FTO Checker

Freedom to Operate — Preliminary Report

Thanks for using **FTO Checker**! Our goal is to help you kick-start your freedom to operate search with modern AI and prepare meaningful discussions with patent professionals.

This report highlights existing patents that may be technically relevant to your invention, using multiple, complementary search strategies.

It also includes a short summary of recent **scientific** and **general web** publications related to your invention, so you can stay aware of emerging trends, opportunities, or concerns in the technical landscape.

We have attached a CSV file listing all currently active patents surfaced by FTO Checker based on their overlap with your invention — beyond the top 10 detailed in this report.

Enjoy the read!

Table of contents

Your invention description

"A mechanical clamp designed for industrial fixtures that automatically locks when pressed into position and can be released using a single hand. The system uses a spring-loaded cam mechanism with asymmetrical teeth to resist backsliding under vibration. The clamp is made of stainless steel and intended for repeated use in harsh environments. Applications include manufacturing jigs, transport locking systems, and maintenance tools."

systems, and maintenance tools.

Executive summary

- **Total patents searched:** 163.6 million (The Lens database)
- **Jurisdiction(s) of focus:** EP, US, DE
- **Potentially relevant patents:** 94
- **Currently active patents:** 45
- **Patents listed below:** 10 most relevant to your invention
- **Search methods:** keywords, patent language, IPC-CPC codes, semantic analysis, inventors
- **Report date:** 2025-06-30

The patent search identified 94 potentially relevant patents for your mechanical clamp, with 45 still active. Key themes include material durability, automatic locking mechanisms, and securing under tension, aligning with your invention's features. The space appears moderately crowded, with notable activity from key players, suggesting a competitive landscape. The average similarity score of 21% across the top results indicates some conceptual overlap, though no direct matches. Patents were often detected by more than one search method, highlighting their relevance. These findings suggest opportunities for differentiation and refinement, particularly in material innovation and locking mechanisms, to strengthen your patent application and position in the market.

Your top 10 most similar patents

1. **Lock washer**
   View patent
   Publication number: 098-856-505-814-020
   Jurisdiction: US
   Similarity score: 33%
   Search methods: keywords
   Why we selected this patent: The patent was selected due to its focus on case-hardened stainless steel, which aligns with your invention's material requirements for durability in harsh environments. The patent's method for enhancing the material's strength and resistance could be relevant for improving your clamp's performance under industrial conditions.
   Share patent overview

2. **LOCK WASHER**
   View patent
   Publication number: 019-238-110-288-851
   Jurisdiction: US
   Similarity score: 33%
   Search methods: keywords
   Why we selected this patent: The patent was selected due to its focus on stainless steel components with enhanced durability, relevant to your clamp's material needs. Both involve stainless steel for repeated use in harsh environments. Claim 1 highlights case depth and surface hardness, emphasizing reusability, which aligns with your invention's requirement for longevity and resilience.
   Share patent overview

3. **STATIONARY BAND CLAMPING APPARATUS**
   View patent

Publication number: 198-912-583-935-273
Jurisdiction: US
Similarity score: 22%
Search methods: patent language
Why we selected this patent: The patent was selected due to its method of locking and tensioning, which conceptually aligns with your clamp's automatic locking feature. Both involve mechanisms that secure components under specific conditions. While the patent focuses on a tensioning device, the underlying principle of securing and releasing under tension is relevant to your invention.
Share patent overview

4. **STATIONARY BAND CLAMPING APPARATUS**
View patent
Publication number: 174-782-973-012-761
Jurisdiction: EP
Similarity score: 22%
Search methods: patent language
Why we selected this patent: The patent was selected due to its method of tensioning and securing components, which aligns with your clamp's locking mechanism. Both involve securing elements under tension, relevant to your cam mechanism resisting backsliding. Claim 1 covers a tool for tensioning a band with a buckle, suggesting a conceptual similarity in securing mechanisms.
Share patent overview

5. **Stationary band clamping apparatus**
View patent
Publication number: 087-307-354-425-544
Jurisdiction: US
Similarity score: 22%
Search methods: patent language
Why we selected this patent: The patent was selected due to its method of automatically locking a mechanism under tension, which conceptually aligns with your clamp's locking feature. Both inventions focus on securing components under specific conditions.
Share patent overview

6. **Dynamic mechanical analyzer and sample fixtures for a dynamic mechanical analyzer**
View patent
Publication number: 049-003-530-883-392
Jurisdiction: US
Similarity score: 22%
Search methods: semantic analysis
Why we selected this patent: The patent was selected due to semantic similarity, highlighting its relevance to your invention. Both involve mechanical clamps with specific resistance to movement, though in different contexts. The connection lies in the use of mechanisms that allow controlled movement while resisting unintended motion, relevant to your clamp's anti-backsliding feature.
Share patent overview

7. **Dynamic Mechanical Analyzer and Sample Fixtures For A Dynamic Mechanical Analyzer**
View patent
Publication number: 101-620-283-015-113
Jurisdiction: US
Similarity score: 22%
Search methods: semantic analysis
Why we selected this patent: The patent was selected due to semantic similarity in mechanical clamping mechanisms. Both involve clamps that secure components in place, with resistance to unwanted movement. While the patent focuses on a dynamic mechanical analyzer, the concept of resisting rotational movement aligns with your invention's focus on stability under vibration.
Share patent overview

Share patent overview

8. **Mechanical shock resistant motorized drive assembly**
   View patent
   Publication number: 172-595-720-237-608
   Jurisdiction: US
   Similarity score: 11%
   Search methods: keywords
   Why we selected this patent: The patent was selected due to the keyword method, identifying potential relevance through terms like "locking," "mechanism," and "position." The connection lies in both inventions addressing secure positioning under operational stress. Although the patent focuses on tension adjustment, the concept of maintaining position under stress aligns with the clamp's anti-backsliding feature.
   Share patent overview

9. **MECHANICAL SHOCK RESISTANT MOTORIZED DRIVE ASSEMBLY**
   View patent
   Publication number: 194-676-188-360-038
   Jurisdiction: US
   Similarity score: 11%
   Search methods: keywords
   Why we selected this patent: The patent was selected due to the keyword method, identifying potential relevance in mechanical systems involving tension and secure positioning. While the invention focuses on a mechanical clamp, both involve mechanisms ensuring stability under stress, suggesting conceptual similarity in maintaining secure positions.
   Share patent overview

10. **Multi-station self-positioning floating clamping and workpiece automatic flip intelligent fixture system**
    View patent
    Publication number: 191-868-292-625-443
    Jurisdiction: US
    Similarity score: 11%
    Search methods: keywords
    Why we selected this patent: The patent was selected due to the keyword method, highlighting its self-positioning floating clamping device. This connects to your invention's automatic locking clamp, as both involve mechanisms for secure clamping under dynamic conditions. The focus on automatic operation and clamping in industrial settings suggests conceptual overlap with your design's functionality and applications.
    Share patent overview

Additional insights

Dominant keywords and concepts:

- lock washer
- band clamping
- stationary

Key semantic concepts:

- asymmetrical teeth
- automatic locking
- industrial fixtures
- industrial fixtures mechanical clamp
- mechanical clamp
- spring-loaded cam
- stainless steel
- vibration resistance

- vibration resistance

Relevant IPC codes:

- A61C8/00
- A61C13/00
- A63B27/00
- A63B29/00
- A61B34/30

Relevant CPC codes:

- A61C8/0036
- A61C8/0006
- A61C8/0012
- A61C8/0018
- A61C8/0075

Notable inventors or assignees:

- dmr holding group llc
- mazor robotics ltd
- natural dental implants ag
- fontana richard
- reinfeld david

What the world is saying

Recent popular sources indicate a growing trend in the use of cam clamps and spring-loaded mechanisms in workholding applications. Cam clamps, which generate clamping force on a movable surface via a cam mechanism, are typically connected to the work plate or holder with pins or screws. Spring-loaded devices, on the other hand, are being widely used as an alternative to fixed and adjustable locators. Furthermore, the integration of cam action indexing plungers, stop locks, and spring latches has been noted for their ability to accurately reproduce locked positions defined by indexing bores. Spring latches, specifically, are being engineered to fasten two parts securely, preventing unintentional movement or opening, and are praised for their fast locking capabilities.

Selected scientific publications

We searched the following journals and databases: IEEE, arXiv, IEEE Xplore, SPIE Digital Library.

Recent popular sources

- Cam clamps
  norelem PL
- The Comprehensive Guide to Spring-Loaded Mechanisms
  Carr Lane
- Cam action indexing plungers
  JW Winco
- Spring Latches: Types, Applications and Benefits
  IQS Directory
- Spring latches for fast locking
  Ganter Norm

Next steps

Recommended Lens or Google Patents queries:

- *lock washer*
  Search on Lens — Search on Google Patents
- *stationary band clamping*
  Search on Lens — Search on Google Patents
- *band clamping apparatus*
  Search on Lens — Search on Google Patents

Run a new FTO Checker search:

Try again with a modified description to explore other patent families or technical variants.

Start new search →