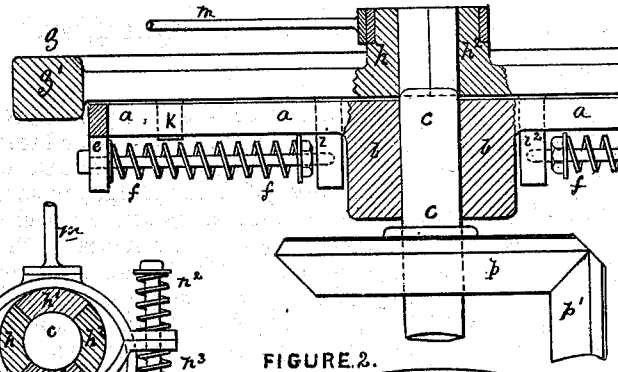
D. J. WOLFE.

Improvement in Governors.

No. 124,871. Patented March 19, 1872.

FIGURE.1.



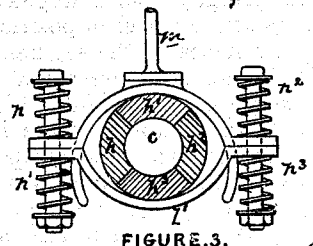


FIGURE.3.

FIGURE.2.

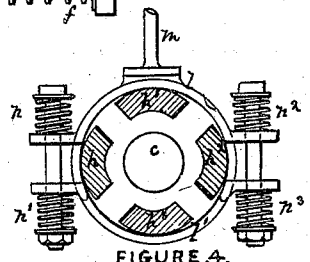
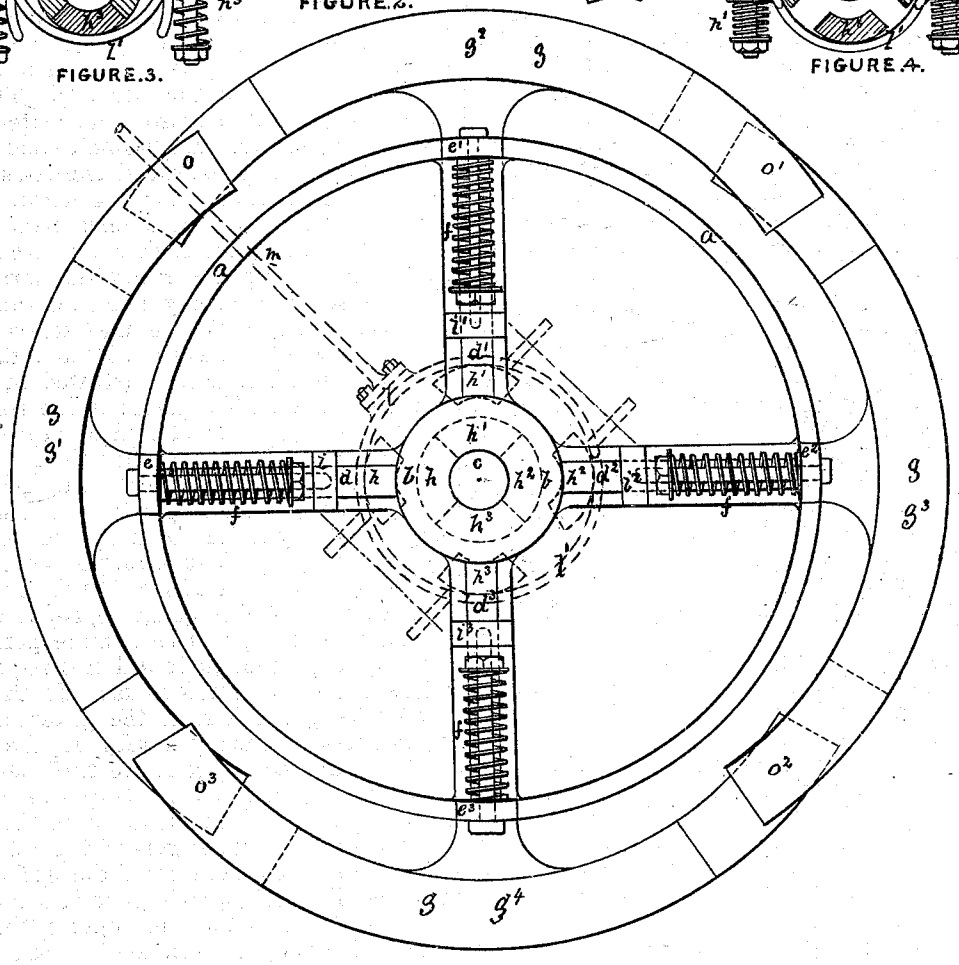


FIGURE.4.



WITNESSES.

Frederick John Cheesbrough,

John Redmond

INVENTOR.

Daniel John Wolfe

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

DANIEL JOHN WOLFE, OF LIVERPOOL, ENGLAND.

IMPROVEMENT IN GOVERNORS.

Specification forming part of Letters Patent No. 124,871, dated March 19, 1872.

SPECIFICATION.

Specification describing "an Improved Governor for regulating the speed of steam or other motive-power engines," invented by DANIEL JOHN WOLFE, of the city and State of New York, United States of America, but at present residing at 15 Water street, Liverpool, in the county of Lancaster, in that part of the United Kingdom of Great Britain and Ireland called England.

My invention relates to constructing governors so as to get a more correct and speedy action on the throttle-valve than is arrived at by the governors now in use, and more particularly so in the case of the engines of screw steam-ships which in a heavy sea run very irregularly, and the action on the throttle-valve is required to be immediate, and the governor, therefore, very sensitive to any increase of speed of the engines. This governor can be worked direct from the main shaft or other moving part of the engines. The governor also, through being very sensitive, will work satisfactorily driven at a much slower speed than is the case with governors now in use.

Figure 1 of the accompany drawing illustrates a sectional elevation of my improved governor. Fig. 2 illustrates a plan of the same. Fig. 3 is a plan, showing the strap for working the throttle-valve; and Fig. 4 is a similar plan, showing the strap extended.

Like letters and figures marked on the drawing denote similar parts.

The scale of the drawing is three inches to one foot.

A governor constructed according to my invention consists of a disk, *a*, with a boss, *b*, which is mounted on a shaft, *c*. The disk *a* is fitted with four slots, *d* d^1 d^2 d^3, which form guides and run from the boss *b* to the extremity of the disk *a* at right angles to each other. At the extremity of the guides *d* d^1 d^2 d^3 there are lugs or projection *e* e^1 e^2 e^3, which are so arranged as to receive a steel or other suitable spring, *f*. On the top of the disk is mounted a wheel, *g*, which is cut into four segments, g^1 g^2 g^3 g^4, and has a heavy rim at its circumference. These segments spring from a segmental boss, *h*, h^1, h^2, and h^3. The segments are respectively fitted with lugs or provisions *i* i^1 i^2 i^3, which take into the guides or slots in the disk *a* and take the other end of the springs *f*. The springs are so arranged as to keep the segments of the wheel in position. *k*, guide, or steadying pieces on the segments of the wheel. The segmental boss *h* h^1 h^2 h^3 it fitted with an expanding strap, *l* *l'*, which strap is connected to the throttle-valve by suitable gear from the rod *m*. The strap is held in position by springs *n* n^1 n^2 n^3, which allow it to expand and make it contract, or control it according to the momentum and centrifugal force of the wheel *g*. The segments g^1 g^2 g^3 g^4 fly out from the center as the speed increases, and are brought back to their normal position as the speed decreases by the means of the spring *f*, the segmental boss *h* h^1 h^2 h^3 acting in a similar manner on the strap *b*, and which is brought back to its normal position by the springs *n* n^1 n^2 n^3, which springs are made of sufficient strength to open the throttle-valve and give the engines steam again. The expansion of the strap *l* *l'* and the segmental boss *h* h^1 h^2 h^3 is illustrated in detail at Figs. 3 and 4. The joints of the segments of the wheel *g* are dovetailed or lapped at *o* o^1 o^2 o^3 in such a manner that their surfaces always bear on each other. The governor-shaft *c* may be driven from the main shaft of the engines by means of a pair of bevel or friction wheels, *p* *p'*, so arranged as to give the requisite increase of speed to the governor in excess of that of the engines, as, of course, the action of the governor is more perfect at high speeds, although it will not require to run as fast as those now in use. In the case of very fast-going engines the governor may be mounted vertically direct on the main shaft and geared direct to the throttle-valve, or worked by a rope, or strap and pulley. The weights of the segments of the expanding wheel and the strengths of the retaining springs, also the strengths of the springs on the expanding strap, must bear relative proportion to the speed of the engines, the centrifugal force of the expanding segmental wheel regulated by the retaining springs being the principle of the governor.

Having thus described my invention, what I claim is—

The combination of the disk *a*, accessory springs *f*, segmental expanding wheel *g*, segmental boss *h*, and expanding strap *l*, in a centrifugal governor, all arranged substantially in the manner and for the purpose set forth.

In witness whereof I, the said DANIEL JOHN WOLFE, have hereunto set my hand and seal this twenty-eighth day of November, 1871.

DANIEL JOHN WOLFE. [L. S.]

Witnesses:

FREDERICK JOHN CHEESBROUGH,

JOHN REDMOND,

Both of 15 *Water street, Liverpool, England.*