H. A. SWANSON.

ENGINE PISTON.

APPLICATION FILED DEC. 5, 1910.

1,053,678. Patented Feb. 18, 1913.

Fig. 2.

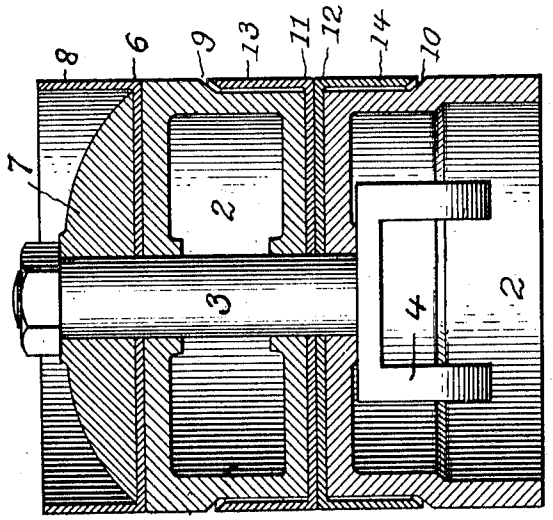
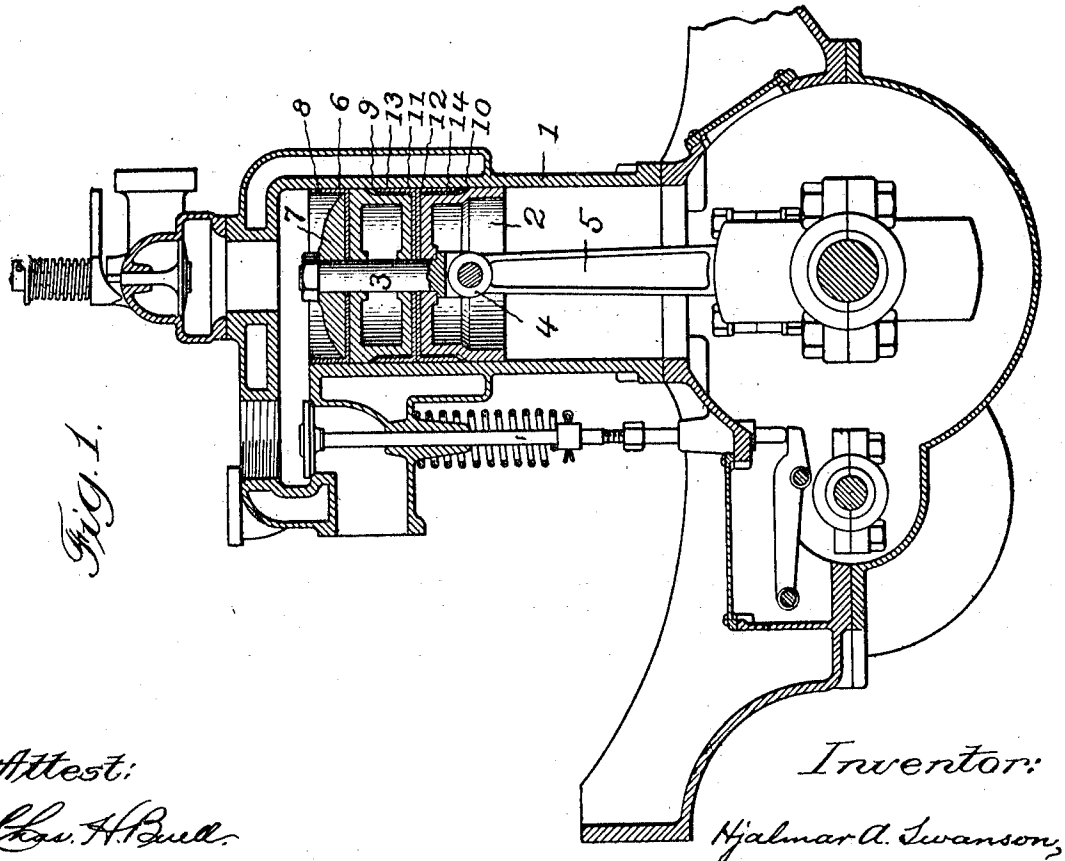


Fig. 1.



Attest:

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by Robert Burns Atty.

UNITED STATES PATENT OFFICE.

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ENGINE-PISTON.

1,053,678. Specification of Letters Patent. Patented Feb. 18, 1913.

Application filed December 5, 1910. Serial No. 595,554.

To all whom it may concern:

Be it known that I, HJALMAR A. SWANSON, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Engine-Pistons, of which the following is a specification.

This invention relates to means for preventing leakage of motive fluid past the pistons of motive power engines, and more especially the internal combustion type of the same. And the present improvement has for its object to provide a simple and efficient packing member, with which the leakage is entirely prevented and with which the amount of friction and wear is reduced to a minimum, all as will hereinafter more fully appear.

In the accompanying drawings: Figure 1, is a vertical sectional elevation illustrating the application of the present invention to the ordinary type of gas engines. Fig. 2, is an enlarged central section of the piston head and accessories.

Similar numerals of reference indicate like parts in the two views.

Referring to the drawings, 1 represents the engine cylinder of any usual construction, and 2, the piston head thereof and which in the preferred form of the present invention and as shown in the drawings comprises two sections arranged end to end, and secured together by an axial bolt connection 3, one end of which carries the knuckle 4, by which pivotal attachment of said piston to the engine pitman 5 is made by the usual transverse wrist pin as shown.

6 is a sheet metal cup-shaped packing member, the bottom or center web of which is adapted to rest upon and be secured to the end of the piston head 2, by a metal filler block 7, secured in place by the aforesaid axial bolt connection 3, as shown, while the annular skirt portion 3 of said packing member is adapted to fit and have sliding movement within the bore of the engine cylinder 1, as hereinafter more fully set forth.

9 and 10 are circumferential recesses formed in the peripheries of the respective piston sections aforesaid and located at and extending from the adjacent faces of said sections as shown.

11 and 12 are counterpart sheet metal cup-shape packing members the bottom or web portions of which are arranged in abutting relation between the aforesaid piston sections, while their respective skirt portions 13 and 14 extend in opposite directions and fit into and are individual to the before described circumferential recesses 9 and 10 of the piston sections. In this connection a material part of the present improvement involves the formation of the free ends of the respective annular skirt portions 8, 13 and 14 aforesaid, with an inner bevel or chamfer as shown, so that an approximately sharp edge is provided on each packing member for sliding engagement with the interior wall of the engine cylinder 1. With the described construction an effective packing is provided for the forward and reverse strokes of the piston, in that an annular portion 8, 13 or 14, under the influence of elastice fluid pressure, or by a like elastic fluid pressure resistance is adapted to expand radially and provide a close joint between the piston and the bore of the engine cylinder.

From extended practical experiment it has been found that the thin sheet metal cup-shaped packing member herein described, is adapted to withstand in a very effective manner the excessive heat met with in high speed internal combustion engines, and that after long continued use under the described conditions the packing member maintained its usefulness and efficiency.

Having thus fully described my said invention what I claim as new and desire to secure by Letters Patent, is:—

1. Means for packing an engine piston comprising in combination, a piston head formed in sections arranged end to end, each section having a circumferential recess in adjacent relation to the recess of the other section, sheet metal cup-shape packing members having annular skirt portions the free ends of which are beveled, the center webs of said packing members being arranged between the piston sections and the annular skirt portions arranged in said circumferential recesses and having a peripheral diameter approximately the same as the main portions of the piston, and means for securing the parts together, substantially as set forth.

2. Means for packing an engine piston comprising in combination, a piston head formed in sections arranged end to end, each section having a circumferential recess in adjacent relation to the recess of the other section, sheet metal cup-shape packing mem-

bers having annular skirt portions the free ends of which are beveled, the center webs of said packing members being arranged between the piston sections and the annular skirt portions arranged in said circumferential recesses and having a peripheral diameter approximately the same as the main portions of the piston, a sheet metal cup-shaped packing member arranged at the free end of the piston head and having an annular skirt portion, a filler piece arranged in the cavity of said packing member, and means for securing the parts together, substantially as set forth.

Signed at Chicago, Illinois, this 3rd day of December 1910.

HJALMAR A. SWANSON.

Witnesses:

ROBERT BURNS,

HENRY MOE.