March 22, 1932. E. A. RUEGER 1,850,773

WOODWORKING MACHINE

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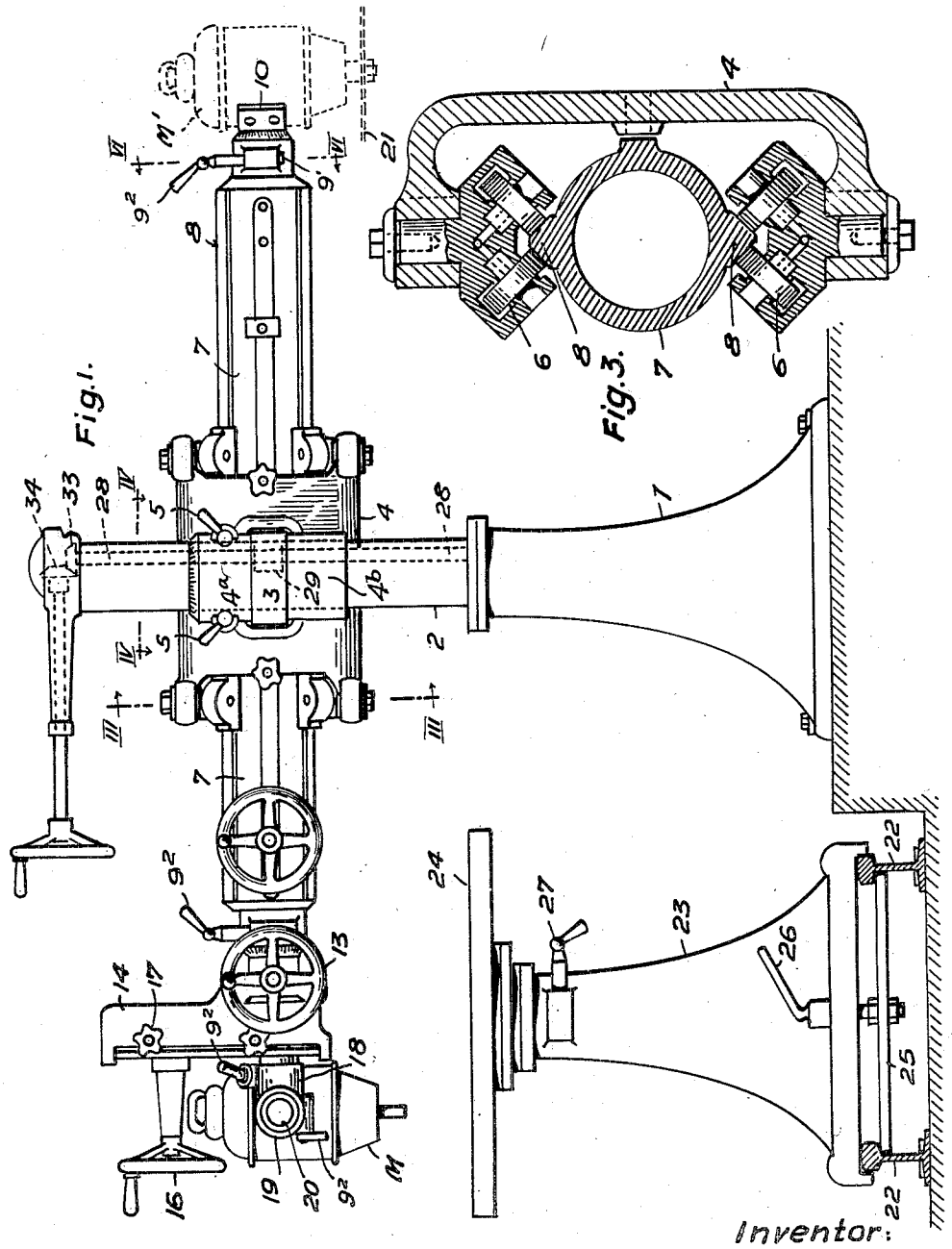


Fig. 1.



Fig. 3.

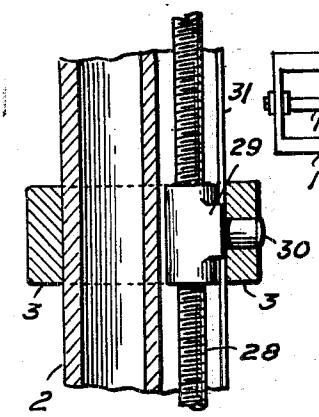
Inventor:
Ernst August Rueger
by C. P. Goepel
his Attorney

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Fig. 5.



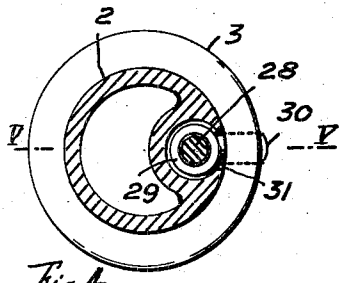




Fig. 4.

Fig. 2.

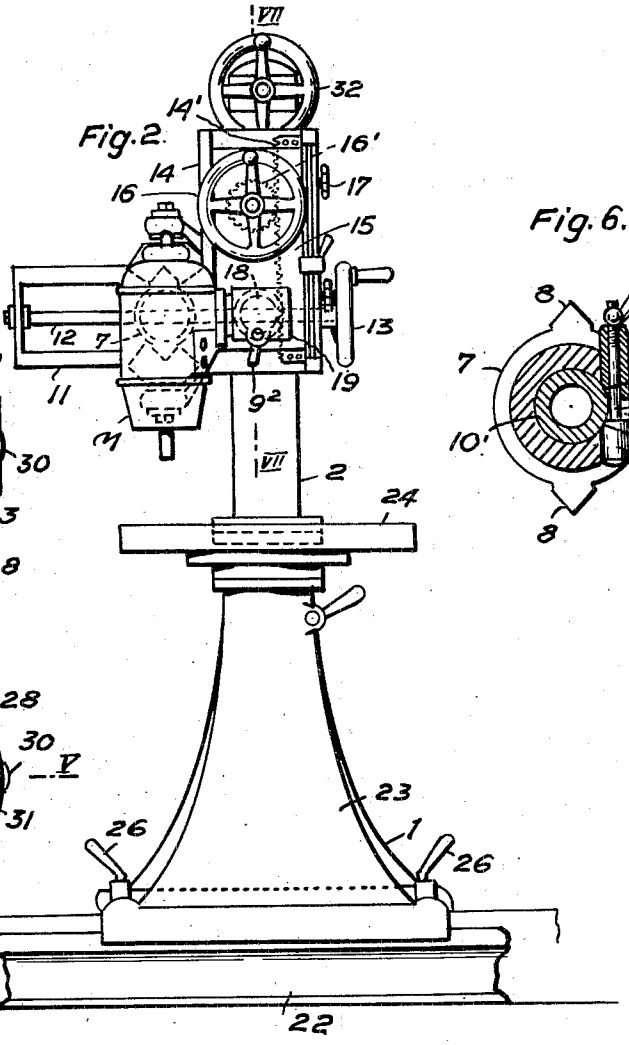



Fig. 6.



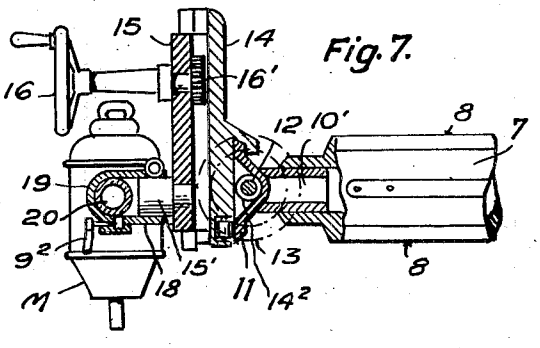




Fig. 7.

Inventor:

Ernst August Rueger

by C. P. Goepel

his Attorney.

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# UNITED STATES PATENT OFFICE

ERNST AUGUST RUEGER, OF BASEL, SWITZERLAND

## WOODWORKING MACHINE

Application filed March 2, 1929, Serial No. 344,071, and in Germany March 3, 1928.

I hereby declare, that the following is a full, clear and exact description of my invention, reference being had to the accompanying drawings, which form part of the specification.

An object of my invention is to have a machine, with which a motor driven tool can be placed or moved into any position in space and can be moved from any position to any other position in space, which is effected either by shifting or by rotating the motor or a frame supporting the motor.

A further object of my said invention is to have a machine with a relatively simple construction which may be built up with small costs.

A still further object of my invention is the combination of the woodworking machine with a table which is longitudinally movable and may be fixed in any position and which is provided with a rotatable plate which may likewise be secured in any position. I am aware that movable working tables have been proposed in connection with woodworking machines. However, owing to the cooperation between the table and the motor movable in the manner mentioned above it is possible to give this table a very simple character because the required positions may be obtained by moving or adjusting the motor, so that very little setting work is to be done on the table.

With the above and other objects in view, the invention consists in the improved construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated one simple and practical embodiment of the invention and in which similar reference characters designate corresponding parts throughout the several views, Fig. 1 is a side elevation of the machine, Fig. 2 an end view thereof, Fig. 3 is a sectional view taken on the line III—III of Fig. 1, Fig. 4 a horizontal section taken on the line IV—IV of Fig. 1, Fig. 5 an axial section taken on line V—V of Fig. 4, Fig. 6 a sectional view taken on line VI—VI of Fig. 1 and Fig. 7 a vertical section taken on line VII—VII of Fig. 2.

Referring in detail to the drawings, for purposes of illustration, a pillar 2 is rigidly disposed on an upright 1, the pillar having a sliding ring 3 carrying a guiding base or holder 4 which may be rotated on the pillar as about an axis. Projecting from the front or face of the holder 4, midway the length thereof, are upper and lower horizontal bearings $4a$ and $4b$ which have turning fit respectively on the upper and lower sides of the ring 3, and each of which surrounds the pillar 2 having both turning and sliding fit thereon. The holder 4 is thus supported by the ring for turning movement upon the pillar and for sliding movement with the ring vertically of the pillar. The holder may be clamped in any position against rotation by clamping bolts 5 carried by the bearing $4a$ and cooperating with the pillar, the construction and operation of the clamping bolts 5 being similar to the clamping bolt $9^2$ fully described hereinafter.

The guiding base has four pairs of rolls 6 and has a carrier 7 which may be moved longitudinally. This base 7 is tubular (Figure 3) and has prismatic projections 8, on the outer faces of which run the rollers 6. Pins $10'$ are rotatably mounted in the ends of the tubular member 7, and may be clamped in any position by means of clamping bolts 9. The clamping bolts 9 consist of a head $9'$ bevelled at $9^3$ and of a bolt with a screw threaded end thereon and of a handle $9^2$, forming a nut for the said screw-end, the main part of the bolt being surrounded by a cylindrical bearing body $9^4$, slidably arranged in an opening $7^1$ of the carrier 7, and likewise bevelled at $9^5$. Therefore when the handle $9^2$ is turned in the one direction the parts $9^1$ and $9^4$ are pressed against the pin $10^1$, so that it is fixed and when the handle $9^2$ is turned in the other direction, the pin $10^1$ is free to rotate in the carrier 7. As shown in the righthand side of Figure 1, the pins $10^1$ may be directly provided with a securing band 10, on which the motor is mounted; or else, and as shown on the left-hand side of Figure 1, the pin may be provided with a

guiding bar 11 carrying a horizontal spindle 12 which may be rotated by means of the hand wheel 13. A frame assembly consisting of a vertical carriage guide 14 and a carriage 15 carried thereby is supported for sliding movement along the guiding bar 11. The spindle 12 carries, as a nut member, a rearward projection $14^2$ fixed to the vertical carriage guide 14 whereby, on turning the spindle, to move the frame assembly along the guiding bar. The carriage 15 may be raised or lowered by the hand wheel 16 and secured in position by a pressure screw 17. It may be noted, that fixed to the axis of the hand wheel 16 is a gearing $16^1$ engaging a rack $14^1$ fixed to the said guide 14. Projecting from the carriage 15 is a stud $15^1$ and rotatably mounted thereon a sleeve 18, forming on its outer end a sleeve 19, which carries a rotatable and adjustable pin 20 on which the motor M is mounted. The motor may thus be moved to any position in space. Whatever the position of this motor, it may be moved forwards and backwards, upward and downwards and may be placed in any oblique position. When only a circular saw is to be driven, a simple pivot pin is sufficient for the motor M′ on the right-hand side.

A pair of rails extends near the pillar 1, on which rails 22 the support 23 for a plate 24 may be moved. A clamping bar 25 may be pressed (by rotating a clamping bolt 26) from below against the heads of the rails for the purpose of fixing the plate in position, which plate may likewise be fixed in any position by means of a clamping bolt 27.

A spindle 28 is disposed within the column 2 and carries a nut 29 provided with a pin 30 traversing a slot 31 of the column and engaging the ring 3. The spindle is provided at its upper end with a pair of bevel wheels 33, 34 so that the spindle is rotated by rotating the hand wheel 32, the ring 3 and therefore the guiding base 4 is raised and lowered. The position of the wheel 32 is not altered when the guiding base 4 and the carrier 7 sliding therein are rotated on the carrying ring 3.

In the foregoing description, I have described an embodiment of the invention which has given excellent service in practical use, nevertheless it will be understood that the essential features of my present disclosure might also be incorporated in various other alternative constructions and I accordingly reserve the privilege of adopting all such legitimate changes therein as may be fairly embodied within the spirit and scope of the invention as claimed.

What I claim is:

1. In a machine of the character described, an upright base and a column supported thereby, a horizontal holder with laterally spaced bearings having sliding and turning fit on the column, a ring having sliding fit on the column between the bearings, supporting the holder for movement on the column as about an axis, means whereby to support and move said ring vertically of the column, said holder having lateral portions with angularly arranged pairs of confronting rollers, a carrier held between the pairs of rollers for adjustment lengthwise of the holder, and supports for supporting electric motors adjustably supported in each end of the carrier.

2. In a machine of the character described, an upright base and a column supported thereby, a horizontal holder with laterally spaced bearings having sliding and turning fit on the column, a ring having sliding fit on the column between the bearings, supporting the holder for movement on the column as about an axis, means whereby to support and move said ring vertically of the column, said holder having lateral portions with angularly arranged pairs of confronting rollers, a carrier held between the pairs of rollers for adjustment lengthwise of the holder, a transverse frame mounted by a pivot pin in one end of the carrier, a vertical guide on the frame, a vertical carriage on the vertical guide and carrying an electric motor, and manual means for operating the vertical carrier including a rack connected thereto and a wheel-operated pinion engaged with the rack.

3. In a machine of the character described, consisting of an upright base provided with a hollow column having a lengthwise opening, a vertical screw operatively disposed within the column and carrying a nut, a horizontal holder with laterally spaced bearings having sliding and turning fit on the column, a ring connected with the nut through the opening, to be moved by the screw vertically of the column, said ring having sliding fit on the column between the bearings to support the holder for turning movement on the column as about an axis, said holder having lateral portions with angularly arranged pairs of confronting rollers, a carrier held between the pairs of rollers for adjustment lengthwise of the holder, means on the carrier and supported thereby for carrying electric motors, and adjustable to various positions to establish the electric motors at the desired relative positions of adjustment, and means operating said screw.

4. In a machine of the character described, consisting of an upright base provided with a hollow column having a lengthwise opening, a vertical screw operatively disposed within the column and carrying a nut, a holder with laterally spaced bearings having sliding and turning fit on the column, a ring connected with the nut through the opening, to be moved by the screw vertically of the column, said ring having sliding fit on the column between the bearings to support the holder for turning movement on the column

as about an axis, said holder having lateral portions with angularly arranged pairs of confronting rollers, a carrier held between the pairs of rollers for adjustment lengthwise of the holder, pins in the ends of the carrier slidably fitted in openings extending lengthwise of the carrier, electric motors on the pins, carried thereby for adjustment therewith, and means for operating said screw.

5. In a machine of the character described, an upright base and a column supported thereby, a holder supported to the column for movement thereon as about an axis, a horizontal carrier supported by said holder for lengthwise movement, a pin journaled for rotary adjustment in one end of the horizontal carrier, with its longitudinal axis substantially parallel to the longitudinal axis of said carrier, a transverse spindle and a frame assembly, the latter being movable substantially parallel to the axis of the former, said spindle being carried by said pin and said spindle and frame assembly constituting two elements one of which is adjustable with respect to the other, a stud projecting from said frame assembly and provided with a sleeve having a bearing, and a pin rotatably fitted in said bearing and carrying an electric motor.

6. In a machine of the character described, embodying a horizontal carrier and a pin supported thereby for rotary movement with respect thereto, a transverse guiding bar carried by the pin and therewith movable, an operative spindle on the guiding bar, extending lengthwise thereof, a vertical carriage guide mounted on the guiding bar for sliding movement and connected with the spindle, to be moved along the guiding bar upon the operation of the spindle, a carriage supported on the carriage guide for adjustment in a path transversely of the direction of the sliding movement of the carriage guide along the guiding bar, and means for adjustably supporting an electric motor on the carriage comprising a projecting device on the carriage and a pin rotatably journaled in the projecting device for supporting the electric motor.

In testimony that I claim the foregoing as my invention I have signed my name.

ERNST AUGUST RUEGER.