

No. 813,443.

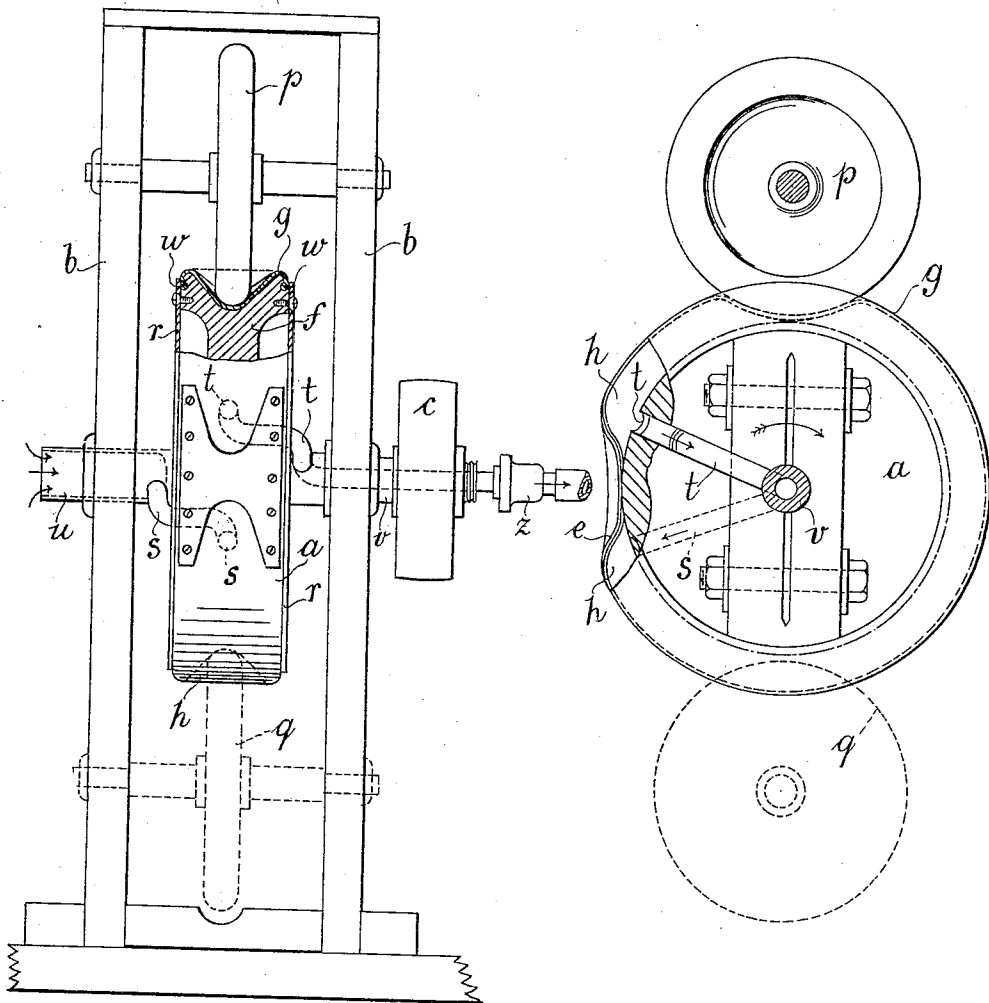
PATENTED FEB. 27, 1906.

H. MIKOREY.
COMPRESSOR.

APPLICATION FILED MAY 10, 1905.

FIG. 1.

FIG. 2.



Witnesses

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COMPRESSOR.

No. 813,443.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HANS MIKOREY, a subject of the German Emperor, residing at No. 13 Wartburgstrasse, Schöneberg, near Berlin, Germany, have invented new and useful Improvements in Compressors, of which the following is a specification.

This invention relates to a compressor which possesses a compression-chamber with flexible walls formed on a wheel-rim and under the influence of an abutment-roller acting against the flexible periphery, so that during the rotation of the wheel-rim of the compressor a continuous pumping action takes place through the compression-chamber.

The invention consists in the fact that the periphery of the wheel-rim of the compressor is grooved and provided with a membrane inclosing the annular compression-chamber and formed of elastic caoutchouc or the like, the arrangement being such that an abutment-roller having only a narrow rim causes the comparatively wide membrane to bear closely against the rim. Owing to the limited contact by the abutment-roller, which acts in the middle track or zone of the preferably U-shaped rim, the wear and tear of the membrane will be considerably decreased, thus enabling this compressor to work with a very high rotating speed of the compressor-wheel. The latter is provided at the two hollow-shaft or axle-socket pieces with an inlet communicating with the suction end of the compression-chamber and with an outlet communicating with the pressure-chamber for the medium to be compressed.

A constructional form of the invention is shown in the accompanying drawings.

Figure 1 is a side elevation, shown partly in section, while Fig. 2 shows in plan and partly in section the arrangement of the wheel-rim and the abutment-roller coöperating therewith.

The wheel *a* is mounted in the frame *b* by means of tubular trunnion or shaft portions *u* and *v* and is set in rotation by a belt or driving-pulley *c*, arranged on the shaft *v*. The rim *f* of the wheel *a* is preferably of U-form, and the rim-cheeks or the like which border this cavity *h* are covered from edge to edge by means of the membrane *g*, of rubber or similar elastic material. The edges of the membrane are fastened to the rim in the

same manner as the tire-cover in the known pneumatic tires. For instance, as according to Fig. 1 of the drawings, each edge is provided with a collar *w* or the like, which is embedded in an annular groove of the rim-cheek, whereupon the attachment is completed by a ring *r*. The membrane is stretched in such a manner that it tightly spans the groove *h* and forms along the edges an air-tight joint or closure for this hollow chamber. The latter encircles the rim except at a part where a suitably-shaped metallic fitting *e* depresses the membrane against the bottom of the rim-groove *h*. At this point there is, so to say, a tight partition between the contiguous ends of the annular hollow chamber.

A channel or passage *s* and *t* extends from each end of the hollow chamber on either side of the said partition in the form of a pipe on the wheel *a*, and these channels or pipes *s* and *t* extend to the hollow shaft portions *u* and *v*, which consequently form the suction and pressure pipe nipples.

An abutment-roller *p* is arranged on the frame *b* of the compressor for coacting with the membrane periphery of the wheel *a*. This roller *p* can readily rotate in its bearings and is so rotated by the peripheral friction during the rotation of the wheel *a*. It is essential for the purpose of carrying out the invention that the abutment-roller *p* have only a comparatively narrow rim. This bears only along the middle zone of the membrane *g*, as shown in Figs. 1 and 2, and firmly presses the same against the bottom of the groove. Owing to the corresponding grooved form of the rim *f* and the inward tension of the membrane *g*, notwithstanding the narrow zone of contact, a perfectly-tight joint at the respective part beneath the membrane is secured, so that the hollow chamber is here divided into a rearwardly-located suction-chamber and a forward pressure-chamber.

It follows that when the wheel *a* rotates in the direction of the arrow, Fig. 2, air is drawn continuously through nipple *u* and suction-pipes into the corresponding end of the hollow chamber *h*, and compressed air is driven outwardly through pipe *t* and nipple *v* from the other compartment of the hollow chamber.

In order to lead the compressed medium or the compressed air from the compressor-wheel to the main supply-pipe, a stuffing-box socket z communicates with the pressure-pipe nipple v , so that said part v can rotate independently of the pipe z' , which conveys the compressed fluid to the main supply-pipe. A stuffing-box socket may also be provided on the suction side of the compressor at u when the suction-pipe for conveying the fluid to be compressed to the wheel is to be led to a receptacle containing the said fluid.

Besides the abutment-roller p there is a second narrow-edged abutment-roller q (shown in the drawings in dotted lines) for completing the construction. More rollers are avoided, as otherwise the useless friction and the wear and tear of the membrane would be considerably increased. The employment of a narrow-edged abutment-roller produces a very soft and comparatively frictionless working or operation of the compressor in consequence of the coöperation with the membrane bearing against the groove portions of the rim.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be per-

formed, I declare that what I claim, and wish to secure by Letters Patent, is—

1. A compressor comprising a wheel having a groove in its periphery, a flexible membrane covering said groove so as to form an annular chamber, means for closing said chamber at one point and a roller of less thickness than the wheel engaging the membrane so as to force said membrane against the bottom of the groove.

2. A compressor comprising a wheel having a groove on its periphery, a membrane formed of rubber stretched across said groove so as to form an annular chamber, means for holding said membrane at one point permanently pressed against the bottom of the chamber, an inlet-pipe entering said chamber on one side of said means, an outlet-pipe on the other side thereof and a roller of less thickness than the wheel engaging the membrane so as to force it against the bottom of the groove.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HANS MIKOREY.

Witnesses:

WOLDEMAR HAUPT,
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