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THREAD ROLLING MACHINE

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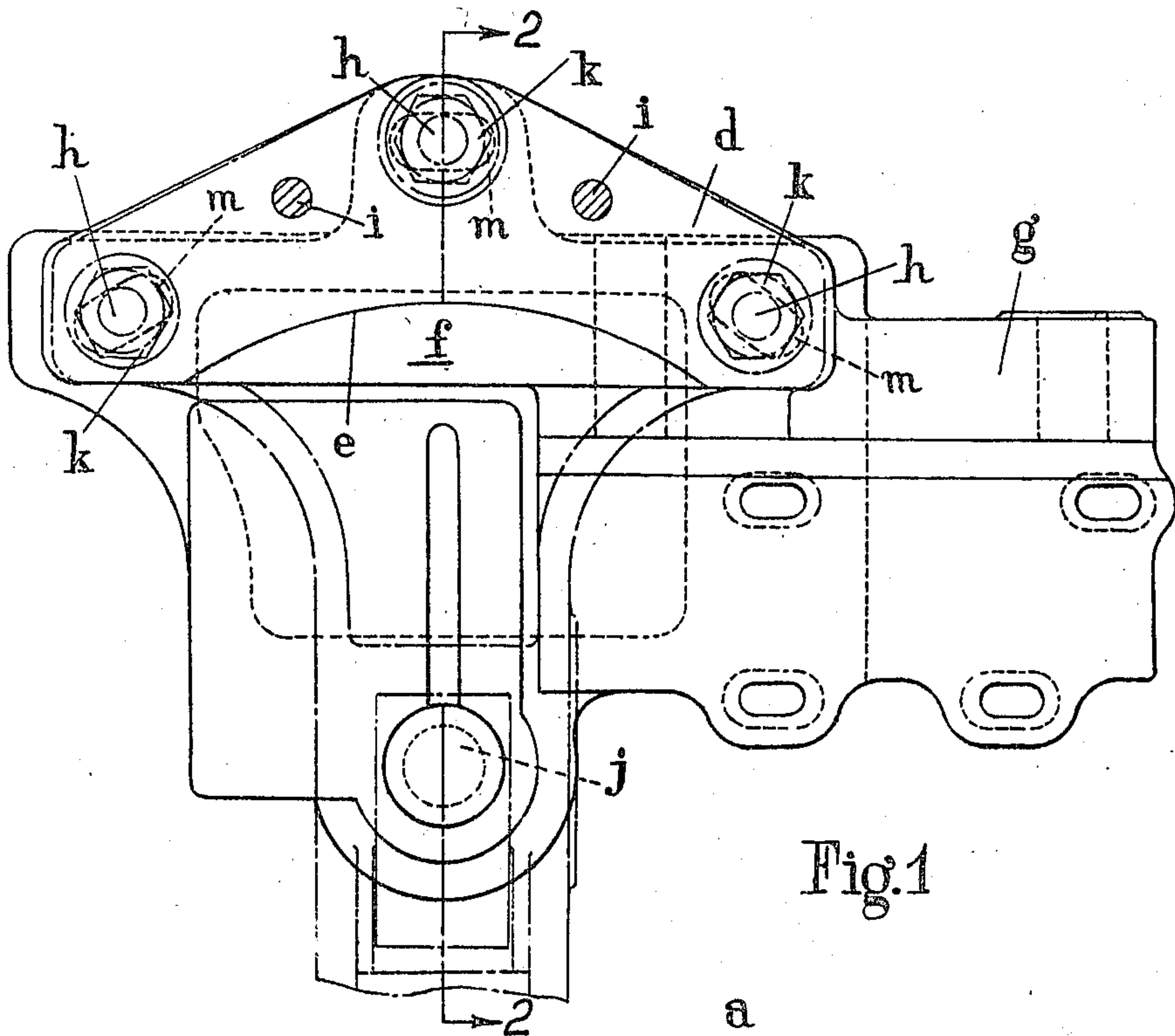


Fig. 1

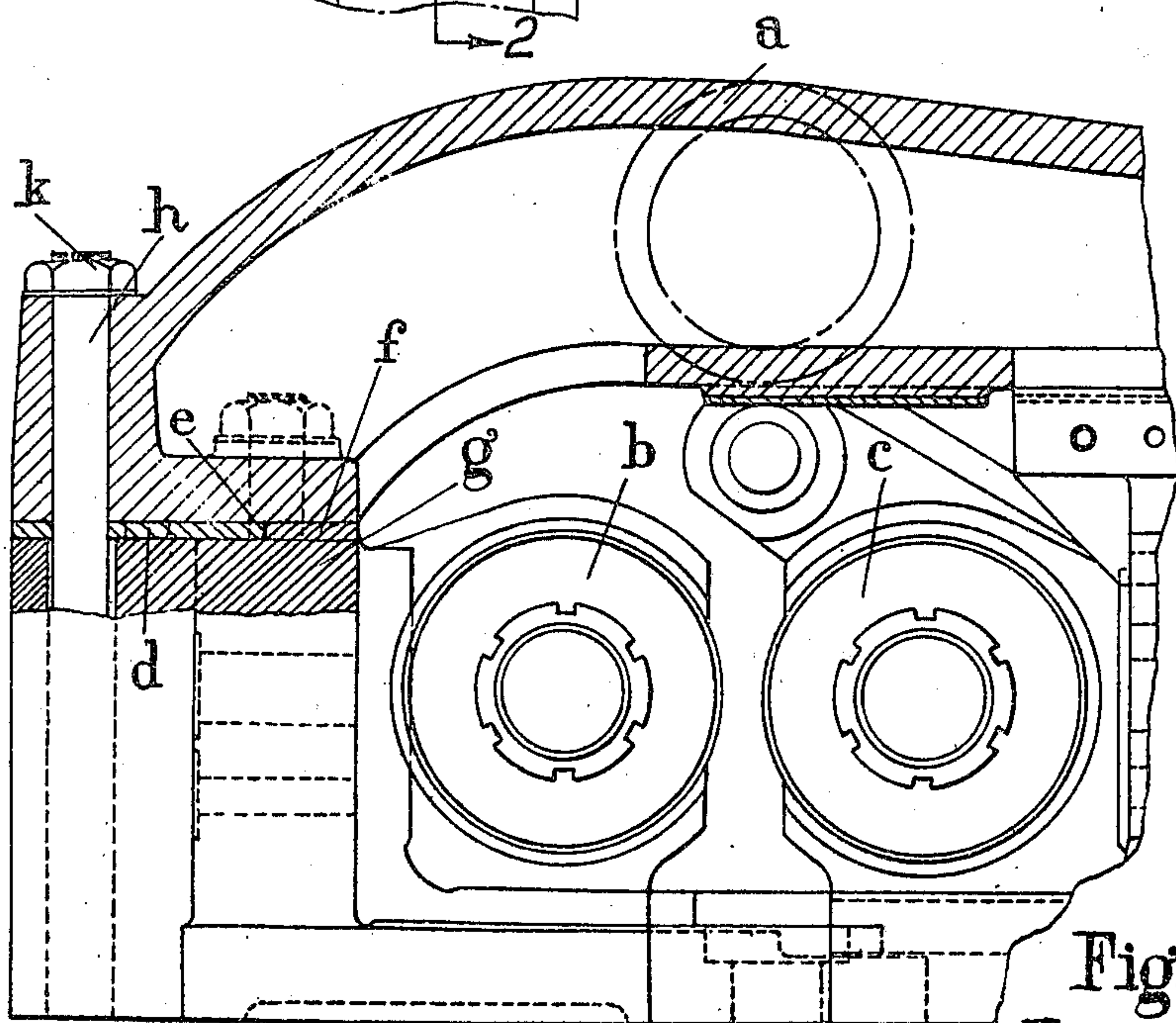


Fig. 2

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## UNITED STATES PATENT OFFICE

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## THREAD ROLLING MACHINE

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4 Claims. (Cl. 80—6)

This invention relates to thread rolling machines in which a thread is generated on a blank by two roller dies moved relatively to each other towards the blank, a stretcher member being provided to resist the ensuing reaction and means being incorporated for adjusting the head carrying the bearings of the fixed axis roller die at different angles to or parallel to the axis of the movable axis roller die. With such machines the said head is arranged to be capable of the necessary degree of rotary movement about a pivot axis passing approximately midway between the opposed faces of the roller dies so that screw threads may be formed either on parallel blanks or on conical blanks as desired.

Since the stretcher member is connected between the aforesaid swivellable head and a fixed pillar or upright of the machine, it is moved sideways at one end, i. e., it no longer rests parallel to the line of the reaction to be resisted, when the head is set for generating conical threads; as a result lateral components of the reaction forces are brought into play which in practice result in lowering the degree of precision of the work otherwise obtainable with the machine.

The object of the present invention is to provide a swivellable head for thread rolling machines of the nature indicated above, wherein the above drawback is eliminated.

The invention consists in a swivellable head arrangement for thread rolling machines of the nature indicated above, wherein the swivelling head embodies a surface forming part of a circle of which the centre lies on or approximately on the swivel axis of the head, said surface engaging a correspondingly curved convex surface forming part of or otherwise rigidly disposed in relation to the stretcher member.

The invention also consists in a swivellable head arrangement as set forth in the preceding paragraph, wherein said convex surface is formed on the side of a plate accurately located in relation to the stretcher member.

The invention also consists in a swivellable head arrangement as set forth in the preceding paragraph, wherein said convex surface is formed on the side of a plate separate from but accurately located in relation to the stretcher member.

The invention also consists in a swivellable head arrangement for thread rolling machines substantially as hereinafter described with reference to the accompanying drawing.

Referring to the accompanying diagrammatic drawing—

Figure 1 is a plan view of part of a thread

rolling machine embodying the present invention in one form, and

Figure 2 is a vertical longitudinal section on the line 2—2 of Figure 1.

In carrying the invention into effect in one convenient form illustrated by way of example in Figures 1 and 2 as applied to a thread rolling machine which in its general form approximates to the drawing accompanying the patent to Wemhoner, No. 2,257,253, dated September 30, 1941, we provide a top stretcher member *a* adapted to be bolted at its ends respectively to rigid uprights disposed at opposite ends of the machine.

Between the end of the stretcher member adjacent to the roller dies *bc* and the adjacent upright we interpose a plate of steel *d* furnished on the side facing the remote end of the machine with a concave machined surface *e* which is adapted to engage an equivalently curved surface on a raised boss *f* on the swivellable head *g*.

The plate *d* is fixed rigidly in relation to the stretcher member by means of tightly fitting clamping studs *h* and dowel pins *i* or the like and when the stretcher bar is clamped in position the curved surface *e* on the plate provides a rigid abutment for the corresponding curved surface on the boss *f* thus furnishing a rigid reaction member for the swivellable head *g*.

The abutment curved surfaces at *e* form part of a circle whose centre lies on or approximately on the swivel axis *j* of the head and no matter whether the head be set as shown for the generation of parallel threads or taper threads, the thrust reaction acts in a line always parallel to the longitudinal axis of the stretcher member.

The setting of the head for the generation of taper threads is performed by slackening the nuts *k* on the studs *h* and rotating the head *g* to the desired extent within the limits permitted by the slots *m* and subsequently retightening the nuts *k*.

We claim:

1. In a machine of the character described, a stretcher member, a head mounted to swivel about an axis into different positions with respect to the stretcher member and having a surface disposed substantially concentric of the swivel axis, a surface forming part of said stretcher member and curved in conformity with and constituting an abutment for the first-mentioned curved surface, and releasable clamping means for securing said stretcher member and said head, said surfaces acting to apply the thrust of said head to said stretcher member along a line par-

allel to the axis of said stretcher member regardless of the position of said head.

2. An arrangement as claimed in claim 1, characterized in that the first-mentioned surface is convex and the second-mentioned surface is concave.

3. An arrangement as claimed in claim 1, wherein the surface constituting the abutment is formed on a member separate from and applied to said stretcher member.

4. An arrangement as claimed in claim 1, wherein the surface constituting the abutment is formed on a member separate from and applied to said stretcher member, and means independent of said clamping means for positioning the last-mentioned member with respect to the stretcher member.

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