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1,463,706

W LE R. KETCHUM

SWIVEL

Filed Jan. 20, 1921

Fig. 1

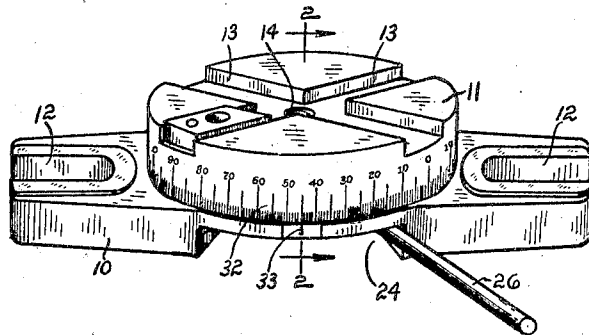


Fig. 2

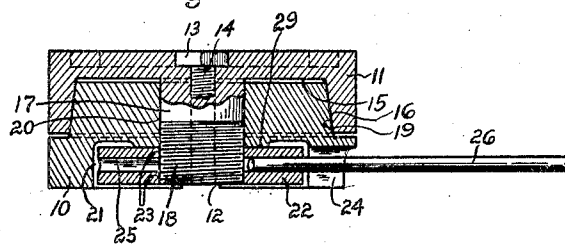


Fig. 3

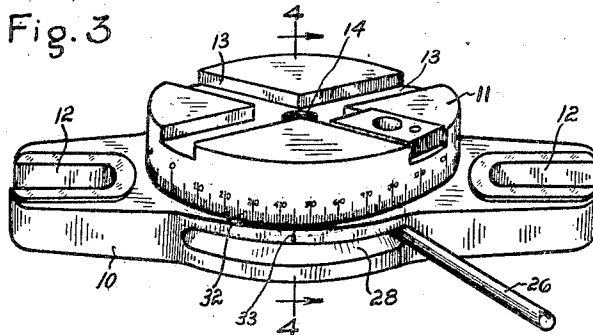


Fig. 4

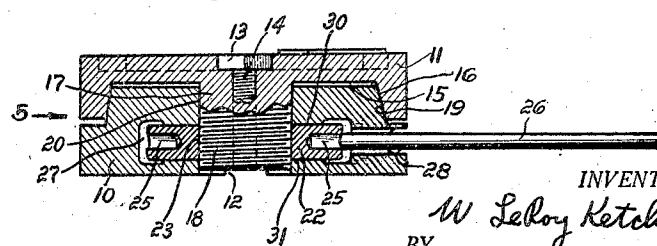
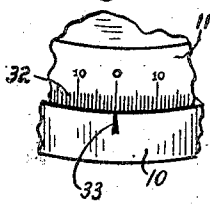


Fig. 5



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SWIVEL.

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To all whom it may concern:

Be it known that W LE ROY KETCHUM, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, has invented certain new and useful Improvements in Swivels, of which the following is a specification.

The object of the present invention is to provide a novel swivel of extremely simple construction and practical design which can be quickly, readily and accurately adjusted with a minimum of effort, and which will be capable of reliably and efficiently functioning to perform all of the services for which swivels are universally used.

With the above and other objects in view, the construction, arrangement and combination of parts which constitute the improved swivel will now be fully described and will hereinafter be specifically claimed.

In the accompanying drawing forming a part of this specification,

Fig. 1 is a perspective view of the swivel;

Fig. 2 is a sectional view on line 2—2 in Fig. 1, looking in the direction of the arrows;

Fig. 3 is a perspective view of a modified form of swivel;

Fig. 4 is a sectional view on line 4—4 in Fig. 3, looking in the direction of the arrows; and

Fig. 5 is a perspective view of a fragment of the modified form of swivel, looking from the position designated 5 in Fig. 4.

The improved swivel of this invention comprises, broadly, a base, designated generally by numeral 10, a holder 11 rotatably adjustable on the base and adapted to be locked to the base in any desired position of adjustment, and means for locking the base and holder to each other when the holder has been rotated to the desired angular adjustment on the base. The base is adapted to be secured to a work table, carriage, or other support in any desired manner, as by means of the slots designated 12, and the holder is adapted to rigidly carry a device or article with which or upon which work is to be done. The device or article, such, for example, as a tool carrying member or a vise, may be secured to the upper face of the holder in any ordinary or preferred manner. As shown, the holder is provided with ways, designated generally

13, and with a threaded opening 14 for the purpose of securing the device or article.

More specifically, the swivel invented by me consists of a base having a beveled, circumferential face and also having an opening which is concentrically arranged with respect to said beveled, circumferential face, a holder having a correspondingly beveled, circumferential face adapted to engagingly fit and to be bound to the beveled circumferential face of the base, the holder being also provided with a threaded stud, or equivalent member, adapted to be rotatably and slidably received by the opening in the base, and locking means comprising an internally threaded hand wheel adapted to engage the thread of the stud, or equivalent member, of the holder to bind the base and holder to each other. The holder and hand wheel of both forms of the invention may be identical, the difference between the two forms disclosed lying in the construction of the base.

The holder, as very clearly disclosed in Figs. 2 and 4, is recessed on its under side, as indicated by numeral 15, to provide a beveled, circumferential face 16, and extending from the under face of the holder and arranged concentrically in the recess is a stud 17 of considerable diameter. 18 denotes a thread on the lower portion of the stud. Threaded opening 14, hereinbefore mentioned, is preferably arranged in the stud, as shown, and the stud is preferably, though not necessarily, integral with the holder. The base, in both of the forms disclosed, is provided with a beveled, circumferential face 19 adapted to be engaged by beveled, circumferential face 16 of the holder, and with an opening 20 which is arranged concentrically with respect to beveled, circumferential face 19 and is adapted to rotatably and slidably receive stud 17.

In the form of the invention disclosed in Figs. 1 and 2, the under face of the base is cored out, as indicated by 21 in Fig. 2, to receive the hand wheel, denoted by 22, and the opening, designated 20, in the base, communicates with the cored out portion. The stud is of sufficient length so that its threaded portion can extend into the cored out portion of the base in position to be engaged by the internal thread, designated 23, of the hand wheel. One lower side edge of the

base is cut away, as shown at 24 in Figs. 1 and 2, the cut away portion communicating with the cored out portion, as will be clear from Fig. 2. The hand wheel is provided with a plurality of radial openings 25 which extend inwardly from its circumference. A short rod 26 is for the purpose of successively entering the radial openings, and the cut away portion, designated 24, is for the purpose of allowing the rod to be manipulated to turn the hand wheel on the threaded portion of the stud.

In the form of the invention disclosed in Figs. 3 and 4, the base is cored out intermediate its top and bottom, as indicated by 27 in Fig. 4, to receive the hand wheel, and a cut away portion 28, for the same purpose as is cut away portion 24, is arranged in one side edge of the base and communicates with cored out portion 27 as shown very clearly in Fig. 4.

The cored out portion in either case may be of any desired configuration to allow rotation of the hand wheel. In the form of the invention disclosed in Figs. 1 and 2, a bearing surface 29 provided in the base is adapted to be firmly engaged by the hand wheel when rotated to draw the holder toward the base. When the hand wheel is rotated in opposite direction, the table, carriage, or other support furnishes the bearing surface. To this end, the hand wheel is of a thickness but a trifle less than the distance of bearing surface 29 from the support for the base. Referring to the modified form of base, bearing surfaces 30 and 31 function exactly as do bearing surface 29 and the support, respectively.

In order that angular adjustments of the holder may be accurate, graduations 32, preferably denoting degrees, are suitably placed on the lower, outer edge of the holder, see Figs. 1, 3 and 5, and an indicating mark 33 is placed in any suitable position on the edge of the base to cooperate with the graduations. In Fig. 1 the indicating mark is shown placed above the cut away portion of the base. In Fig. 5 it is shown opposite the cut away portion.

The method of using the swivel will be obvious. When the parts are assembled as shown in the drawing and it is desired to make an angular adjustment of the holder, the rod is inserted in a radial opening of the hand wheel and actuated for the length, or a portion of the length, of the cut away portion to rotate the hand wheel to elevate the stud and thus move the holder a slight distance from the base so that the beveled, circumferential faces of the holder and base, respectively, will be disengaged. During this actuation of the manipulating rod, the hand wheel of Figs. 1 and 2 is resting on the table as a bearing surface, while the hand wheel of Figs. 3 and 4 is supported by

bearing surface 31. In view of the fact that the stud is rotatably carried by the opening in the base, the holder can be turned on the base when the beveled faces of the holder and base are disengaged, and by means of the graduations and indicating mark the proper adjustment can be accurately made. As the holder is turned to make the adjustment, the hand wheel turns with the stud, as will be understood. The hand wheel can then be turned, by means of the rod, in opposite direction. The bearing surface 29 in Figs. 1 and 2 and the bearing surface 30 in Figs. 3 and 4 will then be firmly engaged by the hand wheel, and the stud will be drawn downwardly so that the beveled, circumferential faces of the holder and base become firmly bound to each other to lock the holder to the base. But a slight movement of the manipulating rod is necessary to release or lock the holder, and each time the holder and base are bound together, the beveled, circumferential faces engage each other in precisely the same manner, so that the distance between a locked holder and the support for the base will not vary.

By providing the base and holder, respectively, with beveled faces which are adapted to engage each other as shown and described, it is possible to locate the holder close to the support for the base, and thus preclude vibration of the device or article carried by the holder and with which or upon which work is to be done.

It will be seen that the swivel can be quickly and easily manipulated. There are no bolts with nuts in cramped quarters and likely to become rounded.

Having thus fully described the invention, what is claimed is:

1. A device of the character described, comprising a base having a beveled, circumferential face and provided with an opening arranged concentrically with respect to said beveled, circumferential face, a holder having a correspondingly beveled, circumferential face and provided with a threaded stud adapted to rotatably and slidably fit said opening, a hand wheel located in the base and adapted to engage the thread of said stud, and upper and lower bearing surfaces for said hand wheel.

2. A device of the character described, comprising a base having a beveled, circumferential face and provided with an opening arranged concentrically with respect to said beveled, circumferential face, a holder having a correspondingly beveled, circumferential face and provided with a threaded stud adapted to rotatably and slidably fit said opening, said beveled, circumferential faces adapted to engage each other, a hand wheel located in said base and adapted to engage the thread of said stud, and upper and lower bearing surfaces for said hand wheel.

3. A device of the character described, comprising a base having a beveled circumferential face and provided with an opening arranged concentrically with respect to said beveled, circumferential face, said base further provided with a cored out portion, a holder having a correspondingly beveled, circumferential face and provided with a threaded stud adapted to rotatably and slidably fit said opening and to extend into said cored out portion of said base, said beveled circumferential faces adapted to engage each other, a hand wheel adapted to be located in said cored out portion and to engage said threaded stud, and upper and lower bearing surfaces for said hand wheel, at least one of said bearing surfaces located in said cored out portion, whereby said holder can be locked in fixed position on said base, or can be free to rotate thereon.

4. A device of the character described, comprising a base having a beveled, circumferential face and provided with an opening arranged concentrically with respect to said beveled, circumferential face, said base further provided with a cored out portion, a holder having a correspondingly beveled, circumferential face and provided with a threaded stud adapted to rotatably and slidably fit said opening and to extend into said cored out portion of said base, said beveled, circumferential faces adapted to engage each other, a hand wheel adapted to be lo-

cated in said cored out portion and to engage said threaded stud, said hand wheel provided with radial openings, upper and lower bearing surfaces for said hand wheel, and means adapted to successively enter said radial openings, whereby said hand wheel can be rotated on said stud and said stud can be caused to move upwardly or downwardly in said opening in the base.

5. A device of the character described, comprising a base having a beveled, circumferential face and provided with an opening arranged concentrically with respect to said beveled, circumferential face, a holder having a correspondingly beveled, circumferential face, said faces adapted to engage each other, a threaded stud extending from said holder and rotatably and slidably fitted in said opening, a hand wheel located beneath said opening and engaging said threaded stud, means limiting upward and downward movement of said hand wheel, whereby said faces may be bound to each other to lock said holder to said base, or may be disengaged to allow rotation of said holder on said base, and cooperating means located on said holder and base whereby the holder can be accurately set at any desired angular adjustment on the base.

Signed at Bridgeport, in the county of Fairfield, and State of Connecticut this 18th day of January, A. D., 1921.

W LE ROY KETCHUM.