Dec. 30, 1941. M. EVANTZ 2,268,027

JEWELER'S UNIVERSAL WORK-HOLDING VISE

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Fig. 1

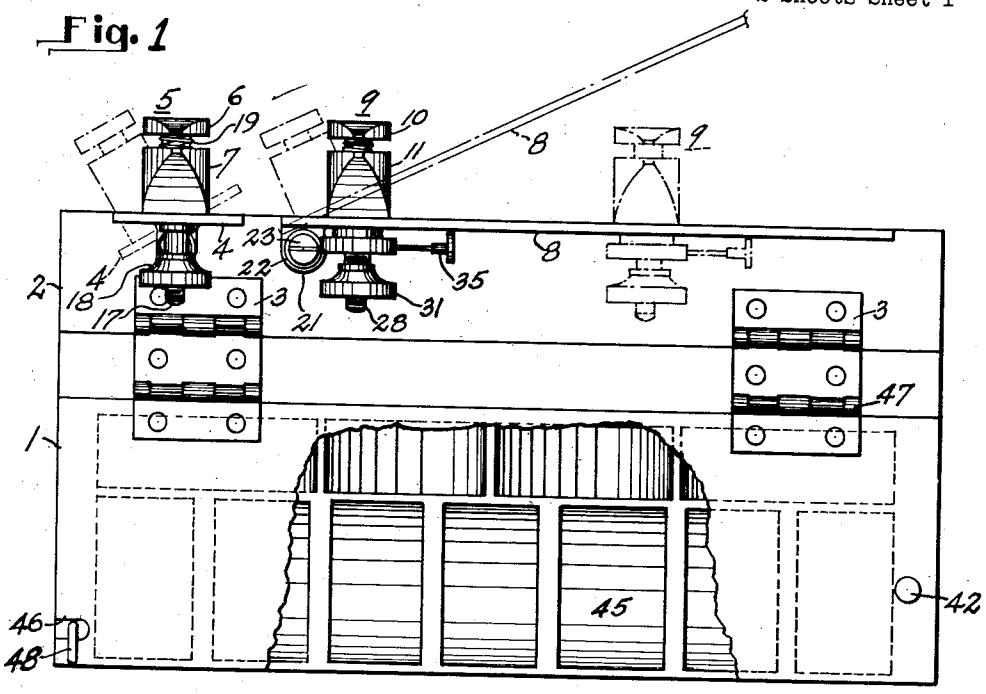


Fig. 2

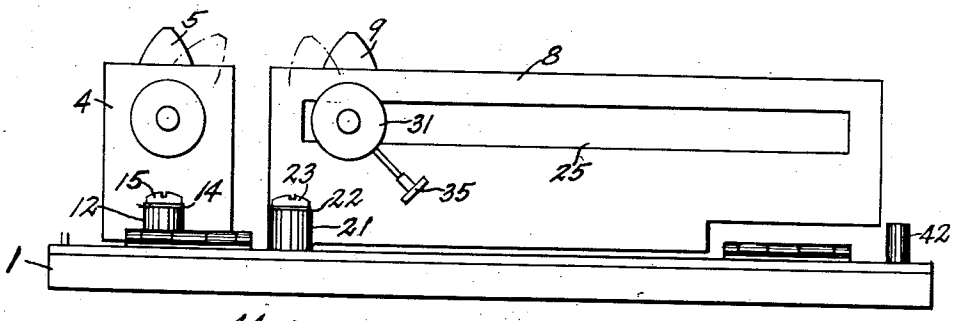
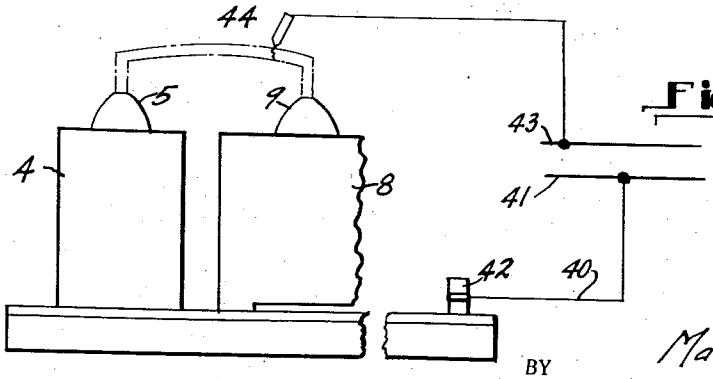


Fig. 3



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Fig. 4

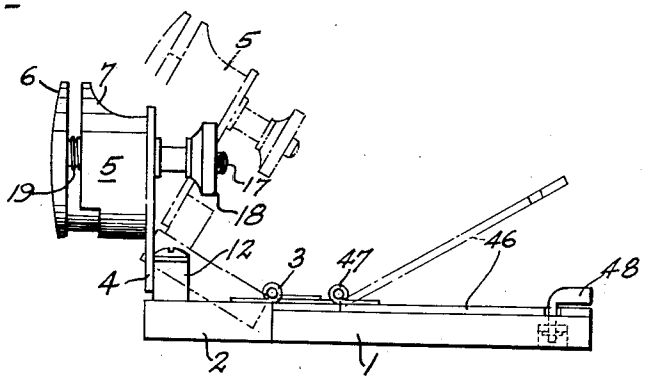


Fig. 5

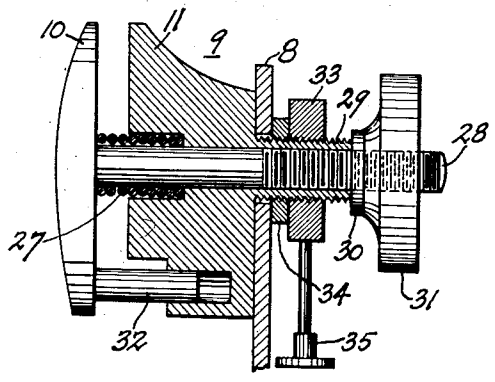


Fig. 6

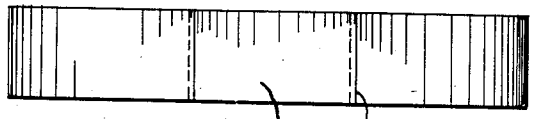
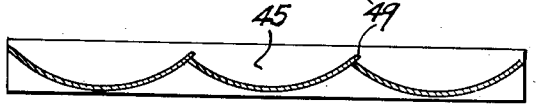


Fig. 7



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2,268,027

JEWELER'S UNIVERSAL WORK-HOLDING VISE

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Application December 22, 1939, Serial No. 310,592

5 Claims. (Cl. 113—104)

My invention relates to work-holding devices for holding small metal parts, such as jewelers and opticians have to do with, to permit those parts to be held in proper relative position while they are being soldered or brazed together.

One object of my invention is to provide such a device in which small metal parts may be held and adjusted in all planes relative to each other, to permit broken parts of various shapes to be properly positioned before being soldered or brazed together.

The things that a jeweler or optician may be called upon to fix may have various shapes, sizes and relative angular dispositions. For example, the various parts of the frames, nose-pieces, or temples of a pair of spectacles, when broken, present pieces of odd shapes, sizes, and angular relationships. To hold them in proper relative position for rejoining, the holding devices must be capable of relatively universal movement.

In order to provide for holding two broken or separated parts in proper relationship for fixing or rejoining by soldering or brazing, the holding devices or vises are arranged so that each vise is movable about two axes, and also so that the vises may be adjustably and variably spaced from each other. Thus, articles of different shapes and of various other sizes may be accommodated.

Another object of my invention is to provide a drawer for holding small articles like screws, sheets and bits of gold leaf, and other small parts, which is provided with compartments shaped to permit such small parts to be easily removed by hand.

An apparatus constructed in accordance with my invention is illustrated in the accompanying drawings in which:

Figure 1 is a plan view of the work-holding device;

Figure 2 is an elevational front view of the device of Figure 1;

Figure 3 is a schematic view showing two parts of a broken member held together to be soldered or brazed by energy derived from an electric circuit;

Figure 4 is an elevational end view of the work-holder;

Figure 5 is an enlarged side view, partially in section, of one of the movable vise clamps; and

Figures 6 and 7 are, respectively, plan and vertical side sectional views of a modified form of drawer for small articles.

As shown in the drawings, the work-holding device embodying my invention comprises a main base 1, an auxiliary base 2, hinged thereto by hinges 3, a vertical plate or standard 4 rotatably secured to the auxiliary base 2 and supporting a vise 5 having two jaws 6 and 7, and a second vertical plate 8 rotatably secured to the auxiliary base 2 and supporting a second vise 9 having two jaws 10 and 11.

The vertical plate 4 is provided with a lug 12 that serves as a bearing about a pin on the auxiliary base 2. A friction spring 14 holds the vertical plate against casual displacement from a selected adjusted position. A cap screw 15 holds the spring 14 in position to exert frictional pressure against the lug 12 of the vertical plate 4, to prevent casual displacement.

The vise 5 is adjustably, rotatably supported on plate 4 by a threaded screw 17 and lock nut 18. The vise jaws 10 and 11 can thus be opened by a biasing separating spring 19 to hold a desired object and then locked in position on the plate 4 in the position required. At the same time the plate 4 may be rotated about the axis of the lug 12, as may be desired.

The second vertical plate 8 is provided with a lug 21 that serves as a bearing about a pin on the auxiliary base 2. A friction spring 22 holds the plate 8 against casual displacement from a selected adjusted position. A cap screw 23 holds the spring 22 in position to exert pressure against the lug 21 of the plate 8, to prevent casual displacement after the plate 8 is moved to a selected adjusted position.

The plate 8 is relatively long and is provided with a horizontal slot 25, in which the vise 9 is movable to a selected position. As shown in Figure 5, the vise 9 comprises the two vise jaws 10 and 11, normally biased to open position by a helical spring 27 encircling an adjustment screw 28. The adjustment screw 28 is secured to the jaw 10 and extends through jaw 11 and through a threaded cylindrical extension 29 of jaw 11. A washer 30 presses against the outer end of extension 29, and an adjusting nut 31 on the threaded screw 28 adjusts the opening between jaws 10 and 11 of the vise. A guide pin 32 prevents rotary movement between jaws 10 and 11. A second adjusting and positioning nut 33 and washer 34 secure the vise 9 on the plate 8. A handle 35 is provided for the nut 33.

As shown in Figure 1, the plates 4 and 8, supporting the two vises 5 and 9, are movable about the respective axes of the lugs 12 and 21 on plates 4 and 8. In addition, vise 9 is horizontally movable on plate 8 to vary the opening between the two vises. When the parts to be held by the vises are in proper position, as in Figure 3, a small piece of gold or brazing alloy is placed on the parts where they are to be joined. One conductor 40 of an electric circuit 41 is connected to terminal post 42, and the other conductor 43 is connected to an electrode such as a carbon pencil 44 which is placed against the brazing metal until it is melted and flows into position to braze the two broken parts.

The auxiliary base 2 is pivoted on the main

base by the hinges 3 to permit the vises to be rotated about the horizontal axis of the hinges, if necessary to place the broken parts in corresponding position.

In the structure in Figure 1, I have provided several pockets or wells 45 in which to keep small parts, like screws or parts of gold leaf, or the like. A cover 46 is hinged at hinges 47 to cover the wells 45. A latch 48 is provided to hold the cover closed. Instead of wells in the base as shown, a drawer may be provided if desired. In order to enable the small parts to be readily taken out of the wells, they may be formed as in Figures 6 and 7 to provide an overhanging front edge 49, under which or against which the nail or skin at the end of a thumb may be held while the forefinger moves the desired part out of the well.

My invention is not limited to the specific details as shown, since they may be variously modified, without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim as my invention:

1. A universal work-holding device for small optical and jewelry parts, comprising a metal base plate, a first vertical standard pivotally secured to the base plate by an offset arm frictionally and adjustably rotatable about a perpendicular pin on the plate, a second standard also pivotally secured to the base plate by an offset arm frictionally and adjustably rotatable about a second perpendicular pin on the plate, the second standard having a horizontal support portion, a first vise mounted on the first standard and adjustable about a horizontal axis through the vise, a second vise mounted on the second standard and adjustably positioned along the horizontal support portion and about a horizontal axis through the vise.

2. A work-holding device to hold two metal parts in position to be soldered, comprising a base plate; a first vise and a second vise, each having two jaws adjustably movable relative to each other and angularly adjustable together about an axis through the two jaws; a vertical plate supporting the first vise with the vise axis horizontal; means for securing the vise on said plate in rotatably selected fixed position about said axis; pivot means on the base plate for holding the vertical vise plate frictionally, the plate being angularly adjustable around a vertical axis through said pivot means; a second vertical plate supporting the second vise with the vise axis horizontal; means horizontally slidable on the second plate to secure the second vise in desired position on the second plate, and in angularly selected fixed position relative to its horizontal axis; and pivot means on the base plate for holding the second plate frictionally rotatable around a vertical axis through said pivot means and against casual displacement, the plate being adjustable angularly around said vertical axis through said pivot means.

3. A work-holding device comprising a base plate; a vertical pivot pin on the base plate; a vertical standard supported and frictionally held on the pivot pin for adjustable angular movement of the standard about a vertical axis through said pin, but against casual displacement; a vise supported on the vertical standard with its jaws separable along a horizontal axis, but jointly adjustably rotatable about said axis; and means for securing the vise jaws on the vertical standard angularly relative to that horizontal axis; a second vise; a second pivot pin vertically secured to said base plate; a horizontal spacing and supporting member disposed on the second pivot pin to pivot around the vertical axis of the second pin and serving to support the second vise in selectively and adjustably spaced position on said supporting member and relative to the first vise; and clamping means movably fixed on the horizontal spacing and supporting member to adjustably and angularly position the second vise about its own horizontal axis and at a selected position on the supporting and spacing member.

4. A universal work-holding device for small optical and jewelry parts, comprising a main horizontal base plate; a normally horizontal auxiliary base plate pivotally secured to the main base plate, to permit the auxiliary base to be swung through a right angle into vertical position relative to the main base plate, a vertical bracket provided with an offset bearing having its longitudinal axis disposed vertically; a pivot pin on the auxiliary base to serve as a pivot pin for the offset bearing to enable the vertical bracket on the auxiliary base to be rotatable about the offset axis of the pivot pin that is perpendicular to that auxiliary base; a vise on the vertical bracket with its jaws reciprocable along a horizontal axis and jointly adjustably rotatable about said axis to a selected angular position, means for clamping the jaws at that position; a second vertical bracket similarly provided with an offset bearing and adapted to be angularly adjusted about the axis of said bearing; a vise on said second bracket with the vise jaws reciprocable along a horizontal axis and jointly angularly adjustable about said axis, said vise being adjustably movable horizontally on the second bracket; and means for then securing the vise in such position to vary the spacing between the two vises to accommodate articles of various sizes.

5. A universal work-holding device for small optical and jewelry parts, comprising a main horizontal plate; an auxiliary base plate hinged thereto to permit the auxiliary plate to be swung through a right angle into vertical position; a vertical bracket provided with an offset bearing having its longitudinal axis disposed vertically; a pivot pin on the auxiliary base to serve as a pivot pin for the offset bearing to enable the vertical bracket mounted on the auxiliary plate to be adjustable rotatable about the offset vertical axis of the pivot pin; a vise mounted on the vertical bracket to be adjustably rotatable on the bracket about a horizontal axis, and rotatable with the bracket about said offset vertical axis of the pivot pin; a second vertical bracket similarly provided with an offset bearing and adapted to be angularly adjusted about the axis of said bearing; a second pivot pin on the auxiliary plate for said second bracket; a second vise; and a support therefor adjustably mounted on the second bracket to horizontally and adjustably dispose the second vise on its bracket to vary the spacing between the two vises, and to permit angular adjustment of the second vise about a horizontal axis of the support.

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