(No Model.)

# J. L. BOGERT.

## TURRET MACHINE.

No. 576,717. Patented Feb. 9, 1897.

Fig. 2.

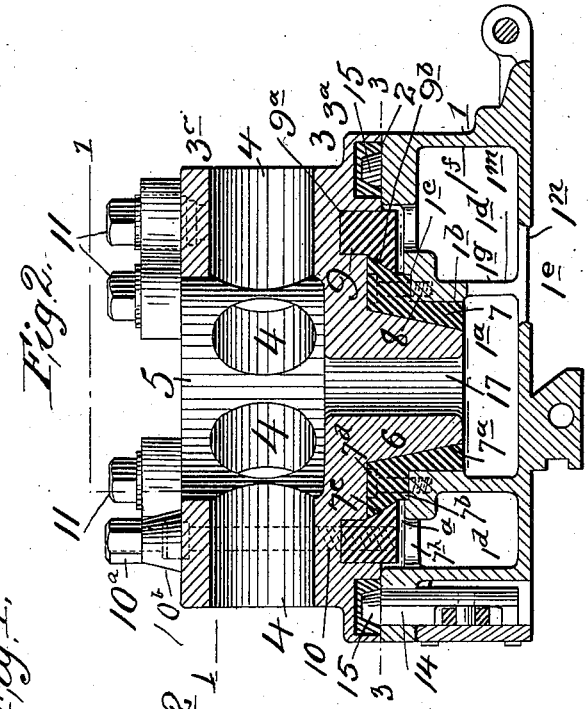


Fig. 4.

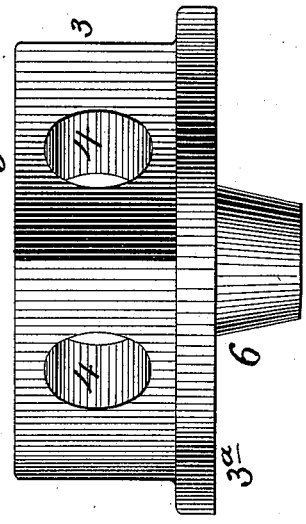


Fig. 1.

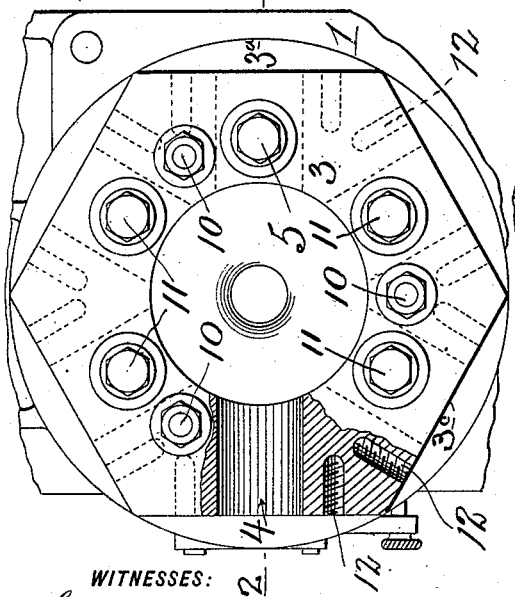
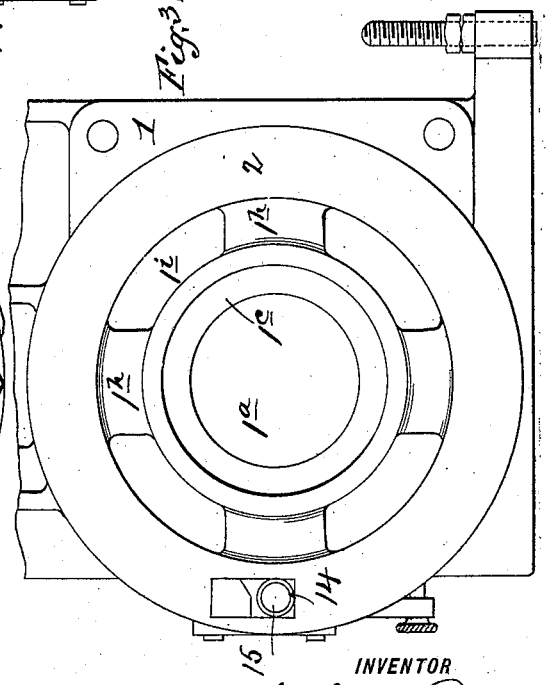


Fig. 3.



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# UNITED STATES PATENT OFFICE.

JOHN L. BOGERT, OF FLUSHING, NEW YORK.

## TURRET-MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,717, dated February 9, 1897.

Application filed February 8, 1896. Serial No. 578,461. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. BOGERT, residing in Flushing, Queens county, New York, have invented certain new and useful Improvements in Turret-Machines, of which the following is a specification.

My invention relates to improvements in the general construction and arrangement of the turrets in turret-lathes and analogous machines.

The object of my invention is to permit the work to be passed partly or entirely into or through the turret as and when desired to enable the tool carried by the turret to pass close up to the face-plate.

The invention consists in a turret having alined apertures leading across it for the passage of the work and novel means for holding the turret rotatively upon a cross-slide of a lathe. The turret and cross-slide are also so arranged that the chips and oil can be carried away without interfering with the cross-feed screw of the cross-slide.

The invention also consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a partly sectional plan view of a turret provided with my improvements, shown in position on a cross-slide, the section being taken on the line 1 1 in Fig. 2. Fig. 2 is a vertical cross-section on the line 2 2 in Fig. 1. Fig. 3 is a plan view of the cross-slide, the turret being removed; and Fig. 4 is a side elevation of the turret detached from the cross-slide.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, the number 1 indicates a cross-slide, which may be of suitable construction and arranged to be carried and moved on a carriage (not shown) of a lathe or analogous machine in any suitable manner.

The cross-slide 1 is shown in the drawings in the form of a hollow casting having an annular ring or seat 2 near its upper outer edge upon which the turret 3 rests and rotates, and the cross-slide 1 also has a central cavity or recess $1^a$ and a bore or bearing $1^b$ and an annular seat or shelf $1^c$. The cross-slide 1 also has an annular cavity or chamber $1^d$, formed by the bottom plate $1^e$, outer walls $1^f$, and inner walls $1^g$, and across the top of this cavity $1^d$ extend connecting-arms $1^h$, between which arms openings $1^i$ are formed, as shown.

The turret 3 is generally at its upper portion of ordinary or suitable form provided with a lower annular rim $3^a$, which rides on the ring or seat 2 of the cross-slide. In each side or face of the turret an aperture or recess 4 is formed, all of which lead to a central opening 5. The apertures 4 in opposite faces of the turret are in line, so that a bar or other work to be operated upon can pass entirely through the turret through the alined openings 4.

From the central lower portion of the turret 3 depends a cone-like hub or pivot 6, which passes into or in line with the central cavity $1^a$ of the cross-slide. The hub 6 fits in a corresponding bore $7^a$ in a bushing 7, which is located in the bore $1^a$ of the cross-slide and has an annular shoulder or flange $7^b$, that rests on the seat $1^c$ of the cross-slide, the bushing 7 being secured thereto by screws 8, as shown in Fig. 2. The flange $7^b$ has its convex surface $7^c$ so constructed as to engage with a clamp or binder-ring 9, and also has a top flat seat or surface $7^d$, upon which latter surface the turret 3 rests, as shown in Fig. 2. As shown, the convex surface $7^c$ of the flange $7^b$ of the bushing or bearing 7 is conical.

The clamp or binder-ring 9 serves as a gib, which fits in a corresponding recess $9^a$ in the under surface of the turret and in a corresponding annular recess $1^a$ in cross-slide 1, and said ring 9 has a surface $9^b$ corresponding to the surface $7^c$ of the bushing or bearing 7. The ring 9 is held in place on the turret and may be adjusted vertically by means of bolts or screws 10, that pass downwardly through said turret and screw into suitable threaded apertures in the ring. I have shown three screws 10 placed at about one hundred and twenty degrees apart and located between corresponding apertures 4 in the turret. By adjusting the ring 9 up or down the corresponding surfaces $7^c$ and $9^b$ of the bushing 7 and ring 9 may be drawn more or less tightly together for the purpose of adjusting and holding the turret in position on the cross-

slide and also for taking up wear between the parts. Binder-nuts $10^a$ are provided on the adjusting screws or bolts 10, whereby the turret can be bound tightly to the cross-slide in any desired position through the medium of the ring 9 and bushing 7. By preference washers $10^b$ are interposed between the nuts $10^a$ and the top of the turret. This bushing and ring also act to resist lateral thrusts of the turret and also serve to keep the turret from tilting on the cross-slide. The cone-like hub 6 and the corresponding bore $7^a$ in bushing 7 also assist in resisting lateral thrusts of the turret and in keeping the latter centered on the cross-slide, the hub 6 and bushing 7 serving as a pivot and bearing for the turret.

11 are suitably-arranged set-screws carried by the tops of the turret over the apertures 4 for the purpose of holding a tool-bushing or other suitable device in an aperture 4 for machining or guiding work therein. The tools may also be held on the flat side faces $3^c$ of the turret in line with the apertures 4 by means of screws that may enter tapped holes 12 in the faces $3^c$. (See Fig. 1.)

Any suitable means may be provided for holding the turret in proper working position on the cross-slide. I have shown a vertically-movable pin 14, carried in suitable bearings on the cross-slide 1 and adapted to enter appropriate recesses 15 on the under surface of the turret. The locking-pin 14 may be arranged and operated as shown in my Patent No. 551,846, dated December 24, 1895.

To adjust my improved turret in position on the cross-slide 1, the ring 9 is first placed in position in the cross-slide, and the bushing 7 is then placed in position in bore $1^b$ and screwed firmly upon its seat $1^c$. The turret 3 is then placed upon the cross-slide so that its hub or pivot 6 finds its seat in the bushing or bearing 7, the ring 9 entering the groove $9^a$, the part $3^a$ of the turret resting upon the seat 2 on cross-slide 1. The screws 10 are then passed through their appropriate apertures in the turret and screwed into the ring 9, so as to draw the face $9^b$ of the latter properly against the face $7^c$ of the bushing or bearing 7. The turret can now properly rotate on the cross-slide, any suitable well-known means being employed for that purpose.

It will be observed that there is no pivot or standard passing from the cross-slide upwardly through the turret, as in the old style of turret-machines known to me and as shown in my Patent No. 551,846, before mentioned. For this reason I am enabled to provide the apertures 4 in the turret for the entrance and passage of the work without interference by any of the working parts of the turret. Another advantage of this arrangement is that the work can be guided in the aperture or apertures in the turret either by allowing it to bear on the walls of the aperture or by inserting a suitable temporary bushing in the proper aperture 4. This will be found specially advantageous when the work is long and it is desired to move the turret near or close to the face-plate or chuck (not shown) to enable the tool to operate close thereto.

In order to carry away chips and oil that may pass into the turret with the work, so as to prevent said chips or filings from injuring or interfering with the cross-feed screw of the the cross-slide, (not shown,) I provide the hub or extension 6 with a vertical aperture or bore 17, which leads from the cavity 5 in the turret entirely through said hub and opens into the chamber or cavity $1^a$ in the cross-slide. The chamber $1^a$ communicates with the chamber $1^d$ in the cross-slide through an aperture or apertures $1^m$ in the wall $1^g$, from which chamber $1^d$ the refuse passes away through an aperture $1^n$ in the bottom $1^e$ of the cross-slide or directly through the aperture $1^n$.

It is evident that my improvements for holding the turret pivotally on the cross-slide can be used whether the turret is provided with aperture 4 or not.

My improvements are simple in construction, effective in use, and not liable to get out of order, and I do not limit my invention to the precise details of construction shown and described, as they may be varied without departing from the spirit of my invention.

Having now described my invention, what I claim is—

1. A turret having apertures on opposite sides, and a hub or pivot depending therefrom, combined with a cross-slide having a bushing or bearing to receive said hub or pivot, an adjusting ring or gib to bear on said bushing or bearing, and means for connecting said ring or gib with said turret, as and for the purposes specified.

2. A turret having apertures in its sides, and a hub or pivot depending therefrom, combined with a cross-slide having a cavity or bore, a bushing or bearing having a bore to receive said hub or pivot, said cross-slide having a seat or shoulder to receive said bushing or bearing, means for securing the latter on the former, said bushing or bearing having an outer face $7^c$, a ring or gib having a corresponding inner face to engage the face $7^c$, and means for securing said ring or gib to said turret, as and for the purposes specified.

3. A turret having apertures in its sides, and a hub or pivot depending therefrom, combined with a cross-slide having a cavity or bore, a bushing or bearing having a bore to receive said hub or pivot, said cross-slide having a seat or shoulder to receive said bushing or bearing, means for securing the latter on the former, said bushing or bearing having an outer face, a ring or gib having a corresponding inner face to engage the face $7^c$, said turret and cross-slide having corresponding annular grooves to receive said ring or gib, and screws or bolts located in said turret and connected with said ring or gib, substantially as described.

4. The combination of a turret having a depending hub or pivot, with a cross-slide

having a cavity or bore, a bushing or bearing in said cavity or bore, a ring or gib, said bushing and ring having corresponding engaging faces, and screws or bolts connecting said ring or gib adjustably with said turret, substantially as described.

5. The combination of a turret having a depending hub or pivot, with a cross-slide having a cavity or bore, a shoulder $1^c$, and an annular groove $1^h$, a bushing or bearing having a flange $7^b$, means for securing said bushing or bearing to said cross-slide, said turret having an annular groove registering with said groove $1^h$, a ring or gib in said groove, said bushing or bearing and said ring or gib having corresponding engaging faces, and screws or bolts for adjustably connecting said ring or gib with said turret, substantially as described.

6. A turret having side apertures and a central cavity or recess communicating therewith, and a hub or pivot depending from said turret and having a bore leading to said cavity, combined with a cross-slide having a cavity, and a chamber leading thereto for conducting refuse away, substantially as set forth.

7. The combination of a turret having a depending hub or pivot, with a cross-slide, a bushing carried thereby, a ring or gib to engage said bushing, adjusting bolts or screws located in said turret and serving to adjust said ring, and binder-nuts on said bolts or screws serving to bind said turret and slide together, substantially as set forth.

Signed at New York city, New York, this 22d day of January, 1896.

JOHN L. BOGERT.

Witnesses:
T. F. BOURNE,
A. HABERSANG.