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DRIVE CONNECTION

Original Filed April 24, 1920

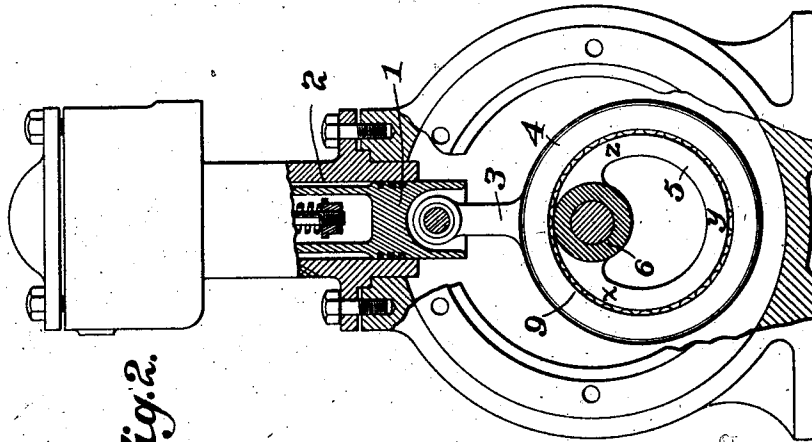


Fig. 2.

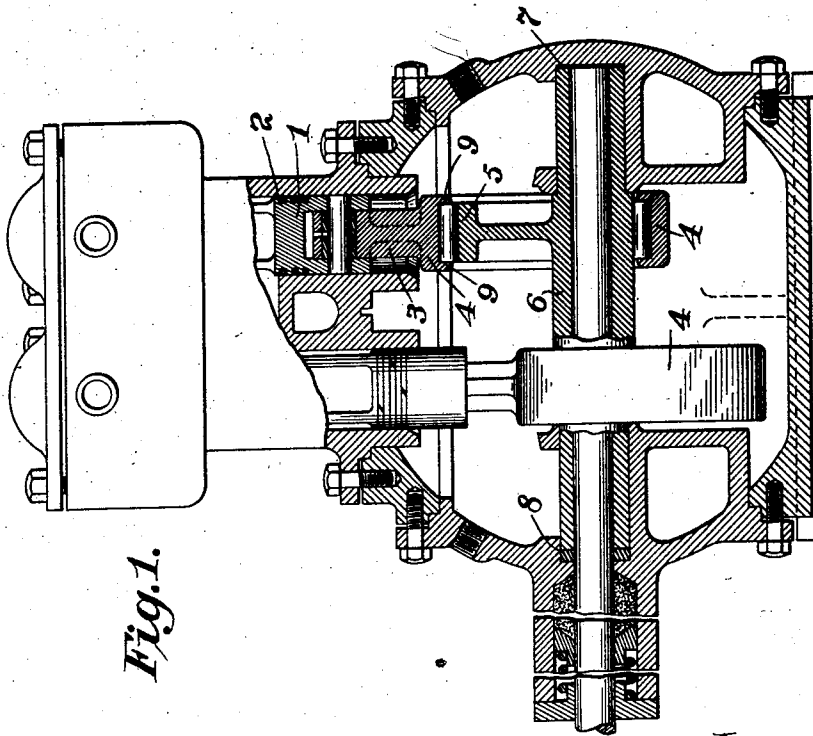


Fig. 1.

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UNITED STATES PATENT OFFICE.

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DRIVE CONNECTION.

Continuation of application Serial No. 376,308, filed April 24, 1920. This application filed September 15, 1923; Serial No. 662,848. Renewed February 4, 1926.

This application is a continuation of an application filed April 24th, 1920, serially numbered 376,308.

My invention relates to compressors for ice machinery and the like and concerns particularly the means for driving the pistons.

This means in my improvement consists of a piston rod having an eccentric strap combined therewith, operated by an eccentric with anti-friction bearings between the eccentric and the strap.

One object I seek to attain is a power transmitting connection between the shaft and the pistons which will be practically devoid of bolts, screws, nuts, or other fastening devices, which are liable to work loose, drop out, or become broken, and thus cause damage within the compressor.

The invention is shown in the accompanying drawings in which:—

Figure 1 is a vertical sectional view taken along the shaft of the compressor.

Fig. 2 is a vertical sectional view taken transverse to the shaft.

In these drawings, 1 indicates the piston of the compressor working in a cylinder, 2, and having a piston rod 3, provided with a strap 4 surrounding an eccentric 5 on the shaft. This eccentric is fixed against axial displacement along the shaft and it may have for this purpose a sleeve 6 bearing against the frame at 7 and 8 to be held against displacement along the shaft. There are anti-friction members located between the periphery of the eccentric and the strap and these are held in place by flanges on one of the parts. In the present case these flanges 9 are on the eccentric strap. The eccentric has a plain cylindrical face upon which the anti-friction rollers work. Both the piston rod and the eccentric strap are formed in one piece, so that no bolts or other fastening means, liable to work loose, drop out or break, are employed.

The problem of placing the rollers between the two integral parts I have met by providing auxiliary means, such as a thin shell or ring, which will be arranged to hold the rollers in place within the groove of the eccentric strap between the two flanges 9 thereof. The eccentric and strap are then positioned relative to each other with the rollers and the thin cage or ring between them and then the thin ring or shell is withdrawn, leaving the rollers in place.

Other means may be used for assembling the eccentric with its surrounding strap and with the rolls between them. For instance, a divided form may be employed to aid in positioning the rollers in the groove of the eccentric strap between the two flanges 9. After the rollers are placed the eccentric and the form may be placed side by side with the eccentric strap surrounding the form and then by a relative axial movement of the eccentric and eccentric strap the eccentric will assume the relative position of the form and the rollers will thus be located between the periphery of the eccentric and the strap, it being understood that the flanges will displace the rollers axially relative to the surface of the form and place them on the periphery of the eccentric, after which the sectional form will be removed. When the parts are assembled, the rollers will be held against axial displacement by the flanges 9 of the eccentric strap. The strap will be held against axial displacement because it is connected, through its rod, with the piston, and as above indicated, the eccentric is held against axial displacement by its sleeve portion bearing against the frame.

It will be seen from the above that I have provided a drive connection, free from bolts, nuts or screws, and having anti-friction bearings between an integral or one piece eccentric and a one piece eccentric strap, said bearings being held against axial displacement by one of said one piece parts, and the two one piece parts being held against axial displacement relative to each other.

The eccentric is chilled between the points x , y and z .

While I have disclosed my invention in connection with a compressor it will be understood that this is for illustrative purposes and is not regarded to be a limitation upon the scope of my invention which is defined by the appended claims.

The invention is not limited to the particular form shown in which both flanges are integral with the same carrying member.

I claim:

1. In combination in a compressor, a cylinder and piston, driving means for the piston, a casing enclosing the driving means, said driving means comprising an eccentric, an eccentric strap connected with the pis-

ton, one of said parts having continuous integral flanges, anti-friction rollers between the eccentric and strap held by said continuous flanges and the continuous opposing surfaces of the eccentric and strap, and a shaft integral with the eccentric and held in bearings of the casing, substantially as described.

2. In combination in a compressor, a cylinder and piston, driving means for the piston, a casing enclosing the driving means, said driving means comprising an eccentric, and an eccentric strap, the latter being connected to the piston, anti-friction means

between the eccentric and the strap, continuous flanges embracing the said anti-friction means, each of said flanges being integral with the part of said driving means which carries it, said anti-friction means being held by the said continuous integral flanges, and the continuous opposing surfaces of the eccentric and strap, and a shaft integral with the eccentric and held in bearings in the casing, substantially as described.

In testimony whereof I affix my signature.

DAVID FRANKLIN SMITH.