

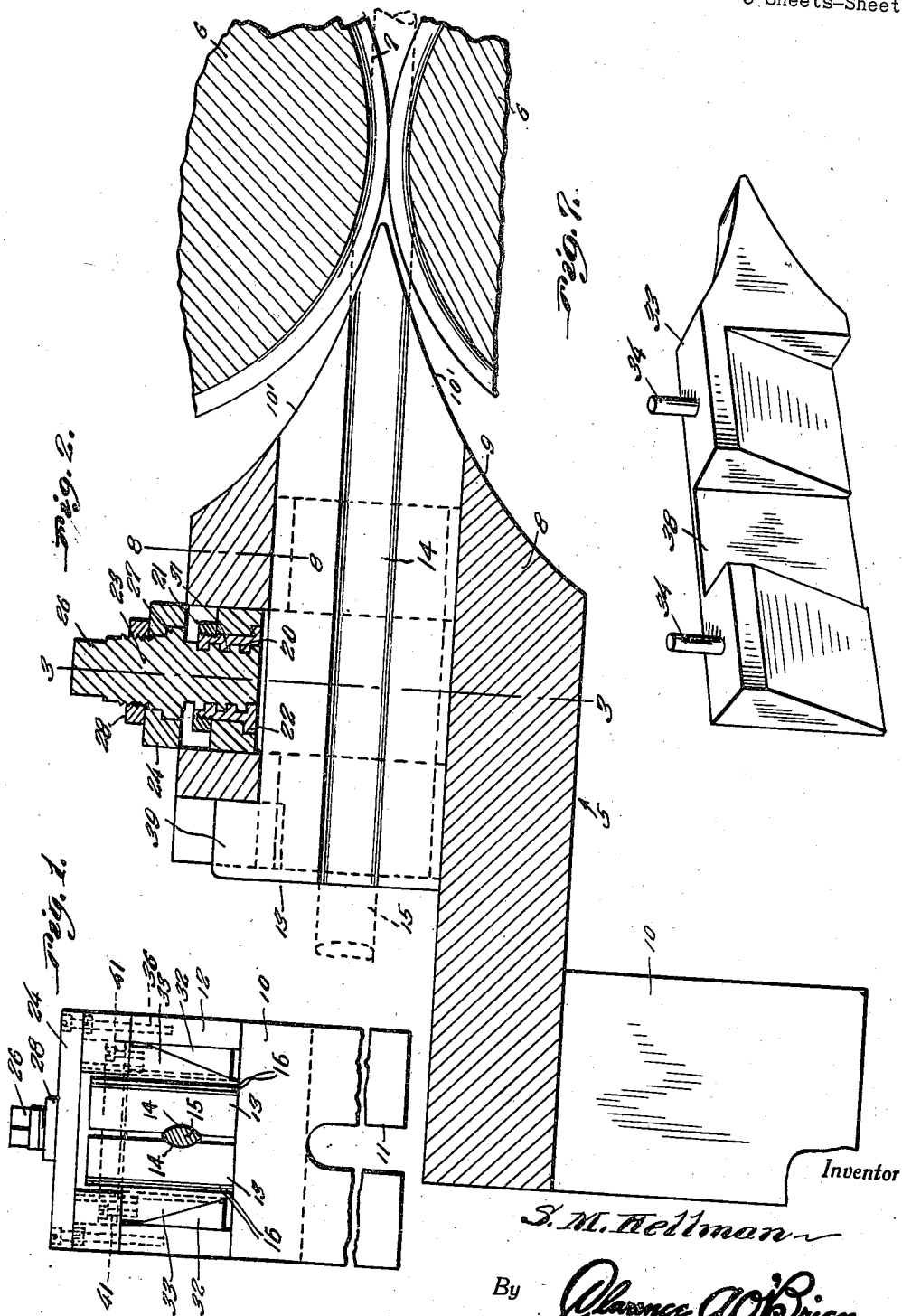
Sept. 23, 1941.

S. M. HELLMAN
ROLLING MILL GUIDE BOX

2,256,945

Filed Oct. 23, 1939

3 Sheets-Sheet 1



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Fig. 5.

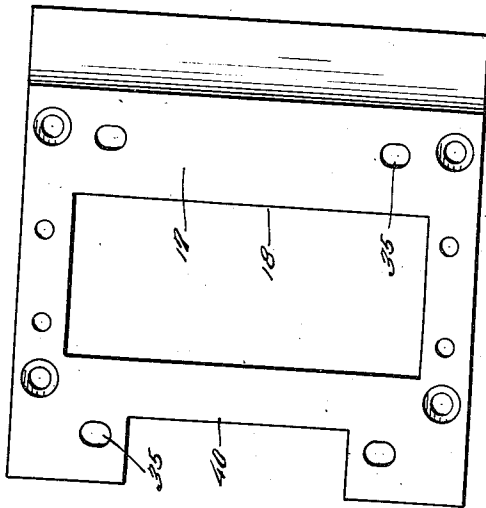


Fig. 8.

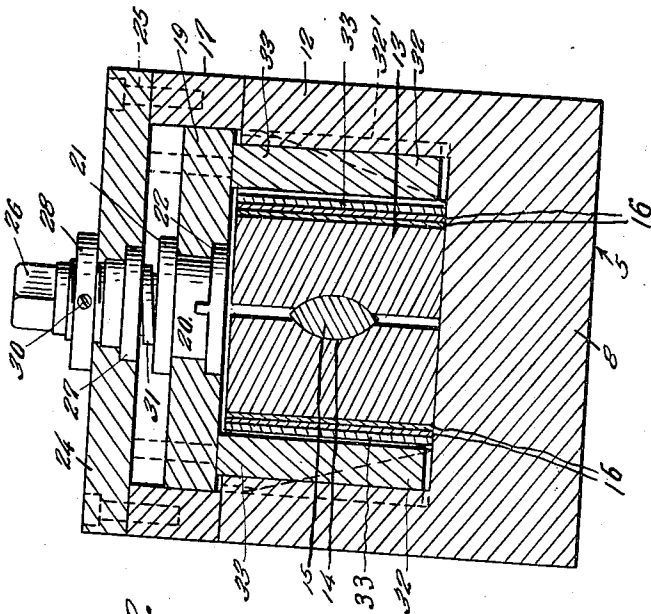
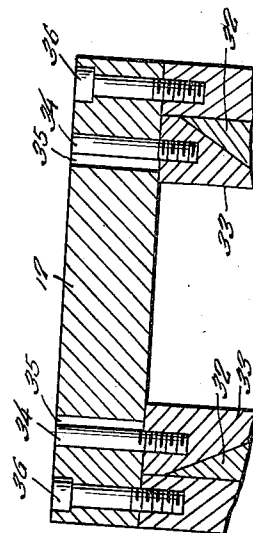


Fig. 5.

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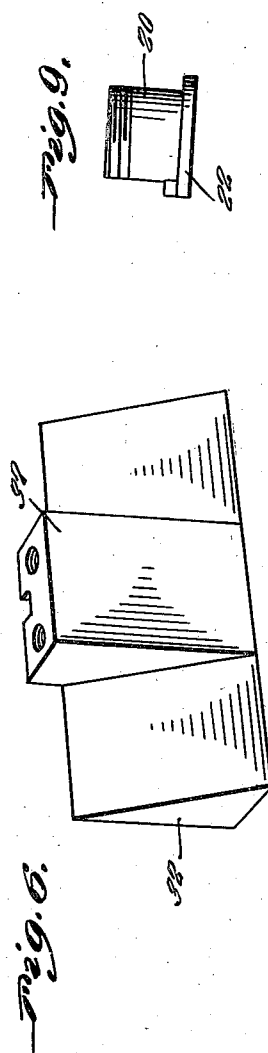
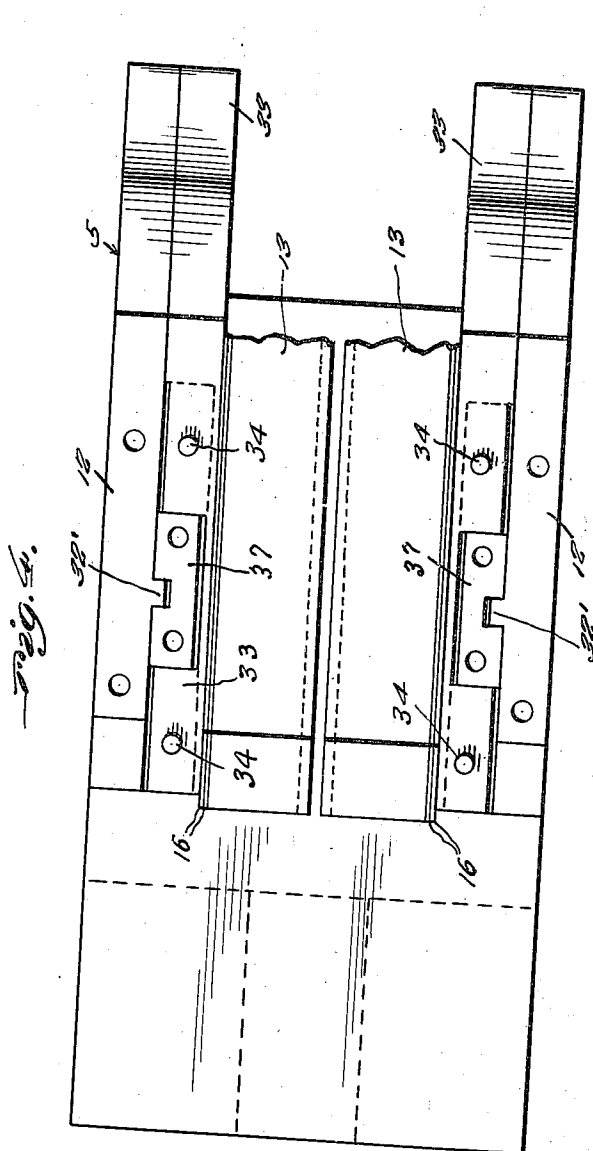
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UNITED STATES PATENT OFFICE

2,256,945

ROLLING MILL GUIDE BOX

Simon M. Hellman, Waukegan, Ill.

Application October 23, 1939, Serial No. 300,883

2 Claims. (Cl. 80—51)

This invention relates to rolling mill guide boxes, and has for the primary object the provision of a device of this character which will permit the use of conventionally constructed guides and will permit the latter to be accurately adjusted to the rod or bar by shims for the purpose of guiding said rod or bar to the forming rollers, the device including means which may be easily actuated to secure the guide in a vice-like grip to prevent accidental movement of said guide during the movement of the rod or bar to the forming rollers.

With these and other objects in view, the invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described, and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is an end elevation illustrating a rolling mill guide box constructed in accordance with my invention.

Figure 2 is a vertical sectional view illustrating the guides associated with fragmentary portions of forming rollers, and supported by the present invention.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a top plan view illustrating the base of the device with conventional guides carried thereby and held in adjusted position through the use of the present invention.

Figure 5 is a top plan view illustrating a frame forming a part of this invention.

Figure 6 is a perspective view illustrating one of the wedge blocks of this invention.

Figure 7 is a perspective view of a companion wedge block to the wedge block shown in Figure 6.

Figure 8 is a detail sectional view taken on the line 8—8 of Figure 2.

Figure 9 is a side elevation illustrating a feed bushing for a feed stem or rod.

Referring in detail to the drawings, the numeral 5 indicates as an entirety a support forming a part of the present invention and 6 the forming rollers of a mill wherein the rollers are only partly shown and as having annular grooves 7 for shaping a bar or rod fed therebetween. It is customary that the bar or rod fed between said rollers be of oval shape in cross section and the purpose of the rollers is to form the bar into cylindrical shape and of a selected diameter. To feed the bar to the rollers it must be supported in such a

manner that it will readily enter the grooves without tilting and in order to accomplish this the present invention is employed in combination with guides 13 of a conventional construction.

The support 5 includes a horizontally arranged base plate 8, the forward end of which is cut-away to present an arcuate curvature 9 to give clearance for the lower roller 6. The base plate 8 is equipped adjacent its rear end with a right-angulantly disposed attaching flange 10 notched, as shown at 11, for the purpose of receiving a fastener (not shown) for clamping the base plate on a mill. Spaced vertically arranged side walls 12 are integral with the base plate 8 and their forward ends are cut-away to form converging arcuately curved edges 10'. The lower curved edges 10' merge into the arcuately curved edge 9 of the base plate 8. The arcuately curved edges of the side walls permit of the positioning of the side walls in close relation to the rollers 6 without interfering with the latter for the purpose of supporting conventional guides 13 with the forward ends thereof in close relation to the forming rollers 6 and the forward ends of the guides are shaped in accordance with the forward ends of the side walls of the support 5. Matched grooves 14 are formed in the opposed faces of the guides and are shaped to receive a bar or rod 15 which is substantially oval shaped in cross section.

A frame 17 is mounted on the upper edges of the vertical side walls 12 of the support 5 and has formed therein an elongated slot 18 through which a plate 19 may slide vertically with frictional contact with the walls of the slot. The plate is equipped with a bushing 20 clamped in position by a collar 21 threaded thereon, as shown in Figure 2. The bushing has integral with its lower end a flange 22 cooperative with the collar 21 in securing the bushing in an opening of the plate 19.

A feed stem 23 threads into the bushing and extends through an opening provided in a cover plate 24 mounted on the frame 17 and detachably secured thereto by stud bolts 25. The upper end of the feed stem is equipped with wrench-engaging faces 26, also the stem has integral there-with a flange 27 adapted to seat in a recess formed in the under face of the cover plate 24 about the opening thereof.

A clamping collar 28 is threaded on the upper portion of the feed stem to ride the top face of the cover plate and coact with the flange 27 in rotatably securing the feed stem to the cover plate. The collar 28 is locked on the stem by a set screw 30. By reference to Figures 2 and 3

it will be seen that the upper portion of the feed stem has threads to receive the clamping collar 23 which threads are not of the feed type while the ordinary feed threads of the stem are indicated by the character 31 which mesh with the feed threads of the bushing 20 so that on rotating the feed stem through the use of a wrench in one direction the plate 19 will be elevated and a rotation of the feed stem in an opposite direction will bring about lowering of the plate 19.

Companion wedge blocks 32 and 33 are employed in this invention and are grouped in pairs with the pairs of wedge blocks arranged at opposite sides of the guides or between the latter and the vertical walls 12 of the support 5. The wedge blocks 33 of the pairs of wedge blocks heretofore referred to are arranged next to the guide blocks with their tapered portions disposed lowermost while the wedge blocks 32 are arranged between the wedge blocks 33 and the vertical walls 12 of the support 5 with the tapering edges thereof disposed uppermost. Guide pins 34 are secured to the wedge blocks 33 and extend into slots 35 formed in the frame 17 which slots are so arranged that they will permit the wedge blocks 33 to move toward and from each other but will be prevented from moving endwise of the support.

The frame 17 is secured on the vertical walls 12 of the support 5 by stud bolts 36. The wedge blocks 32 have formed thereon key portions 37 which are slidably received within notches 38 of the wedge blocks 33. The key portions 37 of the wedge blocks 32 fitting within the notches 38 of the wedge blocks 33 prevent the companion blocks from shifting endwise in relation to each other. However, these wedge blocks may move toward and from each other. By reference to Figure 7 it will be seen that the forward ends of the wedge blocks 33 are shaped to match the forward ends of the guides 13, the latter having formed on their rear ends upstanding portions 39 to fit in a notch 40 of the frame 17 to prevent endwise movement of the guide blocks in the direction of the forming rollers 6.

Stud bolts 41 secured to the plate 19 thread into openings provided in the keys 37 of the wedge blocks 32 for the purpose of detachably securing the wedge blocks to the plate 19 and for bringing about movement of the wedge blocks 32 with the movement of the plate 19, it being understood that the plate 19 is moved upwardly and downwardly through the rotation of the feed stem in opposite directions. As the wedge blocks 32 move upwardly and downwardly with the plate 19 they will bring about movement of the wedge blocks 33 transversely of the support between the vertical walls thereof in opposite directions. The wedge blocks 32 when moved upwardly by the feed stem will force the wedge blocks 33 toward each other and against the guides 13 to prevent said guides from moving out of adjustment after being manually adjusted and shimmed to properly fit a rod or bar 15 of an oval shape in cross section.

In operation, it is to be understood that the guides 13 are manually adjusted to the bar 15 and after the proper adjustment has been made thereto with a proper number of shims 16 arranged between said guides and the wedge blocks to bring about proper aligning of the bar with grooves of the rollers, the feed stem is rotated in a proper direction to bring about elevation of the wedge blocks 32 forcing the wedge

blocks 33 into engagement with the guides to grip them in a vise-like manner to maintain them in their adjusted position on the bar or rod. The bar or rod thus supported may be fed to the forming rollers without liability of tilting or being out of alignment with the grooves 7 of the rollers. A rotation of the feed stem in an opposite direction will lower the wedge blocks 32 and consequently permit manual separation of the guides and the shifting of the wedge blocks to their original positions against the lowered wedge blocks 32. Also it will be seen that when the wedge blocks 32 are lowered by the plate 19 the wedge blocks 33, due to the matched beveled faces between the companion wedge blocks, will gravitate slightly and move away from the guides 13, and thereby free the latter of the vise-like grip so that they can be reset to another rod or bar and the shims 16 either increased or decreased in numbers if different size rods are to be acted on.

The wedge blocks 32 have vertical ribs 32' thereon which slide in vertical grooves formed in the walls 12 of the support to prevent endwise movement of said wedge blocks 32.

It is believed that the foregoing description, when taken in connection with the drawings will fully set forth the construction and advantages of this invention to those skilled in the art to which such a device relates, so that further detailed description will not be required.

Having thus described my invention, what I claim is:

1. In a rolling mill guide device, a horizontal base including spaced vertically arranged walls to receive a pair of guides for directing work to a rolling mill, pairs of companion wedge shaped blocks arranged between the walls and said guides for centering the work to the mill, one block of each pair of blocks having vertical grooves, projections formed on the other blocks and slidable in said grooves to permit the latter blocks to adjust vertically without longitudinal relative movement between the pairs of blocks, a frame mounted on the vertical walls and having a guide slot, a slide plate slidable in said slot, means for connecting said slide plate to one block of each pair of blocks, and an adjusting means carried by the frame and connected to the slide plate for the simultaneous adjustment of both guides by the adjustment of one block of each of blocks relative to the other blocks.

2. In a rolling mill guide device, a horizontal base including spaced vertically arranged walls to receive a pair of guides for directing work to a rolling mill, pairs of companion wedge shaped blocks arranged between the walls and said guides for centering the work to the mill, one block of each pair of blocks having vertical grooves, projections formed on the other blocks and slidable in said grooves to permit the latter blocks to adjust vertically without longitudinal relative movement between the pairs of blocks, a frame mounted on the vertical walls and having a guide slot, a slide plate slidable in said slot, means for connecting said slide plate to one block of each pair of blocks, a bushing including feed threads secured to the slide plate, a cover plate carried by said frame, and a feed stem journaled in the cover plate and threaded in said bushing for the simultaneous adjustment of the guides.

SIMON M. HELLMAN.