

Automatic Handle Locking and Unlocking of Bikes and Mopeds

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Abstract - This invention deals with providing convenience to users by automatic handle locking and unlocking of bikes and mopeds. In conventional handle locking system, user has to lock the handle manually. But many times users forget to handle lock their bikes or mopeds, some people are unaware from manual handle locking, even sometimes people show weariness for handle locking. This leads to robbery that means unsafe locking and unlocking of bikes and mopeds. In order to avoid it, this invention provides with automatic locking and unlocking system for handle by sensation of key by sensor. Furthermore, this invention combines the use of sensor and hydraulic circuit for secure locking and unlocking of handle. Also another object of invention is to increase safety and to reduce the human efforts.

Key Words: Sensor, Hydraulic circuit, Increase safety, Reduce the human efforts, Unaware, Weariness

1. INTRODUCTION

In conventional handle locking system, user has to lock the handle manually. But many times users forget to handle lock their bikes or mopeds, some people are unaware from manual handle locking, even sometimes people show weariness for handle locking. This leads to robbery that means unsafety of bikes and mopeds. In order to avoid it, this invention provides with automatic locking and unlocking system for handle by sensation of key by sensor. In this invention, the combine use of sensor and hydraulic circuit provides secure locking and unlocking of handle.

1.1 Field of the Invention

This invention relates to the society. This invention deals with providing convenience to users by automatic handle locking of bikes and mopeds. In conventional handle locking system, user has to lock the handle manually. But many times users forget to handle lock their bikes or mopeds, some people are unaware from manual handle locking, even some time's people show's weariness for handle locking. This leads to robbery that means unsafe locking and unlocking of bikes and mopeds. Particularly this invention provides automatic locking of handle according to key sensation by sensor. More particularly, this invention will provide, use of sensor and actuator for locking of handle.

According to proposed mechanism, after removing the key from key hole, sensor gives signal to actuator. By getting a signal from sensor actuator start working. As actuator start

working pump sucks the fluid from reservoir and by increasing its pressure passes it to 4/3 DCV. When highly pressurized fluid is passes from pump to 4/3 DCV and by PRV we maintain its pressure. The DCV which has three position open center four way valve **F** to the extreme right position and oil from the reservoir under pressure is directed from inlet of valve **F** to port 2 of extreme right position and then onward to port three of cylinder **E**. As piston moves forward the connecting link **D** which is fixed with piston rod by means of weld or other ways moves forward. Due to that forward movement of connecting link the locking rod **C** which is fixed with connecting link by weld or other ways moves forward in the handle hole.

To unlock the handle when we insert a key the sensor gets deactivated and signal gets break down, the 3 position open center four way valve **F** to extreme left position and oil under pressure is directed from outlet of valve **F** to port 1 (when the DCV is at position1) and the onward to port 4 of cylinder **E**. The piston of cylinder begins to retract and oil is exhausted to port 3 to port 2 of valve **F** and through the exhaust port to reservoir of unit **G**

As piston moves backward the connecting link **D** is also get retracted and the locking rod **C** which is connected to link **D** also pulled **B**.

1.2 Background of the Invention

The present invention focuses upon providing safety to bikes and mopeds and reducing human efforts.

Handle locking is provided in bikes and mopeds for the purpose of safety.

Problems in present arrangement (conventional system):

1. Nowadays in bike and mopeds the mechanism used is based on key and human force. The system used in our bikes and mopeds is manually operated by applying human force on handle to turn the handle and getting the position of handle hole and locking rod to be linear and coaxial. After getting linear and coaxial position of locking rod and handle hole by turning the key locking rod get pushed inside the handle hole.

Similarly for handle unlocking the mechanism operated by manually. After turning the key locking rod get back into its original position by turning handle manually.

2. Many times users forget to handle lock their bikes or mopeds, some people are unaware from manual handle locking, even some time's people show's weariness for handle locking. This leads to robbery that means unsafe locking and unlocking of bikes and mopeds

The said problems are faced by many people. So this indicates the scope of improvement in current handle locking system to eliminate the human efforts and to increase the safety of user's bikes and mopeds.

2. PRIOR ART

According to the prior art,

All modern bikes and mopeds have handled locking system. In that system the driver or users have to handle lock the bike or moped by applying external forces. In this system human efforts are more also if we forget to lock the handle chances of robbery increases.

With proposed invention locking and unlocking for bikes and mopeds is operated automatically by sensor and actuating actuator. Sensor and actuator are provided in our system. After removing the key from key hole, sensor gives signal to actuator. By getting a signal from sensor actuator start working. As actuator start working pump sucks the fluid from reservoir and by increasing its pressure passes it to 4/3 DCV. When highly pressurized fluid is passes from pump to 4/3 DCV and by PRV we maintain its pressure. The DCV which has three position open center four way valve **F** to the extreme right position and oil from the reservoir under pressure is directed from inlet of valve **F** to port 2 of extreme right position and then onward to port three of cylinder **E**. As piston moves forward the connecting link **D** which is fixed with piston rod by means of weld or other ways moves forward. Due to that forward movement of connecting link the locking rod **C** which is fixed with connecting link by weld or other ways moves forward in the handle hole.

To unlock the handle when we insert a key the sensor gets deactivated. As signal gets break down, the 3 position open center four way valve **F** to extreme left position and oil under pressure is directed from outlet of valve **F** to port 1 (when the DCV is at position1) and the onward to port 4 of cylinder **E**. The piston of cylinder begins to retract and oil is exhausted to port 3 to port 2 of valve **F** and through the exhaust port to reservoir of unit **G**

As piston moves backward the connecting link **D** is also get retracted and the locking rod **C** which is connected to link **D** also pulled back. So this invention will be very useful to people. As this invention increases safety and reducers human efforts this modified handle locking system is convenient to people.

3. OBJECTS OF THE INVENTION

- An object is to reduce human efforts by using our invention of automatic locking and unlocking of handle.
- Another objective of this invention is to increase the safety of bikes and mopeds.

3.1 Summary of the Invention

In our system the mechanism which we are using is based on key, sensor and hydraulic system. Particularly this invention provides automatic locking of handle according to key sensation by sensor. In this system sensor gives signal to our actuator of hydraulic system. After getting a signal from sensor hydraulic system pushes the locking rod inside the handle hole. More particularly, this invention will provide, use of sensor and actuator for locking of handle.

After removing the key from key hole, sensor gives signal to actuator. By getting a signal from sensor actuator start working. As actuator start working pump sucks the fluid from reservoir and by increasing its pressure passes it to 4/3 DCV. When highly pressurized fluid is passes from pump to 4/3 DCV and by PRV we maintain its pressure. The DCV which has three position open center four way valve **F** to the extreme right position and oil from the reservoir under pressure is directed from inlet of valve **F** to port 2 of extreme right position and then onward to port three of cylinder **E**. As piston moves forward the connecting link **D** which is fixed with piston rod by means of weld or other ways moves forward. Due to that forward movement of connecting link the locking rod **C** which is fixed with connecting link by weld or other ways moves forward in the handle hole.

Similarly, to unlock the handle when we insert a key the sensor gets deactivated and signal gets break down. After break down of signal oil in the cylinder goes to its original position. As oil goes to its original position due to retraction stroke piston comes to its original position. Therefore locking rod which is connected with connecting link of the piston goes back to original position. The 3 position open center four way valve **F** to extreme left position and oil under pressure is directed from outlet of valve **F** to port 1 (when the DCV is at position1) and the onward to port 4 of cylinder **E**. The piston of cylinder begins to retract and oil is exhausted to port 3 to port 2 of valve **F** and through the exhaust port to reservoir of unit **G**

As piston moves backward the connecting link **D** is also get retracted and the locking rod **C** which is connected to link **D** also pulled back.

4. BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWING

The invention will now be describe in relation to the accompanying drawing in which figure illustrate the circuit

diagram of the system. The circuit shown in the diagram is designed to move the locking rod in handle hole for locking and unlocking.

After removing the key from key hole, sensor gives signal to actuator. By getting a signal from sensor actuator start working. As actuator start working pump sucks the fluid from reservoir and by increasing its pressure passes it to 4/3 DCV. When highly pressurized fluid is passes from pump to 4/3 DCV and by PRV we maintain its pressure. The DCV which has three position open center four way valve **F** to the extreme right position and oil from the reservoir under pressure is directed from inlet of valve **F** to port 2 of extreme right position and then onward to port three of cylinder **E**. As piston moves forward the connecting link **D** which is fixed with piston rod by means of weld or other ways moves forward. Due to that forward movement of connecting link the locking rod **C** which is fixed with connecting link by weld or other ways moves forward in the handle hole.

Similarly, to unlock the handle when we insert a key the sensor gets deactivated and signal gets break down. After break down of signal oil in the cylinder goes to its original position. As oil goes to its original position due to retraction stroke piston comes to its original position. Therefore locking rod which is connected with connecting link of the piston goes back to original position. The 3 position open center four way valve **F** to extreme left position and oil under pressure is directed from outlet of valve **F** to port 1 (when the DCV is at position1) and the onward to port 4 of cylinder **E**. The piston of cylinder begins to retract and oil is exhausted to port 3 to port 2 of valve **F** and through the exhaust port to reservoir of unit **G**

As piston moves backward the connecting link **D** is also get retracted and the locking rod **C** which is connected to link **D** also pulled back.

5. CLAIMS

- In our invention we use sensor and hydraulic circuit (oil, pump, motor, DCV, etc.) For handle locking and unlocking automatically. Similarly we can use sensor and pneumatic circuit (compressor, air, DCV, etc.) for handle locking and unlocking automatically.
- We can use sensor, spring, gears and mechanical linkages for handle locking and unlocking automatically. In this system by getting a signal from sensor motor start working. As motor start working gears connected with motor are operate the mechanical linkages and due to that movement of spring happen and because of that movement our handle lock and unlock automatically.

6. CONCLUSIONS

This paper has presented basic idea about automatic handle locking and unlocking of bikes and mopeds and its advantage. The most wide-spread usage of the invention automatic handle locking and unlocking of bikes and mopeds is in mechanical field. Main objective of this invention is to reduce the human efforts and increase the safety of bikes and mopeds.

This invention deals with providing convenience to users by automatic handle locking and unlocking of bikes and moped.

REFERENCE

[1] Gokul Laxman Tikone and Omkar Sudam Shinde, "Automatic handle locking and unlocking of bikes and mopeds". www.ipindia.gov.in, patent status-published, patent application no. - 201621037002.

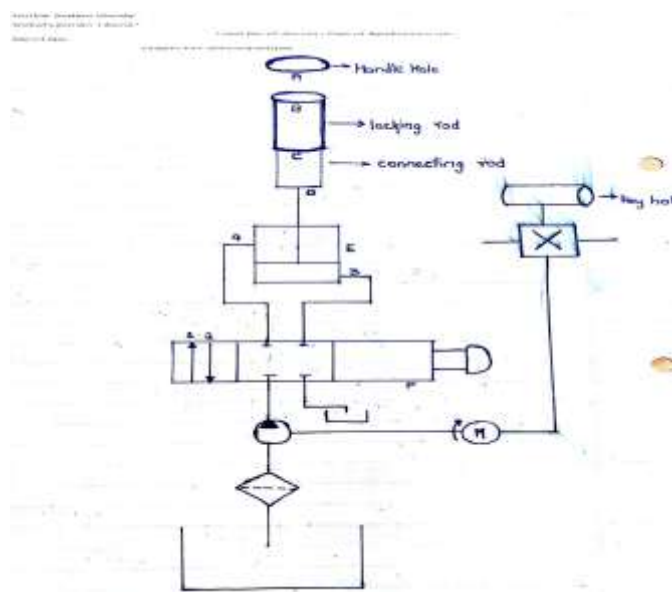


Fig.1 Hydraulic circuit