

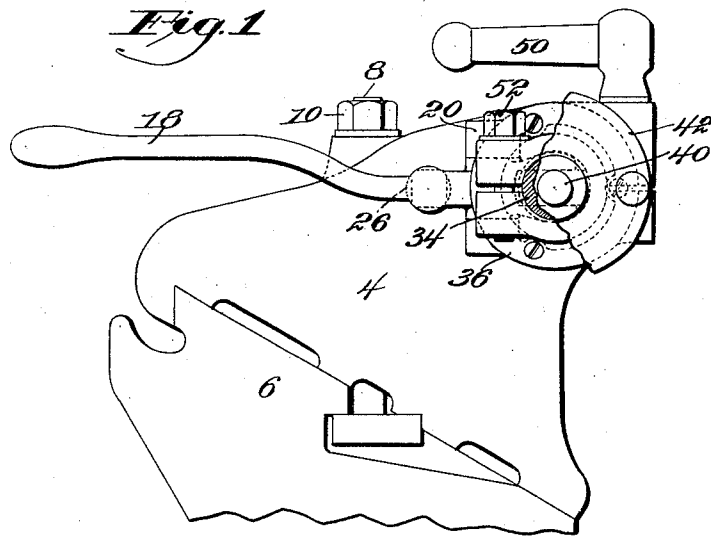
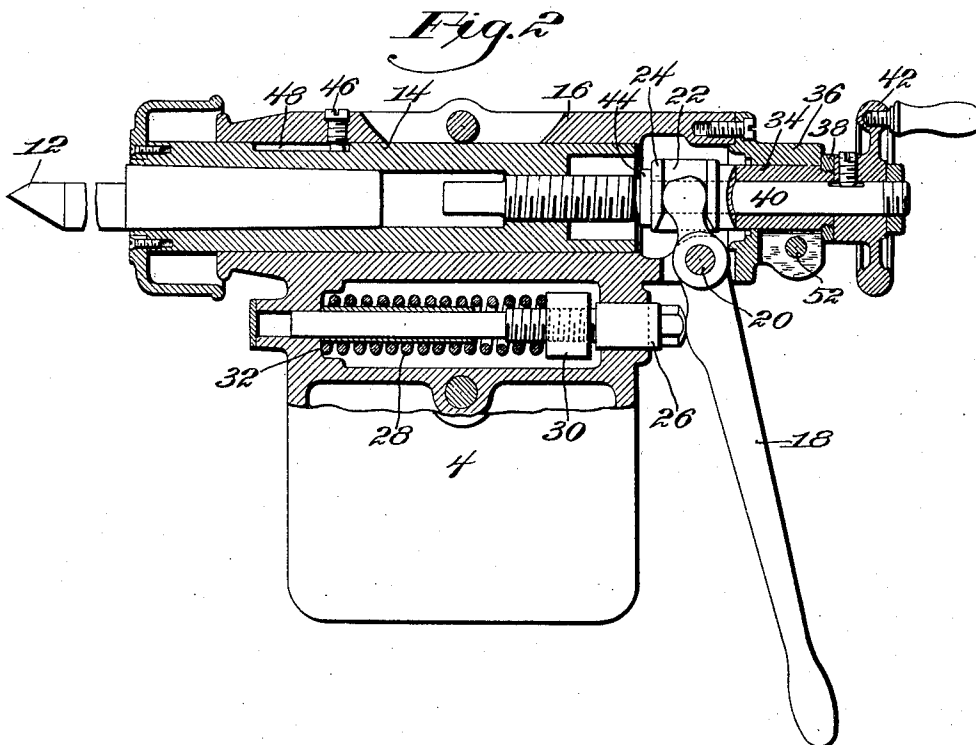
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FOOT STOCK

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FOOT STOCK

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The invention relates to foot stocks adapted for use in machine tools in which the work is supported between centers and is herein disclosed in a construction which is particularly adapted for use in a grinding machine.

One object of the invention is to provide a novel and improved foot stock mechanism of the type provided with spring means for holding the centers yieldingly in engagement with the work and a hand lever for retracting the spindle against the spring to release the work, which may be readily adjusted to secure different distances between centers without altering the position of the hand lever, or the effective pressure to be exerted by the spring in engaging the work.

A further object of the invention is to provide in a foot stock of the type described a novel and improved mechanism for clamping the center rigidly in the position to which it is brought by yielding spring contact with the work.

With these objects in view, the several features of the invention consist in the devices, combinations, and arrangement of parts hereinafter described and claimed and together with the advantages to be obtained thereby, should be readily understood by those skilled in the art from the following description taken in connection with the accompanying drawings.

In the drawings, Fig. 1 is an end view in elevation of the foot stock mechanism embodying a preferred form of the present invention; and Fig. 2 is a sectional plan view of the same.

The foot stock herein disclosed as the preferred embodiment of the invention comprises a center which is secured to a spindle slidably mounted in the foot stock bracket and is held in yielding contact with the work by means of a spring pressed lever. In adjusting the foot stock to comparatively slight variations in the length of work supplied to the machine it is desirable to adjust the center without moving the foot stock bracket and without at the same time altering the position of the spring pressed hand lever or the amount of the tension with which the center is yieldingly pressed in contact with the work. To

this end, means are provided for adjusting the spindle axially with relation to the block to which the spring pressed lever is connected, so that the position of the center is altered without moving the hand lever or altering the amount of the pressure exerted by the spring to hold the center in engagement with the work.

After the work has been placed in the machine and the centers have been brought into yielding contact with the work by means of the spring pressed lever in the foot stock and the required tightness of fit between the centers and the work having been thus secured without at the same time unduly increasing the friction between the parts, the foot stock spindle may be locked in adjusted position by means of a manually operable clamping device so that during the operation of the machine the work supporting centers will be held positively in the exact relative positions to which they have been adjusted.

In case it is desired to center the work in the machine without utilizing the spring pressed lever, means are provided for clamping the block rigidly in position while permitting the adjustment of the spindle relatively thereto.

Referring more specifically to the drawings, the foot stock bracket is indicated at 4 mounted to slide in ways 6 on the machine frame and is held adjustably in position by the bolt 8 and nut 10 as indicated in Fig. 1. The center 12 for engaging the work is carried in a spindle 14 which is slidably mounted in a bearing 16 formed on the foot stock bracket 4.

The foot stock center is held yieldingly in engagement with the work by means of the spring pressed hand lever 18 pivotally mounted at 20 on the bracket 4 and engaging at one end with a recess 22 formed in a block 24 which is in turn connected with the spindle 14 as will be hereinafter described. The lever is turned in a direction to hold the spindle and the center 12 yieldingly in engagement with the work by means of a plunger 26 which is slidably mounted in the bracket 4 and bears against the lever 18 at a point on the other side of the fulcrum 20 from the block 24.

A spring 28 surrounds the plunger 26 and is inserted between an adjustable stop 30 on the plunger and a fixed shoulder 32 formed in the bracket 4 to hold the plunger 26 in engagement with the hand lever 18.

5 In order to permit an easy adjustment of the spindle and center 12 to different lengths of work without altering the position of the hand lever 18 or the amount of pressure exerted by the spring 28 on the center 12, means are provided for adjusting the spindle 14
10 relatively to the block 24. The block 24 forms a portion of a sleeve 34 which is mounted to slide in a bearing 36 in the foot stock bracket 4. The movement of the sleeve 34
15 and the block 24 in one direction is limited by engagement of the block 24 with the bearing 36 and in the other direction by the engagement of a collar 38 on the sleeve with the bearing 36. The spindle 14 and the block 24
20 are connected by means of a shaft 40 which is rotatably mounted within the sleeve 34 and is threaded at one end to engage the spindle 14. The shaft 40 is prevented from moving axially with respect to the sleeve by means
25 of the hand wheel 42 which is secured to the shaft 40 abutting one end of the sleeve and a flange 44 on the shaft 40 abutting the other end of the sleeve or block 24. With this arrangement of the parts, the spindle can be
30 moved toward or away from the block 24 by the operator by turning the hand wheel 42 in one direction or the other to secure the desired adjustment of the center. A screw 46
35 in the foot stock bracket engages a slot 48 in the spindle to limit the movement of the spindle in each direction and secure it against rotation.

40 In the operation of the machine the foot stock bracket 4 is first adjusted approximately to the length of the work which is to be inserted in the machine and the spindle 14 is then adjusted relatively to the block 24 by the hand wheel 42 to bring the center 12
45 yielding into engagement with the work against the pressure of the spring pressed lever 18.

It may be desired to lock the center 12 in the adjusted position in contact with the
50 work after the required tightness of fit has been obtained by the operation of the spring pressed lever 18. For this purpose, a split clamp of ordinary construction is formed in the bearing 16 and is operated by means of a
55 hand lever 50. A similar split clamp is formed on the bearing 36 for the sleeve 34 forming a part of the block 24 and is tightened by means of the screw bolt 52 to lock the block 24 in position so that the work may
60 be centered in the machine without utilizing the spring pressed lever 18.

One form of the invention having been described and illustrated and the advantages to be obtained therefrom having been pointed
65 out, what is claimed is:

1. A foot stock having, in combination, a spindle, a block to which the spindle is adjustably secured, a lever engaging with the block and pivoted to the foot stock, and a spring pressed plunger mounted in the foot stock to engage with the lever and press the spindle yieldingly towards the work. 70

2. A foot stock having, in combination, a spindle, a block to which the spindle is adjustably secured, a spring, and a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly toward the work. 75

3. A foot stock having, in combination, a spindle, a block, an adjusting screw rotatably mounted to adjust the spindle axially with relation to the block, a spring, and a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly towards the work. 80

4. A foot stock having, in combination, a spindle, a block to which the spindle is adjustably secured, a spring, a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly towards the work, and means for clamping the spindle rigidly in position. 85

5. A foot stock having, in combination, a spindle, a block, an adjusting screw rotatably mounted to adjust the spindle axially with respect to the block, a spring, a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly towards the work, and means for clamping the spindle rigidly in the position to which it is moved by the spring. 90

6. A foot stock having, in combination, a spindle, a block to which the spindle is adjustably secured, a spring, a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly toward the work, and means for clamping the spindle rigidly in position. 95

7. A foot stock having, in combination, a spindle, a block to which the spindle is adjustably secured, a spring, a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly towards the work, and means for clamping the block rigidly in position. 100

8. A foot stock having, in combination, a spindle, a block, an adjusting screw rotatably mounted to adjust the spindle axially with respect to the block, a spring, a lever through which the spring acts engaging with the block and pivoted to the foot stock to press the spindle yieldingly towards the work, and means for clamping the block rigidly in position. 105

9. A foot stock having, in combination, a center, a spindle in which the center is mounted, means for pressing the center yieldingly against the work with substantially uniform pressure comprising a lever and a spring 110

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pressed plunger engaging therewith to force
the center toward the work, and means for
adjusting the center axially into contact with
the work comprising a block connected to the
lever and movable axially with the center
5 and an adjusting screw to adjust the spindle
axially with relation to the block toward and
away from the work.

In testimony whereof I have signed my
name to this specification.

10 MAXWELL I. MATHEWSON.

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