Oct. 31, 1950

F. G. WHITE

2,528,201

CLAMP

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Fig. 1.

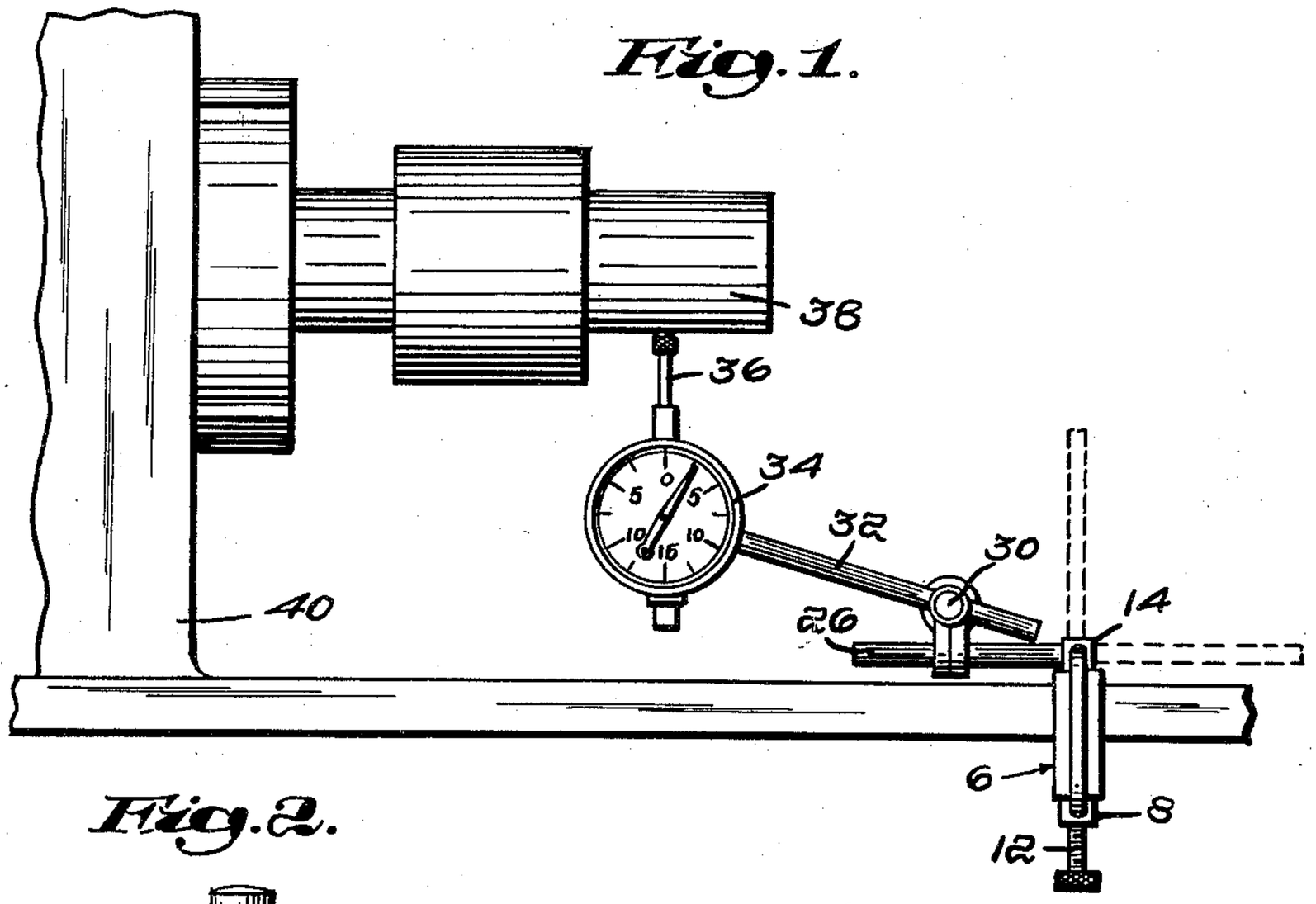


Fig. 2.

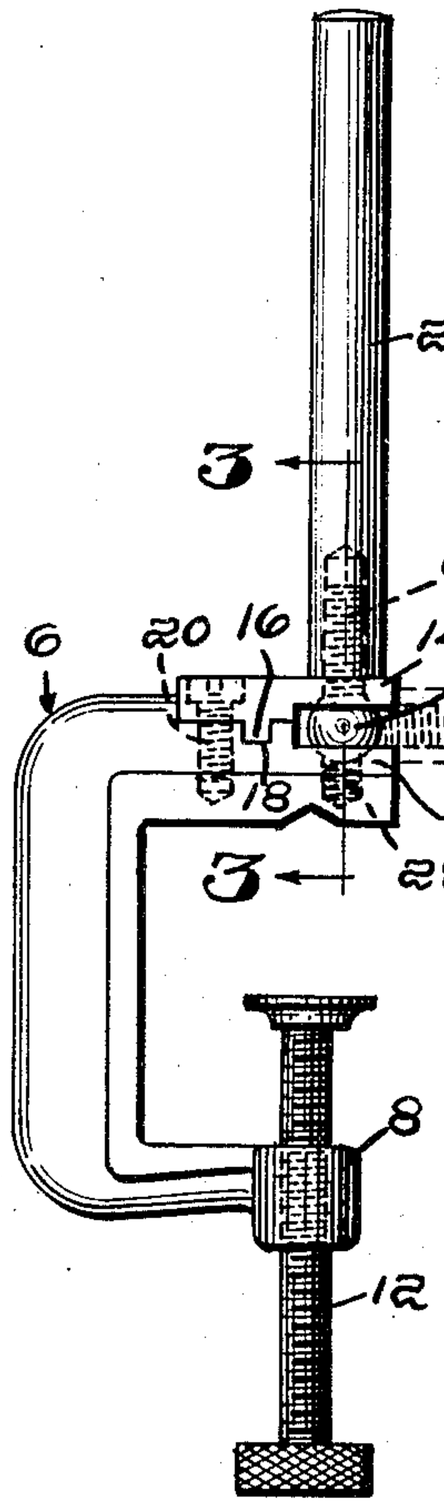


Fig. 3.

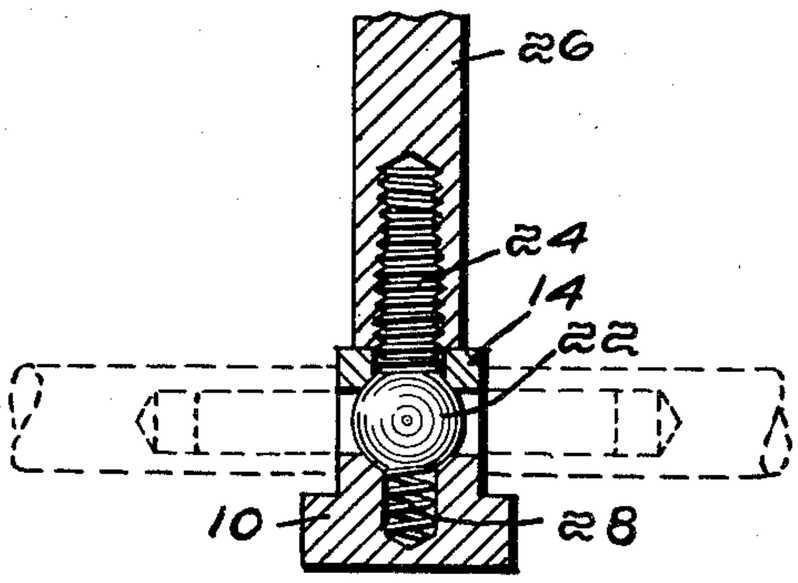
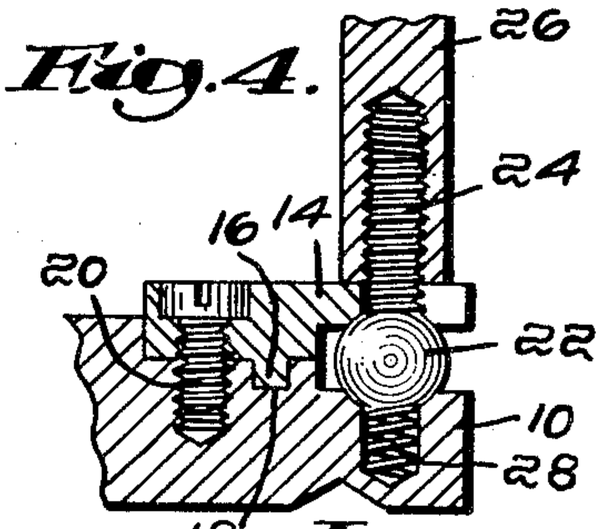


Fig. 4.



Inventor:
Frederick G. White.
By Geo B Rawlings.
Attorney

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UNITED STATES PATENT OFFICE

2,528,201

CLAMP

Frederick G. White, Orange, Mass., assignor to The L. S. Starrett Company, Athol, Mass., a corporation of Massachusetts

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2 Claims. (Cl. 248—226)

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This invention relates to improvements in the C-clamp used to hold a dial test indicator in proper position relative to the work to be tested.

In the conventional C-clamp, the head is provided with a tapped opening to receive the threaded end of the post or arm which carries the dial indicator. Because this post or arm extends coaxially with the spindle or screw of the clamp, the indicator may only be used in situations where the clamp can be mounted upon some convenient part of a lathe or other machine with its post or arm positioned sufficiently closely to the work to enable the contact plunger of the dial indicator to contact the work.

It has been proposed (Patent No. 2,371,451) to increase the number of tapped holes in the clamp head from one to four so that the indicator supporting post may be mounted in any of four positions, 90° apart, on the clamp or so that two or more indicators may be mounted on the same clamp. However, with a multiple post clamp, it is necessary when changing the position of the post or posts to unscrew the threaded end of the post from the tapped opening of the clamp head and then screw it in a selected different opening; that is to say, the post position can be changed only by detaching it completely from the clamp and then reattaching it in the desired new position. The factor of time is also important when only post is used, for in changing the position of the post from one to the other of the four possible positions, the post must be completely unscrewed each time and then rescrewed in the different position.

The primary object of my present invention is to provide a clamp having a single post which remains threadedly connected to the clamp head at all times but which nevertheless is capable of being used in four different positions, 90° apart, by merely unloosening the post by backing it off its threaded connection with the clamp head a few turns and swinging the post into the desired new position and then fastening it in such new position by simply re-tightening it a few turns on its threaded connection with the clamp head.

My new clamp is simple in design, reliable in operation, and inexpensive of manufacture, and provides a flexibility of mounting and a convenience of operation not possible with clamps now on the market.

In the accompanying drawing wherein I have disclosed a preferred embodiment of my invention:

Figure 1 is a fragmentary side elevation showing a lathe and a work piece to be tested using a dial indicator positioned relative thereto by means of my new clamp, several alternative positions of the indicator supporting post relative to the clamp being shown in dotted lines.

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Figure 2 is a detail view of my clamp, detached, and also indicating in dotted lines one of the several possible alternative positions of the indicator supporting post relative to the clamp.

Figure 3 is a section on the line 3—3 of Fig. 2, and

Figure 4 is a fragmentary detail.

My improved clamp, detailed in Fig. 2, comprises a C-shaped frame 6 having a bearing 8 and an opposed head 10. Adjustable in bearing 8 towards and away from head 10 is a threaded clamp spindle or screw 12.

Detachably mounted on the outer face of head 10 and extending parallel thereto is a bearing plate 14, preferably thickened towards its lower end and there provided on its inner face with a transversely extending key or lug 16 for reception in keyway or recess 18 in the outer face of said head. Near its rear end the plate 14 is screwed or otherwise detachably secured to head 10 as indicated at 20. At its outer end said plate is slotted or bifurcated as shown (see Fig. 4) and spaced away from the adjacent surface of head 10 to provide a recess which is open from front to rear of the clamp as viewed in Figs. 2 and 4.

Within this recess is located the ball or rounded end 22 of a stem having a threaded shank 24 which projects outwardly away from the head 10 a short distance and is adapted to threadedly engage within a correspondingly threaded axial socket or bore in the inner end of a dial indicator supporting post 26.

A coiled spring 28 mounted in a suitable recess in the head 10 (see Figs. 3 and 4) maintains frictional bearing on the ball or rounded portion 22 of the threaded stem 24, and a dial indicator 34 having the usual arm 32 and clamp 30 is clamped to post 26 at any desired point along its length in position for its contact plunger 36 to contact a piece of work 38 mounted in a lathe 40 or other machine.

By this construction, the threaded stem 24 with its attached post 26 may be positioned in any of four positions, 90° apart, by simply unscrewing the post a few turns on the threaded stem, swinging it to a new position, and tightening the post again. When tightened, the flat bottom edge of the post bears against the adjacent surfaces of plate 14 and head 10 tightly enough to hold the post in position.

As will be obvious the slot or bifurcation at the outer end of plate 14 permits stem 24 to be swung therethrough to the full line position of Fig. 2 which is also the dotted line vertical position of Fig. 1. The other positions are the dotted line horizontal position of Fig. 2, wherein the post is tightened against the upper edges of plate 14 and head 10 and two positions 90° apart therefrom wherein the post is tightened against the front or back faces of said plate and head (see full line and dotted line horizontal positions of Fig. 1).

In all positions, it will be noted that the post is always threadedly connected to stem 24 and moreover may be moved to any of these four positions without the necessity of bodily detaching it from the clamp. This enables the dial indicator to be succcessively swung from position to position, should the nature of the work being tested so require, in the minimum time and with the minimum effort.

While I have described and illustrated a clamp in which the post is capable of being adjusted to and locked in four different angular positions, it will be evident that many other positions intermediate of these positions may be obtained by slight modification of the disclosed structure.

Various other modifications in structure and design may be made within the spirit and scope of my invention as defined by the appended claims.

I claim:

1. A gauge supporting device comprising a head, means for clamping the head to the frame

of a machine, a threaded stem having a ball on one end, the head being recessed to provide a socket for the ball and passages from the socket permitting the stem to be moved to different horizontal positions and to a vertical position while the ball is disposed in the socket, and a post threaded axially at one end to receive the stem and adapted to be tightened thereon into firm contact with the head, the post being adapted to support a gauge and said tightening of the post being adapted to clamp the ball against movement in the socket.

2. The device defined in claim 1 in which the head is provided with a horizontal top surface and three relatively right angular vertical surfaces disposed about and adjacent to the socket and arranged to have abutting contact with the end of the post in threaded engagement with said stem.

FREDERICK G. WHITE.

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The following references are of record in the file of this patent:

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