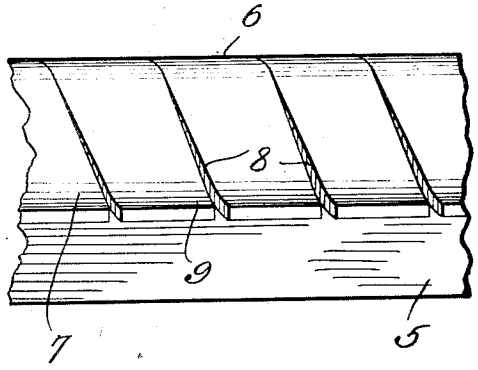
July 20, 1926. 1,592,887

F. M. HOWE

PISTON RING EXPANDER OR AUXILIARY RING

Filed Dec. 15, 1925

Fig. 1.



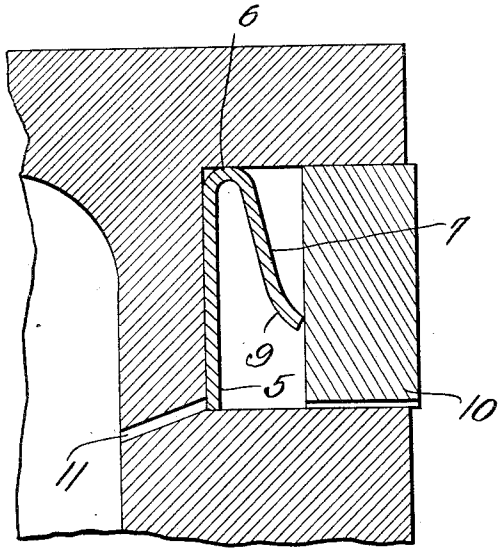
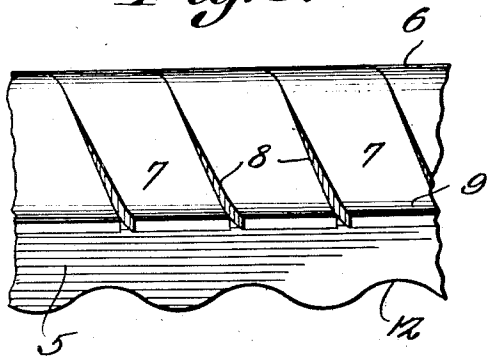


Fig. 2.

Fig. 3.



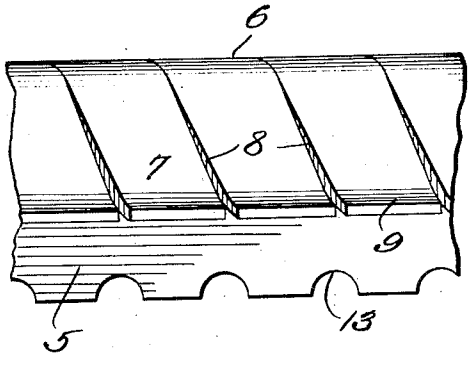
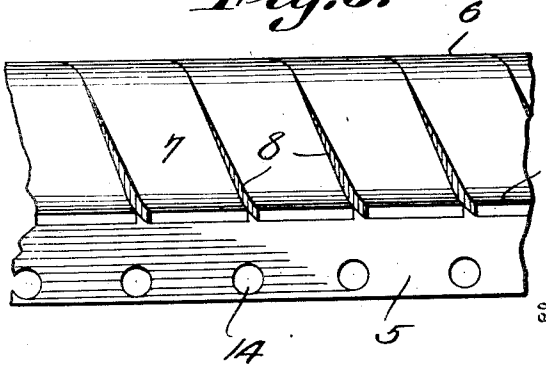


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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PISTON-RING EXPANDER OR AUXILIARY RING.

Application filed December 15, 1925. Serial No. 75,562.

This invention relates to a device designed to be positioned behind piston rings, and particularly piston rings after they have become worn to such a degree as to permit the loss of compression in a cylinder.

An important object of the invention is to provide a device of this character which will be relatively narrow, but be provided with substantially long fingers to increase the lateral pressure thereof and insure the contact between the ring and wall of the cylinder.

A still further object of the invention is to provide a device of this character that will prevent oil and compression from working through behind the main rings of a piston.

Another object of the invention is the provision of means whereby oil may pass through or under the body portion of the inner ring or device forming the subject matter of the invention where the oil may pass to the crank case.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Figure 1 is a fragmental elevational view of an expander constructed in accordance with the present invention.

Figure 2 illustrates the expander as positioned within the piston ring groove.

Figure 3 is a modified form of the invention.

Figure 4 is a further modified form of the invention.

Figure 5 is a still further modified form of the invention.

Referring to the drawing in detail, the device embodies a length of resilient sheet metal, the same being circular in formation and split, to lend resiliency to the expander and permit it to be positioned within a ring groove of a piston.

The reference character 5 indicates the body portion, and has a portion thereof bent inwardly along a longitudinal line indicated at 6, to provide fingers 7.

These fingers 7 are formed by providing the slit portions 8 that extend at oblique angles with respect to the side edges of the expander to the end that the fingers are of greater lengths than they would be when formed by cutting parallel lines transversely of the body portion.

These fingers 7 have their outer extremities slightly curved as at 9 to exert an outward pressure on the ring which in the present showing is indicated at 10 to normally urge the ring outwardly and into close engagement with the wall of the cylinder in which the piston ring is operating.

When the expander is to be used in connection with a piston formed with bores 11 through which oil may pass to the crank case, an expander such as shown by Figures 3, 4 and 5 may be used, and as illustrated by Figure 3, it will be obvious that the lower edge of the expander is irregularly formed by providing cut out portions 12, which cut out portions will allow oil to pass under the expanding member and enter the bores 11.

The form as shown in Figure 4 embodies semi-circular cut out portions 13 which are provided in the lower edge of the expanding ring.

It will be obvious that these openings allow oil which usually accummulates in the ring groove to pass therefrom.

From the foregoing it will be seen that due to the construction of the fingers 7, substantially long fingers are provided, thereby increasing the resiliency of the fingers.

I claim:—

1. In a device of the character described, a body portion formed of a length of sheet metal material, said material being bent upon itself providing opposed flanges, one of said flanges having obliquely disposed slots defining fingers, said fingers adapted to contact with a ring of the piston to force the same outwardly, and said body portion adapted to prevent oil and compression from working through behind main rings.

2. In a device of the character described, a length of sheet metal material forming a body portion, said body portion having slots disposed obliquely with respect to the edges of the body portion and defining fingers, said fingers adapted to engage a pis-

ton ring with which the device is used to force the ring outwardly, said device adapted to prevent oil and compression from working through behind the main rings.

3. In a device of the character described, an expander comprising a body portion, fingers formed on the body portion, said fingers extending at oblique angles with respect to the upper and lower edges of the body portion, said fingers overlying portions of the body portion, and said fingers adapted to engage a piston ring seated in a ring groove of a piston.

4. A piston ring expander comprising a body portion, said body portion having a portion thereof bent upon itself along a line longitudinally with one edge of the body portion, fingers formed on the body portion, said fingers extending at oblique angles with respect to the edges of the body portion, and said fingers being curved outwardly.

5. A piston ring expander comprising a body portion, obliquely disposed fingers forming a part of the body portion and spaced from the body portion throughout the lengths thereof, and said body portion having cut out portions adjacent to one edge thereof to permit oil to pass therethrough.

In testimony that I claim foregoing as my own, I have hereto affixed my signature.

FRED M. HOWE.