

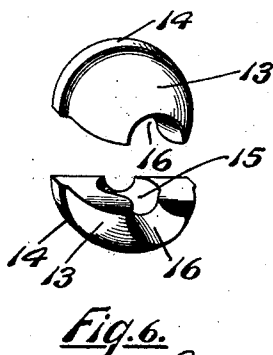
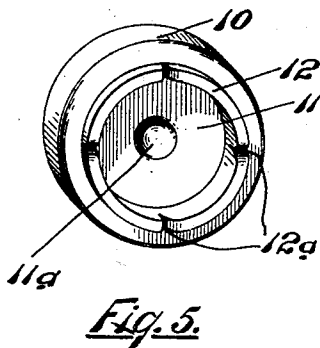
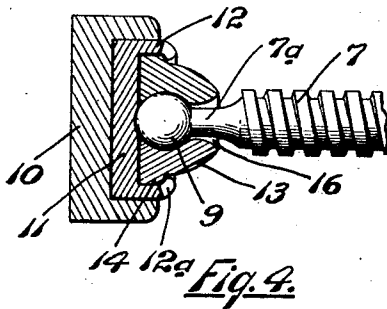
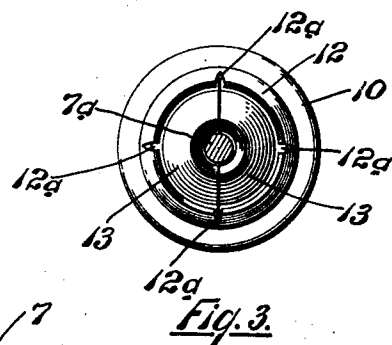
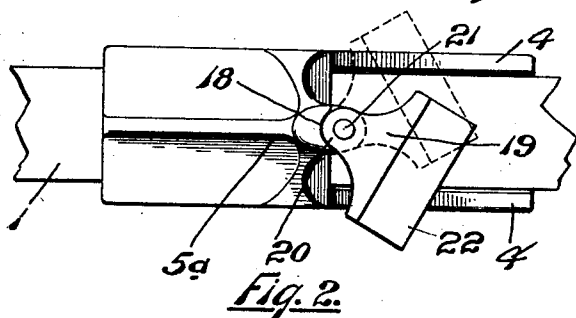
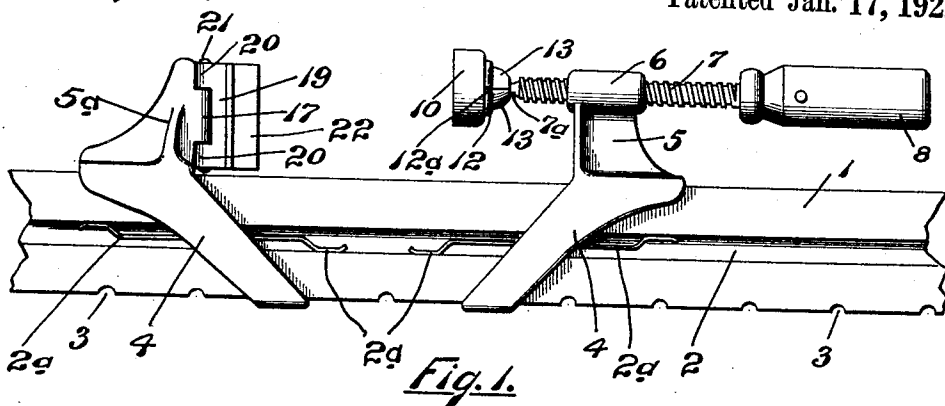
G. G. VENEMA.

CLAMP.

APPLICATION FILED MAY 3, 1920.

1,403,580.

Patented Jan. 17, 1922.



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GEORGE G. VENEMA, OF GRAND RAPIDS, MICHIGAN.

CLAMP.

1,403,580.

Specification of Letters Patent. Patented Jan. 17, 1922.

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To all whom it may concern:

Be it known that I, GEORGE G. VENEMA, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in 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.

This invention relates to clamps and is particularly concerned with novel constructions in clamps used in the manufacture of furniture to hold different parts of different articles in the process of manufacture. It is a primary object and purpose of the present invention to provide new construction for hingedly or swivelly mounting the bearing heads used in the clamps, said novel constructions affording greater strength so that the clamp in use will not break as readily as heretofore, nor become cramped so as to bind and fracture parts used in providing the hinged or swivelled connection for the heads, the invention being directed to constructions tending to greater durability in use, particularly with the severe usage which such clamps must endure. Various other objects and purposes than those enumerated will appear fully and in detail as understanding of the invention is had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a side elevation of a clamp made in accordance with my invention, the supporting bar being shown fragmentarily.

Fig. 2 is a plan view of one of the clamping members of the clamp.

Fig. 3 is a rear elevation of the swivelled clamping head, the rod on which it is mounted being shown in section.

Fig. 4 is a central transverse section through said swivelled head.

Fig. 5 is a perspective view of one part of the swivelled head, and

Fig. 6 is a perspective view of the remaining parts used to make the swivelled clamping head.

Like reference characters refer to like parts in the different figures of the drawing.

In the construction of the clamp, an elongated supporting bar 1 is used, the same having grooves 2 in the sides which extend the full length of the bar, and a plurality

of transverse grooves in the under side. In practice, it may be desirable to use these grooves on both the upper and lower sides, but as the present improvements have no relation thereto, it is not so shown.

Saddles 4 are adjustably mounted on the bar and may be moved to different positions on the same, engaging in the grooves 3. The saddles have integral projections 5 and 5^a as shown on which the clamping heads are mounted.

One of the projections or posts, indicated at 5, is provided with an interiorly threaded sleeve 6 at its upper end through which a screw threaded rod 7 is passed, it being provided with an operating handle 8 at one end. The opposite end of rod 7 beyond the threaded part is reduced as indicated at 7^a and terminates in a spherical ball 9 as shown.

The clamping head is swivelly mounted on the ball 9. It includes a face member 10 of wood or similar material in which a metal cup having a base 11 and sides 12 is seated, the sides at their outer edges being notched as indicated at 12^a in a plurality of places. This cup is designed to receive two connecting members 13 each substantially a quarter of a sphere and which have flat faces so that the same may be brought together and placed in the cup. At their base portions, the parts 13 are formed with outstanding annular projections 14 over which the edges of the sides 12 between the notches 12^a may be turned to retain said parts 13 in place. The parts 13 are interiorly cut out to form recesses to loosely receive the ball 9, as indicated at 15, and are further cut away, as indicated at 16 for the passage of the reduced portion 7^a of rod 7.

This construction for swivelly connecting the clamping head to rod 7 is exceptionally strong and practically unbreakable in use. The extra length of the securing lips of the sides 12 between the notches 12^a makes for additional strength in connecting the members 13 to the face member 10 of the head, the parts 13 are of sufficient strength to preclude their rupture and the separation of the head from the rod 7. The connection of the head to the rod is very strong and sufficiently so to withstand any strain which may be put thereon, even with the very severe usage which it must undergo in practice.

The projection or post 5^a on the other

saddle is formed with an integral projecting portion 17 disposed between the upper and lower ends of the post. Above and below said portion 17, the post is concaved as indicated at 18, and a head 19 is disposed in front of the post, having two ears 20, one passing above the portion 17 and the other below. These ears are rounded to substantially fit the concaved recesses 18. A hinge 10 pin 21 passes downwardly through ears 20 and the projecting portion 17. A face member 22 of wood or similar material is secured in any suitable manner to the head 19.

A clamp made with heads in the manner described is particularly durable and efficient, the heads moving to accommodate material between them irrespective of the angle at which the sides of the material lies. These clamps heretofore have been prone to breakage due to the weakness of construction in the pivotal or swivelled connection thereof to the remainder of the clamp. The present constructions are very strong and

durable and last for long times. The invention is defined in the appended claims 25 and I consider myself entitled to all forms of construction coming within their scope.

I claim:

In a clamp, a support, a rod adjustably mounted therethrough, said rod terminating at one end in a ball, a head on said end of the rod comprising a facing member, a cup to which said facing member is secured having a diameter greatly in excess of the diameter of the ball, connecting means comprising two parts each approximately a quarter of a sphere seated in the cup, said parts being formed with annular projections at their inner portions where seated in the cup, the edges of the cup being turned inwardly over said annular projections, and said ball being loosely received between the two parts of the connecting means. 30 35 40

In testimony whereof I affix my signature.

GEORGE G. VENEMA.