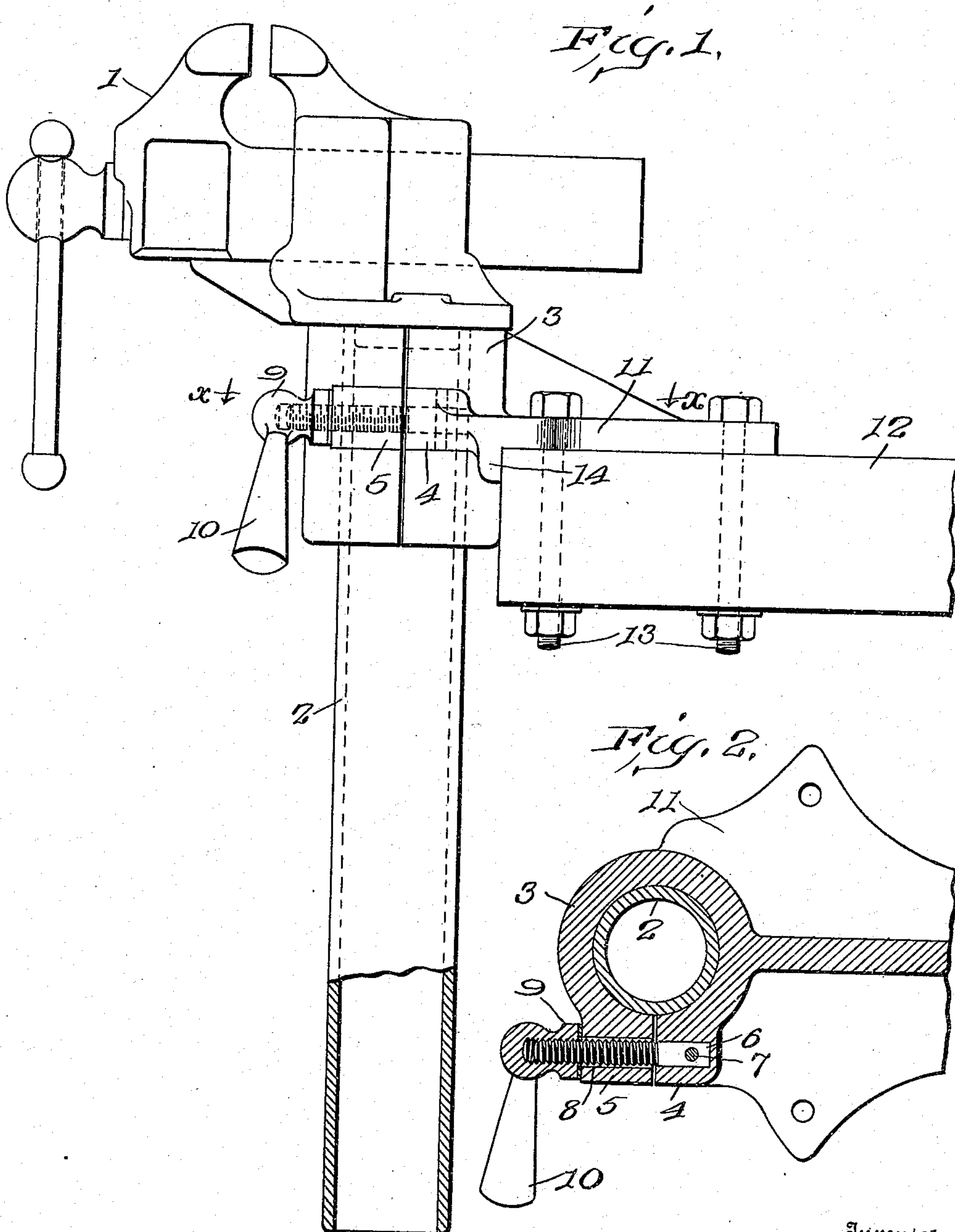


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ADJUSTABLE VISE.  
APPLICATION FILED JUNE 24, 1908.

930,687.

Patented Aug. 10, 1909.

3 SHEETS—SHEET 1.



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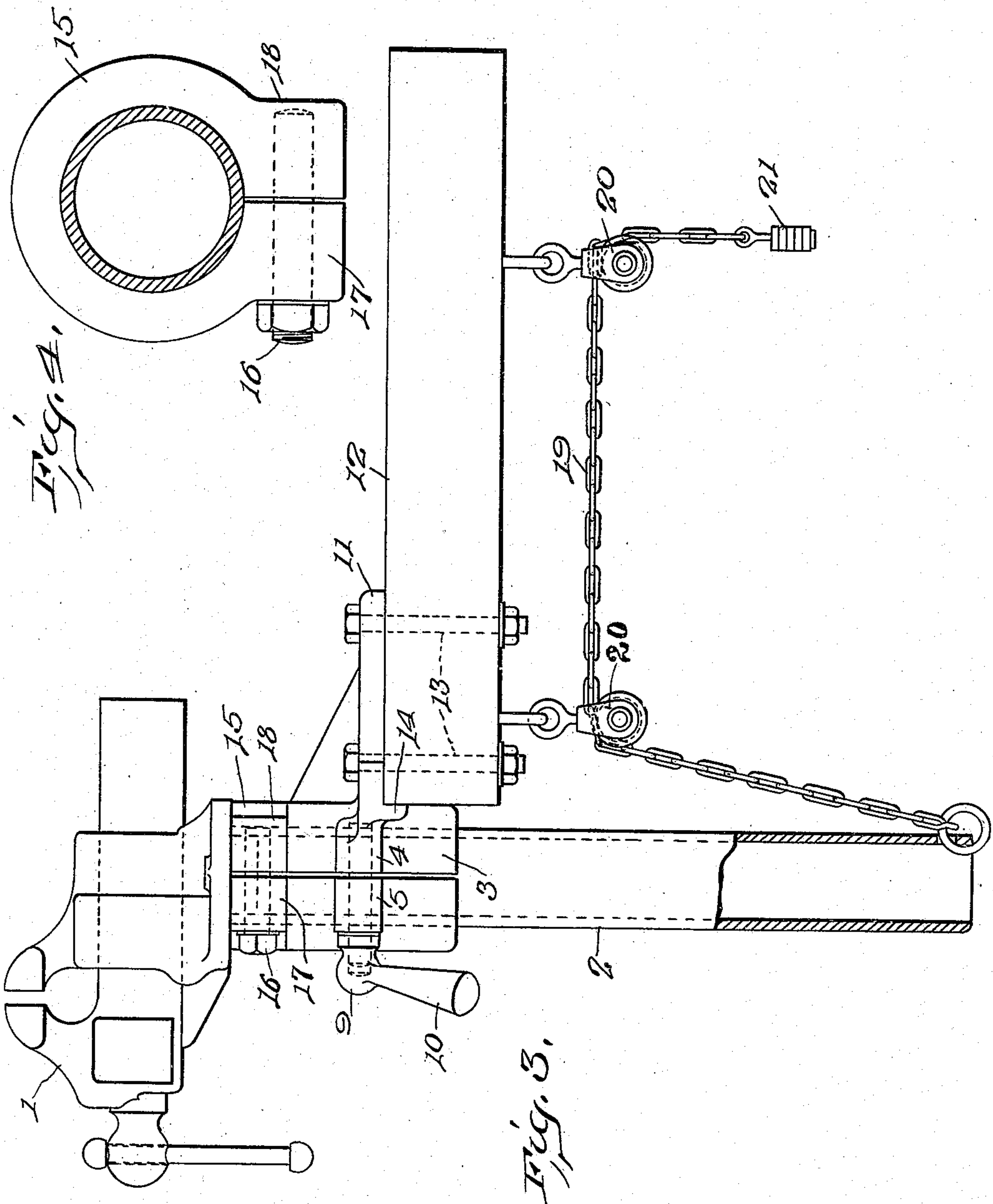
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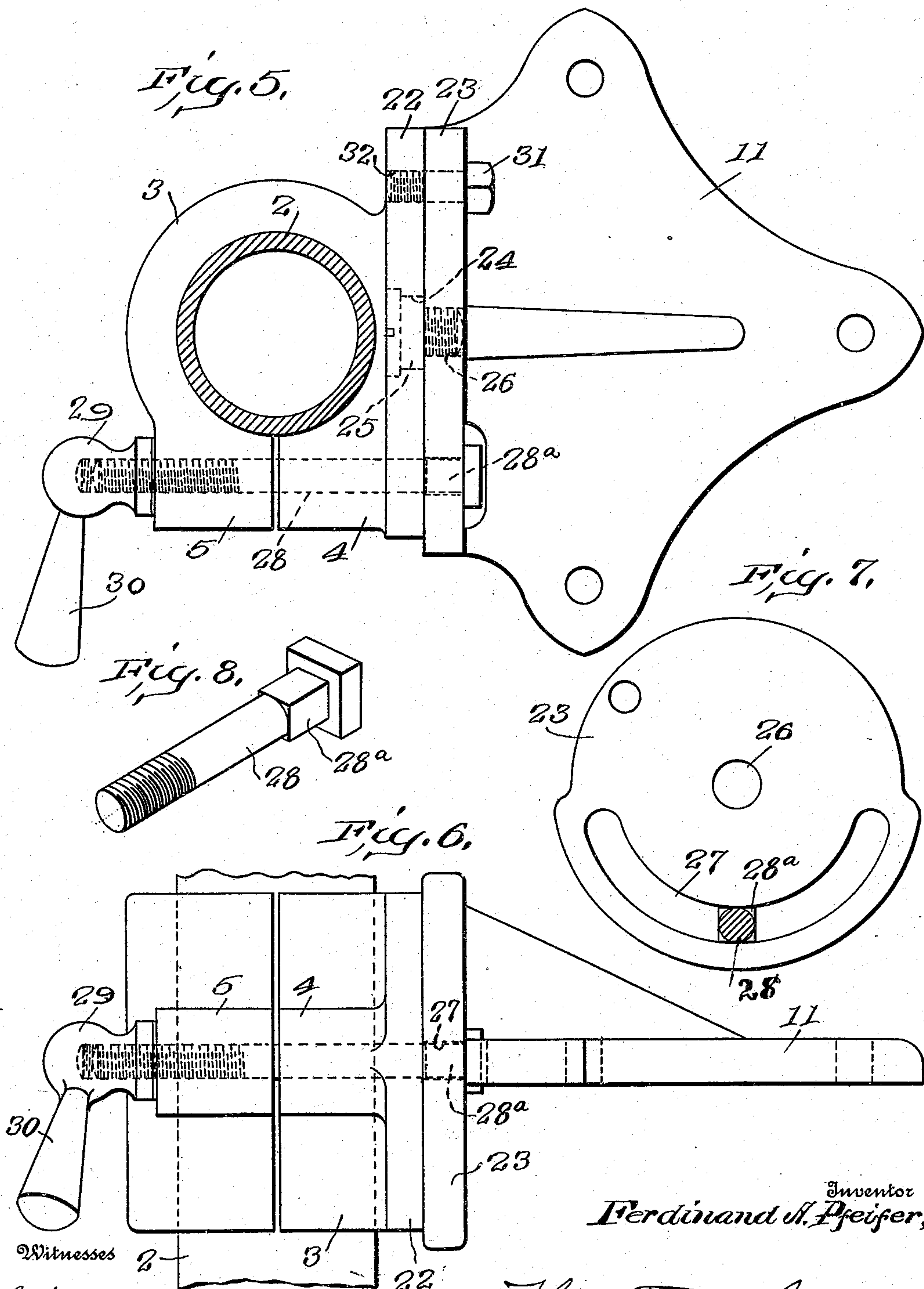
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## ADJUSTABLE VISE.

No. 930,687.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed June 24, 1908. Serial No. 440,062.

*To all whom it may concern:*

Be it known that I, FERDINAND A. PFEIFER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Adjustable Vises, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to adjustable vises, and the object of the invention is to provide a support for a vise of this character which will permit of the vise being adjusted vertically and about a vertical axis, and by  
15 means of which it may be locked at any desired point of adjustment; to provide means for holding the vise against vertical adjustment while the same is being adjusted about a vertical axis; to provide means to  
20 facilitate the vertical adjustment of the vise; to provide means for adjusting the vise about a horizontal axis, as well as to adjust the same vertically and about a vertical axis; to provide a single means for controlling all of said adjustments; and fur-  
25 ther, to so construct the vise and its support as to render the same strong and durable, and, at the same time, of a minimum weight.

30 With these objects in view my invention consists in certain novel features of construction and in certain combinations and arrangements of parts to be hereinafter described, and then more particularly pointed  
35 out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a vise embodying my invention; Fig. 2 is a transverse sectional view, taken on the line  $x-x$  of Fig. 1 and  
40 looking in the direction of the arrows; Fig. 3 is a side elevation of a vise embodying means for facilitating the adjustment thereof; Fig. 4 is a detail view of the locking collar; Fig. 5 is a top plan view of a modified form of support for the vise; Fig. 6 is  
45 a side elevation of the same; Fig. 7 is a detail view of the fixed supporting plate; and Fig. 8 is a detail view of the locking bolt.

In Figs. 1 and 2 of these drawings I have  
50 illustrated the preferred form of my invention and have shown the same as comprising a vise 1 of the usual construction and provided with a depending stem or standard 2 which may be secured thereto in any  
55 suitable manner. This stem is preferably

circular in cross section and is, in the present instance, tubular, thereby embodying the necessary strength and affording sufficient circumferential surface for the action of the clamping device, and, at the same time, maintaining the vise at a minimum weight. 60 This stem is mounted in a suitable support which is here shown as a split sleeve 3 having lugs 4 and 5 on the opposite sides of the opening therein, the lug 4 having a recess 65 adapted to receive the end of a bolt 6 which is rigidly secured therein by means of a pin 7, and the lug 5 having an aperture 8 through which the screw-threaded end of the bolt extends. This screw-threaded end 70 projects beyond the lug 5 and is adapted to receive a nut 9 having a handle 10 for actuating the same. Thus, by tightening the nut on the bolt, the split sleeve will be tightened about the stem 2 and the vise held 75 against all movement relative to the support. This sleeve may be of any suitable width, but I have here shown the same of considerable width that it may engage a considerable portion of the stem 2 and more 80 firmly support the same than would a narrow sleeve or collar.

The split sleeve is provided with means for securing the same to a bench or other support, which, in the present instance, comprises a horizontal plate 11, preferably 85 formed integral with the sleeve and adapted to be secured to a bench 12 by means of bolts 13. This plate is provided at a point near the sleeve 3 with a depending flange 14 90 adapted to engage the edge of the bench, and, to a large extent, relieve the bolts 13 of the strain imposed on the vise. Thus, it will be seen that by loosening the nut 9 the split sleeve will spring apart, owing to 95 the resiliency of the material of which it is composed, a sufficient distance to permit the stem to be moved, either vertically or about a vertical axis, within the sleeve, and that, when the vise has been adjusted to the desired position, the tightening of the nut 9 100 upon the bolt will clamp the sleeve tightly about the stem 2 and rigidly secure the vise in its adjusted position, the construction being such as to permit of very fine adjustments of the vise. 105

It is sometimes desirable to provide a vise with means for holding the same in its vertically adjusted position while it is being moved about a vertical axis, and, to this end, 110



I have provided the stem 2 with a split collar 15 adapted to be secured thereto above the split sleeve 3 and to be clamped thereto at any desired point by means of a bolt 16 extending through an apertured lug 17 and engaging the screw-threaded recess in the lug 18. By clamping the split collar 15 upon the stem 2 close to the split sleeve 3 after the vise has been adjusted to the desired vertical position, it will be seen that the loosening of the split sleeve 3 will not affect the vertical position of the vise, but will permit the same to be rotated about its vertical axis. When it is not desired to use the collar it can either be moved up close to the vise or entirely removed from the stem 2.

In Fig. 3 I have also shown means for facilitating the vertical adjustment of the vise, this being preferably accomplished by counterweighting the vise. In the present instance, I have shown a chain 19 secured to the stem 2 near the lower end thereof and extending about suitable guides 20 secured to the lower side of the bench 12 and provided at its opposite ends with weights 21.

In performing certain classes of work it is desirable that the vise should be adjusted about a horizontal axis, as well as adjustable vertically and about a vertical axis. In order to permit of such adjustment of the vise I have provided means for adjusting the split sleeve 3 about a horizontal axis. This I preferably accomplish by forming the sleeve 3 and the supporting plate 11 in separate pieces and providing the adjacent edges thereof with supporting plates 22 and 23. The movable plate 22 carried by the sleeve 3 is provided with a central bearing aperture 24 adapted to receive a bearing screw 25, the screw-threaded portion of which is adapted to engage a screw-threaded aperture 26 in the fixed plate 23, carried by the horizontal supporting plate 11 which is adapted to be secured to the bench. Thus, the movable plate 22, the sleeve 3 to which it is secured, and the vise which is carried by the sleeve 3 may all be moved about the horizontal axis. In order to control this horizontal movement I preferably provide the fixed plate 23 with a curved slot 27 adapted to receive a squared portion 28<sup>a</sup> of a bolt 28 which extends through the slot 27 and through lugs 4 and 5, these lugs being, in the present instance, both provided with apertures to permit the free passage of the bolt 28 through the same. The screw-threaded end of the bolt extends beyond the lug 5 and is adapted to receive a nut 29 having a handle 30 for actuating the same. By this arrangement of the parts, the tightening and loosening of the nut 29 on the bolt 28 controls the three movements of the vise, that is, it locks the plates 22 and 23 against movement relatively one to the other and thereby holds the vise against move-

ment about a horizontal axis; it clamps the split sleeve 3 tightly about the stem 2 and thus locks the vise against vertical adjustment and against movement about a vertical axis. When it is not desired to adjust the vise about a horizontal axis, the supporting plates 22 and 23 may be locked rigidly together by means of a bolt 31 extending through an aperture in the plate 23 and engaging a screw-threaded aperture 32 in the movable plate 22, thus rigidly securing the vise against movement about a horizontal axis.

Thus, it will be seen that I have provided a vise which is capable of three distinct adjustments, that is, it may be adjusted vertically relative to its support and may be adjusted about a vertical axis or about a horizontal axis, and I have provided a single means for controlling all of these adjustments and that I have provided means for locking the vise against movement about its horizontal axis and other means for securing the same against vertical movement when it is desired to adjust the same about a vertical axis. Further, that I have provided means for securing the support of the vise to the bench without cutting or mutilating the bench in any manner other than the forming of three apertures therein to receive the bolts; and that I have so constructed the vise and its support as to render the same strong and durable without materially increasing the weight thereof.

I wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem, means for tightening and loosening said sleeve about said stem, and a stop adjustably mounted on said stem above said split sleeve.

2. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem, means for tightening and loosening said sleeve about said stem, a split collar mounted on said stem above said sleeve, and means for clamping said collar about said stem.

3. In a device of the character described, the combination, with a vise, of means for adjusting said vise either vertically, about a horizontal axis or about a vertical axis, and a single means for controlling all of said adjustments.

4. In a device of the character described, the combination, with a vise, and a stem de-



pending therefrom, of a support adapted to engage said stem to permit the same to be adjusted vertically or about a vertical axis, and means for adjusting said support about  
5 a horizontal axis.

5. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem and be tightened and  
10 loosened thereon, and means for rotating said sleeve about a horizontal axis.

6. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem, means for tightening  
15 and loosening said sleeve about said stem, a supporting plate carried by said sleeve, a fixed supporting plate adapted to be secured to a bench, and means for pivotally connect-  
20 ing said first-mentioned supporting plate and said fixed plate one to the other.

7. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem, a fixed support, means  
25 for pivotally connecting said sleeve to said fixed support, and means for simultaneously controlling the movement of said sleeve about its pivotal center and for tightening  
30 and loosening said sleeve about said stem.

8. In a device of the character described, the combination with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem and having apertured  
35 lugs on the opposite sides of the opening therein, a fixed plate having a slot therein, means for pivotally connecting said sleeve to said plate, a bolt extending through said

slot and through said apertured lugs, and a nut mounted on the end of said bolt beyond  
40 said apertured lugs.

9. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem and having apertured  
45 lugs on the opposite sides of the opening therein, a vertically arranged bearing plate carried by said sleeve, a second bearing plate mounted on a fixed support and hav-  
50 ing a curved slot therein, means for pivotally connecting said plates one to the other, a bolt extending through said slot and through said apertured lugs, and a nut  
55 mounted on the end of said bolt beyond said lugs.

10. In a device of the character described, the combination, with a vise, and a stem depending therefrom, of a split sleeve adapted to engage said stem and having apertured  
60 lugs on the opposite sides of the opening therein, a vertically arranged bearing plate carried by said sleeve, a second bearing plate mounted on a fixed support and having a  
65 curved slot therein, means for pivotally connecting said plates one to the other, a bolt extending through said slot and through said apertured lugs, a nut mounted on the  
70 end of said bolt beyond said lugs, and means for locking the plate carried by said sleeve against movement about its pivotal center.

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

FERDINAND A. PFEIFER.

Witnesses:

J. FRED ANDERSON,  
EDWARD F. REED.