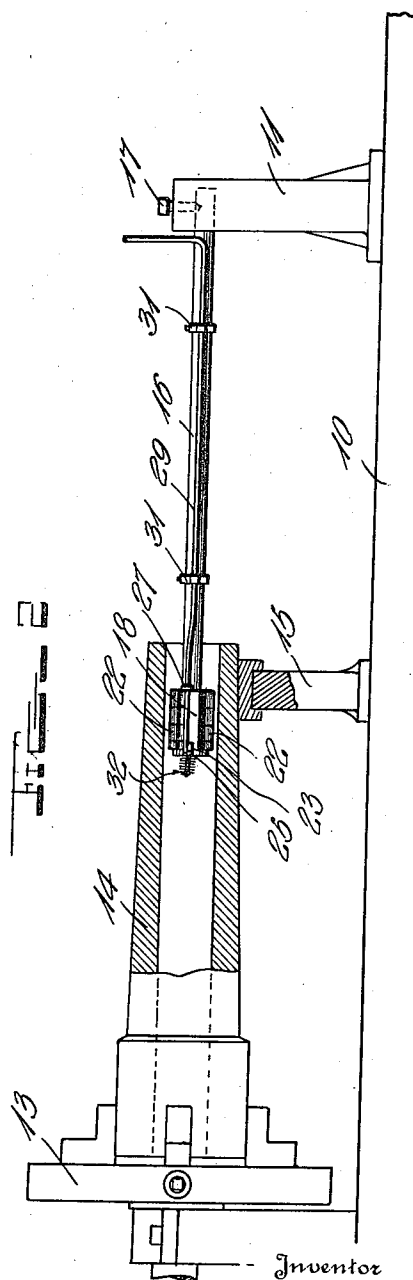
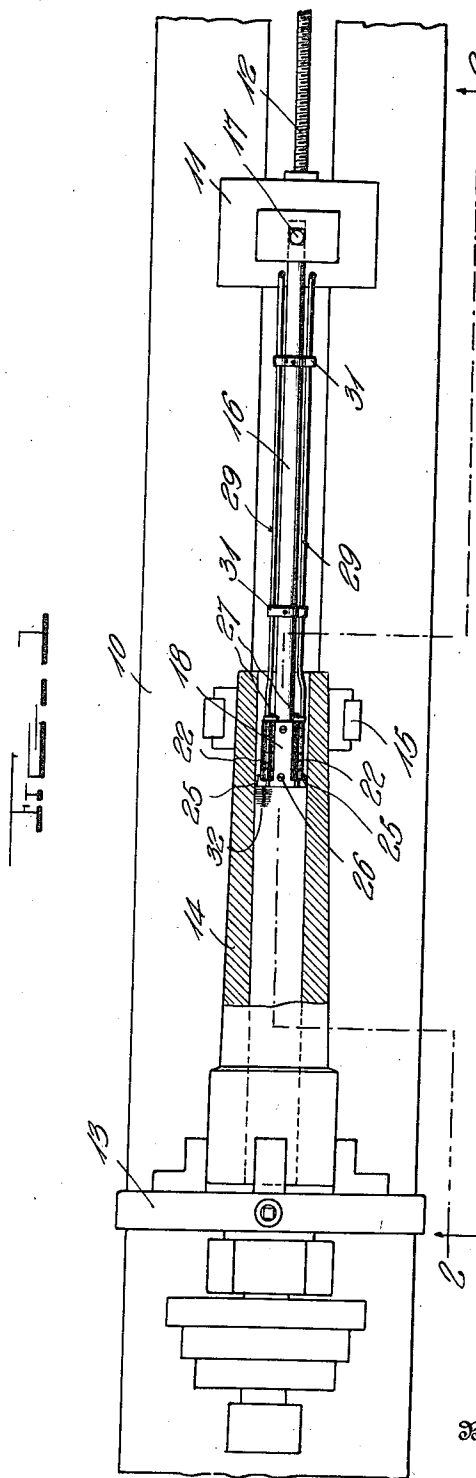


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FINISHING TOOL.
APPLICATION FILED APR. 8, 1918.

1,300,325.

Patented Apr. 15, 1919.

2 SHEETS—SHEET 1.

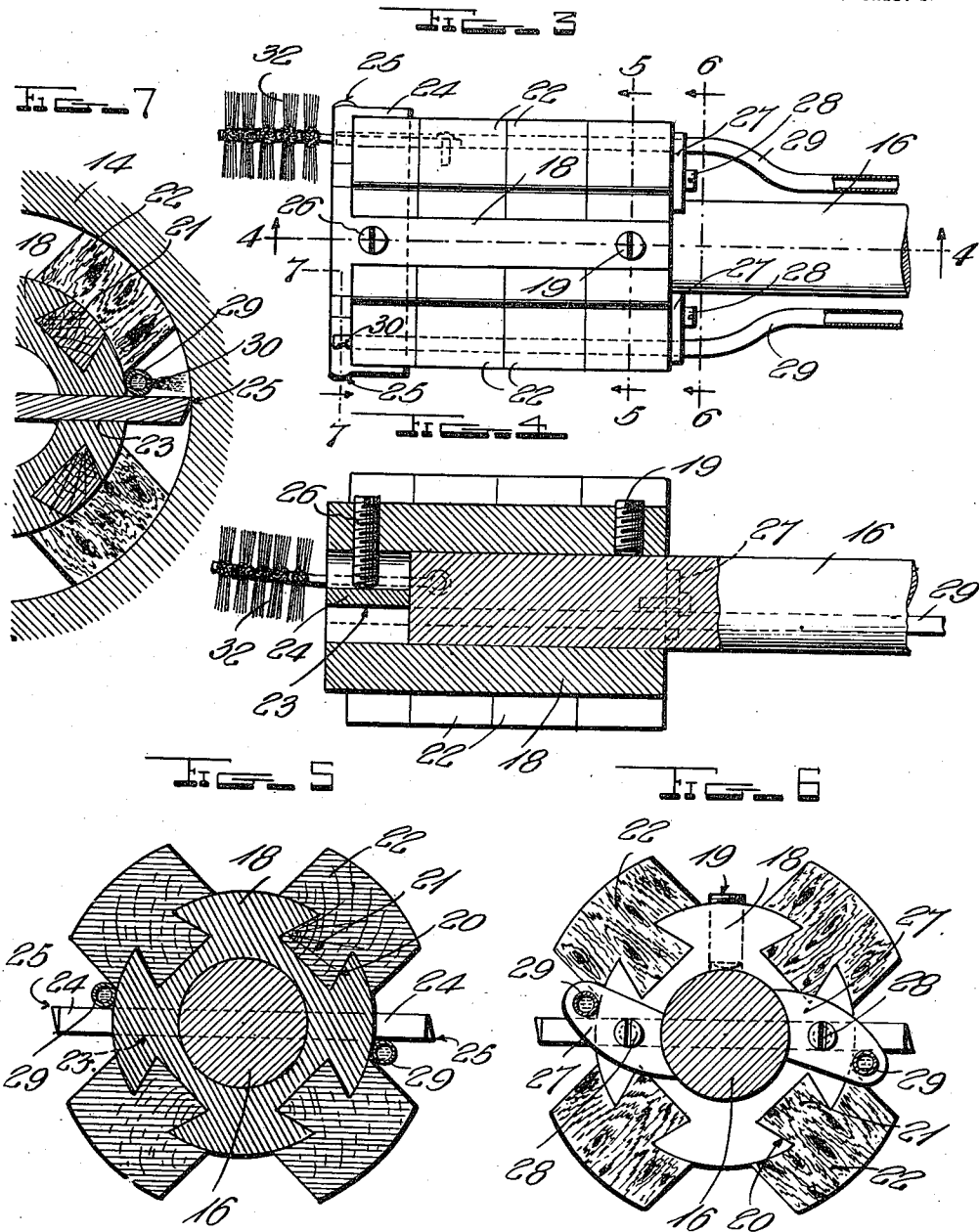


Inventor
F. Baumann
By Norman J. Whitaker
his Attorney

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Inventor

F. Baumann

By *Norman J. Whitaker*
his Attorney

UNITED STATES PATENT OFFICE.

FREDERICK BAUMANN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF SEVEN THIRTY-SECONDS TO HIMSELF, SEVEN THIRTY-SECONDS TO NORMAN T. WHITAKER, OF WASHINGTON, DISTRICT OF COLUMBIA, SEVEN THIRTY-SECONDS TO LEOPOLD BAUMANN, SR., OF PHILADELPHIA, PENNSYLVANIA, AND ELEVEN THIRTY-SECONDS TO HERBERT J. BROWNE, OF WASHINGTON, DISTRICT OF COLUMBIA.

FINISHING-TOOL.

1,300,325.

Specification of Letters Patent.

Patented Apr. 15, 1919.

Application filed April 8, 1918. Serial No. 227,263.

To all whom it may concern:

Be it known that I, FREDERICK BAUMANN, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Finishing-Tools, of which the following is a specification.

This invention relates to finishing tools and has particular reference to that class of finishing tools employed as a means for finishing the bore of gun forgings although not restricted to such use.

In carrying out the present day practice of finishing the bore of gun forgings it is customary to employ a wood bound reamer which consists of an elongated flattened base, the width of which is substantially equal to the bore of the forging desired to be operated upon. This elongated base is provided with a pair of cutting elements which are generally secured in position by means of suitable screws. A pair of semi-cylindrical soft wood mountings are secured to the elongated flattened base, the grain of which wood bears a substantial parallel relation to the base carrying the mountings.

The above briefly described structure which is generally accepted as being the most efficient and reliable of any heretofore known means for accomplishing the desired result has proved defective in many particulars.

The primary objects, among others, of my invention are to overcome the above referred objections and are as follows:

To provide in a finishing tool a means whereby the tool may at all times maintain a common course of travel.

To provide in a finishing tool a means whereby the cuttings may be prevented from scarring or marring the wall of the bore.

To provide in a finishing tool a means whereby the cutting element may be easily and quickly adjusted to meet the requirements of a given size bore.

To provide in a finishing tool a novel means for securing the wood mountings in a correct position with respect to the head carrying the same.

To provide a finishing tool which may be used several times without materially altering or changing any part thereof.

To provide a finishing tool which is strong, durable, simple in construction, cheap to manufacture and reliable in operation.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a central horizontal longitudinal sectional view of a gun forging showing the same mounted within a lathe and as being operated upon by the device embodying my invention, the device embodying my invention being shown in top plan,

Fig. 2 is a sectional view taken on line 2-2 of Fig. 1, the device embodying my invention being shown in elevation and in the act of being removed from the bore of the forging,

Fig. 3 is an enlarged detail side elevation of the device embodying my invention,

Fig. 4 is a longitudinal sectional view of Fig. 3 taken on line 4-4,

Fig. 5 is a transverse sectional view of Fig. 3 taken on line 5-5,

Fig. 6 is a transverse sectional view of Fig. 3 taken on line 6-6, and,

Fig. 7 is a detail sectional view taken on line 7-7 of Fig. 3.

In the drawings, wherein is shown the preferred form of my invention, the numeral 10 indicates a lathe having an adjustable carriage 11 mounted thereon, the carriage 11 being provided with the conventional form of adjustment means which comprises a screw indicated by the numeral 12. The lathe 10 is also provided with the conventional form of chuck 13 to which a forging such as a gun forging 14 is adapted to be centrally secured. Upon the lathe 10 substantially intermediate the carriage 11 and the chuck 13 there is mounted a support 15 upon which one end of the gun forging 14 is adapted to rest in order to main-

tain the axis of the forging 14 in true alignment with respect to the axis of the chuck 13. To the adjustable carriage 11 there is secured a shaft 16 by means of a set screw 17 or the like. Upon one end of the shaft 16 is secured the device embodying my invention which comprises a hollow head 18 adapted to receive therein one end of the shaft 16 as clearly shown in Fig. 4, the head 18 being retained upon the shaft 16 by means of a set screw 19. The head 18 is provided with a plurality of grooves 20. These grooves are adapted to receive therein tongues 21 carried by arcuate shaped segments of wood, which segments are indicated by the numeral 22. It will be noted when considering Figs. 5, 6 and 7 that the grain of these segments is disposed radially with respect to the head 18. This radial disposition of the grain in this particular position is of paramount importance. It is by this disposition that I am enabled to overcome one of the objections heretofore found in the various types of finishing tool, the objection being an uneven diametrical expansion of the wood mountings when they become dampened by the lubricant employed. By disposing the grain of these wooden segments radially with respect to the head 18 no radial expansion is caused. Should there be any circumferential expansion of these segments the expansion may be permitted without effecting the line of travel of the tool due to the fact that the segments are adequately spaced from each other to allow any circumferential expansion of the same. It will be noted when considering Figs. 5, 6 and 7 that due to the particular shape of the tongues and grooves shown I am enabled to securely retain the segments 22 in their respective positions upon the head 18 without any other fastening means. One end of the head 18 is provided with a slot 23 as clearly shown in Fig. 7. This slot is adapted to receive therein an elongated cutting element 24 which is provided at its ends with cutting edges 25. It will be noted when considering Figs. 5, 6 and 7 that the length of the cutting element 24 is substantially equal to the distance between the outer surfaces of any two of the oppositely disposed segments 22. As a means for retaining the cutting element 24 in position with respect to the head 18 there is provided a set screw 26 carried by the head 18 and radially disposed therein. To one end of the head 18 there is secured a pair of guides 27 by means of screws or the like indicated by the numerals 28. Through the outer ends of the guides 27 are passed a pair of lubricant carrying tubes 29, which tubes are arranged to deposit a supply of oil upon the cutting edges 25 through apertures 30 arranged within the ends of the tubes. These tubes are adapted to be con-

nected with a suitable lubricant supply, not shown, and are clamped to the shaft 16 by means of clamps 31 arranged at intervals as clearly shown in Figs. 1 and 2. To one side of the head 18 there is secured a suitable brush 32 in proximity to one of the cutting edges 25. This brush serves as a means for removing any particles of the cuttings which might adhere to the inner wall of the gun forging during the operation of the finishing tool and serves further as a means for moving such particles longitudinally along the bore of the gun forging as the tool continues to move longitudinally through the bore of the forging. The forward movement of the cuttings is accomplished by the brush 32 due to the fact that the same is set at a slight angle with respect to the head 18 as clearly shown in Fig. 4.

In use, the operation of the device is as follows: Assuming that the gun forging 14 is provided substantially with a six inch bore and it is desired to finish the bore accurately to a six inch measurement, a cutting element 24 of suitable length is inserted into the slot 23 of a head 18 of a suitable size to be used to accomplish a desired object. The head 18 is then moved into proximity to the bore of the forging by the adjusting means 12 whereupon the cutting element 24 may be easily centered with respect to the bore of the forging. The cutting element 24 having been centered the set screw 26 is run down into engagement with the same and by means of the adjusting means 12 the head 18 together with the several elements carried thereby is moved into the bore of the forging, the forging being rotated by any suitable means. As the head 18 proceeds along its line of travel suitable lubricant is supplied to the cutting edges 25 through the supply pipes 29. Due to the fact that the segments 22 fit snugly within the bore the cuttings when removed are not permitted to enter between the wall of the bore and the outer face of the segments but on the other hand are either moved forward in front of the device by action of the brush 32 or collected between the segments 22 allowing the device to move unobstructed over the same. When the tool has been passed entirely throughout the length of the bore the same may be easily removed therefrom by reversing the adjusting means 12 in the usual manner. Should the segments 22 as a result of constant use become worn the tool as a whole may be placed in a turning lathe in order to turn off a portion of the segments thereby prolonging the life of the tool which may be used again for a smaller bore in which instance a new cutting element 24 would be supplied, the length of which would correspond to the distance between the outer faces of a pair of oppositely disposed segments 22. Should it become

necessary to sharpen the cutting edges 25 of the cutting element 24 these edges may be ground, after which grinding the cutting element 24 may be stretched to its original length by slightly hammering the same substantially intermediate its ends.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, what I claim as new and desire to secure and protect by Letters Patent of the United States, is:

1. A finishing reamer comprising a head, a plurality of wood segments having the grain thereof disposed radially with respect to said head, the wood segments being spaced from each other, and a cutting element carried by said head.

2. A finishing reamer comprising a head, a plurality of wood segments having the grain thereof disposed radially with respect to said head, the wood segments being arranged in rows, the rows being spaced from each other, and a cutting element carried by said head.

3. A finishing reamer comprising a head, provided with a plurality of grooves, a plurality of wood segments arranged within said grooves and having the grain thereof disposed radially with respect to said head, the wood segments being spaced from each other, and a cutting element carried by said head.

4. A finishing reamer comprising a head provided with a plurality of grooves, a plurality of wood segments arranged in rows within said grooves, the wood segments having the grain thereof disposed radially with respect to said head and spaced from each other, and a cutting element carried by said head.

FREDERICK BAUMANN.