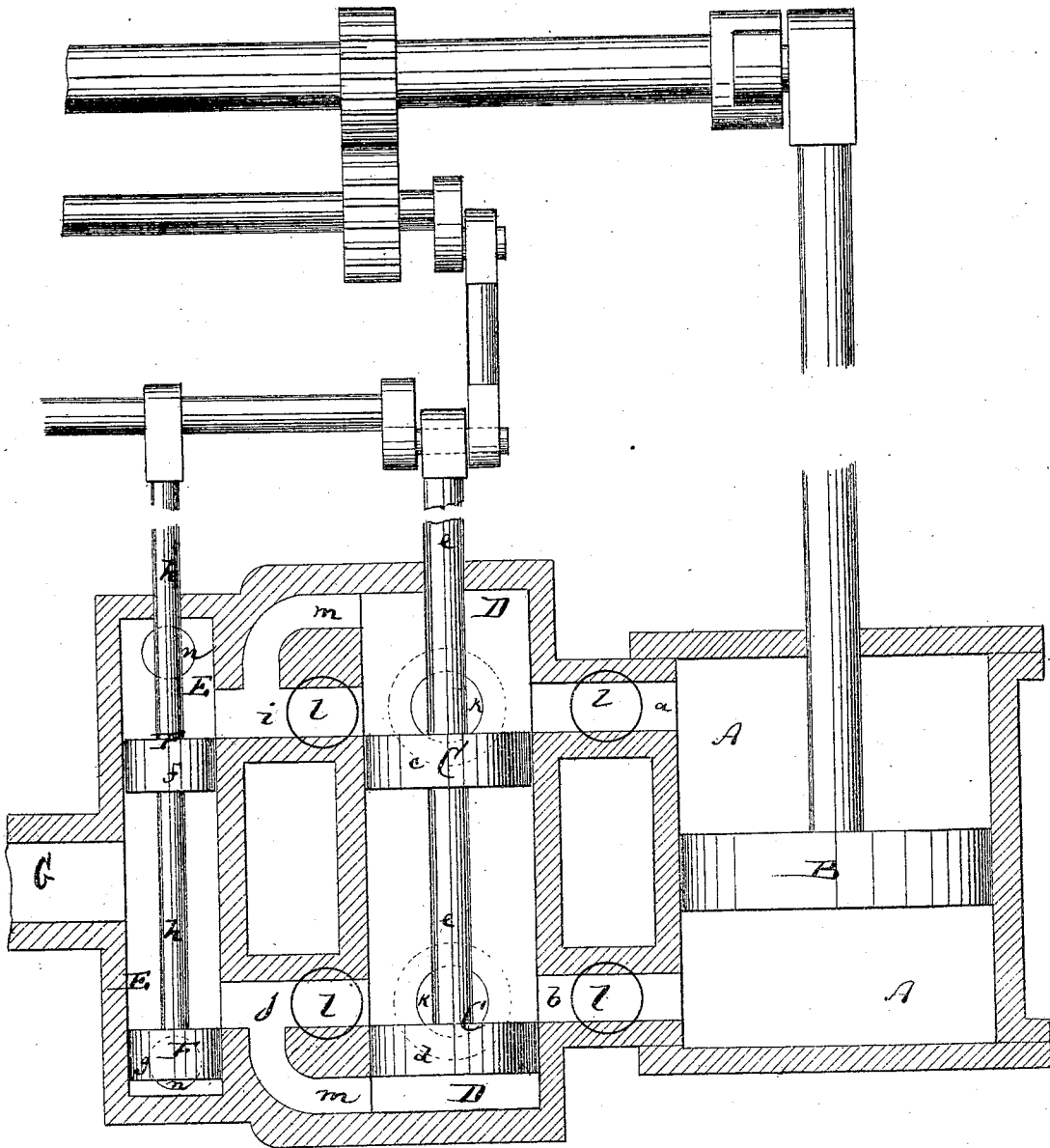


SAMUEL SMITH.

Improvement in Reciprocating-Engines.

No. 128,186.

Patented June 18, 1872.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL SMITH, OF LITTLE ROCK, ARKANSAS.

IMPROVEMENT IN RECIPROCATING STEAM-ENGINES.

Specification forming part of Letters Patent No. 128,186, dated June 18, 1872.

Specification describing a new and Improved Steam-Engine, invented by SAMUEL SMITH, of Little Rock, in the county of Pulaski and State of Arkansas.

The drawing represents a sectional elevation of my improved engine.

The object of this invention is, if necessary, to convert the slide-valve of an engine into the working-piston, and thereby to permit the repair or replacing of the main cylinder, piston, or connection without arresting the action of the machine. The invention consists in a novel connection of parts, as hereinafter more fully described.

A in the drawing represents a steam-cylinder of suitable kind, size, and material. B is the piston of the same. *a b* are its steam-ports. C is the slide-valve, consisting of two disks, *c d*, that are mounted upon a rod, *e*. These disks move in a cylinder, D, which is parallel with the cylinder A. The rod *e* is in suitable manner connected with the link motion. E is another smaller cylinder parallel to D, and containing the slide cut-off F, which consists of two disks, *f g*, on a rod, *h*, which also connects with the link mechanism. Steam-passages *i* and *j*, in line respectively with the ports *a b*, connect the cylinders D and E, as shown. G is the steam-pipe leading into the cylinder E between the disks *f g*.

When the piston B is in use the steam admitted to E is first passed through the pas-

sages *i* and *a*, brought above the piston B, and the latter moved down, and then through the passages *j b* under the piston, raising the same. It exhausts through valves *k k* in the cylinder D. When, however, the piston B is to be thrown out of action and the slide C used for driving the machine, the passages *a, b, i,* and *j* are closed by valves *l l* in them. This shuts the cylinder A entirely out of steam connection, and also the cylinder D between the disks *c d*. Other channels *m m*, leading from E to the ends of D, are, however, opened and allow the steam from E to act on the piston C as on an ordinary piston, while F is the slide-valve, the exhaust-valves *n n* being for this case in the cylinder E.

By this arrangement it will be seen that the cylinder A can be thrown out of action, using its slide-valve as a temporary means for keeping the engine in motion.

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

The combination of cylinders A D E, having steam-ports, as described, with a piston, B, and pistons C F having slide-valve disks *c d* and *f g* on their respective rods *e h*, as and for the purpose set forth.

SAMUEL SMITH.

Witnesses:

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