(No Model.)

T. MORRIS.

LOCOMOTIVE FRAME FORGING DIE.

No. 298,109. Patented May 6, 1884.

fig 1.

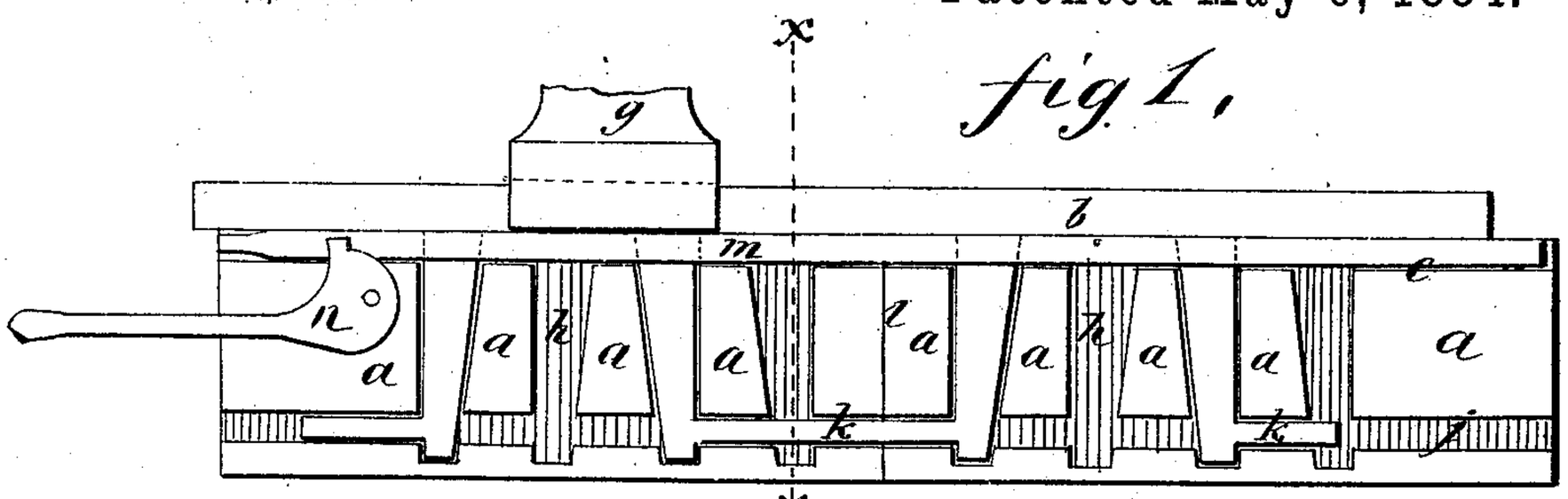


fig 2.

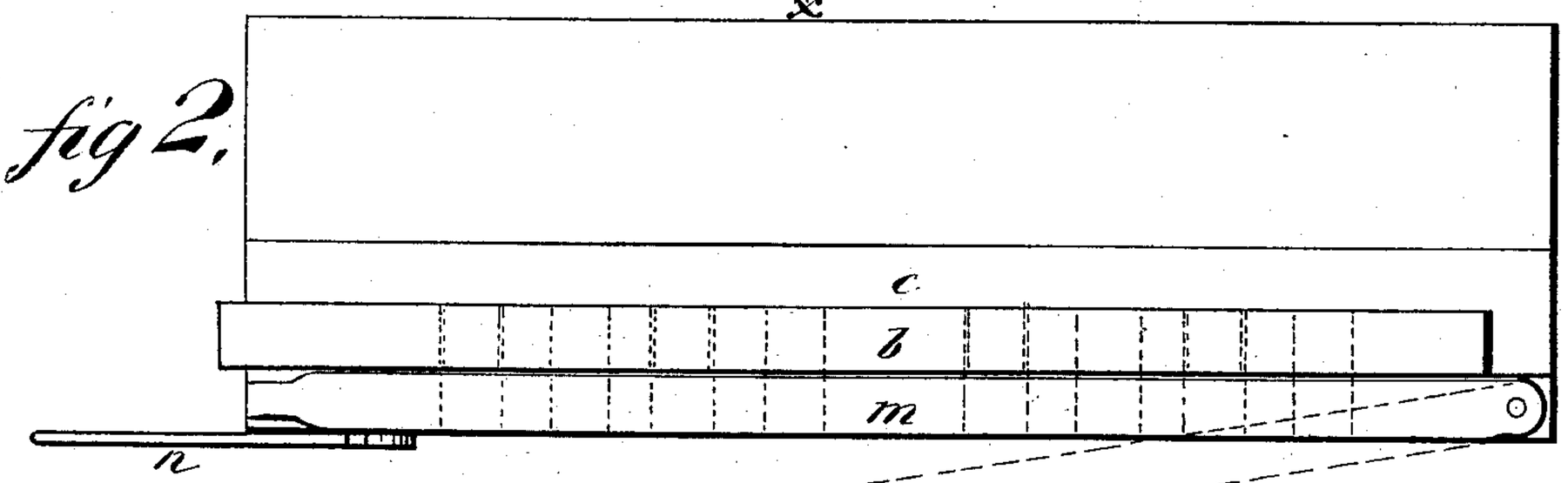


fig 3

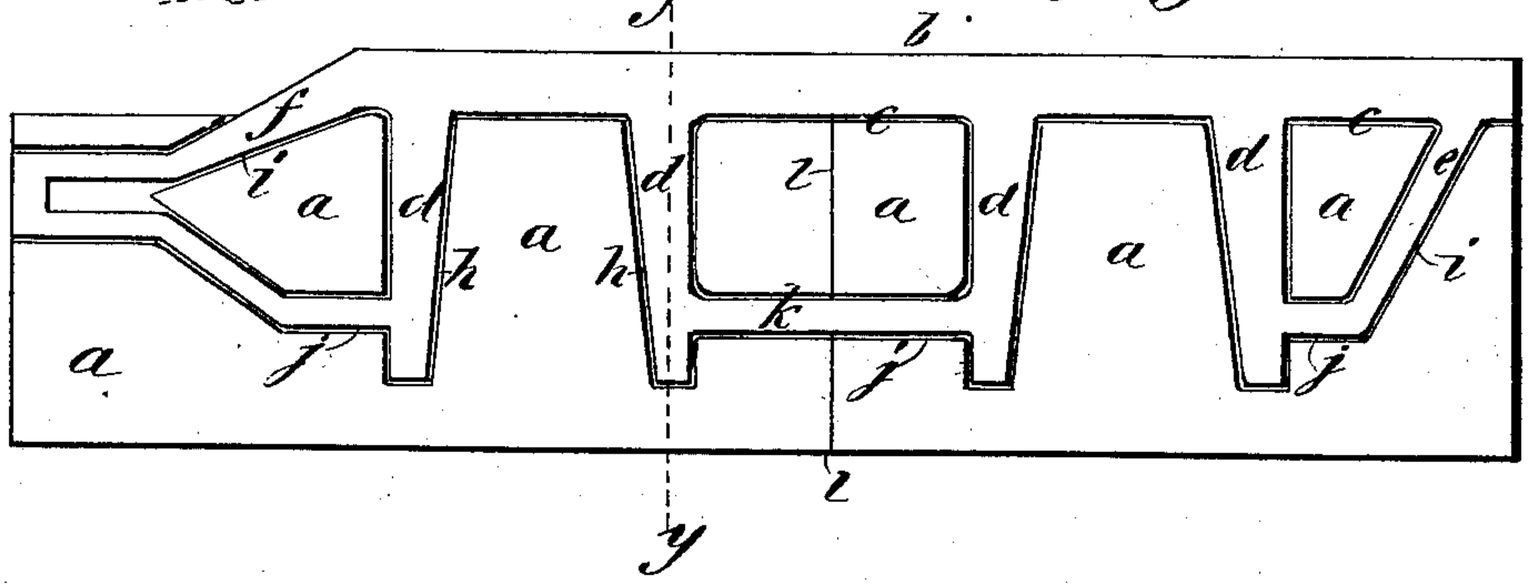


fig 4

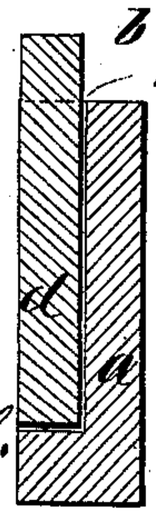
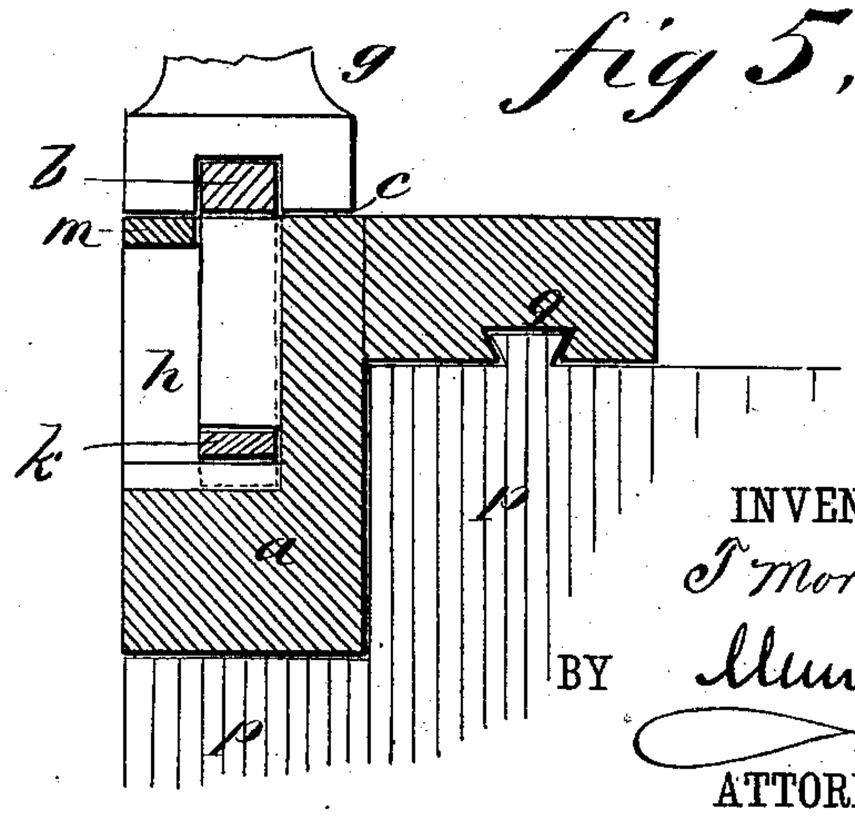


fig 5,



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS MORRIS, OF DUNKIRK, NEW YORK.

LOCOMOTIVE-FRAME-FORGING DIE.

SPECIFICATION forming part of Letters Patent No. 298,109, dated May 6, 1884.

Application filed April 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MORRIS, of Dunkirk, in the county of Chautauqua and State of New York, have invented new and Improved Locomotive-Frame-Forging Dies, of which the following is a full, clear, and exact description.

This invention relates to a holding die or bed adapted to hold the leg and brace forgings of locomotive-frames while welding upon said forgings the top connecting-bar; and it consists of the detailed construction and combination of parts, substantially as hereinafter fully set forth and claimed.

Heretofore the top connecting-bar and the leg-forgings have been welded together, by keying or wedging in position, in a yoke, the leg-forgings and clamping upon a head-block the top connecting-bar, and then uniting said leg-forgings and top connecting-bar, after having been exposed to a welding-heat, by subjecting them to the required pressure.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of one form of the bed-die of my invention, together with a side frame in it as when being welded. Fig. 2 is a top or plan view. Fig. 3 is a side elevation of the die modified a little in form for a frame of different form, also with side frame in it. Fig. 4 is a transverse section on line *y y* of Fig. 3, and Fig. 5 is a transverse section of Fig. 1 on line *x x*.

I make a substantial bed or holding-die block, *a*, of cast-iron or other approved metal adapted for the bar *b* of the locomotive-frame to rest on, to the face of which bar the several parts are to be welded on by the blows or by pressure of a hammer or press-die, *g*, to be worked by steam, hydraulic, or other power, as may be preferred. Grooves *h* are made in the side of the block laterally to the face *c*, to receive the legs *d*, and also diagonal grooves *i*, to receive the braces *e f*, when braces are to be welded on. When legs previously welded to connecting-braces *k* are to be welded on the bar *b*, grooves *j*, connecting the leg and brace-grooves *i h* together, are formed. These bed-dies may have different series of leg-grooves for frames of different arrangements of the legs, as in Fig. 1; or they may be so arranged that the frame may be shifted along the die by raising the legs out of one set of grooves and placing them in another; or the die may be made with only a simple arrangement of the grooves for one special form of frame, as in Fig. 3, and they may be made with or without a joint at *l*, whereby the two parts may be shifted more or less apart or together, for setting the die for frames of greater or less length between the inner or middle legs.

The grooves for the legs and braces may be deeper than the thickness of the legs and braces, as in Figs. 1, 2, and 5, if desired, and in that case a lever, *m*, may be pivoted on the face *c*, for securing the bar *b* in its place while being welded, and an eccentric dog, *n*, may be employed to secure the free end of the lever.

The bed or holding-die of the above-described construction may be arranged to hold the legs up vertically and to receive the hammer or pressure-die *g* from above, as represented in the drawings; or it may be placed horizontally or at any approved angle, being attached in any approved way and by any approved means to any substantial bed-piece, *p*, for a foundation. In this case I have represented the die *a* as being connected to the foundation-bed *p* by a dovetail groove and rib at *q*, adapted to allow the die to be shifted along under the hammer-die, if it may be desired to do so.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An improved die for welding together the separate sections of a wrought-metal locomotive-frame, consisting of plate *a*, with grooves *h j*, for the leg and brace forgings of the frame, and a ledge or table, *c*, for supporting the top connecting-bar of the frame that is to be welded to the leg and brace forgings, substantially as described.

2. In a die for welding together the seva-

rate sections of a wrought-metal locomotive-frame, the plate *a*, having grooves *h i j*, for the leg and brace forgings of the frame, and a ledge or table, *c*, for supporting the top connecting-bar of the frame that is to be welded to the leg and brace forgings, substantially as and for the purpose set forth.

3. The combination of the holding-lever *m* with the bed-die *a*, having face *c*, and leg-grooves *h*, substantially as described.

THOMAS MORRIS.

Witnesses:

LUTHER BLANCHARD,

KATE L. MORRIS.