

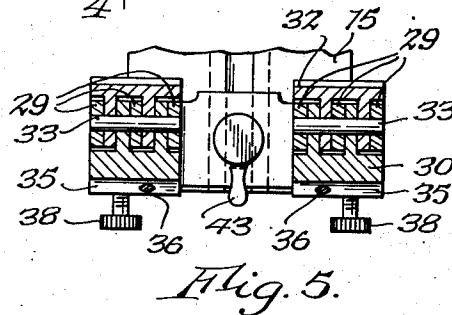
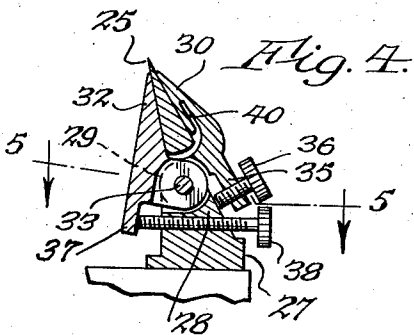
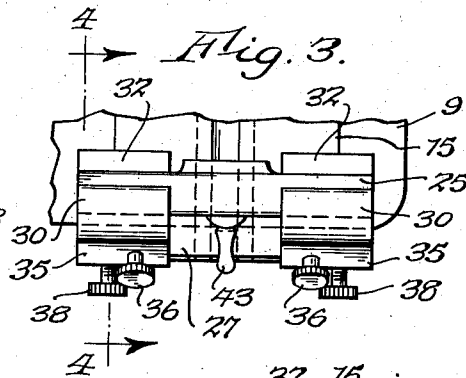
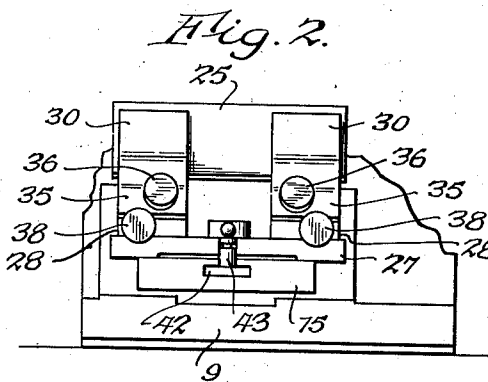
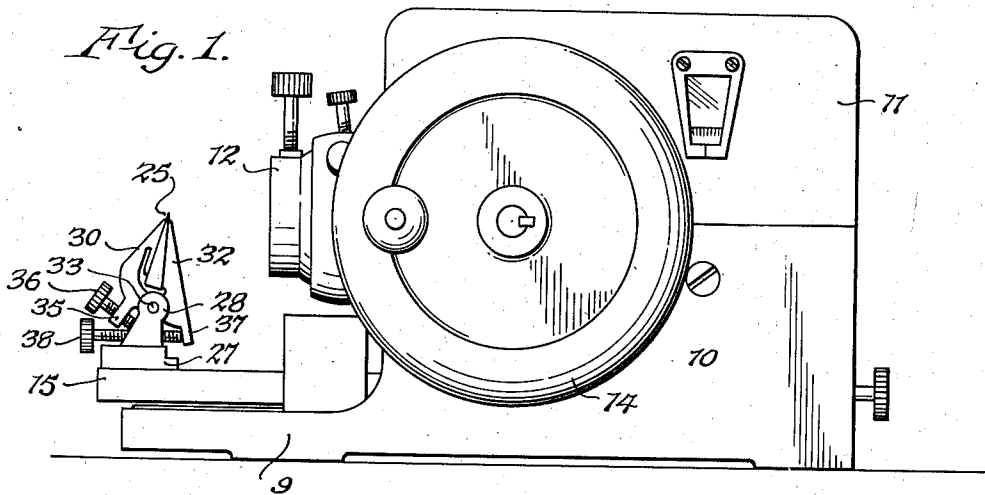
April 13, 1948.

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2,439,671

KNIFE HOLDER FOR MICROTOMES

Original Filed Feb. 16, 1944



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UNITED STATES PATENT OFFICE

2,439,671

KNIFE HOLDER FOR MICROTOMES

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Original application February 16, 1944, Serial No. 522,608. Divided and this application November 1, 1944, Serial No. 561,412

5 Claims. (Cl. 38—40)

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This invention relates to knife supports or holders for microtomes. This is a division of my copending application for patent Ser. No. 522,608, filed February 16, 1944.

One of the objects of this invention is to provide a microtome with means of improved construction for mounting the knife in its operative position. Another object is to provide a microtome with a knife holder by means of which the position of the knife with reference to the object can readily be adjusted as desired. It is also an object to provide a knife holder which is more adjustable and which will support the knife more rigidly than heretofore.

Other objects and advantages of this invention will appear from the following description and claims.

In the accompanying drawings, which illustrate by way of example one embodiment of this invention:

Fig. 1 is a side elevation of a microtome having a knife holder embodying this invention mounted thereon.

Fig. 2 is a fragmentary end elevation thereof.

Fig. 3 is a fragmentary top plan view thereof.

Fig. 4 is a sectional elevation thereof, on line 4-4, Fig. 3.

Fig. 5 is a sectional plan view thereof, on line 5-5, Fig. 4.

The knife holder shown in the accompanying drawings may be used on any suitable or desired type of microtome, regardless of whether the knife reciprocates to cut sections from the object or whether the object reciprocates relatively to the knife. In the particular construction shown, the knife holder is applied to a microtome of the type in which the object reciprocates relatively to the knife and the knife is advanced toward the object through distances equivalent to the thickness of the section to be cut. The microtome shown includes a housing on which the various parts of the microtome are mounted and which includes a base 9, from which side walls 10 extend upwardly, and a cover or lid 11 cooperates with the base and side walls in enclosing and protecting the mechanism of the microtome, which mechanism is not herein shown. 12 represents an object holder which may be reciprocated vertically by means of suitable mechanism actuated by means of a drive wheel 14. The base of the microtome extends beyond the housing at the front of the microtome and 15 represents a knife carriage which is mounted on the base 9. This carriage is actuated by suitable mechanism (not shown) for moving the knife 25 mounted

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thereon toward and from the object holder 12, the movement of the knife toward the object holder being preferably effected by mechanism actuated by the turning of a driving wheel 14.

The knife 25 may be of any usual kind and the end portions thereof are rigidly clamped by means of a knife holder embodying this invention, and which is mounted on the outer end of the knife carriage 15. The middle portion of the knife is used for cutting specimens from the object.

The knife holder includes a base 27 suitably mounted on the outer portion of the knife carriage 15 and this knife holder is provided at opposite sides thereof with upwardly extending projections 28 each having its upper end slotted to provide upwardly extending pivot lugs 29, three being shown in the construction illustrated, see particularly Figs. 4 and 5. A pair of knife clamps 30 and 32 is provided for each upward extension 28 and each clamp is provided with a pair of integral bearing lugs which extend between the lugs 29, and the lugs of the clamp are pivotally mounted on the lugs 29, for example, by means of pivot pins 33.

The two knife clamps of each pair are in the form of levers, one arm of each of which is provided with a knife engaging face adapted to engage a side of the knife. The knife clamp 30 has an arm 35 provided with a threaded hole in which a clamping screw 36 may engage, the end of the screw engaging or abutting against the upper projection 28 of the base of the knife holder. The knife clamp 32 has an arm 37 which is engaged by the end of a screw 38 extending through a threaded hole in the projection 28 of the base. It will, consequently, be seen that by means of this construction, the knife 25 may be securely clamped by tightening the screws 36 and 38. Also the angular position of the knife may be varied as may be desired, by manipulating the screws 36 and 38. For example, if in Fig. 4, it is decided to arrange the knife 25 in a more nearly vertical position, this can be accomplished by releasing the screws 36 and then tightening the screws 38 of the two sets of knife clamps. The knife holding means described, consequently, serves the two-fold purpose of clamping the knife securely on the holder and also adjusting the angular relation of the knife to the holder.

One or other of the knife clamps is formed to provide a somewhat flexible or yielding contact with a side of the knife to compensate for any slight differences between the knife engaging faces of the knife clamps and the corresponding faces of the knife. For example, in the construc-

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tion illustrated, the knife clamp 30 is provided with a slot 40 in rear of the knife engaging face of this knife clamp, and this slot provides sufficient flexibility to take care of any slight differences in the cooperating faces of the knife and the knife clamps. By means of these clamps, the opposite end portions of the knife 25 are clamped in fixed relation to the base 27 of the holder, the middle portion of the knife serving to cut sections from the object. Any other suitable or desired means for holding the knife may be employed, if desired.

The knife holder may be adjustably mounted on the knife carriage in any suitable or desired manner and in the construction illustrated by way of example, the knife carriage is provided with a longitudinally extending undercut or T-slot in which a nut 42 is slidably arranged, see particularly Figs. 2, 3 and 5 and a bolt 43 extends through a hole in the base 27 of the knife holder and engages the nut 42 so that the knife holder may be clamped in different desired relations to the knife carriage 15.

I claim as my invention:

1. A knife holder for a microtome including a base having a pair of knife supporting levers mounted thereon to swing about a common pivot, each of said levers having an arm formed to engage one face of the knife and another arm, and adjustable means reacting against the other arm of each lever and against said base for moving said levers into and out of engagement with the opposite faces of the knife and for swinging said levers about their pivots to position said knife in different angular relations to said base.

2. A knife holder for a microtome including a base having a pair of knife supporting levers mounted thereon to swing about a common pivot, each of said levers having an arm formed to engage one face of the knife and another arm, a pair of screws cooperating with said other arms of said levers and said base, whereby the levers may be swung about their pivots into engagement with opposite faces of the knife and also swung about said pivots to support said knife in different angular relations to said base.

3. A knife holder for a microtome including a base having upwardly extending spaced lugs, a

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pair of knife supporting levers having lugs intermediate of the ends thereof extending into alignment with said spaced lugs, a pivot pin connecting the lugs of said base and said levers to pivot said levers on said base, said levers having arms formed to engage the opposite faces of a knife, and screws reacting on said levers and said base for moving said levers into different angular relations to said base and into clamping engagement with said knife.

4. A knife holder for a microtome including a base having a pair of knife supporting members mounted thereon for movement into engagement with opposite sides of the knife and having faces formed to engage with the opposite sides of the knife, at least one of said members having a portion thereof adjacent to said knife supporting face undercut to form a resilient knife engaging face.

5. A knife holder for a microtome including a base having a pair of knife supporting members mounted thereon for movement into engagement with opposite sides of the knife and having faces formed to engage with the opposite sides of the knife, at least one of said members having an open ended slot therein substantially parallel with the knife engaging face thereof to form a resilient knife engaging face.

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