May 7, 1940. C. P. BROWN ET AL 2,200,053

COUNTING CHAMBER

Filed Feb. 20, 1939

Fig. 1.

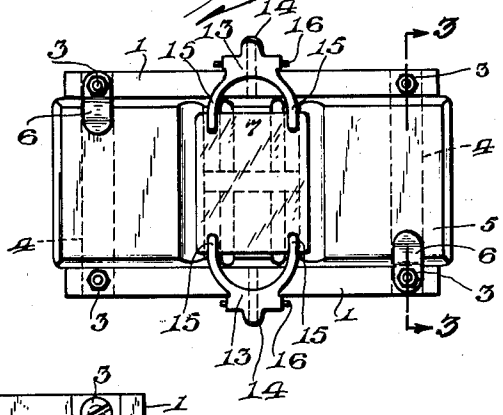


Fig. 2.

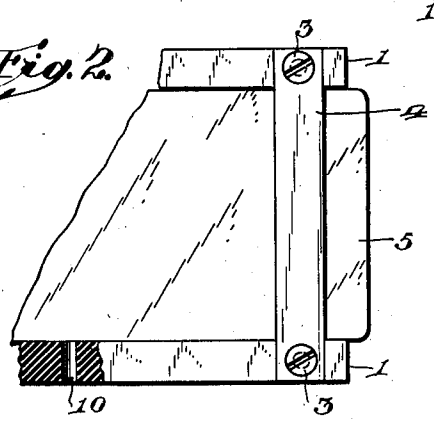


Fig. 3.

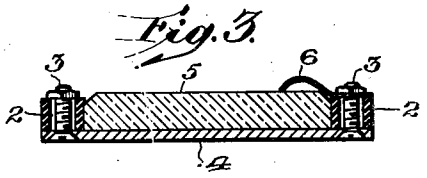


Fig. 4.

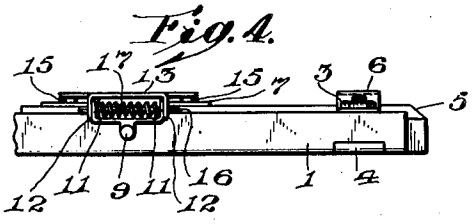
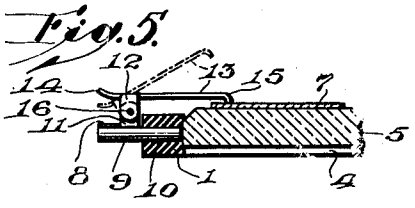


Fig. 5.



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UNITED STATES PATENT OFFICE

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COUNTING CHAMBER

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Application February 20, 1939, Serial No. 257,278

2 Claims. (Cl. 88—40)

The object of the invention is to provide improvements in counting chambers broadly, but more particularly in the clips and frames by which such chambers and the usual cover slips are operatively held, this application being a continuation-in-part of copending application Serial No. 212,569, filed June 8, 1938.

Another and more specific object with relation to the improved clip resides in oscillatably mounting the entire clip as a unit upon and with respect to a frame, so as to thereby minimize the number of pieces which enter into the clip's construction, and at the same time permit the clip to automatically adjust its transverse angular position for equalized engagement with a cover slip carried by the upper surface of a counting chamber supported by said frame.

A further object is to provide an improved frame, which may but need not necessarily be always associated with the said improved clip, said frame comprising a pair of oppositely positioned elements, between which a counting chamber is normally positioned, and a plurality of transversely extending spacing members, normally fixedly secured to said elements but adjustable with respect thereto, in order to permit the frame as a whole to conform in a transverse direction with the corresponding dimension of counting chambers of various sizes.

With the objects thus briefly stated, the invention consists in further details of construction and operation, which are hereinafter fully brought out in the following description, when read in conjunction with the accompanying drawing, in which Fig. 1 is a top plan view of a device comprising one embodiment of the invention; Fig. 2 is a fragmentary bottom plan view of the same partially in section; Fig. 3 is a section on the line 3—3 of Fig. 1; Fig. 4 is an enlarged fragmentary side elevational view of the improved clip, and adjacent portions of the frame; and Fig. 5 is an enlarged side elevational view of the improved clip and adjacent portions of the frame, counting chamber and cover slip.

Referring to the drawing, one embodiment of the invention is shown as comprising a base, which in turn is composed of a pair of spaced parallel members 1, which may be formed of any suitable material such as a synthetic resin, and provided at spaced regions with transversely elongated apertures 2, through which extend any suitable form of bolts 3, or the like, by which a plurality of spacing members 4 are secured at their opposite ends to said first members, in such manner that by loosening and re-tightening said bolts, said first-mentioned side members can be brought into close binding engagement with the laterally opposite sides or the edge portions of an intervening element 5, which is here shown as comprising a so-called counting chamber. Resilient element-securing fingers 6 are also preferably provided at spaced intervals, and at one of its ends each of said fingers is fixedly secured to one of said bolts, while its oppositely extending free end portion engages the outer surface of the said interposed element.

Although the said element 5 is here shown as comprising a counting chamber, it is to be understood that it may instead comprise any other element adapted for operative support by the improved adjustable frame. Similarly, the superimposed cover slip 7, which is usually associated with a counting chamber, is here intended to illustrate any second element, which is adapted to be lightly maintained upon or in predetermined fixed relationship with the upper exposed surface of said first element, and for which an improved type of clip has been designed.

This improved clip comprises a central flat metallic base member 8, provided upon its under surface with an integral or at least a unitarily secured shaft 9 of curviform cross section, which latter comprises a freely extending portion adapted to slide into and to be normally positioned within a horizontally arranged bore 10 in one of the side members 1 of said frame. Said base member 8 of the improved clip is also provided with laterally positioned upwardly extending parallel ears 11, adjacent to which are positioned a pair of downwardly extending ears 12, forming laterally positioned integral extensions of an oscillatory member 13, the said last-named member comprising a manually engageable depressable extension 14, and oppositely and downwardly extending, bifurcated, laterally spaced, free end portions 15, adapted to contact and fixedly position the superimposed element 7 upon and with respect to the first mentioned element 5. The ears of the respective base and oscillatory members of the improved clip are pivotally connected together by means of a shaft 16, which is surrounded by a suitable coil spring 17 of well known design for the purpose of normally maintaining the laterally spaced clip extensions 15 in depressed operative position, and against the tension of which spring it is necessary to exert pressure upon the manually engageable portion 14, in order to raise the extension 15 and release the superimposed element 7.

In the operation of the combined clip and

frame, it will be noted that the clip as a unit is adapted to oscillate transversely in a plane parallel with the adjacent side member 1 and about the axis of the shaft 9, so as to thereby permit the terminal portions of the finger extensions 15 to rock into equalized engagement with the surface of the superimposed element 7, whatever such element may comprise. It will, therefore, be noted that movement of the clip extensions 15 toward and away from said elements is in a plane angularly disposed with respect to the plane of oscillation of the clip as a unit, about the axis of the shaft by means of which the clip is detachably attached to one of said side members.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent of the United States is:

1. The combination of a frame, having a cylindrical bore in a side thereof, the axis of which bore extends substantially parallel with the plane of said frame, the frame being adapted to support an element superimposed thereupon, with a clip unit comprising a base member having as its sole support an integral curviform shaft which extends axially and rotatably into said bore to permit oscillation of said base member in a transverse plane with respect to said first mentioned plane, a spring-actuated bifurcated member having laterally spaced fingers adapted to overlie the frame and the superimposed element, and a pivot means upon said base member extending substantially perpendicularly to the axis of the shaft for pivotally supporting the spring-actuated member, the spring-actuated member being operative to yieldingly urge the spaced fingers towards the frame and into contact with the superimposed element.

2. The combination of a frame, having a cylindrical bore in a side thereof, the axis of which bore extends substantially parallel with the plane of said frame, the frame being adapted to support an element superimposed thereupon, with a clip unit comprising a base member having as its sole support an integral curviform shaft which extends axially and rotatably into said bore to permit oscillation of said base member in a transverse plane with respect to said first mentioned plane, a spring-actuated bifurcated member having a transversely widened free end portion adapted to overlie the frame and the superimposed element, and a pivot means upon said base member extending substantially perpendicularly to the axis of the shaft for pivotally supporting the spring-actuated member, the spring-actuated member being operative to yieldingly urge the said free end portion towards the frame and into contact with the superimposed element.

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