No. 866,936. PATENTED SEPT. 24, 1907.

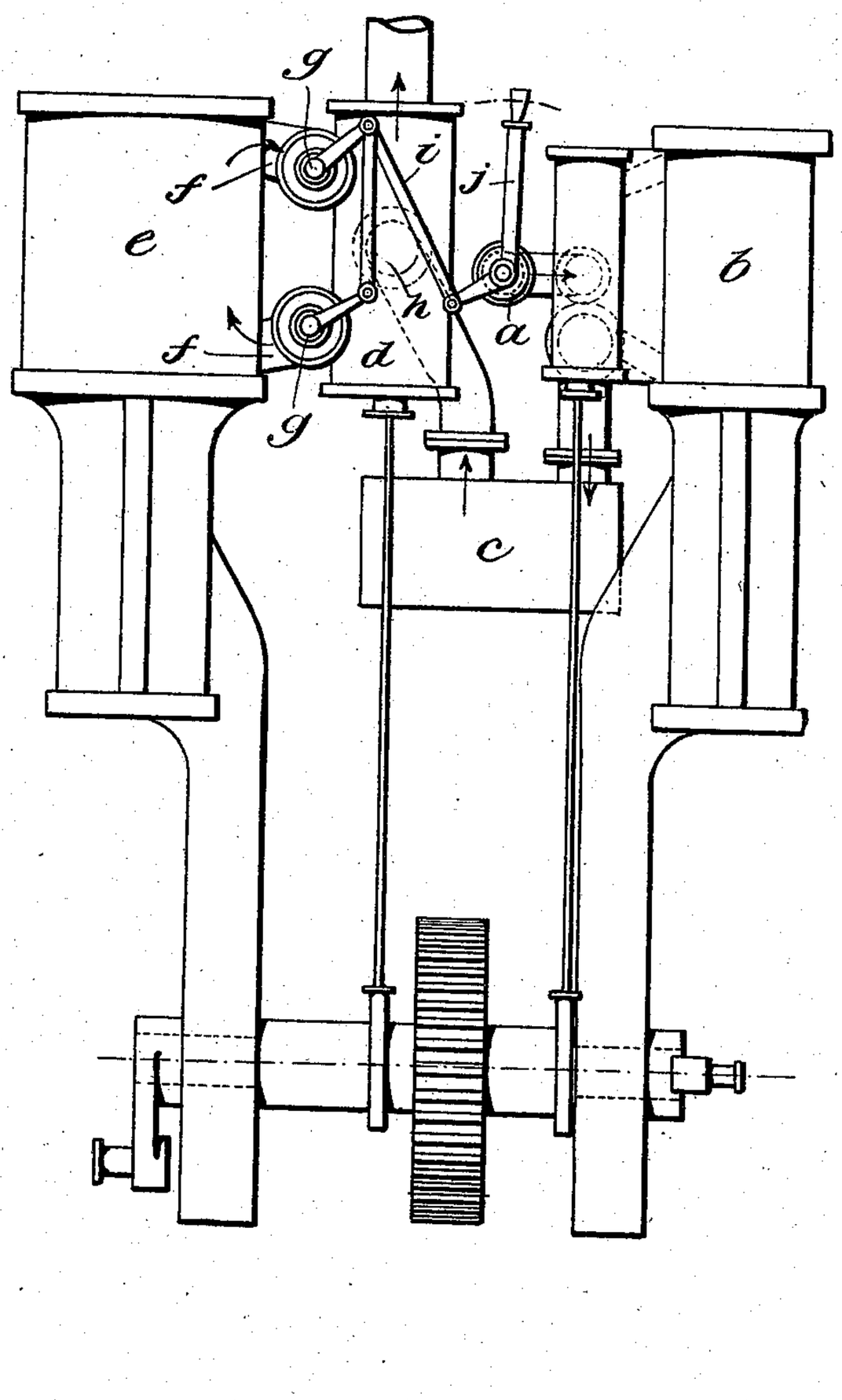
C. KIESSELBACH.

COMPOUND ENGINE.

APPLICATION FILED DEC. 8, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Arthur Guinipa.
William Schulz.

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Paul Bissell

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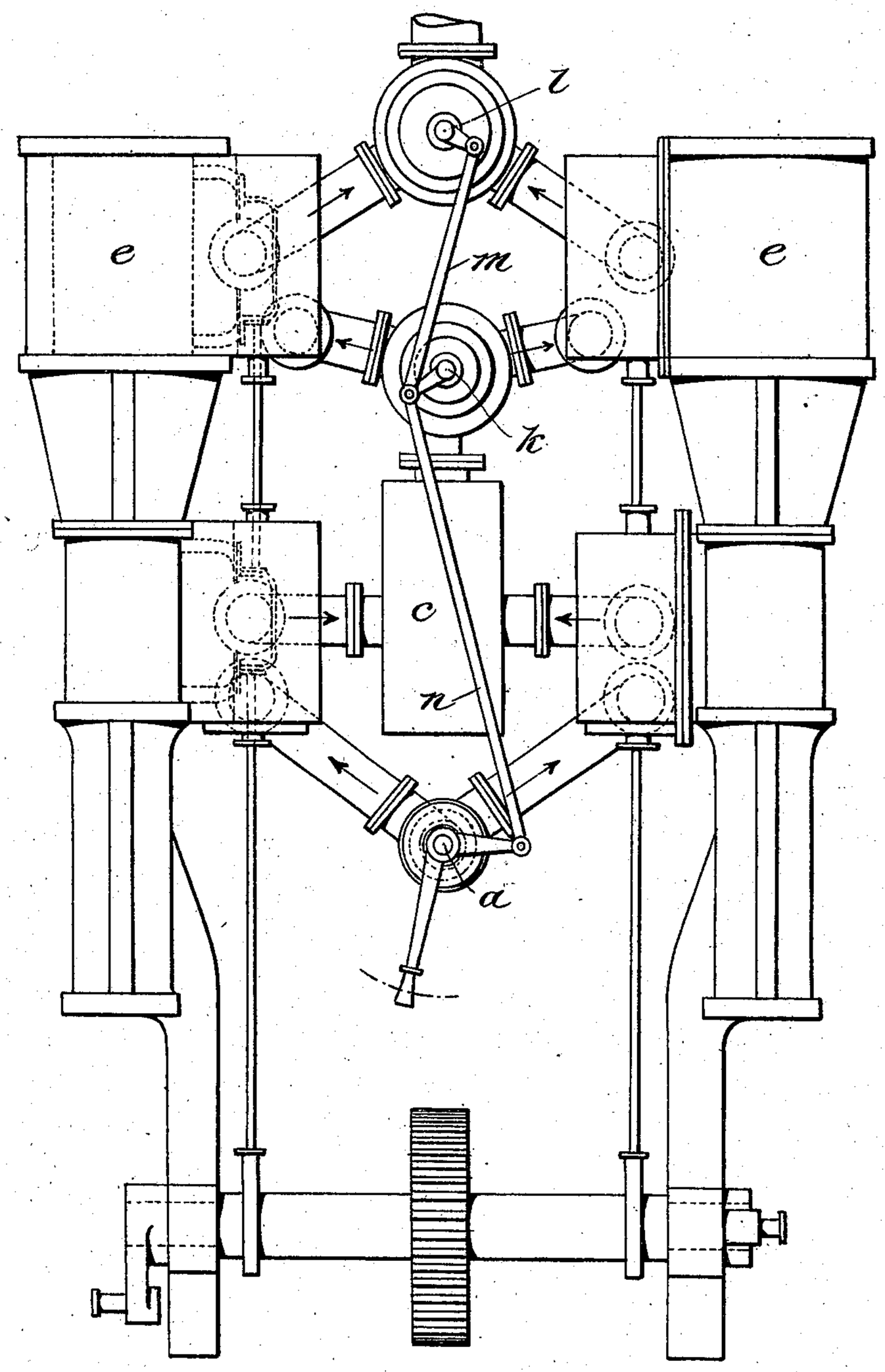
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CLEMENS KIESSELBACH, OF RATH, NEAR DÜSSELDORF, GERMANY.

COMPOUND ENGINE.

No. 866,936. Specification of Letters Patent. Patented Sept. 24, 1907.

Application filed December 8, 1905. Serial No. 290,889.

To all whom it may concern:

Be it known that I, CLEMENS KIESSELBACH, a citizen of the German Empire, and a resident of Rath, near Düsseldorf, Germany, have invented certain new and useful Improvements in Valve Mechanisms for Compound Engines, of which the following is a specification.

In the construction of compound steam engines it has lately become customary to provide not only for the throttling of the fresh steam before it enters the high pressure cylinder but at the same time to put the admission of the steam into the low-pressure cylinder under the control of the engine-man. But only the regulation of the quantity of steam admitted into the low-pressure cylinder has been attained with the improvements heretofore designed for the purpose, while the control of both the entrance and exit of the steam is what is actually required.

My invention relates to a construction where the admission of the steam into the low-pressure cylinder as well as its escape from the same can be regulated and which offers at the same time the advantage that the low-pressure cylinder need not during a stop of the engine be entirely exhausted and, besides, the low-temperature of the condensator has no access during a stop to the low-pressure cylinder, the steam retained therein being thereby prevented from cooling and being condensed. By this way the stopping of the engine becomes more exact, the steam retained is ready for new work not only in the receiver but also in the low-pressure cylinder, and the temperature of the wall of the cylinder is not reduced.

In the accompanying drawings: Figure 1 is a plan of a two cylinder compound engine provided with my improved valve mechanism, and Fig. 2 a plan of a four cylinder compound engine provided therewith.

The letter *a*, indicates the hand-controlled steam inlet valve of the high pressure cylinder *b*. After the steam has acted upon the piston of such cylinder, it is discharged into receiver *c*, whence it passes to the valve-box *d*, of the lower pressure cylinder *e*. Into the ducts *f*, connecting both ends of the valve-box with cylinder *e*, valves *g*, are mounted, which, by links *h*, *i*, are connected to valve *a*. It will be seen that by manipulating the hand-lever *j*, of valve *a*, valves *a*, and *g*, are simultaneously opened or closed.

In Fig. 2, the steam inlet is provided with a valve *a*, while the connection between receiver *c*, and low pressure cylinder *e*, is controlled by a valve *k*. The exhaust of the low pressure cylinder is controlled by a valve *l*, the valves *l*, and *k*, being connected to inlet valve *a*, by links *m*, and *n*.

I claim:

In a compound steam engine, a high pressure cylinder, a low pressure cylinder, and an intermediate receiver, combined with a steam inlet valve communicating with the high pressure cylinder, pipes connecting the receiver with the high and low pressure cylinders, a second valve controlling communication between the receiver and low pressure cylinder, a third valve controlling communication between the low pressure cylinder and the exhaust, and means for simultaneously operating said three valves, substantially as specified.

Signed at Düsseldorf, Germany, this twentieth day of November 1905.

CLEMENS KIESSELBACH.

Witnesses:
WM. ESSENWEIN,
PETER LIEBER.