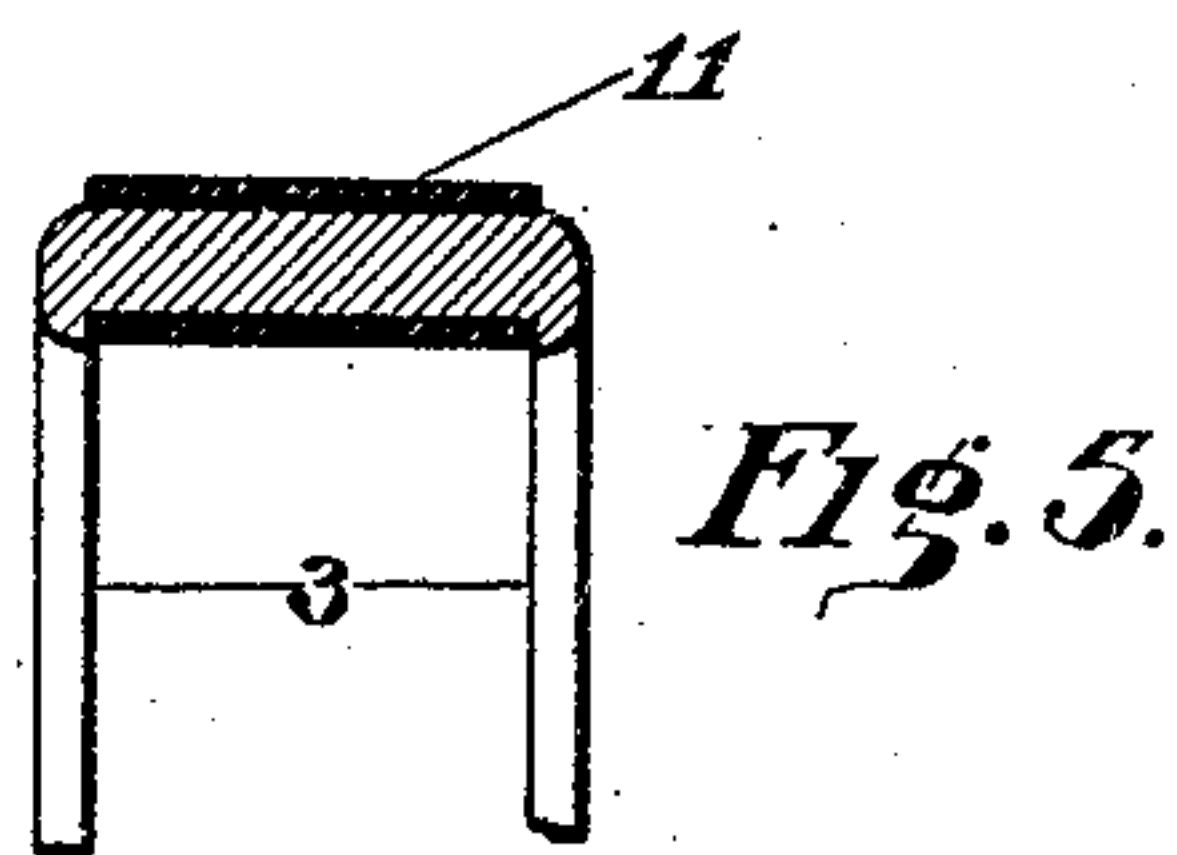
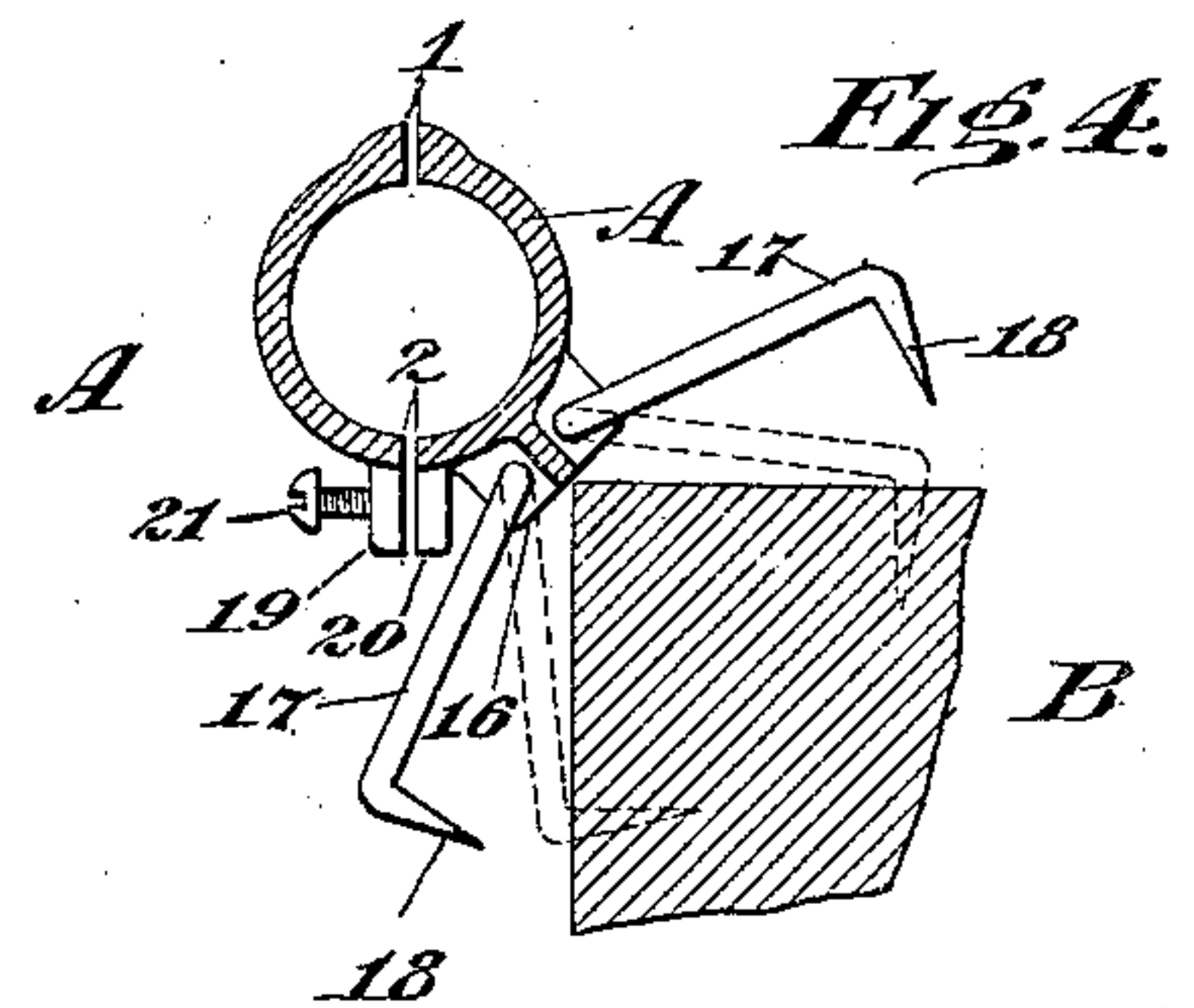
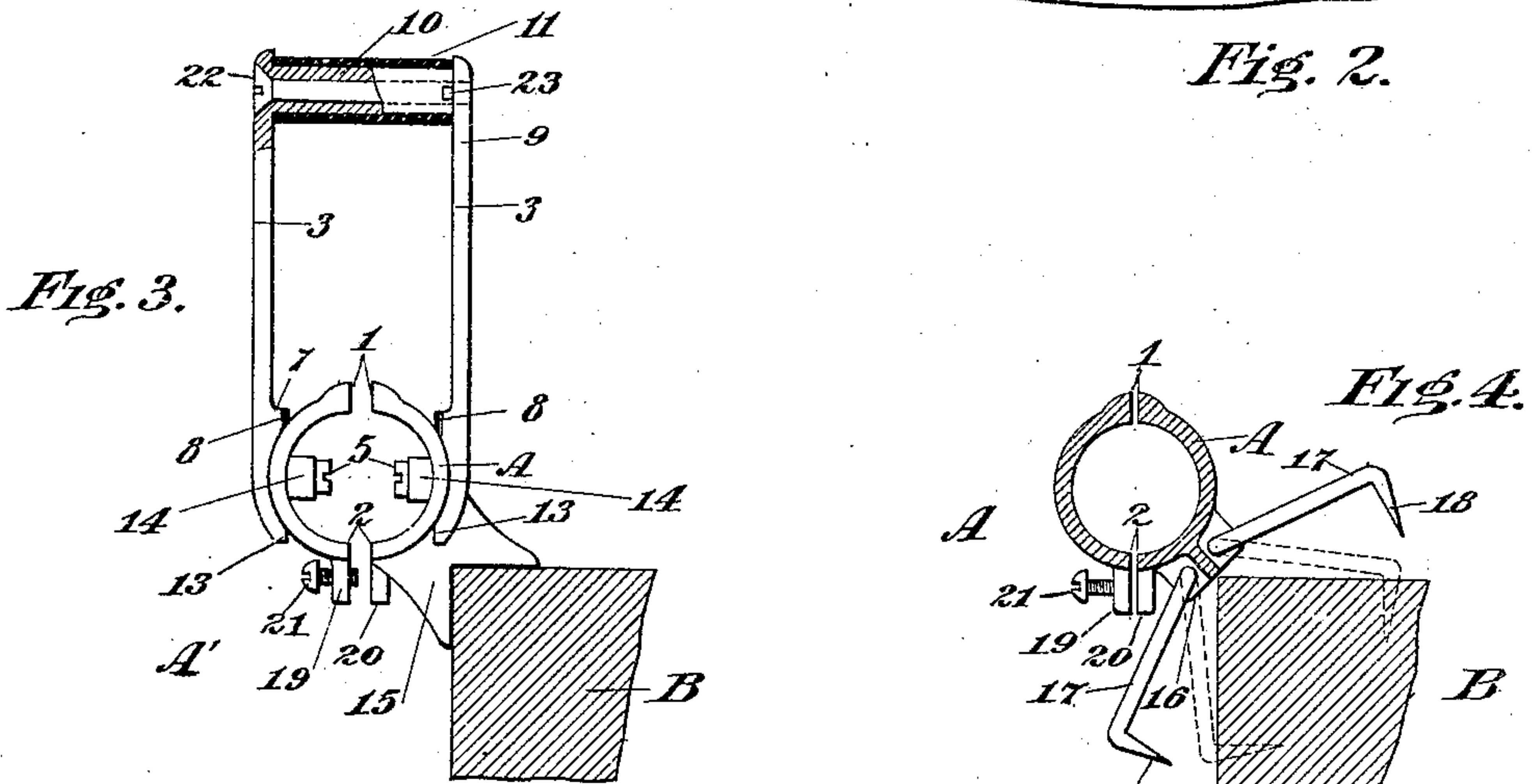
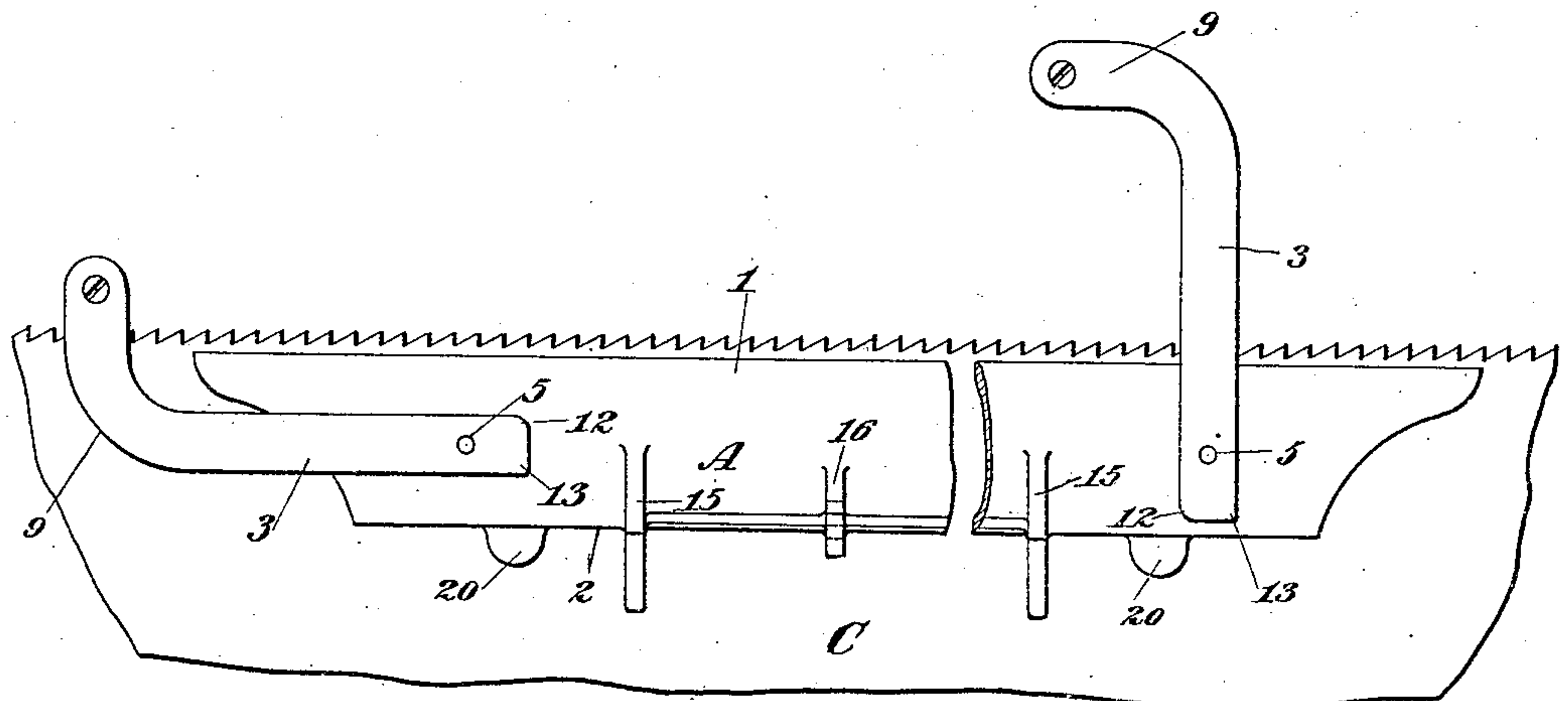
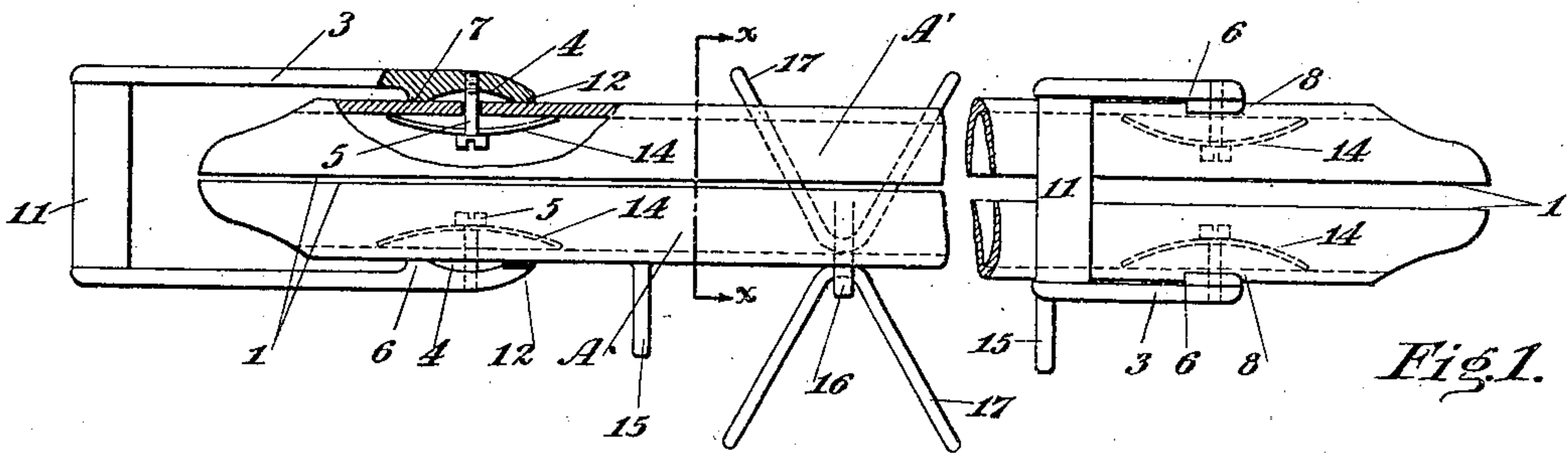


G. McKENZIE.
SAW FILING CLAMP.
APPLICATION FILED NOV. 2, 1908.

940,045.

Patented Nov. 16, 1909.



WITNESSES:
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GEORGE McKENZIE, OF BAY CITY, MICHIGAN.

SAW-FILING CLAMP.

940,045.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE McKENZIE, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Saw-Filing Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to saw filing clamps, one object being the provision of a neat, simple and compact device of this character which can be packed in the usual carpenter's kit.

A further object is the provision of a device of this description which can be easily and quickly set up or taken down.

Still another object is the provision of improved means for easily and quickly advancing and retracting the clamping jaws.

A still further object is the provision of means for adapting the device for thin saws.

To these and other ends, my invention consists in certain novel features and combinations such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of my invention broken in two, the fragment on the left showing the clamp in locked position and the fragment on the right showing the clamp in open position, Fig. 2 is a side view of a device in which my invention is embodied, Fig. 3 is an end view, Fig. 4, is a cross sectional view on line $x-x$ of Fig. 1, and Fig. 5 is a detail of a modified form of lever.

The embodiment of my invention herein shown consists of a pair of concave convex body members A, A' arranged parallel with each other, the upper and lower longitudinal edges of the members register with each other and are faced off parallel to constitute the upper jaws 1, 1 and the lower jaws 2, 2 between which is received the saw C. Member A is preferably stationarily affixed to any suitable support as hereinafter set forth.

As one means for connecting the members A, A' and for causing them to clamp and release a saw, I preferably provide the levers 3, 3 arranged in pairs near the opposite ends of the members. The lower ends of these levers are curved or recessed as at 4, 4 to conform to the convex outer surface of the

members A, A' when the levers are in raised positions. Oppositely extending headed pins 5, 5 pass through the walls of the members from the inside and through the curved ends of the levers 3, 3 to secure them in position. It will be noted that these pins pass through the walls and recessed ends of the levers along the line of the diameter of the corresponding arcs of curvature of the convex walls and the recesses in the levers.

The upper ends of the recessed faces 4, 4 of the levers terminate in shoulders 7, 7, the outer corners 8, 8 of which are rounded off to permit the shoulders to ride over the convex surfaces of the members A, A'. The opposite inner corners 6 of the shoulders are square and operate to limit the movement of the levers in one direction as well as crowding against the members A, A' when the levers are in their horizontal positions.

The outer ends of the levers are preferably offset as shown at 9, 9 to afford room for the saw when the levers are in lowered or locked position and the offset ends are connected by sleeves 10, 10 which may be jacketed in any suitable manner as by means of the rubber tube sections 11, 11 to protect the teeth of the saw from injury when the levers are in their locked positions.

In order to prevent longitudinal movement of the jaw carrying members A, A' relative to each other, I preferably though not necessarily, cast the hollow sleeves 10 integral with one of each pair of levers. The free ends of the sleeves are notched to receive the keys 23 projecting from the adjacent ends of the opposing levers and screws 22 extend through the sleeves and levers to connect the parts rigidly and firmly together.

It will be observed that the sleeves, screws and levers are the sole means of connection between the members A, A'.

In Fig. 5 I have shown a pair of levers cast integral with each other to obviate the use of the screw and sleeve.

The lower inner corners 12, 12 of the levers are also rounded off to permit the levers to ride over the convex surfaces of the members A, A' in one direction, the opposite outer lower corners 13 being squared to cooperate with the corners 6 to prevent movement of the respective pairs of levers toward each other from their vertical positions.

It is obvious that by moving the pairs of

levers from their raised positions, as shown at the right of Figs. 1 and 2 and in Fig. 3, to their lowered positions, as shown at the left of Figs. 1 and 2, the movable members A' will be forced out of the recesses 4, 4 of the levers and moved toward the stationary member A thereby causing the jaws 1 and 2 to tightly grip anything inserted between them. This movement of the movable jaw toward the stationary jaw is caused by the cam action of the ends of the recesses wiping against the curved outer faces of the members A, A', the pins 5, 5 being long enough to permit this movement of the movable jaws toward and from the stationary jaw.

When the levers are swung upward to permit the jaws to separate, the movable jaw may be moved away from the stationary jaw and to insure that they will automatically separate, I preferably provide the springs 14, 14 which are inserted between the headed inner ends of the pins 5, 5 and the inner concave surfaces of the members A, A'. These springs are placed under tension when the levers are swung to their horizontal positions to crowd the movable jaw toward the stationary jaw so that when the levers are raised to cause their recesses to register with the convex outer surfaces of the members A, A', the springs will force such movable member and the levers laterally along the pins 5, 5 to seat the movable jaw in the recesses at the lower ends of the levers secured thereto and simultaneously cause the recesses in the levers, secured to the stationary member, to fit against the curved face of such member. Thus it will be seen that the levers and movable member travel laterally relative to the stationary jaw carrying member and the pins 5, 5 are held loosely in the members to permit such relative movement.

As one means for releasably securing the member A to any suitable support, I provide such member with obliquely extending feet 15 angularly recessed at their outer ends to conform to the corner of a work bench, table or other support. Intermediate the feet is located an apertured car 16 carrying the dogs 17, 17 of any approved style. I have shown such dogs as being substantially V-shaped with offset spurs 18 adapted to take into the support and retain the clamp in position as shown in Figs. 3 and 4.

In filing narrow saws, as keyhole saws for instance, it may be necessary to assist the clamping action of the jaws because the saw is not wide enough to permit both the upper and lower jaws to engage the saw. As one such means I provide the movable member A' with a plurality of apertured lugs 19, 19 depending from the lower jaw and lying opposite similar blind lugs 20 depending from the lower jaw of the stationary member A.

Screws 21 are threaded in the apertured lugs, their ends adapted to impinge against the blind lugs to force the lower jaw of the movable member away from the opposite lower jaw and thereby bring the upper movable jaw closer to its co-acting stationary jaw.

It will be observed that there is no obstacle to the insertion of a saw from beneath between the movable and stationary jaws and its removal therefrom. The headed ends of pins 5, 5 lie within the curvature of the members A, A' and the exterior face of the movable jaw is free from unnecessary projections.

The movable jaw is afforded a travel equal to the combined depths of the recesses 4, 4 of one pair of levers. This travel may be made of greater or lesser extent by making such recesses of more or less depth and it is obvious that the levers secured to the stationary jaw need not be recessed.

Having thus fully disclosed my invention, what I claim as new is:—

1. A saw filing clamp comprising a pair of jaw carrying members, one of which is movable toward and from the other, means for supporting the stationary member, the outer face of one of said members being convex, a lever having a concave recess pivoted to the convex face of the member, the convex face receivable in the concave recess when the lever is in one position, means for pivotally connecting the lever with the opposite jaw carrying member, and means tending to automatically separate the jaw carrying members.

2. A saw filing clamp comprising a pair of jaw-carrying members, the space between which is free and unobstructed, means for supporting one of said members, means lying out of the line of the path of movement of the members for connecting the members, and additional means carried by one of the members and free from and abutting the opposite member for separating the lower edges of the jaw carrying members to force the upper edge of one jaw carrying member closer to the upper edge of the remaining jaw carrying member.

3. A saw filing clamp comprising a pair of jaw carrying members the space between which is free and unobstructed, means for supporting one of said members, a cam lever engaging the opposite jaw carrying member for advancing the latter toward the supported member, an abutment carried by one of the jaws and lying in a plane below the point of engagement of the cam lever with the movable member, and an adjustable element carried by the opposite jaw member and unconnected with and adapted to impinge against the abutment to cause the upper edge of the movable jaw carrying member to approach the upper edge of the supported jaw member more closely.

4. A saw filing clamp comprising a pair of jaw carrying members the space between which is free and unobstructed, means for supporting one of said members, a cam lever
 5 engaging the opposite jaw carrying member for advancing the latter toward the supported member, abutments carried by the supported jaw member on a plane beneath the point of engagement of the cam lever
 10 with the movable member, apertured ears carried by the movable member, the ears lying opposite the abutments, and screws mounted in the ears and contacting with the abutments for separating the lower edges
 15 of the jaw carrying members to force the upper edge of the movable member closer to the upper edge of the supported member, the screws being unconnected with the abutments.

20 5. A saw filing clamp comprising a pair of jaw carrying members one at least of which has a convex outer surface, a headed pin projecting outward through the wall of one of the members, a lever recessed to conform to the outer convex surface of one of
 25 said members, the pin connecting the recessed end of the lever to the member, means connecting the lever to the opposite member, and a spring interposed between the headed
 30 end of the pin and the wall of the member to automatically separate the members when the recessed lever is in position to receive the convex face of the adjacent member.

35 6. A saw filing clamp comprising a stationary and a movable jaw carrying member, one of which is provided with a convex outer face, a lever having a recessed end conforming to the curvature of the convex face, a pin loosely connecting the lever to the
 40 member having the convex face, in such manner that the recess may match with the convex face when the lever is in one position, two diagonally opposite corners of the recessed portion of the lever being reduced to
 45 permit the lever to ride over the convex face of the member, the remaining diagonally opposed corners operating as stops to limit the movement of the lever in one direction, and means pivotally connecting the lever to
 50 the stationary jaw.

7. A saw filing clamp comprising a stationary and a movable jaw member, at least one of which is provided with a convex face, a plurality of levers arranged in pairs, at
 55 least one lever of each pair being recessed to conform to the curvature of the convex face, means for pivotally connecting the levers to the respective jaws, the upper ends of the levers being offset, means rigidly connecting the levers, and a casing receivable
 60 on the connecting means.

8. A saw filing clamp comprising a stationary and a movable jaw member, at least one of which is provided with a convex face,
 65 a pair of levers, at least one lever being re-

cessed to receive the convex face, means for pivotally connecting the lower ends of the levers to the respective jaws, a hollow sleeve extending between the opposite free ends of the levers, means passing through the sleeve
 70 and levers to connect the levers, and interlocking means carried by the sleeve and one of the levers to hold the individual levers of the pair rigidly against relative movement.

9. A saw filing clamp comprising a stationary and a movable jaw, one at least of which is provided with a convex face, a pair of levers, one lever being recessed to receive the convex face of the member when the lever is in one position, means for pivotally
 80 connecting the levers to the respective jaw members, means for rigidly connecting the levers together, and means normally tending to force the movable member away from the stationary member into the recess in the
 85 lever.

10. A saw filing clamp comprising a pair of jaw-carrying members, one of which is movable relative to the other, and one of which is provided with a convex face, substantially U-shaped elements at least one of which is recessed, pins pivotally connecting the U-shaped elements to the respective
 90 faces of the members to allow movement of one of the members relative to the other, when the recessed portion of the lever lies in position to receive the convex face of the jaw, and yielding means for taking up the lateral play of the movable member and
 95 tending normally to hold the members apart.

11. A saw filing clamp comprising a pair of separable jaw-carrying members, one at least of which is provided with a convex face, a substantially U-shaped element, one of the arms of which is recessed, means pivotally connecting the arms of the U-shaped
 105 element to the respective members, the convex face adapted to be received in the recess when the element is in one position, the element adapted to swing longitudinally relative to the members.

12. A saw filing clamp comprising a pair of jaw carrying members, one of which is movable toward and from the other, means for supporting the stationary member, the
 115 outer face of one of the members being convex, the lever having a concave recess, the lever pivoted to the member having the convex face, such convex face receivable in the concave recess when the lever is in one position, and means for pivotally connecting the
 120 lever to the opposite jaw carrying member in such a manner as to leave the space between the members free and unobstructed.

In testimony whereof, I affix my signature
 125 in presence of two witnesses.

GEORGE McKENZIE.

Witnesses:

W. H. PHILLIPS,
 MARSHALL McKEE.