

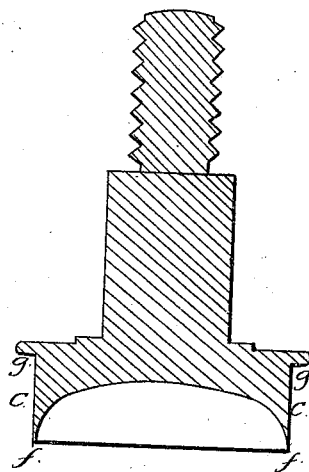
*L. E. Hicks,*

*Forging and Welding,*

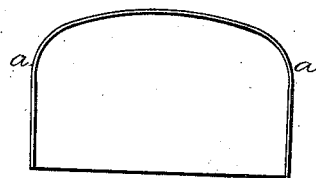
*Patented June 27, 1840.*

*Nº 1654-*

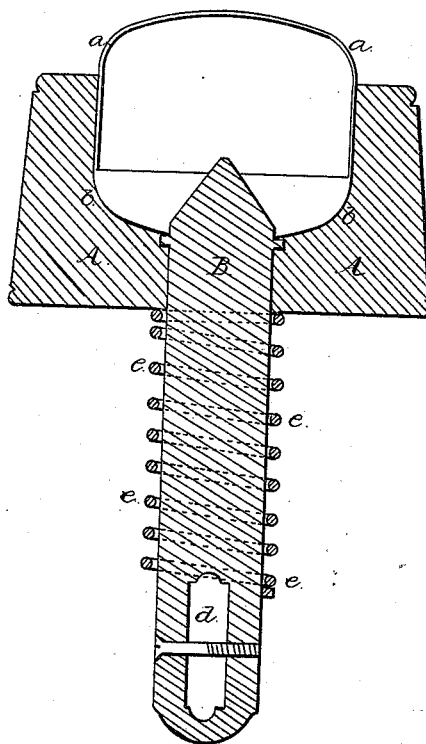
*Fig. 2.*



*Fig. 3.*



*Fig. 1.*



# UNITED STATES PATENT OFFICE.

LUCIEN E. HICKS, OF MIDDLETOWN, CONNECTICUT.

## MANNER OF CONSTRUCTING DIES FOR MAKING DOOR AND OTHER KNOBS OF PLATED METAL.

Specification of Letters Patent No. 1,654, dated June 27, 1840.

*To all whom it may concern:*

Be it known that I, LUCIEN E. HICKS, of Middletown, in the county of Middlesex and State of Connecticut, have invented an improvement in the manner of constructing the dies for manufacturing knobs for locks, drawers, bell-pulls, and for other purposes from plated sheet metal, by means of which improvement said knobs are formed in one entire piece without the appearance of any ring or line around them occasioned by the juncture of the dies by which the raising is effected; and I do hereby declare that the following is a full and exact description thereof.

I cut blanks out of plated sheet metal, of such size as may be necessary for the knob which I intend to form; thus, for example, if I wish to make a knob, the diameter of which when finished is to be two inches and a half, my blank will then have a diameter of about four inches, and so in proportion for other sizes; I then, by means of a screw, drop, or other press, and suitable dies, raise the said blanks so as to give them a cup-like form, as shown at *a, a*, Figure 1, which I effect in the usual manner; and in dies of the ordinary construction, which require no explanation, being well known to workmen conversant with the business of raising metals in dies. After having so raised my blanks, they are ready for the operation of my improved dies, by which, at one operation, the under side of the knob is perfectly formed, and is delivered from the die without seam, mark, or other defect, and is ready to have the neck attached to it.

In the accompanying drawing, I have shown a pair of my improved dies, in section; Fig. 1 being the lower, and Fig. 2 the upper die.

*A, A*, Fig. 1, is the body of the lower die, which is to be fixed on to the bed of the press, by means of set screws, in any of the known ways of fixing and adjusting such dies. The interior, or cup, of said die is to have its sides formed cylindrically to a depth sufficient for the forming the under side of the knob; said cylindrical part will cause the raised blank *a, a*, to stand with its sides vertically when placed in the die; the lower part of the die, say below the point *b, b*, is in the form which is to be given to the lower portion of the knob. *B*, is a sliding bolt, which works freely through a cy-

lindrical hole in the bottom of the die, and is formed with a shoulder at *c, c*, against which the sheet metal is to close, when forced down by the upper die; by means of this device, the opening left in it will be rendered perfectly true and regular, and its size will be determined. The bolt *B*, passes down through the bed of the press, and may be raised by a lever operating against its lower end, or acting in a mortise at *d*, for the purpose of forcing the finished knob from the die; *e, e*, is a spiral spring surrounding the bolt, for the purpose of forcing it down; this, however, may be effected by other springs, or by the weight of the lever.

The upper die, Fig. 2, is to be attached to the slide of the screw, or drop, press, in the usual manner. Its interior, or cup part, is in the form of the upper part of the knob, and it is turned cylindrically on its outside, as at *C, C*, so as to fit accurately, and pass freely, within the cylindrical sides of the cup of the lower die. At the junction *f, f*, of the cup of the upper die and its cylindrical sides, it is brought to a sharp edge, and when this die is brought down, so that the shoulder *g, g*, is in contact with the face of the lower die, the cavity within them has the perfect form intended to be given to the knob.

The manner of operating with these dies will be perfectly obvious to every competent workman. The raised blank, before being dropped into the lower die, must be annealed, and it may then be brought up perfectly, at a single stroke, not needing a second annealing, instead of the repetitions of this process required in the ordinary mode of procedure. The plating is not, therefore, subject to the scaling, and other injuries, to which it is liable when not worked by my improved dies. In the manufacturing of plated knobs, it has heretofore been the general practice to plate them, by attaching thin pieces of sheet silver to knobs of brass, by means of soft solder, in the usual manner of plating coach furniture, the defectiveness of which is well known. After perfecting the portion constituting the knob, in the manner above set forth, I attach the neck and collet thereto, and affix the iron spindle in place, in the following manner. I fill the knob with sand nearly up to the hole, and place the neck and collet in the proper situation, with the iron spindle

standing in the center. I then pour in fusible metal, or soft solder, so as to fill the void space above the sand, and within the neck and collet. That end of the iron  
5 spindle which is to have the knob immovably attached to it, I tin, previously to pouring in the fusible metal.

What I claim as constituting my invention in the within described dies for manufacturing knobs of plated metal out of one  
10 single blank, or piece, is—

1. The forming of the cup of the lower die with cylindrical sides, and adapting the upper dies thereto by forming its outside

cylindrically, and of such size as to fit the  
lower die, while the junction of its cylindrical sides, and its hollow, or cup, constitutes a sharp edge, in the manner, and for the purpose, herein set forth. 15

2. I also claim the combining with the lower die, the bolt B, with its shoulder *c, c*, for the purpose of forming the hole in the knob, and of raising it from the die, substantially in the manner set forth. 20

LUCIEN E. HICKS.

Witnesses:

THOS. P. JONES,  
GEORGE WEST.