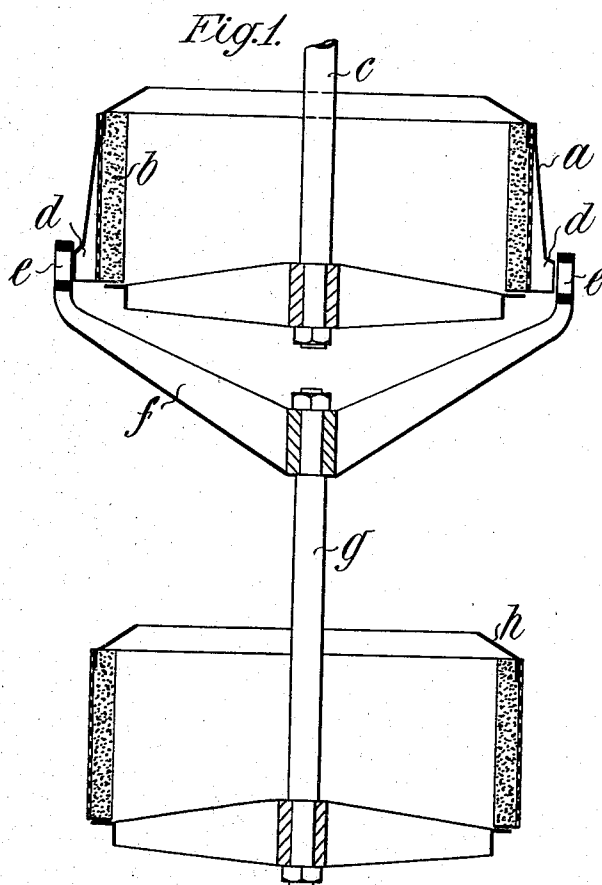
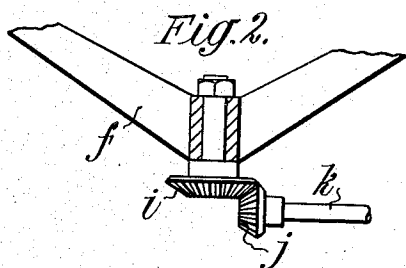
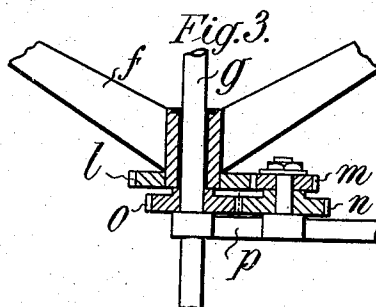
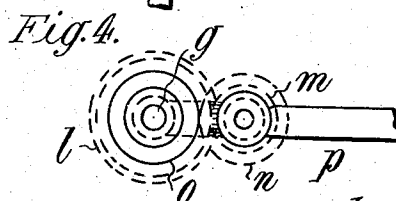


T. K. IRWIN.
HYDRO EXTRACTOR OR LIKE CENTRIFUGAL MACHINE.
APPLICATION FILED MAY 29, 1914.

1,145,900.

Patented July 13, 1915.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS KEMPLAY IRWIN, OF LONDON, ENGLAND.

HYDRO-EXTRACTOR OR LIKE CENTRIFUGAL MACHINE.

1,145,900.

Specification of Letters Patent.

Patented July 13, 1915.

Application filed May 29, 1914. Serial No. 841,891.

To all whom it may concern:

Be it known that I, THOMAS KEMPLAY IRWIN, a subject of His Majesty the King of England, residing at 5 London Wall Buildings, in the city of London, Kingdom of England, have invented certain new and useful Improvements in or Relating to Hydro-Extractors or like Centrifugal Machines, of which the following is a specification.

10 This invention relates to improvements in hydro-extractors or like centrifugal machines. Where such machines are used for the clarification or other treatment of liquids, or the removal of quantities of liquid from solid matters, a considerable amount of the power required for operating them is absorbed in raising the liquid to the speed of the rotating cage and then discharging it. In order to obviate this waste of power it has previously been proposed to cause the liquid as it leaves the machine to operate reactively so as to exert a driving force on the machine in the safe direction as the applied power. It has also been proposed to obtain similar results by providing the machine with turbine like blades for the exit of the liquid. Now according to the present invention I utilize this waste power by causing the liquid as it escapes from the cage, to operate a separate impulse rotor which may in its turn, operate a second centrifugal machine either directly or through the medium of shafting, electricity, or other known methods of transmission; or the power may if desired be utilized for any other convenient purpose. Where very large machines are to be used and considerable power is required for their operation, a third or even a fourth motor may be operated in this manner, and economies up to about 75 per cent. of the original power absorbed may be effected, depending upon the efficiency of the motor used.

One very convenient method of carrying out my present invention is diagrammatically illustrated in the accompanying drawings in which:—

Figure 1 is a sectional side elevation of a pair of centrifugal machines. Fig. 2 is a detail sectional view showing another method of coupling up the machines and Figs. 3 and 4 show in sectional elevation and plan a modified form of gearing.

As shown *a* indicates the cage of the main centrifugal machine which may be provided with an inner porous lining *b* or filtering medium. The cage is supported on a central shaft *c* which is arranged and adapted to be driven in any well known or suitable manner to expel the treated liquid from the orifices *d*. As the liquid escapes from the said cage *a* it is impelled or directed against a surrounding row of vanes *e* formed on a cage or other member *f* which is thereby rotated. The rotary member *f* may be directly coupled to the central shaft *g* of a second hydromachine *h* as in Fig. 1 or it may be suitably geared to a second hydro, a dynamo or other mechanism by the bevel gear wheels *i j* and an intermediate shaft *k* as shown in Fig. 2 or directly to the first hydro by means of epicyclic gearing *l, m, n, o, p*, arranged as in Figs. 3 and 4 to give a suitable reduction in speed. A worm gear drive may be used, if desired in place of the bevel wheels *i* and *j*.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. The combination with a hydro-extractor or like centrifugal machine of a separate impulse rotor coöperating with a discharge outlet on the centrifugal machine substantially as described.

2. The combination with a hydro-extractor or like centrifugal machine of a separate impulse rotor including a series of vanes coöperating with discharge outlets on the centrifugal machine substantially as described.

3. The combination with a hydro-extractor or like centrifugal machine and a separate impulse rotor coöperating therewith, of a dynamo in driven connection with said impulse rotor substantially as described.

4. The combination with a hydro-extractor or like centrifugal machine and a separate impulse rotor coöperating therewith, of a machine in driven connection with said impulse rotor substantially as described.

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

THOMAS KEMPLAY IRWIN.

Witnesses:

FRANK BRADEY,
B. GOVEY.