume with a gradually-increased power over that of the normal current-pressure, and this water passing through the flume by engaging with the lower blades of the wheels obviously will rotate the same, imparting motion to the power-shaft 21. The air contained in the wheel-houses and in the air-tight drums or hubs will prevent the pressure of water from being forced high enough into the wheels to cause them to have contact with the walls 18 and depreciate the power. The air-passage between the walls 14 and 18 permits the air to escape from the front of the paddles to the back or rising sides of the wheels. Thus the air will pass in the opposite direction from that in which the wheels are running, and therefore prevent a back pressure on the paddles just before they dip again into the water.

As before stated, the flume may be of any desired length, and any desired number of wheels may be employed, depending, of course, upon the nature of the stream and the work to be performed.

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

1. In a current-motor, a flume, a wheel-house thereon, an inner wall for the wheel-house spaced from the outer wall forming an air-passage, and a paddle-wheel arranged in the wheel-house.

2. In a current-motor, a flume, a wheel-house thereon, an inner wall spaced from the outer wall of said wheel-house forming an air-passage, a paddle-wheel in the wheel-house and having an air-tight drum forming its central portion, and a gear driven from said wheel.

3. A current-motor comprising a flume closed at its top, bottom and sides and having a widened inlet end, guard-bars arranged in the mouth of the inlet end, air-chambers extended along the sides of the flume, a plurality

of wheel-houses arranged on the flume and having inner walls the space between which and the outer walls forms air-passages, paddle-wheels in the wheel-houses having air-tight drum-like central portions, and a driving-shaft having driving connection with the several wheels.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS M. CUMMINGS.

Witnesses:

FRANK BURKE,

EUGENE O'NEILL.