O. H. PERRY & E. P. WATSON.

Draw-Bridge Lock and Signal.

No. 195,160. Patented Sept. 11, 1877.

Fig. 1.

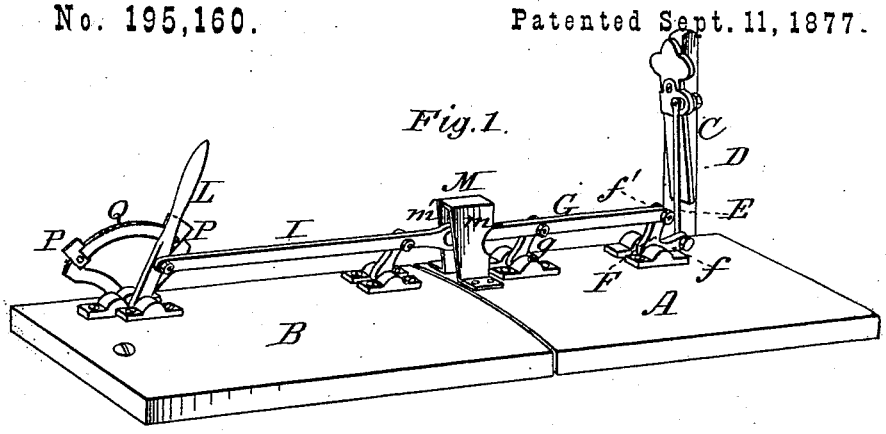

Fig. 2.

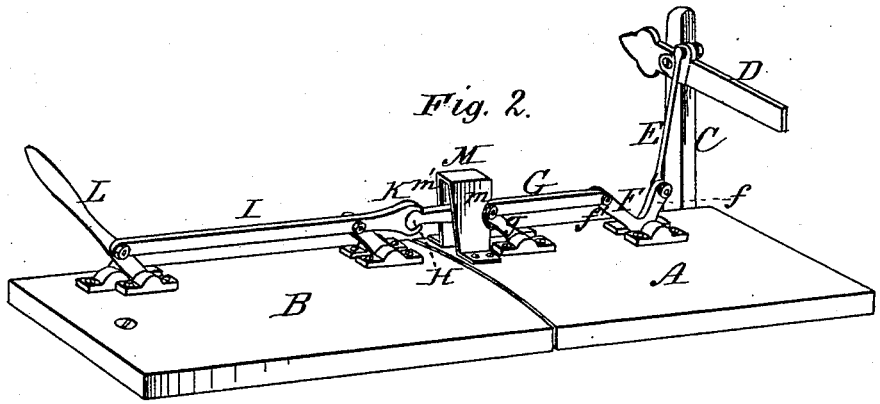

Fig. 3.

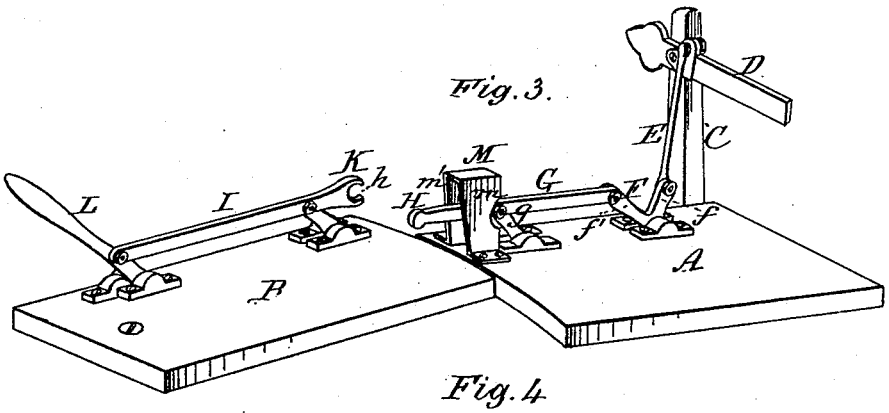

Fig. 4

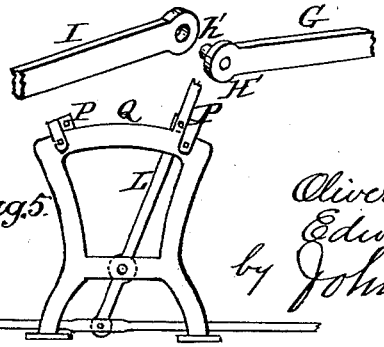

Fig. 5.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN DRAW-BRIDGE LOCK AND SIGNAL.

Specification forming part of Letters Patent No. **195,160**, dated September 11, 1877; application filed August 24, 1877.

To all whom it may concern:

Be it known that we, OLIVER H. PERRY, of the town of Newtown, county of Queens, and EDWARD P. WATSON, of the city, county, and State of New York, have invented certain new and useful Improvements in Draw-Bridge Lock and Signal; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The draw-bridge is provided with a signal which can be operated to indicate "safety" only when the draw is closed and locked, and which indicates "danger" when the draw is unlocked, and will so continue to indicate during the time said draw remains unlocked. This is not new, broadly considered.

The invention claimed consists, mainly, in the arrangement of the signal upon the stationary part of the bridge, and one portion of the signal operating and locking devices upon said stationary part, while the other portion is placed upon the draw, the two portions being in such relation to each other and to the fixed lock that movement of the two operating portions must originate upon the draw, the act of opening which automatically disconnects the two portions and renders their operation, as to the signal, impossible, while the closing of the same automatically engages the said operating devices, so that the signal may be changed from "danger" to "safety" or "line clear."

A distinguishing feature of the invention lies in the construction and adaptation of the device to effect the clutching and unclutching of the signal-operating rods by the closing and opening of the draw, and, in connection therewith, of a fixed lock to receive and confine the clutched rods.

It consists, further, in certain novel devices and combinations thereof for effecting the automatic engagement and disengagement above referred to.

The various details of construction involved in our invention, and the operation thereof, will be hereinafter fully described and explained with reference to the drawings, in which—

Figure 1 represents a draw-bridge lock and signal constructed according to our invention, the draw being locked and the signal indicating "safety" or "line clear." Fig. 2 shows the draw unlocked and the signal indicating "danger." Fig. 3 is a view showing the draw open. Fig. 4 shows a modification of the clutch of the signal-operating rods, and Fig. 5 the operating-lever frame and the stops for the clutch-connection.

In the several figures of the drawings, A represents the stationary structure of a draw-bridge and the draw, which is pivoted at its center, and swings in the ordinary manner. Upon the stationary structure A is arranged a signal-post, C, near the top of which is pivoted a semaphoric signal-arm, D, from which a rod, E, extends downward, and is jointed to one arm, *f*, of a bent or bell-crank lever, F, to the other arm, *f'*, of which is jointed a horizontal rod, G, extending toward the draw B, and supported by a vibratory arm, *g*. The end of this horizontal arm G which is near the draw is formed into a solid head, H. Upon the draw B is another horizontal rod, I, which is supported in the same manner as rod G, and has its end adjacent to said rod G provided with a ring-head, K, which is of proper size to receive the solid head H, and has an open slot, *h*, cut through its walls toward the lock, while the rod G itself is of suitable size to fit in the opening *h*. The opposite end of rod I is jointed to a hand-lever, L, arranged upon the draw.

A lock or strong casing, M, is arranged upon or near the edge of the stationary part of the bridge, and consists, essentially, of the two vertical walls *m m'*, one of which is arranged upon each side of the path of the rods G and I, and at such distance apart as to allow the ends of said rods to pass between them when said ends are connected.

When the draw and the rods are in the positions shown in Fig. 1, the connected ends of the rods G and I are between the walls *m m'* of the lock M, and the rod I acts as a bolt to prevent the turning in either direction of the draw B, as will be readily seen, and in this

position of the parts the signal-arm D is thrown down alongside the post C, and thus indicates that the line is clear or the passage of the draw safe. When, by the action of the hand-lever L, the rods G and I are moved to the position shown in Fig. 2, the connected ends of said rods are removed from between the walls *m m'* of the lock M, and the same action causes the arm *f* of the bell-crank lever F to pull upward the rod E, thereby throwing upward the signal-arm D to a position at a right angle with the post C, in which position it indicates "danger."

The throw of the operating-lever may be regulated by suitable stops P P on the frame Q, in which it works, as shown in the drawings. These stops limit the movement of the clutch-rods in the locking and unlocking action.

It will be readily understood that a signal may be arranged in either direction, or both up and down the line from the draw, and that both of said signals may be operated by the same hand-lever upon the draw. In such case the rods which operate the signal-arms should be so connected to said arms that both of said arms will move upward or downward at the same time, which may be accomplished by arranging one signal-arm as a lever of the first kind and the other as a lever of the second kind.

Suitable stops to the movement of the draw should, of course, be provided when said draw is intended to turn in both directions; but when adapted to turn only in one direction the pin-clutch device serves as the stop to the draw.

In Fig. 4 is shown a modification of our invention intended to be applied to those draw-bridges in which the draw turns only in one direction. This modification provides a stop for the movement of the draw in closing. Instead of having the open-socket or cut-ring terminal, as shown in Figs. 1 and 2, the rod G is provided with a disk-shaped head, H', from one side of which projects a pin, *h'*, in the direction of the opening of the draw, and instead of the solid circular head, the rod I is provided with a head in the shape of a ring. When the draw is closed the ring-head of rod I slips upon the pin *h'* of the rod G and strikes against the disk H', thus stopping the draw in position for the connected ends of the rods to be moved between the walls *m m'* of the fixed lock M.

In either of the above-described forms of our invention, if properly constructed, a movement of the draw of half an inch should be enough to prevent the operation of the signal or signals.

Either of the clutch-rods may be provided with the ring-head and knob or solid head.

As it is probable that the semaphore-signal would be used as a distant signal, there would be near the edge of the bridge a supplemental signal worked in connection with it—say an ordinary quarter-throw target.

We claim—

1. The combination, with a draw-bridge lock-bolt and an operating rod or rods of a movable signal, of an automatic clutching and unclutching device, operated by the closing and opening of the draw.

2. The combination of the rod G, connected with a movable signal on the fixed part of the draw, and provided with half of automatic clutch-joint, H, and the rod I, located on draw B, and provided with the other half of said automatic clutch-joint, K, substantially as described.

3. The combination of rod G, connected with a movable signal, and provided with one part of an automatic clutch-joint, the rod I, located upon the draw B, and provided with the other part of said automatic clutch-joint, and the fixed lock M, having walls *m m'*, substantially as set forth.

4. The operating-rod I upon the draw, having a ring-head, K, provided with an opening, *h*, and the signal-operating rod G, having a head, H, or vice versa, as described.

5. The lock or casing M, open at both ends, the signal-operating rod G passing through it from the shore end, and the rod I passing through it from the draw to lock and unlock said draw, both said rods being adapted for united movement.

6. The combination, with the operating-lever, the automatic clutching and unclutching signal-connections, and the fixed lock, of suitable stop or stops, for the purpose stated.

In testimony that we claim the foregoing we have affixed our signatures in the presence of two witnesses.

OLIVER H. PERRY.
EDWARD P. WATSON.

Witnesses:
FRANK J. DONALDSON,
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