4. ROTALOK TURNSTILE MECHANISM

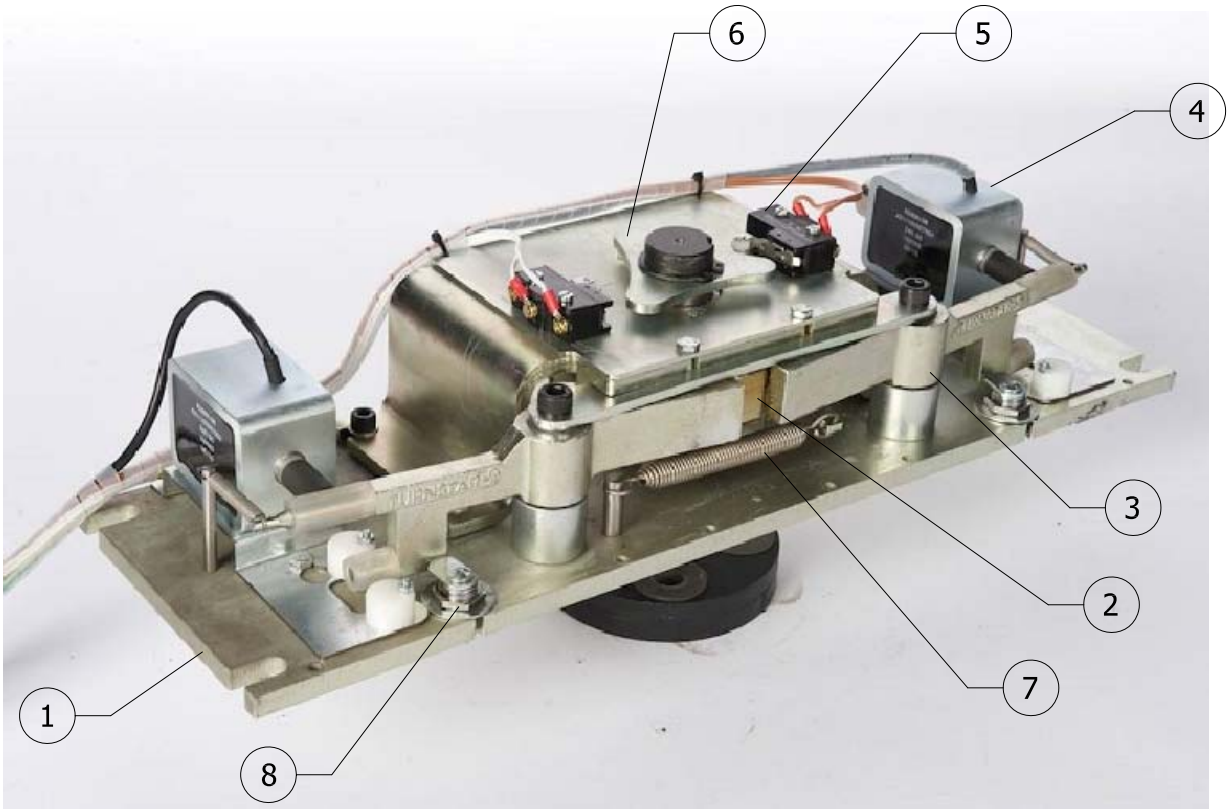

Figure 4.1: 3-Arm Fail-Safe Mechanism

1) Mechanism plate - the mechanism plate is bolted inside the turnstile top channel and contains all the components of the turnstile mechanism.

2) Anti-trap locking disk - case hardened for longevity. A 3-arm turnstile has a 6 tooth locking disk, a 4-arm turnstile has an 8 tooth locking disk and a 5-arm turnstile has a 10 tooth locking disk. The positioning of the teeth prevent reverse rotation once the turnstile has passed the point of no return. The locking disk is also designed with intermediate wide teeth to mechanically prevent the possibility of getting trapped inside the turnstile should there be a power failure during rotation.

3) Locking pawls - case hardened for longevity and pivoting around a self lubricating industrial plastic bush. The locking pawls engage against the locking disk and pivot to allow rotation in a particular direction.

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4) Solenoids - exert a force on the locking pawls and control the locking and unlocking of the turnstile for both the entry and exit direction. The solenoids can be set for fail-secure (auto lock on power failure - factory standard) or fail-safe operation (auto unlock on power failure). (See photos on next page)

5) Microswitches - control the relocking of the turnstile during rotation once the turnstile has rotated past the point of no return.

6) Microswitch cam - used to activate the microswitches. The number of points on the cam correspond to the number of arms of the turnstile.

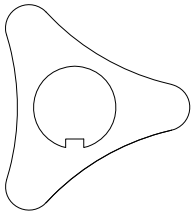

Figure 4.2:
3-arm Microswitch Cam

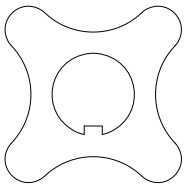

Figure 4.3:
4-arm Microswitch Cam

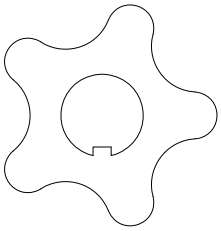

Figure 4.4:
5-arm Microswitch Cam

7) Indexing spring with roller - controls the self centering of the turnstile rotor back to the 0° position after rotation past the 'point of no return'.

8) Turnstile locks - the locks allow the turnstile to be mechanically overridden for free rotation in the desired direction. The locks are accessible from the underside of the turnstile channel.

Figure 4.5: Override Lock

Key is inserted into lock face on underside of mechanism plate.

Figure 4.6: Camlock and Key

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The following images show the operation of the mechanical key override lock function:

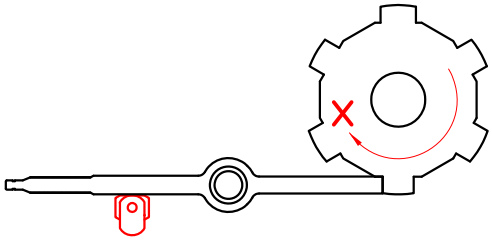

Figure 4.7: Mechanism in the locked condition

Pawl locks mechanism disk

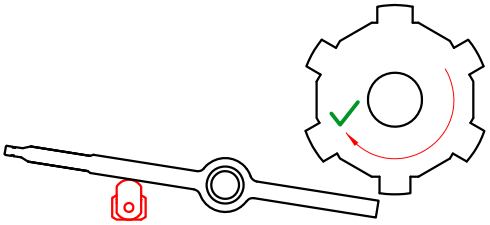

Figure 4.8: Mechanism in the unlocked condition

Pawl unlocked, allowing free rotation of mechanism disk

The following images show the operation of the Fail-Secure mechanism operation, and the Fail-safe mechanism operation.

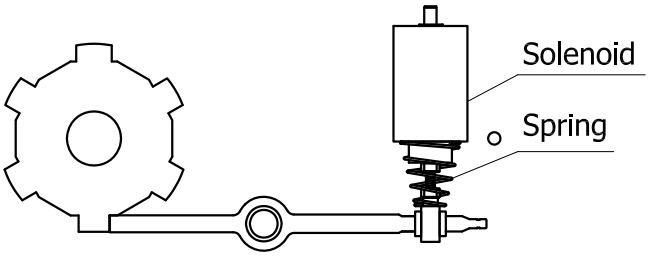

Figure 4.9: Fail-Secure
Solenoid is de-energised
Spring causes locking

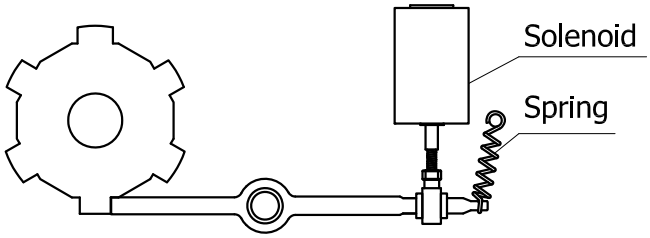

Figure 4.10: Fail-Safe
Solenoid is energised
Spring is over powered by solenoid

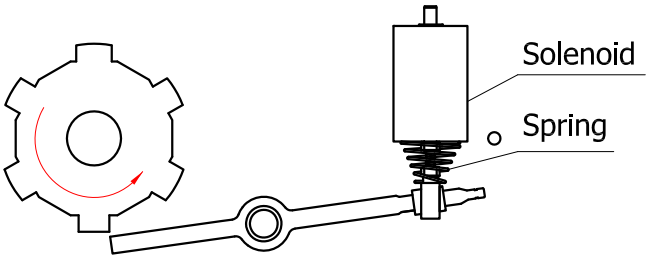

Figure 4.11: Fail-Secure
Solenoid is energised
Spring is over powered by solenoid

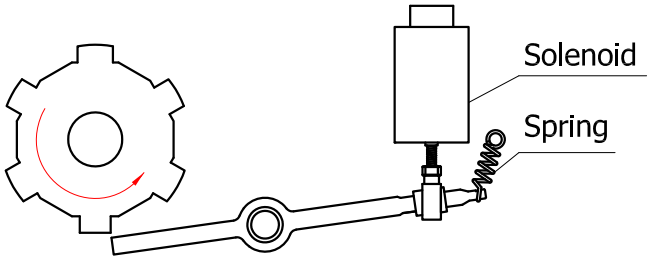

Figure 4.12: Fail-Safe
Solenoid is de-energised
Spring causes unlocking

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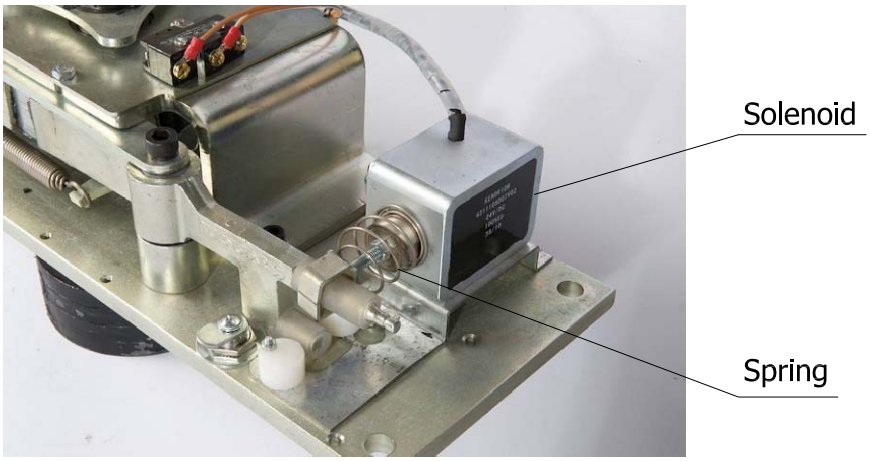

Figure 4.13: Fail-Secure Configuration

Spring continuously pushes the pawl and causes it to engage with the locking disk. Once power is applied, the solenoid pulls the pawl away from the locking disk, to allow rotation.

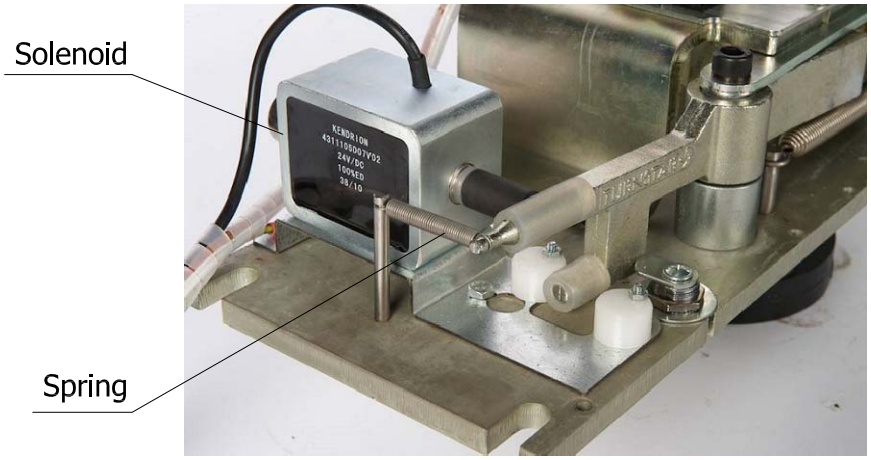

Figure 4.14: Fail-Safe Configuration

Solenoid continuously pushes the pawl and causes it to engage with the locking disk. Once power is removed, the spring pulls the pawl away from the locking disk, to allow rotation.

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