(No Model.)

F. D. SKEEL.

MILLING ATTACHMENT FOR LATHES.

No. 478,244. Patented July 5, 1892.

Fig. 1

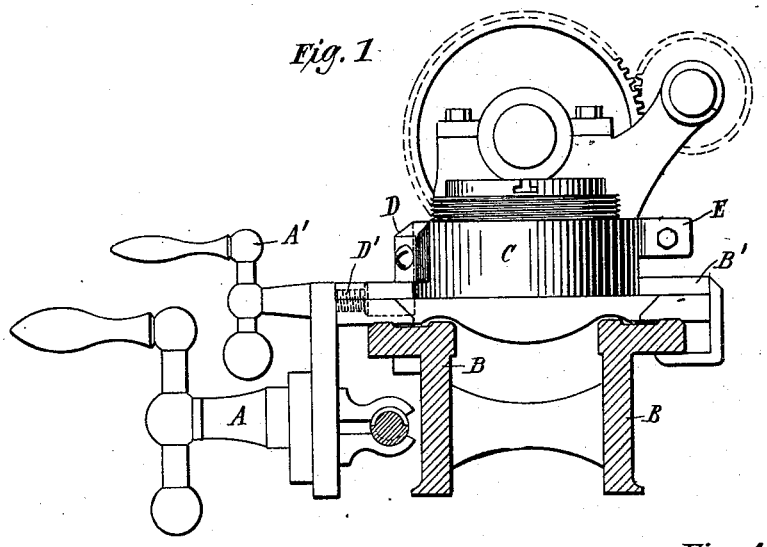


Fig. 2

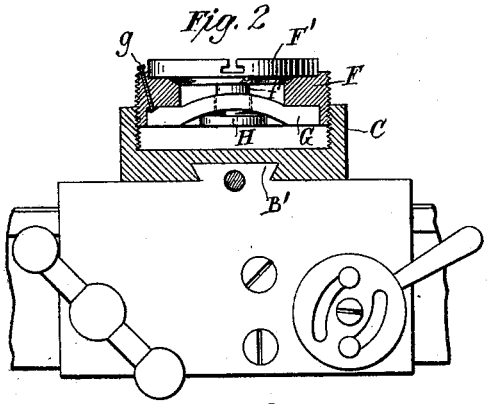


Fig. 4

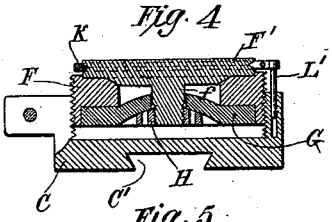


Fig. 5

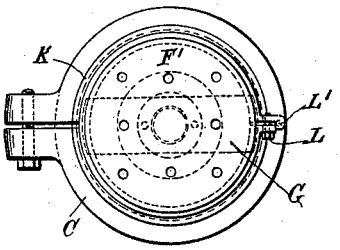


Fig. 3

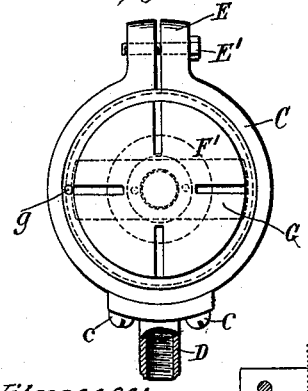


Fig. 6

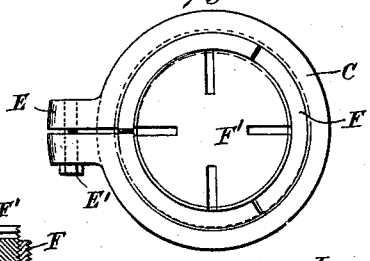
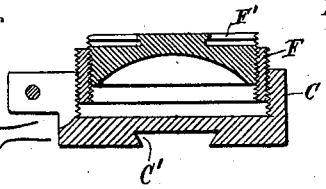


Fig. 7



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MILLING ATTACHMENT FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 478,244, dated July 5, 1892.

Application filed November 25, 1891. Serial No. 413,039. (No model.)

To all whom it may concern:

Be it known that I, FRANK D. SKEEL, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Milling Attachments for Lathes, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

This invention relates to devices to be used on the cross-feed slide-rest of a lathe in place of the tool-holder which is commonly employed and which is moved in opposite directions transversely to the main feed or slides.

The device or attachment is in the nature of a table or face-plate to which the work or part to be cut or milled is to be attached, and it is constructed with a view to its angular and vertical adjustment relatively to the lathe-centers, so that work of varying and irregular character may be done with the ordinary lathe.

The improvement in such devices which I have made the subject of this specification involves the use of a hollow cylindrical part or base provided with a dovetail groove to fit the cross-slide, to which base is secured a suitable socket or nut for engagement with the cross-feed screw. The interior of said cylinder-base is threaded, and a ring is inserted therein which supports a face-plate or bed, to which the material to be operated upon by the milling tool or cutter which is carried on a mandrel between the lathe-centers is secured. Across the bottom of the said ring extends a bridge with a space beneath it for containing a nut that engages with a screw-stem or projection extending from the under side of the face-plate through a perforation in the bridge. A suitable device is provided for depressing one end of the bridge, whereby it will bear upon the upper side of the nut and bind the face-plate firmly in its seat. Provision is also made for clamping together the base and the ring and, when desired, for preventing the rotation of the face-plate while turning the ring, which forms its seat for raising or lowering the same.

The details of the most desirable and practicable form of device embodying the invention which I have devised are illustrated in the accompanying drawings.

Figure 1 is a view in elevation of a portion of a lathe with my improvements attached, the shears being shown in section. Fig. 2 is a view in elevation and part vertical central section of the device in position on the lathe. Fig. 3 is a plan view of the same. Fig. 4 is a central vertical section of the attachment with the addition of a device for preventing the rotation of the face-plate relatively to the base. Fig. 5 is a plan view of Fig. 4. Fig. 6 is a plan view of a modification of the base and ring. Fig. 7 is a central vertical section of the same.

Fig. 1 shows portions of an ordinary metal-working or similar lathe, in which—

A is the crank for regulating the longitudinal feed, and A′ that for the cross-feed of the usual tool-holder.

B B are the shears or bed upon which the head-stock or puppets slide.

B′ is the dovetail guide upon which the slide-rest moves transversely.

C is a hollow cylindrical base or socket closed at the bottom, across which is cut a dovetail groove C′ for the reception of the guide B′. Attached by screws *c* or otherwise to the base C is a threaded socket or nut D, with which the cross-screw D′ engages. The upper portion of the cylindrical base C is split and provided with lugs E, which by means of a screw E′ may be drawn together to clamp or bind the parts inserted in the base, as hereinafter described. The interior of the base C is threaded, and screwing into it is a ring F, which forms a socket or bearing for a face-plate or bed F′, which is provided with the usual grooves or holes for the devices by which the material to be operated on is secured in position. When screwed down, this ring should be flush with the edge of the base C, the upper surface of the face-plate being slightly above the upper edge of the base.

G is an arched bridge-piece that extends across the bottom of the threaded ring F. The ends of this bridge lie in recesses cut in the lower edges of the said ring and are flush with its lower side. The bridge is curved so as to leave space for a nut H below it, the

bottom of which is also flush with the lower edge of the ring. From the center of the under side of the face-plate F′ a threaded stem *f* extends downward through an opening in the bridge and engages with the nut. A hole is tapped in one side of the ring F, extending down through the same to the recess in which one end of the bridge lies. A screw *g* is fitted into this hole, and when tightened forces the end of the bridge down upon the nut with a lever action, which in turn holds the face-plate down in its seat and binds it firmly to the ring F. By turning the ring in the base C the vertical adjustment of the face-plate is obtained, and after its adjustment it is fixed in position by turning the screw E′ to clamp the split portion of the base C and the ring F together. The face-plate may, of course, be revolved through any angle after the desired height is obtained, after which the parts may be clamped together. This construction is a very desirable one on account of its simplicity and strength and the freedom from all vibration which it secures.

It will readily be understood that by cutting the threads of the ring on a predetermined basis a given rotary movement of the ring will yield a given vertical movement of the face-plate. I have also devised a means for preventing the rotation of the face-plate while the ring is being turned for its vertical adjustment. This is shown in Figs. 4 and 5.

A V-shaped groove is cut in the edge of the face-plate F′, and lying in this groove is a thin ring K. This ring is split and provided with lugs held together by a clamping-screw L. Projecting downward from one of the lugs is a pin L′, that fits into a hole drilled in the upper edge of the base C or into one of the lugs thereon. This pin slides in the hole vertically as a vertical motion is imparted to the face-plate by the rotation of the ring F.

In some cases it may be desirable to secure the face-plate or bed in the socket-ring in other ways than by the bridge-piece above described, and one way that I contemplate is to cut threads on the interior of the ring F and on the sides of the bed or face-plate, as shown in Fig. 7, and screw the latter into the threaded ring. In such cases the ring is split in one or more places, as shown in Fig. 6, so that when the screw E of the outer base or socket is tightened the whole will be clamped tightly together. In this construction it would be advantageous to cut the threads right and left. This and other well-understood means of securing the face-plate to the base makes it an easy matter to transfer the face-plate or chuck of the lathe from its proper position to the socket in the ring F, by which means work already turned in the lathe may be transferred directly to the milling-table without being removed from its fastenings, thus gaining in time and accuracy.

Having now described my invention and the best manner of which I am aware in which the same is or may be carried into effect, what I now claim is—

1. The combination, with the cross-slide and cross-feed mechanism of a lathe, of a base engaged by the feed mechanism and running on the slide and formed or provided with a split socket and means for contracting or tightening the same, a threaded ring engaging with the socket, a face-plate seated in or on said ring, and means for securing the face-plate to said ring, substantially as herein described.

2. In a milling attachment for lathes, the combination, with the socket-base engaged or adapted for engagement with the cross-feed mechanism, of the threaded ring within the socket, which socket is split and provided with a clamping-screw, a face-plate for which the ring forms a seat, a bridge-piece across the under side of the ring engaging a nut on a stem extending downward from the under side of the face-plate, and a screw for depressing the bridge-piece and clamping or binding the face-plate in its seat.

3. In a milling attachment for lathes, the combination of a base having a feed movement transverse to the line of centers, a socket-ring engaging with the base by screw-threads, whereby it may be adjusted angularly and vertically with respect thereto, a face-plate carried by said ring and capable of rotation therein, a detent for preventing the rotation of the face-plate with respect to the base, and means for binding or clamping together the face-plate and ring and the ring and base, as herein set forth.

4. In a milling attachment for lathes, the combination, with a base having a feed movement transverse to the line of centers, the threaded ring set therein, the face-plate, and means for clamping or binding it to the ring, of the split or clamping ring surrounding the face-plate and a pin or stud thereon entering a vertical hole in the base, as and for the purpose set forth.

5. In a milling attachment for lathes, the combination, with a base having a feed movement transverse to the line of centers, of a threaded ring set therein, a face-plate seated on the ring and formed with a stem extending downward from its under side, a bridge across the under side of the ring through an opening in which the stem passes, a nut under the bridge and secured to the stem, and a screw passing down through the ring and adapted to depress one end of said bridge and clamp or bind the face-plate and ring together, as set forth.

FRANK D. SKEEL.

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