

SEALING ASSEMBLY- FTO CASE STUDY



OVERVIEW

The freedom to operate search reveals a seal assembly consisting of a casing equipped with a shackle and internal cable. This seal assembly is intended for use on trailers, trucks, transport vehicles, or other containers to secure their contents. It features a casing with a detent mechanism at the distal end of a cable. The detent is designed to engage with the textured surface of the shackle, ensuring a secure lock. This mechanism prevents unauthorized access and enhances the sealing function. The assembly is specifically engineered to provide reliable security for transport and storage applications.

CHALLENGES FACED

COMPLEX AND SPECIFIC FEATURES

The combination of a casing, shackle, internal cable, detent, and textured surface is highly specialized, making it hard to find an exact match.

NARROW SCOPE OF APPLICATION

The seal assembly's use is limited to specific industries (trailers, trucks, containers), narrowing the pool of potentially relevant patents.

UNCOMMON TERMINOLOGY

The terminology, like "detent" & "textured surface," may not align with how patents describe similar technologies, requiring careful keyword selection.

SEARCH METHODOLOGY

▶ The search methodology for the seal assembly involved a detailed analysis of the key features described, such as the casing, shackle, internal cable, detent, and textured surface. Relevant keywords like "seal assembly," "casing," "shackle," "internal cable," "detent," and "elongated cable" were identified, along with their synonyms.

▶ A broad search was conducted using patent databases such as QUESTEL ORBIT, PATSNAP, GOOGLE PATENTS, and PATENTSCOPE, applying various combinations of keywords and IPC/CPC codes. Non-patent literature was also searched on platforms like GOOGLE SCHOLAR and SCIENCE DIRECT.

▶ Additionally, assignee and inventor searches, citation analysis, similarity searches, and semantic searches were used to locate relevant prior art and references.

APPROACH TO FINDING THE REFERENCE

Phase 1 Initial Search

During the initial search, we encountered several references disclosing seal assemblies with shackle locking mechanisms that utilize detents or protrusions within the seal housing. Some of these references revealed additional claim limitations not present in our product or invention.

Phase 2 Expanding the Search

As part of the next step, we conducted further analysis of the citations from the references we found. We also ran search strategies focused on the assignees and inventors of these references to uncover more pertinent patents. Despite these efforts, we found no additional references that were significantly more relevant to our invention. This limitation prompted us to broaden our search scope and explore non-patent literature. Through this, we identified companies selling seals and locks with a shackle and internal cable, which helped guide our next search phase.

Phase 3 Successful Strategy & Final Findings

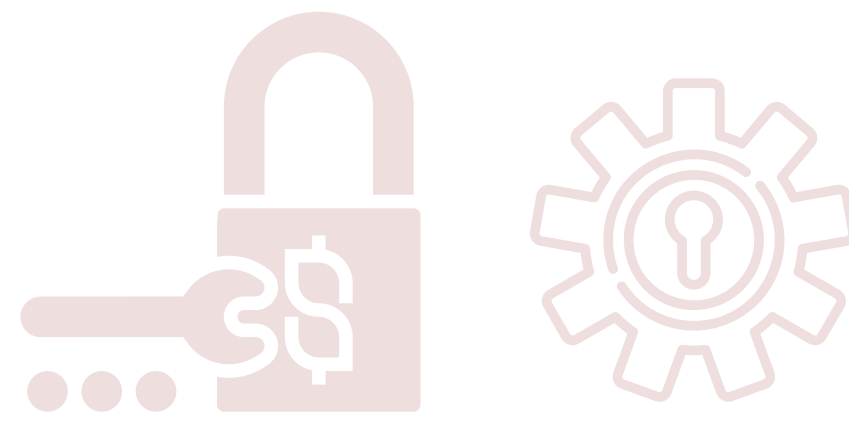
Building on this insight, we used the identified companies and assignees to find relevant patent references. This strategy proved successful, as we eventually found patents that disclosed seal assemblies with shackles featuring textured surfaces for detents, along with internal cables. These references closely aligned with the features of the subject invention and were included in the final report, providing valuable insights into the potential infringement risks related to the seal assembly with internal cable.

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CONCLUSION

We successfully identified relevant patent references for the seal assembly with a shackle and internal cable through a systematic and multi-phase search process. Initially, we encountered several broad references related to seal assemblies with shackle locking mechanisms, which we included in our report due to their potential infringement risks. Despite challenges in finding exact matches for the unique features of the invention, our strategy evolved to include a deeper exploration of citations, assignees, and non-patent literature. This approach ultimately led to the discovery of patents disclosing the exact combination of features in our subject invention.



PRO TIP

When conducting a freedom-to-operate search, if no better references are found in patent databases, it is beneficial to explore non-patent literature. By investigating companies that sell products similar to the invention, you can uncover relevant patents associated with those products, which may help identify important patents and potential infringement risks.

Expert

She holds a degree in Mechanical Engineering and 4.5 years of expertise in patent research. Her specialized areas include aviation, turbine technology, and the automotive industry. She has successfully completed projects in novelty/ patentability search, invalidation search, freedom-to-operate search, state-of-the-art search, landscape analysis, and portfolio analysis.



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