

# Determining Die Doubling from Other Forms of Doubling

by J.T. Stanton, NLG

## Introduction

Explaining the difference between die doubling (doubled dies, repunched dates, repunched mintmarks among others) and the more confusing forms of doubling can be very challenging and even more difficult for a novice to comprehend. Additionally, there are times when determining the difference can be frustrating for even a very experienced collector.

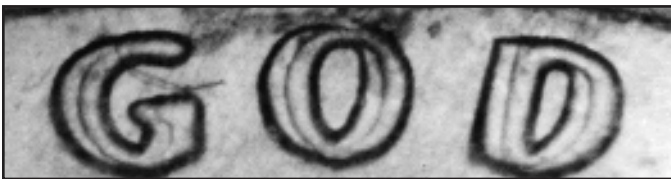
## Die Doubling *(those abnormalities we love to collect!)*

Die doubling is the type of doubling that exhibits a doubled image on the die itself, even before the coin is produced. Die doubling includes doubled dies, repunched dates, repunched mintmarks, overdates, over mintmarks and repunched letters.

Typically, die doubling will almost always exhibit splits in the serifs of the letters and/or numerals, with rounded, secondary images.



*In this photograph of a Jefferson nickel, the distinctive splits in the serifs are evident, and the secondary images are "rounded" and can easily be detected.*



*The photograph shown here of a true 1969-S doubled die Lincoln cent exhibits the typical rounded secondary images. Notice also the "crease" between the images.*

Many Nineteenth Century coins have letters and numerals which are flat on their top surfaces as compared with the rounder appearance of most Twentieth century letters and numerals. Therefore, the key to identifying true die doubling on Nineteenth Century coins will be the distinctive splits in the serifs.



*The splits in the serifs on this 1887 Indian cent doubled die obverse are typical of what one would expect for most Nineteenth Century coins with true die doubling.*

There is one class of doubled die which would not exhibit the normal characteristics mentioned for die doubling. Known as Class VI doubled dies, these exhibit extreme extra thickness on some letters and numbers. Most widely known on Lincoln cents, the doubling usually will exhibit a letter E or L with a convex (downward looping) horizontal stroke, and the letter U with an extremely thick loop. Although some specialists may disagree, these doubled dies generally command very little premiums – except in rare cases.



*In this photograph, notice the convex horizontal and vertical bars, and the thickness of the letters as discussed. This is typical of Class VI doubled dies.*

## Strike Doubling

Strike doubling is the most often confused type of doubling and very often mis-identified as a doubled die or RPM. Not only do novices confuse this type of doubling with doubled dies, but specialists even disagree as to what the correct terminology should be.

The term "strike doubling" is what I prefer and what I feel most accurately reflects the cause. Strike doubling is caused during the striking process. If one of the dies is loose as they come together to strike the coin, the loose die will twist slightly immediately as the hammer die starts to retract. This twisting die will actually cause some of the metal on the relief areas of the coin to "shear." Remember that the relief area on the coin is the recessed area on the die.



*Here is a photograph of typical strike doubling. The characteristics are discussed in detail within the article.*

Some will argue that the striking of the coin ends when the hammer die reaches the very end of its stroke. Thus, this should not be called "strike doubling" by their terms, but rather mechanical or machine doubling. In my opinion, this is like trying to split a hair. Additionally, I feel that "Machine" or "Mechanical" doubling can be even more confusing, as neither term indicates in which part of the minting process this happens. Either of those terms could refer to the coin counters at the end of the process! I feel "strike doubling" is best suited to describe the point of the minting process in which this doubling occurs.

Secondly, we all agree there are three basic areas of the minting process: planchet, die, and striking. This doubling occurs during the striking process, and not in the die making or planchet making process. We don't refer to incomplete planchets as a machine problem, although it was caused by a machine, but rather an incomplete planchet.

During my tours of the U. S. Mints in Philadelphia and Denver in 1994, and in Denver twice in 1996, the personnel in both facilities confirmed the cause. Additionally, they stated that when they do encounter this doubling, they would tighten the dies into their holding collars, and the doubling would cease.

Whether you refer to this as "strike," "machine," "mechanical," or "ejection" doubling, the primary focus should be to understand the difference and educate others.

As a rule, strike doubling will exhibit a flat, shelf-like secondary image, contrary to the rounded secondary images of true die doubling. This secondary image will also usually be low to the field. There will be no splits in the serifs. On most uncirculated and proof coins, strike doubling will give the appearance that the metal has been "moved," much like that on hobo nickels or love tokens, and will have a very shiny appearance.



*On this 1937 Buffalo nickel, the secondary images exhibit the typical flat, shelf-like doubling typical of strike doubling. The secondary image is low, close to the field.*



*Notice that there are no splits in the serifs on this Lincoln cent. Again, the doubling is flat, shelf-like, and low to the field.*

Strike doubling can affect all lettering on one or both sides, or could be detected on only one letter or a small portion of a device. Proof coins often exhibit strike doubling due to the excessive force employed. Strike doubling can be evident on a coin with a true doubled die or true RPM.

There are several dates and runs of dates in several series that are well known for strike doubling. For instance, Mercury dimes from 1936 thru 1942 often exhibit strike doubling, as do Lincoln cents from 1968 thru 1972.

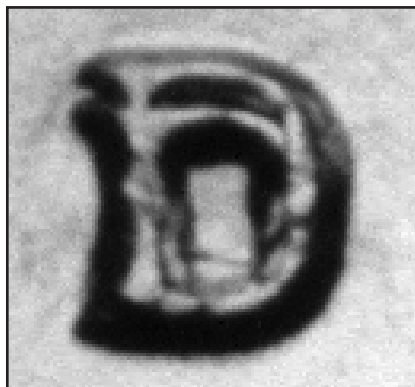


*Compare the photo of this 1969-S Lincoln cent doubling die with the strike doubling specimen below.*

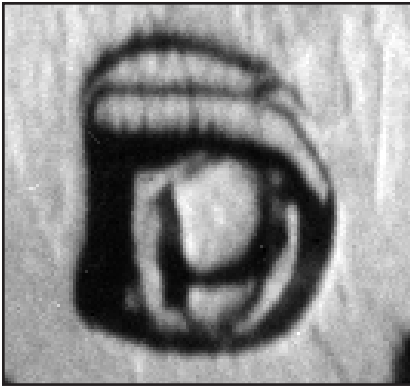


*In this photo of a 1969-S cent, strike doubling is evident on the date and mintmark. Whenever the date and mintmark are both doubled, odds are that the doubling is strike doubling.*

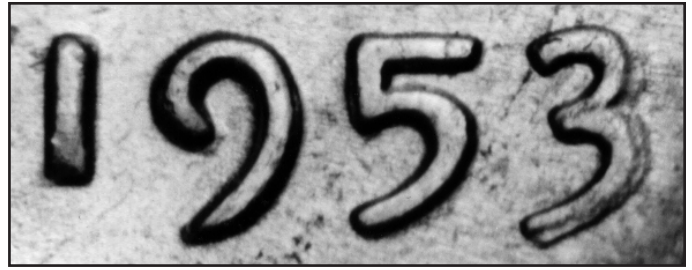
Although it may be difficult for a novice to understand, strike doubling can affect only the mintmark on a coin, creating what some may think is an RPM. In fact, this is fairly common, especially on Franklin halves and Washington quarters through 1964. This is often because strike doubling first affects the deepest part of the die (the highest part of the coin), which in many cases is the deeply punched mintmark.



*This is a photo of a genuine repunched mintmark on a Kennedy half. Compare the doubling here with the next photo, which is caused by strike doubling.*



*This photo of the mintmark on a Franklin half is the result of strike doubling. Notice the flat, shelf-like doubling, which is the primary characteristic of strike doubling.*



*In this photograph, die polishing is the cause of the doubled image on the 3 of the date.*

## Other Forms of Doubling

In addition to strike doubling, there are other forms of doubling that are often mistaken for die doubling. Among these is doubling caused by die fatigue, die polish, and doubling that is typical on coins designed by Longacre, possibly intentional.

## Die Fatigue

Die fatigue is very often confused for a doubled die. In general, as a die deteriorates, the letters and/or numbers will develop a secondary image on both sides of the letters or numbers (as though the edges of the letters or numbers have crumbled). This is caused due to stress in the metal of the die. This doubling will usually but not always be in combination with an “orange-peel” effect on the fields of the coin, created by the stress in the metal on the dies.



*Die fatigue is very evident in this photograph of a Jefferson nickel. Notice the secondary images on both sides of the letters, and the “orange-peel” effect evident on the field.*

Die fatigue is very common on Washington quarters from the 1980s and 1990s, Jefferson nickels from 1955 to date, and Roosevelt dimes from 1965 to date. Die fatigue is a prime example of the Mint trying to get maximum production out of every single die.

## Die Polish

Excessive polishing of the dies can also cause a doubled image on the struck coin. As dies are being polished, excessive force is sometimes used in certain areas. When this occurs, the result of the polishing can be a doubled image due to “spreading” the edges of the letters or numbers.

## “Longacre” Doubling

This unofficial term is used to describe the doubling that is typical on many coins designed by Longacre. These include Indian cents, three cents nickel, and Shield nickels. His \$1 and \$3 gold designs also often exhibit this doubling.

I’m sure that you’ve seen this doubling before; almost all of the letters are doubled in that the secondary image appears on both sides of the letters. Some specialists believe this is caused by the shoulder of the punch penetrating the die, causing the secondary step. Others feel this is intentional, designed to help with the metal flow into the tight crevices of the die.



*In this photograph of an Indian cent, the doubling that is typical on many of Longacre’s designs is evident. Notice that the secondary image is visible on both sides of the letters.*

Although this doubling is evident on many of the coins that Longacre designed, it is not seen on all of his coins. This would likely remove the theory that the secondary or “stepped” image was planned to help with metal flow. The Longacre doubling will not add any value to a coin’s premium.

## Summary

I hope this long, but educational article will help some of you in learning the difference between die doubling and other forms of doubling. However, the best learning tool one can use is experience. In that light, I would suggest that you look, and look carefully, at as many coins as possible, especially in the date ranges mentioned. Look especially carefully at proof quarters from 1968 and 1969 for strike doubling, Indian cents from the 1860s for the “Longacre” doubling, look at nickels from the 1980s for die fatigue, and mintmarks on Franklin halves for strike doubling. Don’t pass up the opportunity to even buy a good example of one of these for your reference, if it’s not too expensive.

# Die Doubling I.Q. Test

The ten photographs below exhibit some examples of die doubling, strike doubling, and even some other forms of doubling. Take a few minutes to see for yourself whether you can accurately identify the various forms of doubling.

Photo #1

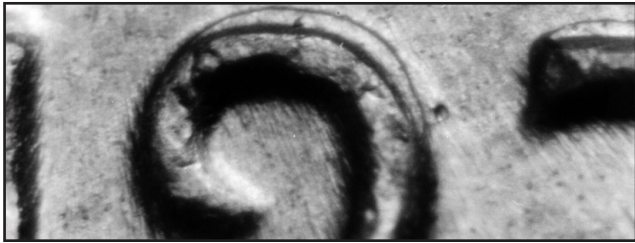


Photo #2



Photo #3

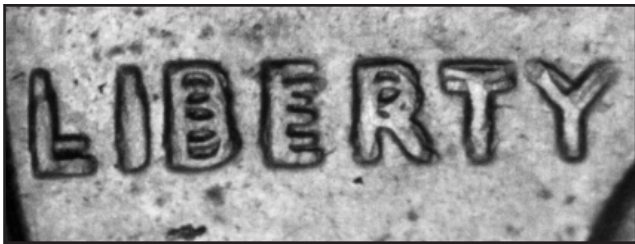


Photo #4



Photo #5



Photo #6



Photo #7



Photo #8



Photo #9

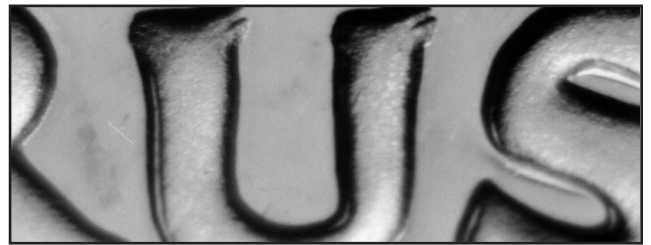


Photo #10



Note: Although most variety collectors do not feel coins exhibiting other forms of doubling should command any premium, some collectors believe they are collectable and actively pursue specimens exhibiting this type of doubling. I feel there is absolutely nothing wrong with this and encourage those who decide to take this course. The bottom line is and should be "are you having fun in your collecting pursuits?"

Answers to the test photographs: #1 - strike doubling; #2 - strike doubling; #3 - doubled die; #4 - strike doubling; #5 - doubled die; #6 - die fatigue; #7 - die fatigue; #8 - repunched mintmark; #9 - doubled die; #10 - strike doubling. In photo number 10, notice that the date and the mintmark both exhibit similar doubling. This should be a red flag. There are very few examples on which a doubled die and RPM both are evident on the same side of the same coin. Keep in mind that until very recently, the mintmark was punched into the die after the die was made. Therefore, if the die is doubled, the mintmark is not necessarily doubled.

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