No. 764,661. PATENTED JULY 12, 1904.

J. EBERHARDT & H. WEGHORST.

STEAM ENGINE GOVERNOR.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.

Fig. 1.

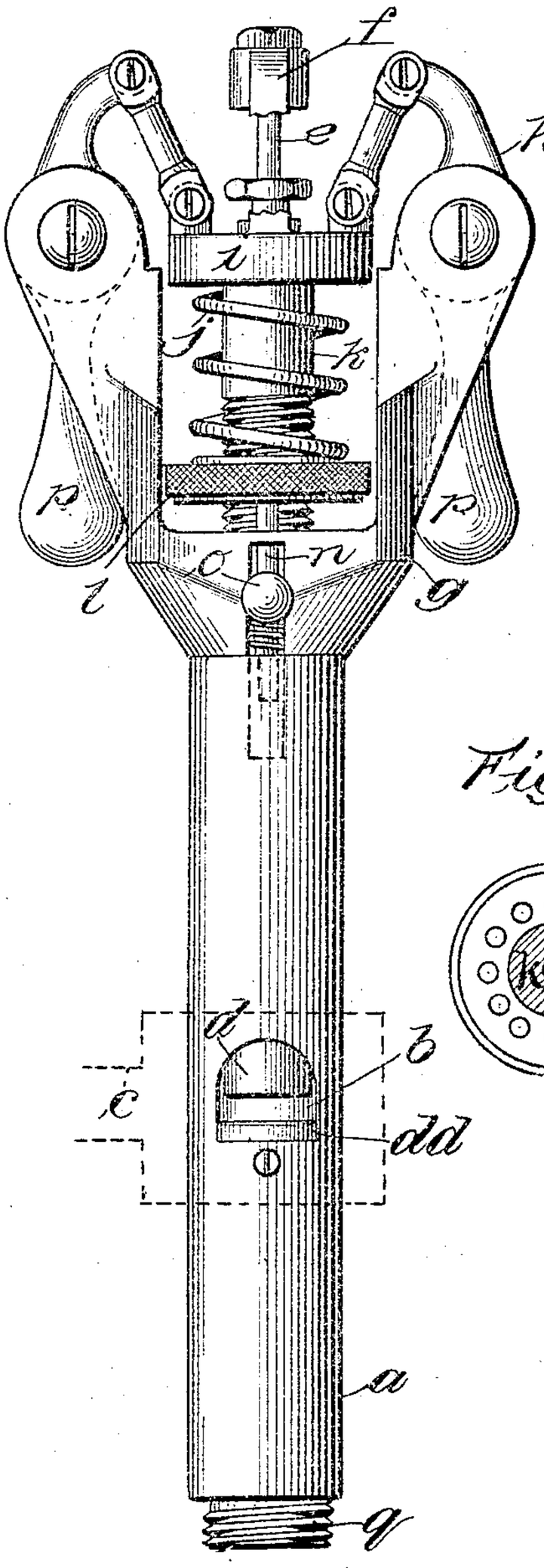

Fig. 2.

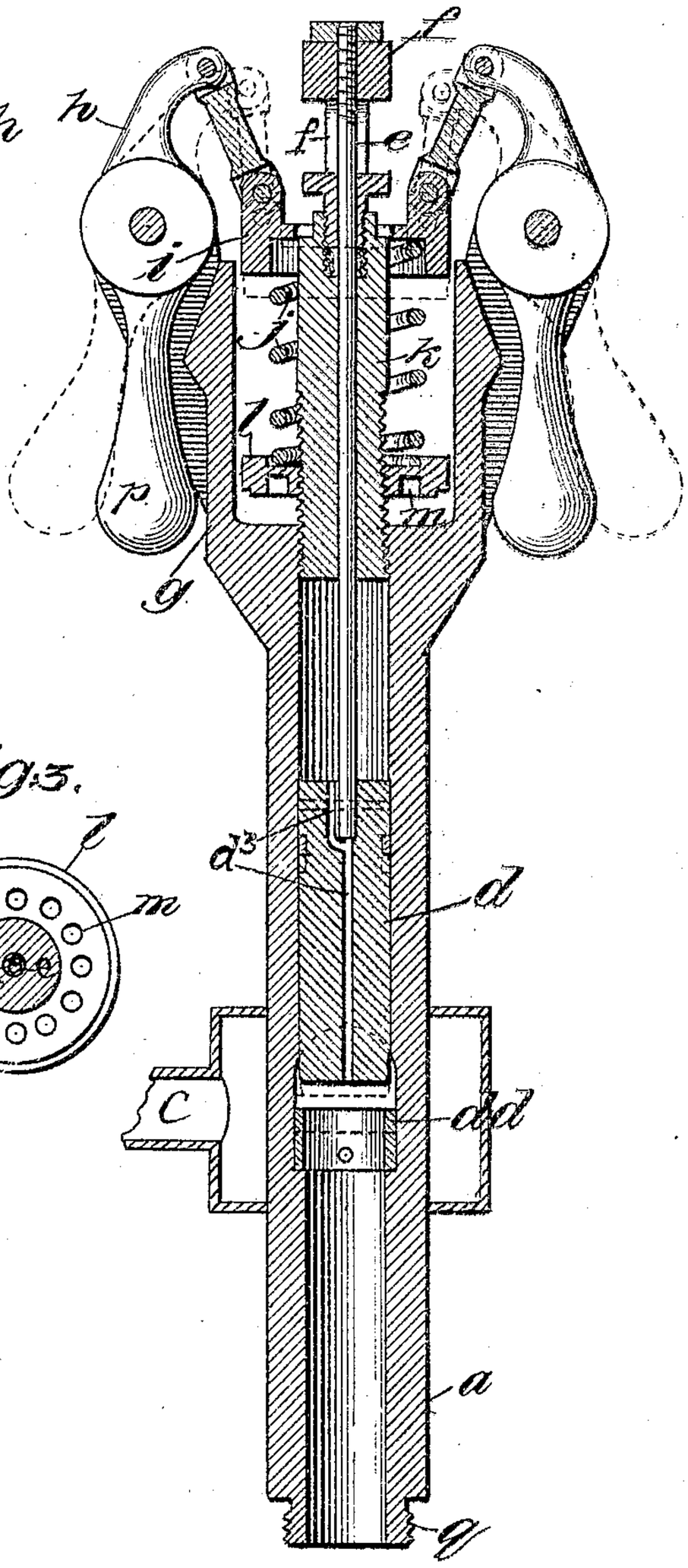

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN EBERHARDT AND HERMAN WEGHORST, OF CHICAGO, ILLINOIS.

STEAM-ENGINE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 764,661, dated July 12, 1904.

Application filed February 29, 1904. Serial No. 195,813. (No model.)

To all whom it may concern:

Be it known that we, JOHN EBERHARDT and HERMAN WEGHORST, citizens of the United States, residing at Chicago, Illinois, have invented new and useful Improvements in Steam-Engine Governors, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof, and which—

Figure 1 shows our said new steam-engine governor in elevation. Fig. 2 shows said device in central longitudinal section. Fig. 3 shows a cross-section of the central stud *k* with the adjusting-nut *l* in plan view, as seen from its under side.

Like reference-letters denote like parts.

The object of our invention is to produce a balanced steam-engine governor of that class wherein the stem of the governor is at the same time a part of the steam-pipe to the engine which shall be specially desirable for turbine and rotary steam-engines, but which may at the same time be used in all other kinds of steam-engines. To attain said desirable ends, we construct our said new governor substantially as follows, namely: The axial stem *a* has a shouldered thread *q*, which connects it to the engine, and a port or opposite ports *b* below which is a valve-seat *d d*, on which is seated the end of the piston *b* when in its action it closes said steam-pipe. On the outer end of said stem are opposite arms *g*, in the ends of which are pivoted a pair of levers *h*, weighted at *p*, whereof their outer ends are connected by links to the piston-rod holder *i*, upon which there is an arch *f*, (shown broken away in part,) through which the threaded end of the piston-rod *e* is secured and locked on top of the arch by a lock-nut, as shown. Said holder *i* is a disk which is chambered on its under side to receive the end of a coiled spring *j*, through which and said holder is passed an axial stud *k*, which is threaded in the end of the stem *a*, and through said stud passes the piston-rod *e*, whereof its inner end is secured to the piston *d*. A hole *d*³ in the piston passes steam into the chamber above it, and thereby balances the piston. The spring *j* rests on an adjustable disk *l*, which is threaded on the lower end of the stud *k*, which by raising and lowering increases and decreases the tension in the spring *j*, and consequently the pressure on the disk or rod-holder *i*, and thereby governs the action of the weights *p* on the piston *d* and either causes an earlier or a later closing of the ports by said piston. Said adjustment is locked by a spring-bolt *n* in the stem *a*, actuated downward by its knob *o*. The point of said bolt enters one of the holes *m* on the under side of said disk *l*.

When the revolution of this governor is slow, the disk *l* is let down low so that the tension on the spring *j* may be light because the centrifugal action on the weights *p* will be weak, and in proportion to a higher speed the disk or nut *m* is raised and the spring resistance increased, and through that the action of the piston *d* is governed.

A pipe and casing *c* admit and hold steam which enters the tubular stem *a* through ports *b*.

What we claim is—

1. The combination of a combined rotary steam-pipe and governor-stem provided with steam-ports, of a piston, weighted levers and intermediate parts to connect said piston and levers, and means to counteract the action of said levers.

2. The combination with a combined rotary steam-pipe and governor-stem provided with steam-ports, of a piston, weighted centrifugally-actuated levers and intermediate parts connected to said piston and levers and means to, regulatably, counteract the action of said levers.

3. The combination with a combined rotary steam-pipe and centrifugally-actuated governor-levers, of a steam-entrance to said pipe and means to close said steam-entrance connected to said levers.

4. The combination with a ported rotary

stem with arms carrying weighted, centrifugally-actuated levers, a piston actuated by said levers to said ports, of a spring to resist the action of said levers and a nut to adjust the action of said spring.

5. The combination with a ported rotary stem with arms pivoted to weighted centrifugally-actuated levers, a spring to counteract said levers, a nut to adjust the spring resistance and a lock to said nut.

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