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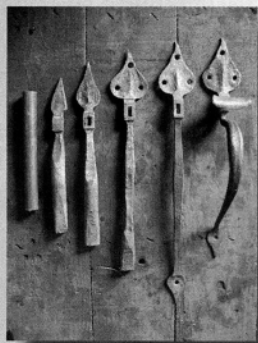
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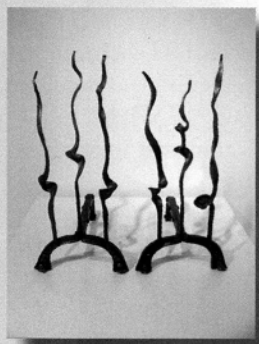
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On the cover: Suffolk latch by Lucy Sandys-Clarke (See article on page 12)

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FROM THE EDITOR:

Hammer Logic



When I began forging in 1979, many blacksmiths told me that a 3 lb. hammer was a good weight for a general purpose hammer for hand forging. Back in those days, I was quite strong because I lifted weights. However I was only using a 2.75 lb. hammer, and by the end of the day I was fatigued, and often plagued with blisters. The thought of using a 3lb. hammer seemed impossible.

Then, the day of the Oklahoma City bombing, I went out to lower our flag to half-mast. While tugging hard on the rope to get it around a prong, a tendon popped in my right elbow. I am right-handed, and as a result of the accident, I could not lift a hammer.

After a few weeks, I went into the shop to test my elbow. I did not wish to stress an already bad elbow, so I began forging small items with a 1 lb. hammer. After several days, I graduated to a 1.25 lb. hammer, and after another week, I went up to one with a 1.5 lb. head. I was working my way back to using my general purpose hammer which weighed 2.75 lbs., but I did not have anything between the 1.5 lb. and the general purpose hammer. I didn't want to risk another injury by jumping up to that heavier hammer too soon. So, I ordered a 1.8 lb. (800 gram) German cross-peen hammer from a distributor.

After using the 1.8 lb. hammer for a few days, I went to the hardware store to get a new handle because the stock handle was too narrow for my large hand. The new handle was about 2" longer than the stock handle, but I decided to use it as it was; I could always cut it shorter if it proved to be too long.

After I put the 1.8 lb. head onto the longer handle and began to forge, a miraculous thing happened...I was hitting with all the integrity of my 2.75 lb. general purpose hammer, but without as much effort! I also learned that I could swing that hammer all day long without fatigue, and with more accuracy than my 2.75 lb...and no more blisters!

What I accidentally discovered is based on simple math:  $Mass \times acceleration = force$  (or  $F=ma$ ), and that is based on Isaac Newton's *First Law of Motion*. I also learned that with a longer handle, a heavy hammer head (anything over 2 lbs.) is not necessary for general purpose forging, i.e. making anything from J-hooks to driveway gates.

To make this formula a bit easier to understand: if you grab a hammer handle right up by the head of any hammer and try to forge, you will not move much metal. But if you were to put a six-foot handle on that same hammer head, hold it from the very end of the handle and swing it, your blow will be much more powerful. (Continued on page 4)

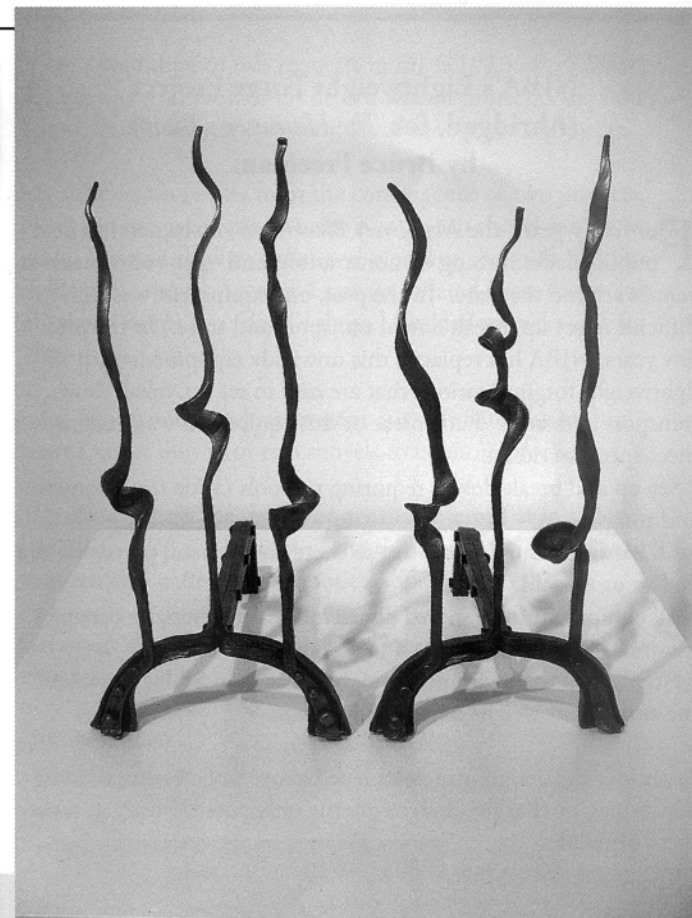
Members' Platform

As an artist-blacksmith, I have a close working relationship with fire. It has an important place in human experience and symbolism. Artists in many different cultures have represented fire in different ways and different media. It's a challenging subject to portray, especially in steel. I've made some purely sculptural attempts to do so, and I always have an eye out for interesting examples.

For many years, I've been interested in Paul Zimmermann's innovative work, especially his "Keynote" elements which are considered by some to represent a turning point in our medium and a movement towards contemporary forms. I wanted to use these flared twists to evoke rising curls of smoke and flame.

Glenn Horr of Highland Forge gave me an opportunity to experiment with Zimmermann's complex twists when he invited me to participate in an exhibition of all-forged work that he was assembling for Morgan Arts Council in Berkeley Springs, WV. The result was "Andirons for Agni, Lord of Fire," created with hammer techniques only - no welding, grinding or filing.

-Submitted by Steve Dykstra for Lee Badger, both of whom are from Hedgesville, WV ■



Above right: Andirons for Agni, Lord of Fire. By Lee Badger. 16" x 12" x 27". 2017. Forged mild steel with high temperature silica ceramic coating.

Left: Detail of andirons.

Right: Grille detail. By Paul Zimmermann. 1980.

