

Nov. 20, 1962

S. SMITH

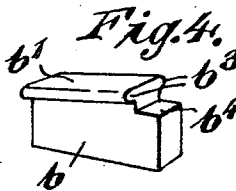
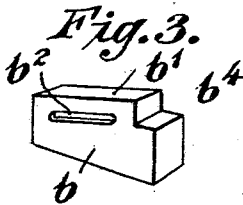
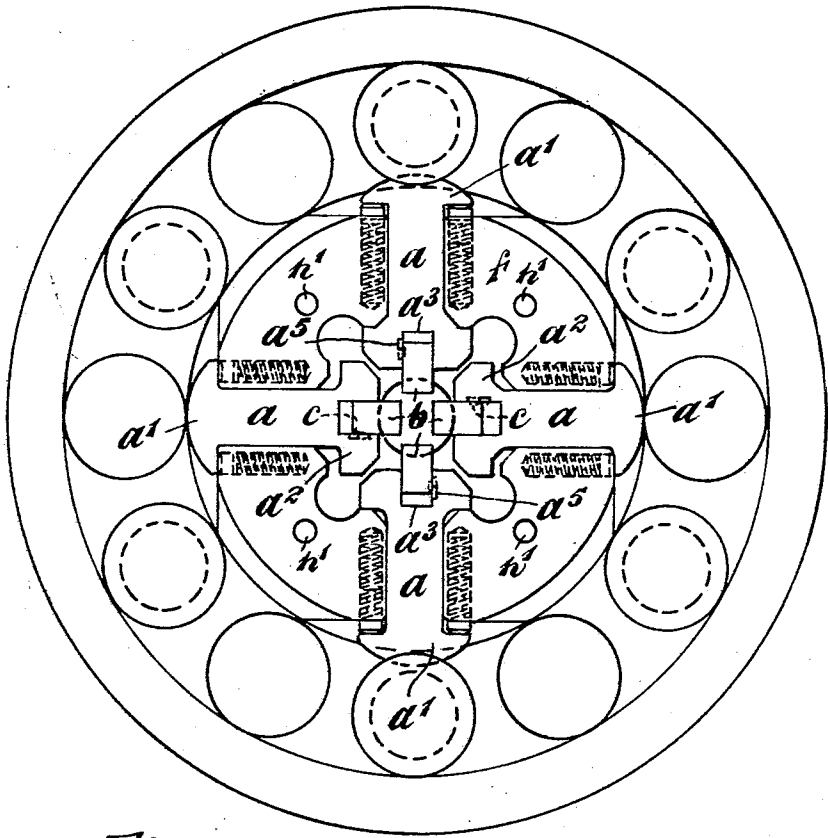
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ROTARY SWAGING AND FORGING MACHINES

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Fig. 1.



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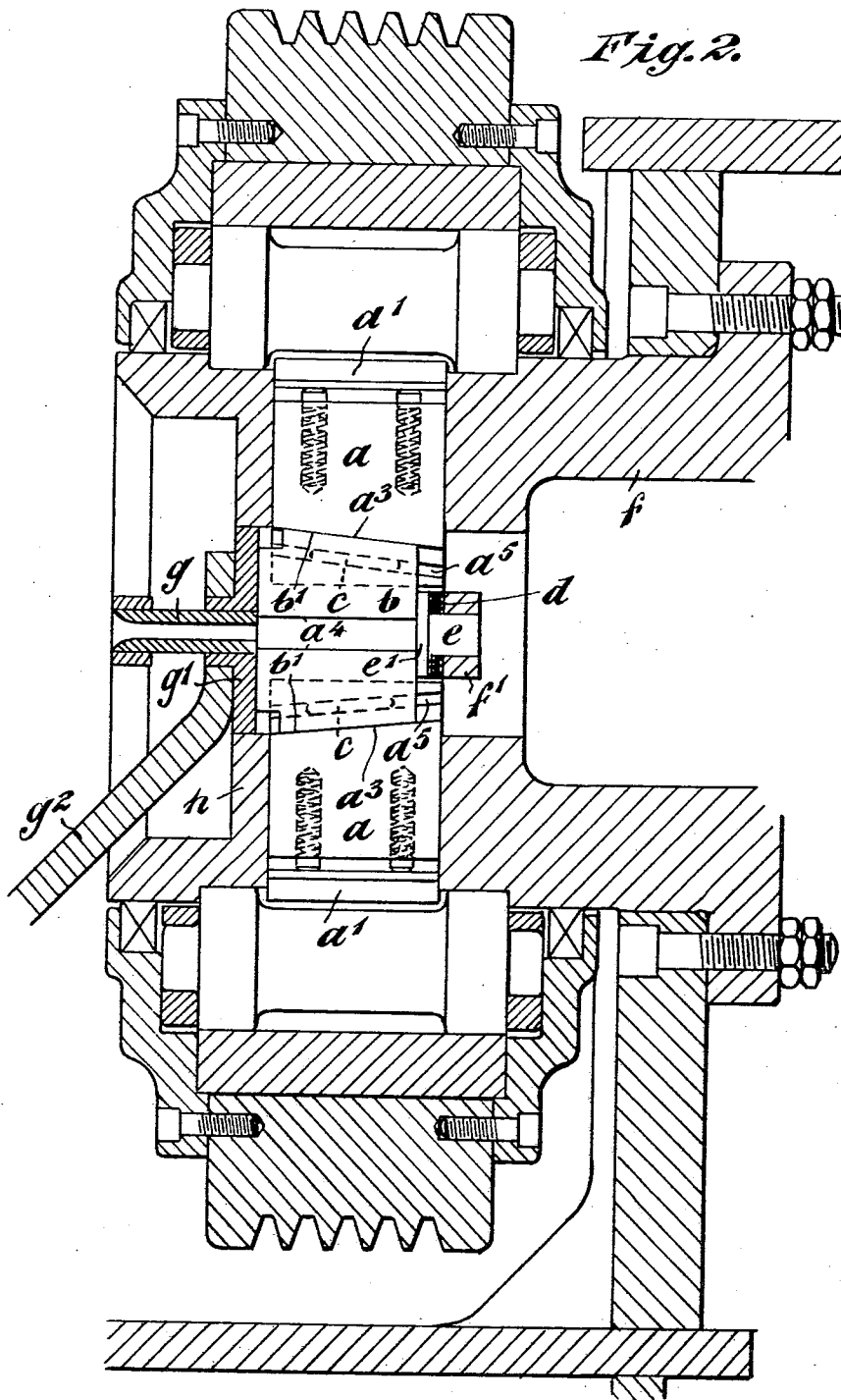
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ROTARY SWAGING AND FORGING MACHINES
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1 Claim. (Cl. 78-22)

The present invention has relation to rotary swaging and forging machines of the type involving a flywheel 10 rotatably driven on a stationary head carrying radially slidable hammer blocks supporting dies.

The present invention has for its object to provide means for adjusting the dies in relation to the hammer blocks by which they are carried in a particularly simple 15 and efficient manner.

According to the present invention there is provided a rotary swaging and forging machine of the type hereinbefore referred to wherein adjustment between the hammer block and die is provided for by virtue of an 20 inclined sliding adjustment of the die in an appropriate slot in the hammer block and means for fixing the die in its position of adjustment. The sliding adjustment provides for the working face of the die to be brought closer to or further from the workpiece and an inclined key connection may be provided between the die and hammer 25 block and it may be fixed in its position of adjustment by the utilisation of a selected quantity of shims or thin packing washers at the rear and an adjustable nozzle entry at the front entrance of the dies.

In order that the invention may be clearly understood and readily carried into practice reference may be had to the appended explanatory drawings in which:

FIGURE 1 illustrates in front elevation a rotary swaging or forging machine with frontal plates and adjustable 30 nozzle entry removed to illustrate the adjustable dies.

FIGURE 2 is an enlarged vertical sectional elevation of the mechanism.

FIGURE 3 is an illustration of a first embodiment of a die that may be utilized in this invention.

FIGURE 4 is an illustration of a second embodiment of a die that may be utilized in this invention.

In a convenient embodiment of the present invention there is provided a hammer block *a* of rectangular section having a mushroom head *a*¹ and lateral extensions *a*² at its foot. Into a slot *a*³ in the centre part of this foot the die *b* is introduced and the purpose of the present invention is to provide for the adjustment of the die *b* in relation to the foot *a*² and its effective location so that the working face *a*⁴ may be set correctly for its work, that 40 is to say, the die may be adjusted towards or away from the hammer block *a*.

In one embodiment of the present invention the foot or lower part of the hammer block is slotted inwardly at *a*³ and the said slot is at a transverse inclination, see 45 FIGURE 2, and the die *b* is formed with a corresponding inclination *b*¹ so that as it slides in the slot the operative face *a*⁴ is adjusted with respect to its distance from the

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foot of the block *a*. It is necessary, of course, to hold these two parts, that is to say, the hammer block *a* and the die *b* in operative engagement and according to one embodiment, FIGURES 2 and 3, a key *c* is provided which 5 engages an elongated keyway *b*² in the die *b* and also a keyway *a*⁵ in the hammer block *a* or a protuberance on either part may engage an elongated slot in a complementary part, whereas in a still further embodiment, see FIGURE 4, the die *b* may have side enlargements *b*³ on its head which co-operate with side slots in the slotted part at the foot of the hammer block *a* for the purpose of this invention. In each case the die has a sliding engagement with the hammer block and is keyed thereto and by virtue of complementary inclined faces *a*³, *b*¹, the setting of the die is effected. In order to prevent inadvertent endlong sliding displacement of the dies in the hammer blocks there may be provided in the stationary head *f* of the machine on which the flywheel revolves a plurality of shims or thin washers *d* mounted on a fixed plug or pin *e*, 20 *e*¹, carried by the cross bar *f*¹ of the head *f* and these may be selected to any desired thickness and against fixed plug the extremities of the slidable dies *b* may abut whilst the other or forward extremities are located by the adjustable nozzle entry *g* having the plate *g*¹ through which the workpiece is introduced and which is supported by the bracket *g*² adjustably attached to the bed of the machine. The dies may be recessed at *b*⁴ to accommodate the frontal plate *h* which is fixed to the head by the screws entering screwed 25 apertures *h*¹ in the head *f*.

I claim:

A rotary swaging and forging machine comprising a stationary head means: a rotatable flywheel; a sequence of rollers between said flywheel and said head; a plurality of hammer blocks slidably mounted in a plurality of radial slots in said head and radially operated by said 30 rollers; each hammer block having a die removably secured thereto by key and slot means; abutting surfaces of said die and hammer block being formed to provide inclined plane movement which radially advances a working face of said die on relative axial movement of said abutting hammer and die surfaces; means for fixing said axial movement on said die including a stud carrying a plurality of shims engaging an aperture formed in said stationary head means, a head of said stud contacting a rear side of said die, and an adjustable nozzle entry member contacting a front surface of said die; and a frontal plate secured to said head to retain said hammer blocks in said slots in said head; each of said dies having a recess formed in said front surface to accommodate and be retained in 40 said hammer blocks by said frontal plate.

References Cited in the file of this patent

UNITED STATES PATENTS

1,867,625 Huestis ----- July 19, 1932

FOREIGN PATENTS

1,232,267 France ----- Oct. 6, 1960