Dec. 7, 1943. L. S. PETERSEN 2,336,417

ADJUSTMENT MEANS FOR KILN ROLLER SUPPORTS

Filed June 19, 1942

Fig. 1

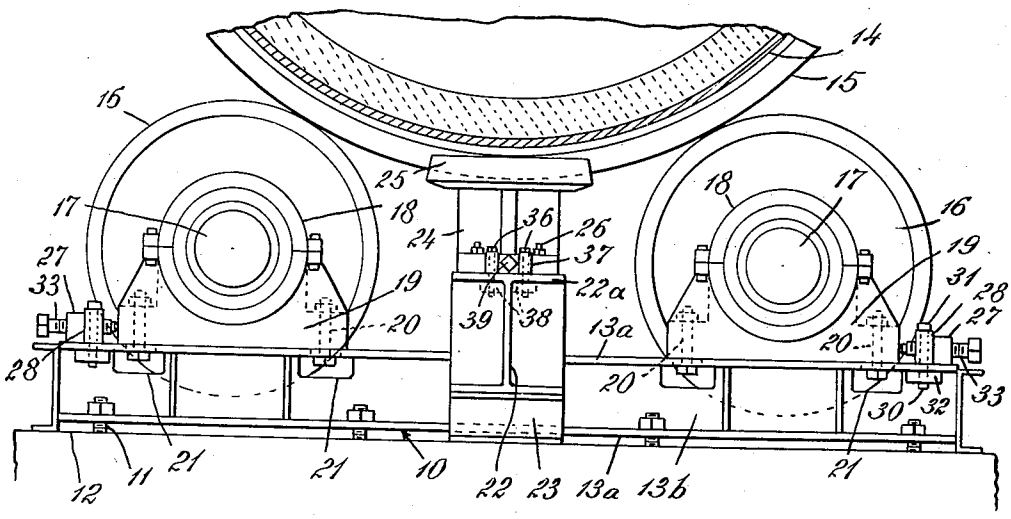


Fig. 2

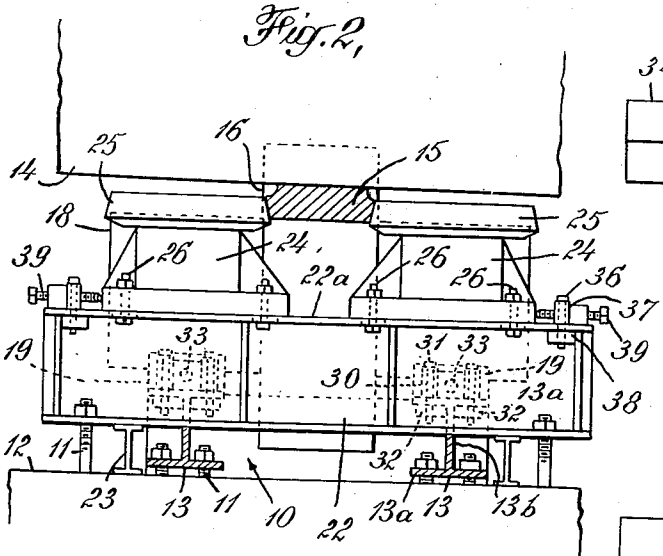


Fig. 3

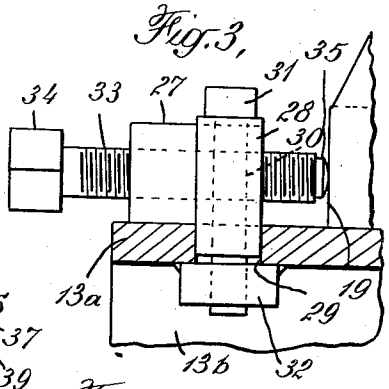
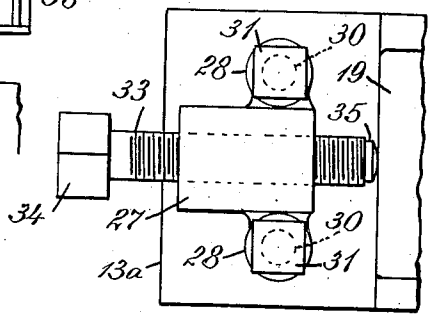


Fig. 4



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Patented Dec. 7, 1943

2,336,417

UNITED STATES PATENT OFFICE

2,336,417

ADJUSTMENT MEANS FOR KILN ROLLER SUPPORTS

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Application June 19, 1942, Serial No. 447,659

5 Claims. (Cl. 308—203)

This invention relates to supporting structures for rotary kilns and like apparatus, such structures ordinarily including a base which may take the form of a frame made, for example, of girders and beams, and roller supports mounted on the base. More particularly, the invention is concerned with a novel means for adjusting the roller supports relative to the base, which are simpler and cheaper to fabricate than the adjusting devices previously used and can be installed more easily and at less expense.

In order to understand the invention reference may be had to the accompanying drawing in which

Fig. 1 is a view of the supporting structure in side elevation with a portion of the kiln shown in transverse section;

Fig. 2 is an end view of the structure;

Fig. 3 is a view showing a part of the supporting structure in section and illustrating the manner of mounting the adjusting device; and

Fig. 4 is a plan view of the features illustrated in Fig. 3.

The supporting structure illustrated in the drawing is of a form suitable for use with a rotary kiln and it includes a base generally designated 10, which may be made of girders and beams and is anchored by bolts 11 to a foundation 12 ordinarily of concrete. The base shown includes a pair of girders 13 which extend transversely of the axis of the kiln and have upper and lower flanges 13a connected by a web 13b.

The kiln 14 is provided with the usual circumferential tire 15 mounted to run on rollers 16, one on each side of the kiln axis. Each roller has a shaft 17 journalled in bearings 18 in a pair of supports 19 mounted on the top flanges 13a of girders 13 and held in adjusted position thereon by bolts 20 passing through bores in the ends of supports 19 and through slots in the flanges. The web of each girder is cut away at 21 to afford access to the ends of the bolts passing through the flanges on the inner sides of the webs 13b.

In the construction shown, the kiln is mounted at an incline and provision is made for preventing the kiln from slipping endwise. For this purpose, the frame includes a girder 22 extending lengthwise of the axis of the kiln and supported on beams 23 on the foundation. Supports for thrust rollers are mounted on the upper flange 22a of the girder, these supports including bases 24 in each of which a roller 25 is mounted for rotation on a vertical axis. Rollers 25 have the usual frusto-conical faces engaging correspondingly formed lateral surfaces on tire 15 and bases 24 are secured to flange 22a by bolts 26 which extend through slots in the flange.

The supports for rollers 16 are adjustable with reference to the base and, for this purpose, an adjustment device is mounted on each beam 13 on the side of each roller support base 19 away from the kiln axis. Each such device includes a block 27 which rests on top of the upper flange 13a of a girder 13 and the block has vertical tubular portions 28 on either side at one end. The tubular portions extend downwardly into and part way through openings 29 in the top flange of the girder on either side of the girder web and the tubular portions may be advantageously made of lengths of heavy seamless tubing welded to the opposite faces of the block.

Each block 27 is secured in place on the girder by a pair of bolts 30 extending through the tubular portions 28 and the top flange 13a of the girder. Each bolt has a head 31 bearing against the upper end of the tube and its lower end is threaded into a block 32 welded against the under surface of flange 13a in alignment with the opening 29 therethrough. Since the tubes do not project downwardly below the under surface of flange 13a, tightening of the bolts insures that the block 27 will be clamped firmly in place on the girder. Each block 27 is formed with a bore extending therethrough parallel to the upper surface of the top flange of the girder and the bore is internally threaded.

A screw 33 is threaded through the bore in each block 27 and the screw has a head 34 at its outer end. The inner end 35 of the screw bears against a suitable surface on the roller support base 19. With this arrangement, on loosening the bolts 20 holding the supports for a roller in place, the screws 34 can be turned in one direction or the other for the purpose of either moving the roller 16 inwardly to raise the kiln or permitting the supports to be moved outwardly by the weight of the kiln bearing against the roller.

In the construction shown, the thrust roller supports are also provided with adjusting devices mounted on the top flange 22a of girder 22 and held in place by bolts 36 passing through tubular portions 37 on the blocks and flange 22a of the girder and threaded into blocks 38 welded to the under surface of the flange. As before, the devices are provided with screws 39 threaded through the blocks and bearing against the supports 24.

As will be apparent, the new adjusting devices

for the roller supports can be made of standard stock and do not require expensive machining operations, so that they are cheaper to make than prior devices which include castings. The means in the form of the tubes and bolts for securing the devices to the base are highly effective for the purpose in that they operate with a clamping action and their use does not require any alterations in the frame other than the formation of the openings through the top flanges of the girders. The adjusting device can, therefore, be easily and quickly installed.

I claim:

1. In a supporting structure for rotary kilns and the like, such structure including a base and a roller support mounted on the base, means for adjusting the roller support along the base, comprising a member mounted on top of the base and adapted to carry a screw threaded therethrough and engaging the roller support for adjustment thereof, tubular elements on the member extending into openings through the top of the base, and means extending through said elements and engaging the base for holding the member and elements in place on the base.

2. In a supporting structure for rotary kilns and the like, such structure including a frame containing a girder having a top flange, and a roller support mounted on the girder, means for adjusting the roller support along the girder, comprising a member mounted on top of the flange and adapted to carry a screw threaded through the member and engaging the roller support for adjustment thereof, tubular elements on the member extending into openings through the flange, and means extending through said elements and engaging the girder for securing the elements and member to the girder.

3. In a supporting structure for rotary kilns and the like, such structure including a frame containing a girder having a top flange, and a roller support mounted on the girder, means for adjusting the roller support along the girder, comprising a block mounted on the flange and adapted to carry a screw threaded through the block and engaging the roller support for adjustment thereof, tubes secured to opposite faces of the block and extending into openings through the flange, and means extending through the tubes and engaging the girder for securing the tubes and block to the girder.

4. In a supporting structure for rotary kilns and the like, said structure including a base containing a girder having a top flange and a web, and a roller support mounted on the top flange of the girder, means for adjusting the roller support along the girder, comprising a block mounted on top of the flange and having tubular portions extending part way through openings through the flange on either side of the web, and means extending through said tubular portions and engaging the girder for holding said block to the girder.

5. In a supporting structure for rotary kilns and the like, said structure including a base containing a girder having a top flange and a web, and a roller support mounted on the top flange of the girder, means for adjusting the roller support along the girder, comprising a main block mounted on top of the flange and provided with tubular portions at opposite sides thereof having ends extending part way through openings through the flange on either side of the web, bolts extending through the tubular portions and the openings, and blocks on the under surface of the flange into which the bolts are threaded, the bolts clamping the main block in place on the flange.

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