C. F. SCHMELZER.

MILLING MACHINE ATTACHMENT.

APPLICATION FILED APR. 27, 1918.

1,340,741.

Patented May 18, 1920.

3 SHEETS—SHEET 1.

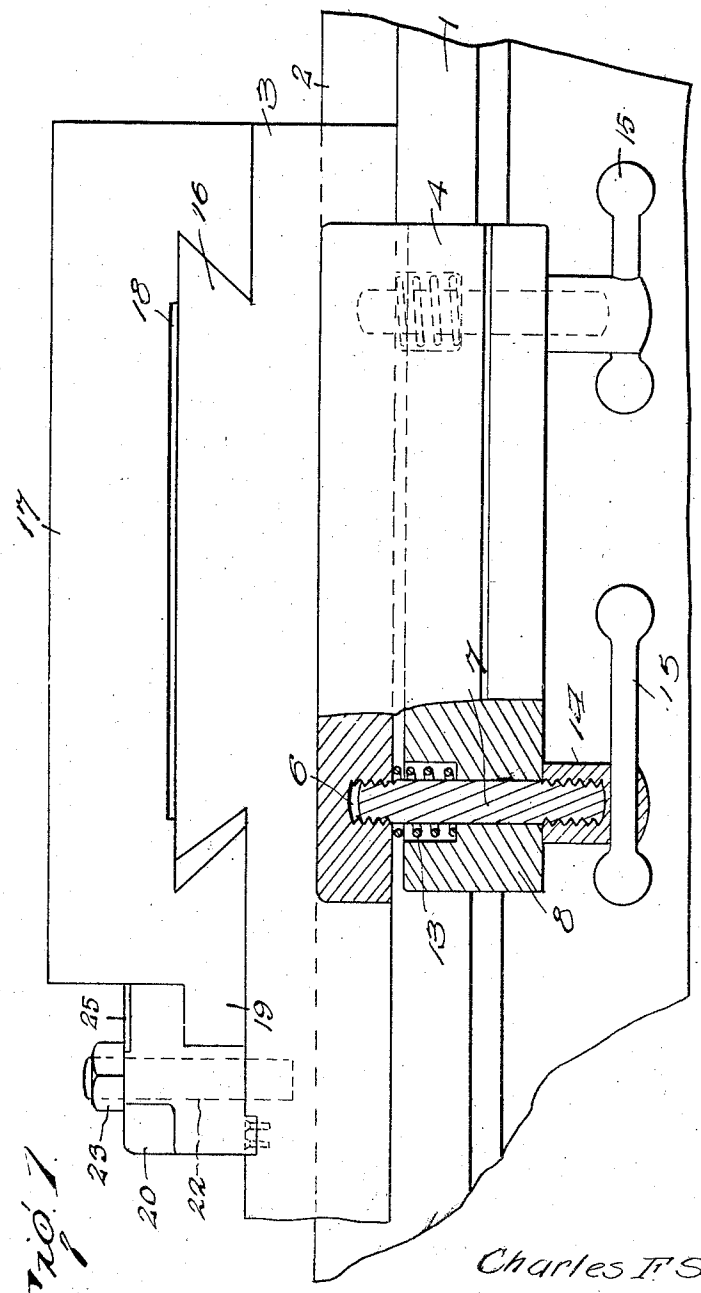


Fig. 1.

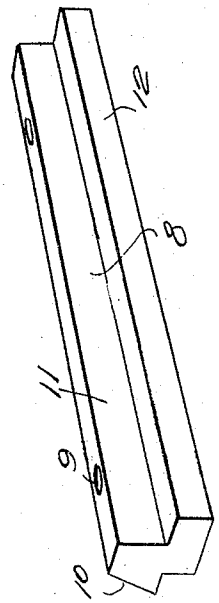


Fig. 4.

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3 SHEETS—SHEET 2.

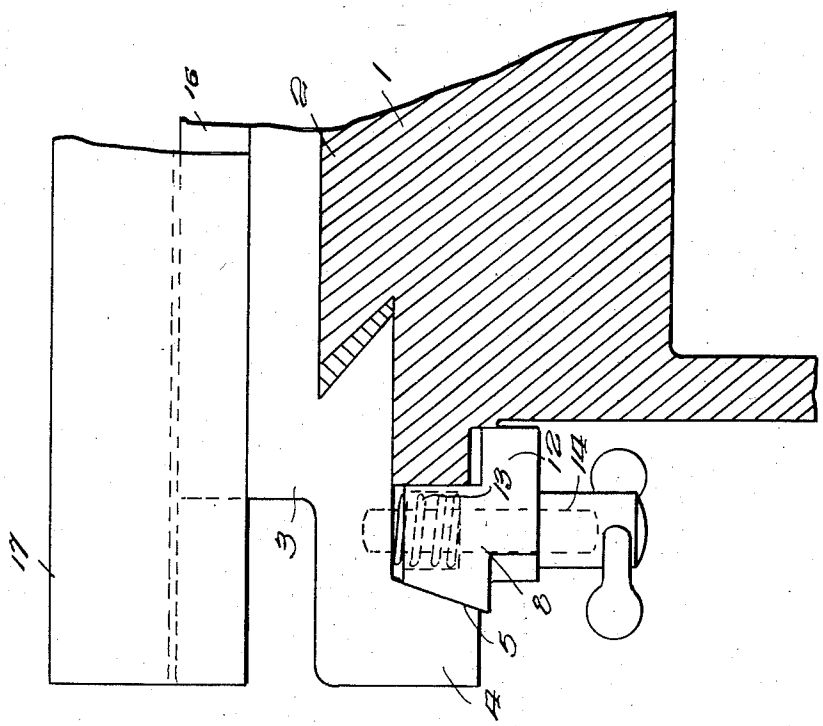


Fig. 2.

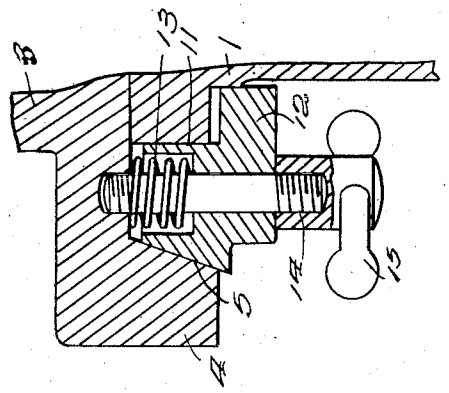


Fig. 3.

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MILLING MACHINE ATTACHMENT.

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3 SHEETS—SHEET 3.

Fig. 5.

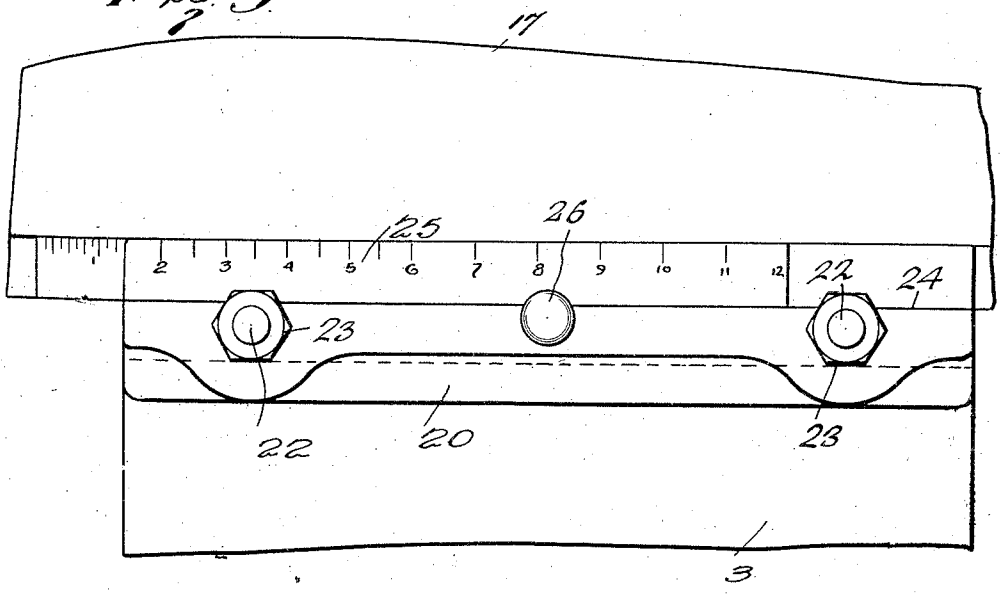
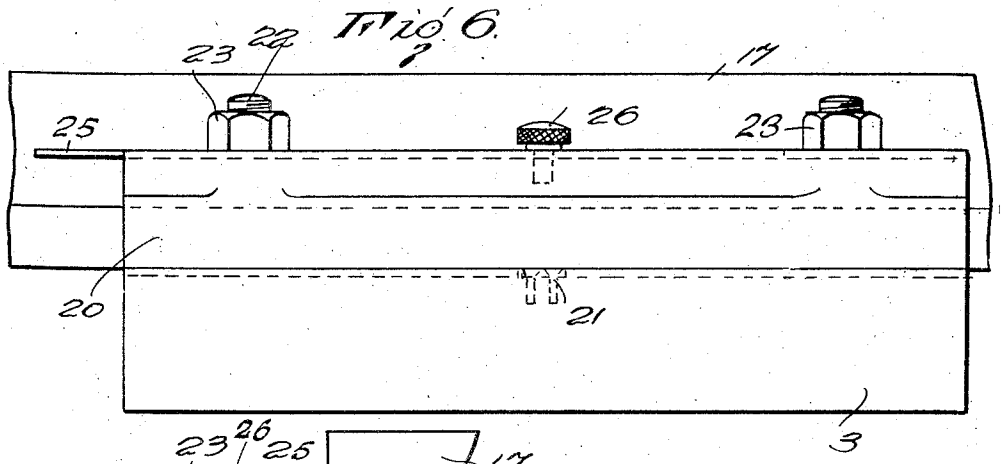


Fig. 6.



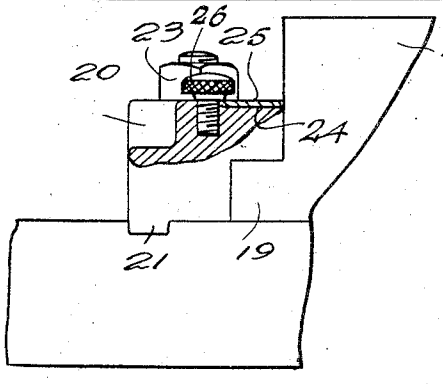


Fig. 7.

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UNITED STATES PATENT OFFICE.

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MILLING-MACHINE ATTACHMENT.

1,340,741. Specification of Letters Patent. Patented May 18, 1920.

Application filed April 27, 1918. Serial No. 231,136.

To all whom it may concern:

Be it known that I, CHARLES F. SCHMELZER, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Milling-Machine Attachments, of which the following is a specification.

This invention relates to new and useful improvements in milling machine attachments and the primary object of the invention is to provide a clamping means for securely holding the transverse and longitudinal tables of a vertical milling machine during the operation thereof.

Another object of the invention is to provide an adjustable clamping mechanism associated with the knee and longitudinally movable table of a vertical milling machine, which is adapted to limit the transverse play of the table so as to take the place of the conventional gib ordinarily employed to accomplish this purpose.

A further object of the invention is to provide a device of this character which is easily and simply constructed, inexpensive to manufacture, and one which will be very efficient in operation.

With these and numerous other objects in view, my invention consists of the novel features of construction, combination and arrangement of parts which will be herein referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings:

Figure 1 is a side view of the attachment showing a portion of the clamping means in section,

Fig. 2 is an end elevation thereof,

Fig. 3 is a vertical section through the clamping means and overlapping edge of the table,

Fig. 4 is a detail perspective of the wedge clamping strip,

Fig. 5 is a top plan view of the clamping means between the two tables,

Fig. 6 is a side elevation thereof, and

Fig. 7 is a vertical section through a portion of this clamping connection.

In describing my invention, I shall refer to the drawings in which similar reference characters designate corresponding parts throughout the several views.

The numeral 1 designates the knee of a milling machine of the vertical type which is stationary and which is provided with the usual type of guide 2 upon which the longitudinally movable table 3 is slidably mounted. The table 3 is provided with a projecting overlapping edge 4 having its inner face 5 inclined, and spaced from the adjacent side of the knee of the machine. The horizontally projecting portion of the table 3 adjacent the side of the knee is provided with a plurality of internally threaded apertures 6 therein which are adapted to receive the ends of bolts 7 that depend therefrom in the space between the overlapping edge 4 and the side of the knee.

Slidably mounted on the bolts 7 is a wedge clamping strip 8 which is provided with a plurality of apertures 9 therethrough, in which the bolts 7 are positioned and said strip has its outer face inclined as shown at 10 to form a coöperative wedge with the inclined inner face 5 of the overlapping edge 4, while the other face 11 of said strip is straight and is engageable with the outer side of the knee 1. The inner side of the strip 8 is provided with a laterally projecting portion 12 positioned beneath the projecting side of the knee as is clearly shown in Fig. 2 of the drawings. The upper ends of the openings 9 through the strip are provided with countersunk portions in which are positioned coil springs 13 for a purpose to be hereinafter more fully described.

The lower ends of the bolts 7 are externally threaded and adapted to be positioned thereon are internally threaded cap members 14 that are provided with turning rods 15 positioned through their lower ends so that the caps may be readily rotated to adjust the strip 8. This adjustment will be against the tension of the springs 13 so that the same will always tend to throw the strip downwardly so as to permit the attachment to be adjusted as the caps 14 are withdrawn.

The upper surface of the longitudinally movable table 3 is provided with a dove-tail 16, and slidably mounted thereon is a transversely adjustable table 17 provided with a dove-tail slot 18 in its lower face engageable with the dove-tail 16 on the table 3. The table 17 is smaller than the longitudinally movable table 3 and said first mentioned table is provided with a projecting portion 19 along one side thereof, while positioned on the top of the table 3 and overlying the projecting portion 19 is a clamping strip 20 secured to the table 3 by a stud

21 and bolts 22 which project through said strip and are positioned in the table 3. Upon the upper ends of the bolts 22 are clamping nuts 23 which may be adjusted so as to cause the strip to clamp the tables against relative movement. The strip 20 is provided on its inner face with a longitudinally extending groove 24 which has slidably mounted therein a scale 25 which is held against accidental displacement by a set-screw 26 which is engageable with one side portion thereof. By loosening the screw 26, the scale 25 may be removed for the convenience of the operator of the machine in measuring work adjusted positions with respect to the strip 20.

In operation, when the various parts of the device are assembled as is clearly shown in Figs. 1 and 2 of the drawings, the clamping strip 8 is shown in operative position, and the longitudinally movable table will be securely locked to the knee 1 of the machine during the operation. The transversely movable table 17 is then securely locked to the table 3 by clamping down the strip 20 so that the various movable parts will be secured together on the knee of the machine. By adjusting the clamping strip 8 vertically the conventional type of gib that is ordinarily inserted between the guiding means of the table and the knee, may be dispensed with. The coöperative faces 5 and 10 of the edge 4 and strip 8 act as a wedge to securely lock the table 3 and it is obvious that when the strip 8 is withdrawn the transverse movement or play of the table 3 necessary will be permitted. Tightening the strip 8 into position between the edge 4 and the knee will compress the spring 13 so that upon the caps being withdrawn the strip will be projected outwardly.

The adjustment of the transversely movable table 17 on the longitudinally movable table enables the tables to be securely clamped together so that they will be as a single unit and as the lower table 3 is securely clamped to the knee of the machine, the various parts will be held stationary during the milling operation.

From the foregoing description taken in connection with the accompanying drawings, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of my invention may be had, and while I have shown and described the device as embodying a specific structure I desire that it be understood that such changes may be made in said structure as do not depart from the spirit and scope of the invention as claimed.

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

1. The combination with a milling machine having a stationary knee, a table slidable longitudinally thereon, an overlapping spaced edge on said table along one side thereof, and a clamping strip adjustable between said edge and the side of the knee.

2. The combination with a milling machine having a stationary knee, a table slidable longitudinally thereon, an overlapping spaced edge on said table along one side thereof, and a wedge clamping strip adjustable between said edge and the side of the knee.

3. The combination with a milling machine having a stationary knee, a table slidable longitudinally thereon, an overlapping spaced edge on said table along one side thereof, the inner face of said edge being inclined, and a clamping strip having a cooperative inclined face adjustable between said edge and the side of the knee.

4. The combination with a milling machine having a stationary knee, a table slidable longitudinally thereon, a projecting overlapping spaced edge on one side of said table, depending bolts between said overlapping edge and side of the knee, a spring pressed wedge locking strip slidably mounted on said bolt, and means carried by the lower end of said bolt to adjust the strip thereon.

5. The combination with a milling machine having a stationary knee, a table slidable longitudinally thereon, means to clamp the table against movement with relation to the knee, and means normally tending to move the clamping means to inoperative position to permit movement of the table with relation to the knee.

In testimony whereof I affix my signature hereto.

CHARLES F. SCHMELZER.