

Innovations in Enforcement: Badge Attachable Handcuff Keys for Police and Security Officers

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Abstract: Police and Security Officers within the United States as well as other countries typically use a standard type of handcuff key when detaining, releasing, transporting or arresting suspects. This can create difficult problems when using standard handcuffs or other restraining devices with standard issue keys. Aftermarket keys come in various designs and are indeed of assistance when compared to using the standard issue keys which typically come supplied with the purchase of handcuffs. Officers must often struggle with these small keys in hazardous situations which can lead to injury or even escape of detainees. The badges of certain police departments and security forces, whether worn in uniform or carried on a badge holder by plainclothesmen, carry a feature which enables the use of a unique, specific type of handcuff key. It is much easier to use, remaining concealed and secure until needed, yet readily accessible for use.

Keywords: Law Enforcement Technology, City of New York Police Department (NYPD), Restraint Devices, Universal Handcuff Key.

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I. INTRODUCTION

Each day, law enforcement personnel employ various types of restraining devices. Handcuffs, or manacles are the most often used by police departments and security forces when taking suspects into custody, whereas corrections officers often utilize leg irons or chained manacles when transporting prisoners. When restraining a suspect or prisoner, tensions are often high as in the case of making an arrest. Yet to avoid unintentional injuries to detainees and officers alike, it is highly recommended by many departments that the restraints be double-locked. Most standard models of handcuffs have a recessed button or slot where the top of the key may be inserted. This secures the ratchet or toothed lock of the bracelet in place, blocking it from moving in either direction. This prevents the cuffs from becoming too tight and possibly cutting off blood circulation or causing injury. Even after prisoners are initially restrained, it can be difficult to double-lock the cuffs in particularly violent situations.

Once prisoners or suspects are transported of course, they must be unshackled. To release the ratchet on the cuff when they are double-locked, the key must be inserted and rotated all the way to the left and then all the way to the right.

With the exception of maximum-security restraints, such as the Smith and Wesson Maximum Security M104, or the Clejuso Model 15 Heavyweight, used primarily to transport the most violent or physically strong prisoners, most standard issue handcuffs use the same type of paddle-style universal key. Aftermarket keys come in many different styles and variations, from extensions for standard issue keys to concealed models in the forms of bracelets or ink pens. [1]

This market is due to the difficulties law enforcement and security personnel typically have in using standard keys which come supplied with the purchase of restraints. (Figure 1) They are usually small, must often be kept on a ring or duty belt and are often difficult to use in tight spaces. Especially in highly stressful situations where mishandling during use is a common occurrence. In addition, many departments have temporary holding cells for detainees which are secured by padlocks, keyed with the same type of lock, opened with a universal handcuff key.



Fig 1 Typical Standard Issue Handcuff Key

Officers in certain departments wear or carry badges which have a special type of attachment. Instead of the larger pin with the catch, which is more common, their shield has what is known as a double-lug attachment. Two rounded bars extend from the back of the badge with holes within, through which a large safety pin-styled clasp is inserted and secured. (Figure 2)



Fig 2 NYPD Sergeant's Badge with Safety Pin-Style Clasp Attached. Manufactured by U.S. Badge Company, NY. [2]

This style of attachment is more common in the New York/ New Jersey area of the US, and dates to the later 19th Century. Indeed, the basic styles of badges used by most agencies in this area have changed very little for over a century. [3] (Figure 3)



Fig 3 Contemporary Style NYPD Captain Shield and an NYPD Municipal Captain Shield Manufactured by The C.G. Braxmar Company Circa 1879, both with Double-Lug Attachment. [4]

This type of attachment led to the later development of a "badge rack" or citation bar holder worn by uniformed officers. A flat badge holder made of leather, which accommodates the officer's shield, nameplate, and spaces for ribbon-style bars denoting specific awards and qualifications.

(Figure 4) It is held to the uniform by the lugs on the badge being threaded through the leather and then through grommets in the officer's uniform shirt or coat, the safety pin-style clasp being fastened on the inside of the garment.



Fig 4 Leather Uniform Citation/Badge Holder with Nameplate and Citation Bars Attached.

These basic styles of badges and holders are predominant with both police and private security companies throughout the area, Departments such as Yonkers, New Rochelle, New Castle and Tuckahoe in New York, as well as Jersey City, (Figure 5) Linden, Paramus, and Bayonne in New Jersey to name only a few.



Fig 5 Jersey City, New Jersey Patrolman’s Badge with Double-Lug Attachment. Extremely Similar to New York Style.

II. BADGE ATTACHABLE HANDCUFF KEY

As mentioned, aftermarket keys come in a very wide range of styles and configurations and are of great help in the Officer’s everyday use of restraints. Yet most of these keys still must be stored or used on a ring, and still difficult to implement in certain situations. There is a need therefore, for a universal handcuff key that can be reached quickly and conveniently, large enough to be easier to use, and yet remain concealed and secure until needed.

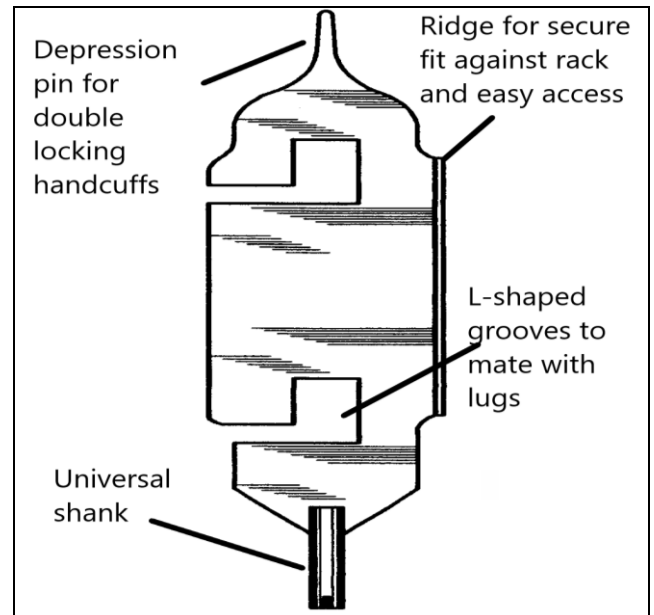


Fig 6 Badge Attachable Handcuff Key US Patent D454,774 [5]

This style of badge attachment, coupled when worn with a citation holder in uniform or a badge holder by plainclothesmen, enables the use of a specially designed universal handcuff key. (Figure 6) It is constructed from a sheet of chrome-plated brass from a stamping, one edge then curled to form a ridge to aid in handling, and then a standard universal-style shank is applied. It has two L-shaped grooves which mate directly with the lugs, sliding neatly into position onto the badge, between the citation holder and the garment and then locking to secure it in place until needed.

To implement, all the uniformed officer need do is reach behind the badge , slide upward with their thumb and then to the right to retrieve the key from behind it. And then to return it to its place simply align the grooves with the lugs and push downward to lock it into place. It rests snugly between the citation holder and the outer garment, remaining secure during typically physically demanding duty activities, such as running to persue and detain suspects, and may be used extremely effectively by both right and left-handed officers.

The device may also be used by plain clothes officers who carry their shields on a badge holder, typically worn on the belt, suspended from a neck chain or affixed to a jacket pocket. (Figure 7)



Fig 7 Early Stress-Testing Prototype Affixed to Lugs on Rear of Shield via a Badge Holder.

III. ORIGINAL DESIGN AND FURTHER DEVELOPMENTS

As most officers in the field on patrol and responding to calls by dispatch are Patrolmen and Detectives, the key was designed to mate with the common designs issued by most departments in this region to these ranks. (Figures 5, 8) This proved very effectively initially, but left out officers of higher rank, as although their shields also use the double lug attachment, the gaps between the lugs, or the distance between them vary with different style badges according to rank. This left the keys unserviceable for use with many of their badges.

In a similar fashion, another problem arose with the fact that many officers purchase duplicate reproduction badges (known as a “Number 2” or “Potsy”) for everyday use. [6] Although frowned upon by many departments, this is to ensure against risk of loss of their issue badge, as losing it can result in fines or other penalties. In addition, some departments such as the NYPD even have their Internal Affairs Division weigh, measure and authenticate an officer’s badge upon turning it in when applying for retirement benefits. These reproductions can vary in their manufacture in specifications and dimensions, often with the same problem of variance in the distance between and size of the lugs.



Fig 8 The iconic starburst style New York Detective’s shield, famous in both fact and fiction. Shown here incarnated for the former New York City Transit Police, which was absorbed into the NYPD in 1995. Note the unique double lug attachment

To address these issues, a new key design was invented. Instead of L-shaped grooves to mate with the lugs from the side, the advanced design features a column style where the key slides downward into position over the lugs, (Figure 9) still held snugly between the leather citation holder and officer’s garment but accessed simply by lifting upward. The new design also features a ridge for easy handling and remaining secure, but another feature was added due to the key’s fork-like appearance, (hence its nickname, “The New York Tuning Fork”) a straight edge was added on one fork opposite the depression pin on the other. As the gap between forks is very comparable to the diameter of the distance between the edge of the handcuff and the recessed double locking button, it acts as a guide along the edge of the bracelet, making it easier for the officer to depress and double-lock the cuff. The edge may also be used for prying or in emergencies as an improvised small screwdriver. Like its predecessor, it may also be easily used by plainclothesmen in conjunction with a badge holder, and now by all personnel, regardless of rank.

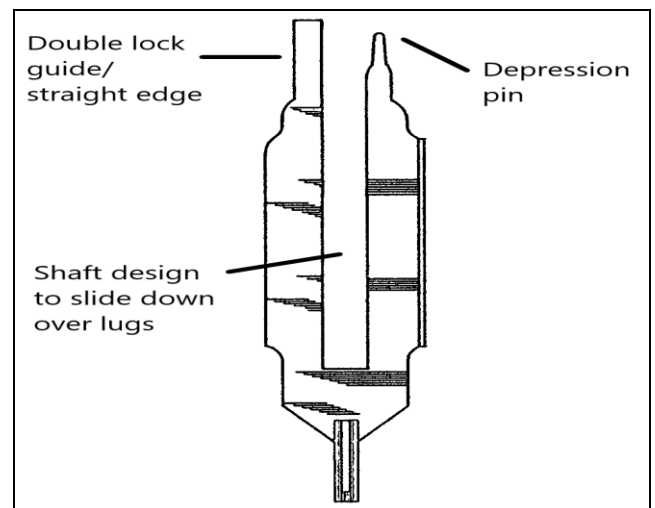


Fig 9 Later Design of Handcuff Key, US Patent D607,305

[7]

IV. CONCLUSION

There are many variants of aftermarket handcuff keys available for purchase by law enforcement, due to the difficulties encountered in using standard issue keys. Yet the most convenient for an officer, especially in uniform, is one that is always within reach, easily accessible yet always secure until needed, large enough for ease of handling yet small enough to remain concealed, aids in ease of double locking restraints, and may at times have secondary uses as well.

It is the hope of this presentation to inspire and encourage others in public as well as private safety, and indeed in other professions in their possible innovations for both professional as well as financial benefit. Even small advancements may achieve great dividends in making the day-to-day lives of law enforcement personnel safer and more efficient, as these innovations, additions and improvements to equipment originally designed 150 years ago, may attest to.

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