F. B. MOSS.

CHUCK.

APPLICATION FILED MAY 11, 1915.

1,187,856.

Patented June 20, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

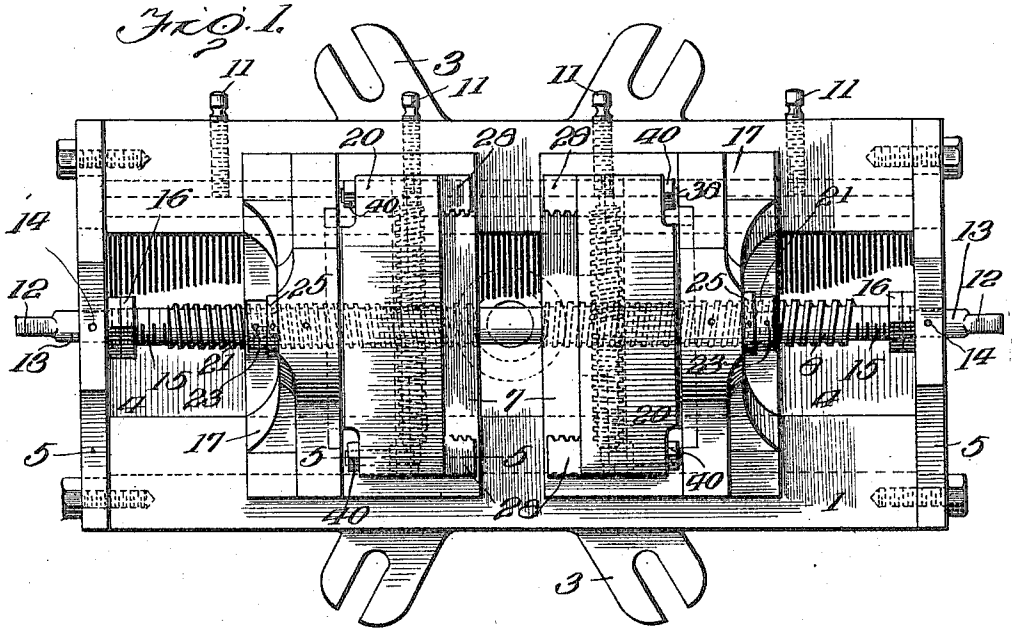
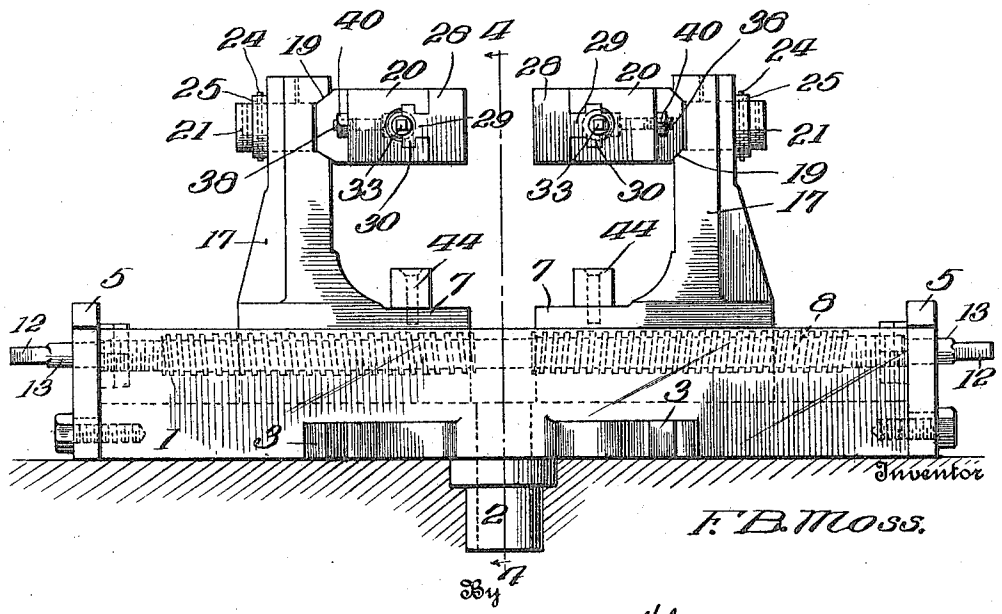


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

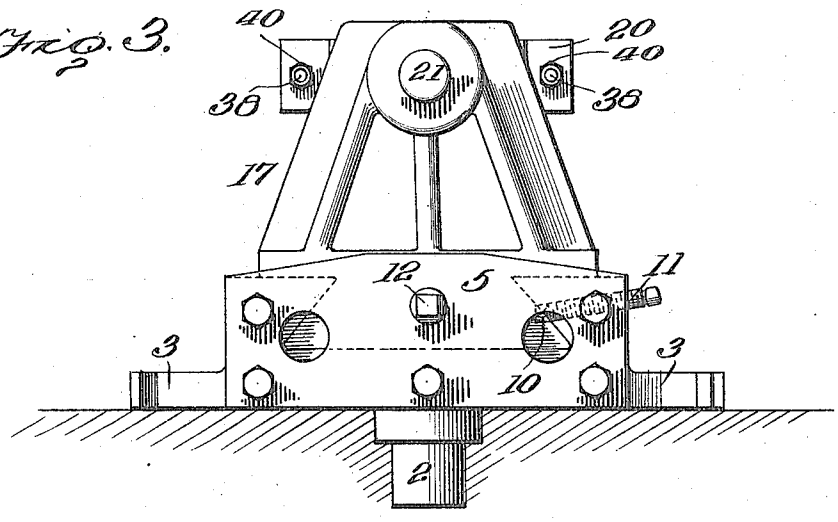
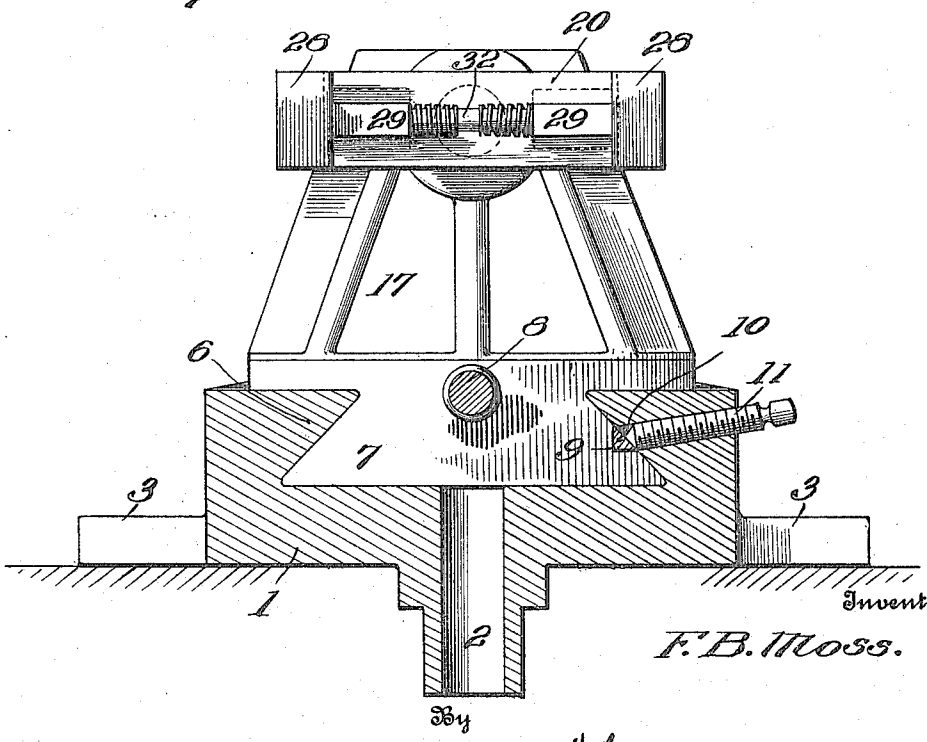


Fig. 4.



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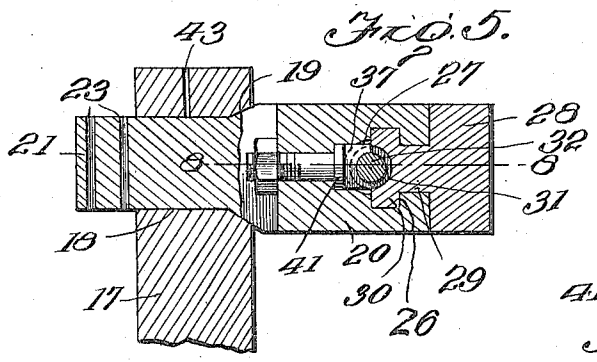
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3 SHEETS—SHEET 3.

Fig. 5.



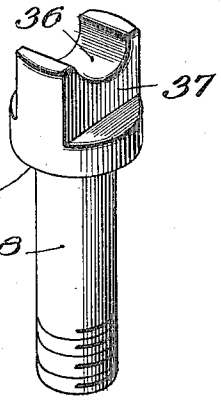


Fig. 6.

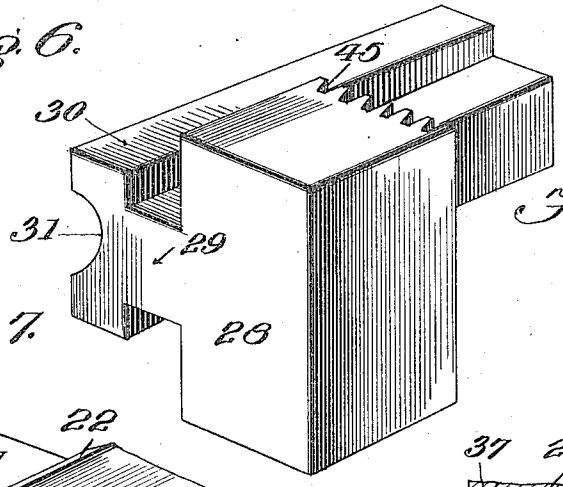
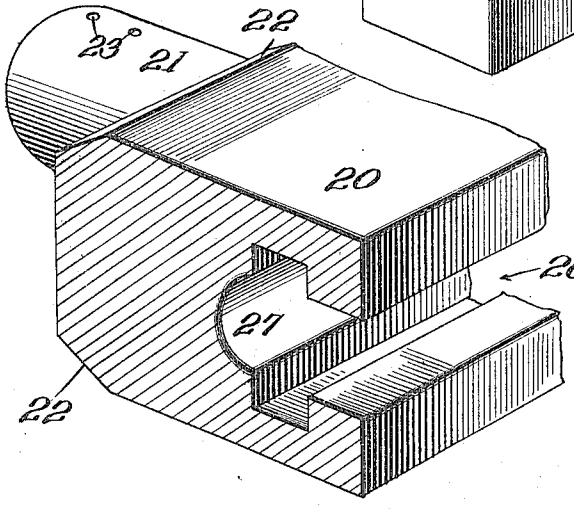


Fig. 9.

Fig. 7.



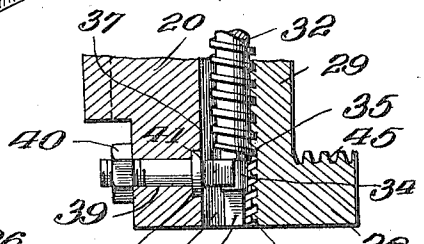


Fig. 8.

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UNITED STATES PATENT OFFICE.

FRANK B. MOSS, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO THOMAS J. DOLLARD, OF RICHMOND, VIRGINIA.

CHUCK.

1,187,856. Specification of Letters Patent. Patented June 20, 1916.

Application filed May 11, 1915. Serial No. 27,429.

To all whom it may concern:

Be it known that I, FRANK B. MOSS, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Chucks, of which the following is a specification.

This invention relates to chucks, and has for its general object the provision of a chuck especially adapted for use in finishing the brasses, cross heads and journal boxes employed in connection with the driving rods of locomotives.

One object of the invention is to provide a chuck of simple construction which will be especially adapted to permit reversing of the work so that both sides of the same may be finished accurately and expeditiously.

Another object of the invention is to provide novel means whereby the work will be accurately and quickly brought into a central position, and a further object of the invention is to improve generally the construction and arrangement of the parts of a chuck for use in metal working machines whereby the efficiency of the same will be increased.

The invention is illustrated in the accompanying drawings and will be hereinafter fully described, the novel features being subsequently more particularly pointed out in the claims following the detailed description.

In the drawings: Figure 1 is a plan view of a chuck embodying my improvements; Fig. 2 is a side elevation of the same; Fig. 3 is an end elevation; Fig. 4 is a vertical transverse section on the line 4—4 of Fig. 2; Fig. 5 is a detail section on the line 5—5 of Fig. 1; Fig. 6 is a detail perspective view of one of the jaws; Fig. 7 is a detail perspective view of a portion of one of the jaw carrying bodies; Fig. 8 is a detail section taken on the line 8—8 of Fig. 5; Fig. 9 is a detail perspective view of the bolt or support shown in Figs. 5 and 8.

In carrying out my invention, I employ a base 1 which is constructed with a central depending post 2 which is adapted to engage a socket in the bed plate of the finishing machine whereby the chuck will be accurately and easily brought into proper position. Upon the sides of the base, I provide slotted or notched lugs 3 through which suitable securing bolts may be inserted into the bed of the machine so as to secure the chuck in the proper working position. The ends of the base are open, as indicated at 4, to facilitate the engagement of the carriages or supporting standards with the base, and end plates 5 are secured to and extend across the ends of the base after the carriages are in position, as shown.

As shown most clearly in Figs. 3 and 4, the base is provided with longitudinal overhanging inclined ribs or rails 6 constituting guides or ways for the carriages which are provided with undercut lower portions 7 adapted to snugly but slidably engage the said overhanging rails 6. The base portions 7 of the carriages are provided with longitudinal threaded openings through which passes the adjusting screw 8, and in one side edge of the said base portion of each carriage is formed a triangular groove or recess, indicated at 9, adapted to receive a triangular key 10, as shown most clearly in Fig. 4. Set-screws 11 are mounted transversely in one side of the base 1 and so disposed that their inner ends will bear against the outer inclined face of the said triangular key. It will be readily understood that by turning home the set-screws, the key will be caused to bind in the recesses in the sides of the carriages and will thereby lock the carriages against movement longitudinally of the base while the apparatus is in use.

The adjusting screw 8, as clearly shown in Fig. 1, is right and left handed so that, when the screw is rotated, the carriages will be caused to approach or recede according to the direction of rotation imparted to the screw. The extremities of the screw are angular, as shown at 12, whereby they may be engaged by a suitable wrench or key, and immediately adjacent the said angular extremities are cylindrical portions 13 which are journaled in the end plates 5 so as to serve as journals and permit rotation of the screw. If desired, small oil holes 14 may be provided in the end plates to admit lubricant to the journal portions of the screw. Between the said cylindrical portions 13 and the working threaded portions of the screw, I provide a finely threaded portion 15 upon which are mounted lock nuts 16 which are adapted to be set against the inner faces of the end plates 5 and

thereby lock the screw in a set position so that possible inaccuracies in the fitting of the parts may be overcome and the carriages may be properly spaced at equal distances from the transverse center of the base.

At the outer ends of the base portions 7 of the carriages, I erect standards 17 which are provided in their upper ends with central openings extending longitudinally of the apparatus, as indicated at 18, and upon the inner opposed faces of the standards I provide the flared openings or horizontal grooves 19 which communicate directly with the said openings 18. The chuck bodies 20 are provided with central cylindrical stems 21 which are inserted through the said openings 18, and immediately adjacent the said cylindrical stems the sides and backs of the chuck bodies are formed with beveled surfaces 22 adapted to engage in the flared opening or groove 19.

In the stem 21, I form two or more diametrical openings 23 which are adapted to receive a pin 24 whereby a collar 25 may be locked upon the outer end of the stem. As shown in Fig. 2, the collar bears against the outer face of the standard and the chuck body is thereby held against turning in the standard inasmuch as the beveled portion 22 of the body is held in engagement with the flared groove in the standard. If it should be necessary to reverse the work, the pin 24 is withdrawn and the collar 25 shifted outwardly whereupon relative movement may be effected between the standard and the stem of the chuck body so that the flared groove will be out of engagement with the beveled surface of the body and, consequently, the body may turn about the stem as a pivot. After the body and the work have been thus reversed, the parts are returned to the position illustrated in Figs. 2 and 5, and the collar 24 returned to the position shown in Fig. 2, whereupon the operation of finishing the journal box or other casting may proceed.

The chuck body is provided in its inner edge with a slot 26 which is substantially T-shaped, as shown most clearly in Figs. 5 and 7, and is provided with a concave groove 27 in the face forming the head of the T. The work engaging jaws 28 are blocks having a height equal to the height of the bodies 20, as shown clearly in Figs. 2 and 5, and these blocks are each connected by a reduced neck 29 with a cleat or slide 30, the said neck and slide forming a T-shaped stem adapted to snugly but slidably engage the T-shaped groove 26 in the chuck body. In the head of this T-shaped stem, I form a concave groove 31 which is internally threaded to permit its engagement with an adjusting screw 32 which extends transversely of the device and plays in the smooth faced groove 27 of the chuck body. The screw 32 is provided with angular extremities 33 whereby it may be engaged by a key or wrench to be rotated and the threads of the screw are right and left handed at the opposite ends thereof whereby the two jaws fitted upon the chuck body may be caused to approach or recede when the screw is rotated. Immediately adjacent the angular extremities 33, the screw is provided with cylindrical portions 34 constituting journals for the screw and this cylindrical portion or journal is of less diameter than the main body of the screw so as to provide a shoulder 35 which will fit against the inner face of the support for the screw and thereby prevent longitudinal movement of the same. The journal or cylindrical portion 34 is engaged in a concave notch or groove 36 formed in the head 37 of a bolt or threaded pin 38 which is adapted to be inserted through a transverse opening 39 in the end of the chuck body and receive a nut 40 which is turned home against the outer end face of the chuck body so as to secure the journal support in position. By reference to Figs. 5, 8 and 9 more particularly, it will be noted that the head of the support is of somewhat larger diameter than the main portion of the same, thereby providing an annular shoulder 41 which is adapted to seat in a socket or cavity provided therefor in the chuck body, as shown at 42 so that, when the nut 40 is turned home, it will coact with the said annular shoulder to clamp the support firmly in place. The sides of the head are preferably made flat and at right angles to the axis of the groove or notch 36 so that, when the said flat faces engage the annular shoulders 35 of the adjusting screw, all possible turning of the bolt or shifting of the screw, while the device is in use, will be prevented.

If deemed desirable, oil holes 43 may be provided in the upper ends of the standards 17 to admit lubricant to the stem 21 carried by the standard, and I have illustrated such an oil hole in the accompanying drawings. I have also shown rails or supporting bars 44 upon the base portions 7 of the carriages at the inner sides of the standards 17. These rails or supporting bars are held upon the carriages by loose pins and will be found advantageous in finishing castings which are not to be reversed as the work engaging jaws may be caused to clamp the work at about the center of the same and the end of the work may rest upon the said bars.

It is thought the operation and advantages of my improved chuck will be readily understood from the foregoing description, taken in connection with the accompanying drawings.

Upon reference to Figs. 1 and 4, it will be noted that the work engaging jaws 28 are

disposed in pairs, a pair being mounted upon each chuck body and the members of each pair having their opposed work engaging faces preferably serrated, as shown at 45, whereby they will more readily clamp the work, as will be understood. It will, of course, be understood that the screws 38 are rotated so as to bring the jaws against the opposite sides of the work, and as the jaws will move at the same speed, although in opposite directions, when the work is engaged by and held between the jaws, it will be brought into a central position transversely of the base, the adjusting screw 8 having been previously operated so as to cause relative movement of the carriages with the standards 17 so that the work is thereby brought into the center of the device longitudinally. The work, which we will assume to be a brass, is then bored and faced on the top side. When this operation is completed, the collars 25 are shifted upon the stems 21, as hereinbefore described, after which the screw 8 is manipulated to cause the carriages to move from each other, the work remaining clamped by the jaws and, consequently, bridging the space between them.

When the standards 17 have been moved sufficiently to clear the beveled portions of the chuck bodies, the said bodies, with the jaws carried thereby and the work held by and between the jaws, are rotated upon the stems 21 as axes, so that the unfinished or bottom side of the brass will be uppermost, after which the parts are returned to the former position, illustrated in Fig. 2, and the unfinished side of the brass then faced. It will thus be seen that I obviate the necessity of re-chucking the work and assure a perfect alinement for the brasses. When finishing driving boxes, the jaws are caused to clamp the box in the shoe and wedge face and the end of the box caused to rest upon the rails or supporting bars 44.

My device is obviously simple in the construction and arrangement of its parts, and will be found highly efficient in use as it obviates the necessity of laying off each box before it is bored, and assures the boxes being bored in the true center and the sides faced at right angles to the axis of the bore without any resetting of the casting during the finishing operation.

Having thus described the invention, what is claimed as new is:—

1. A chuck comprising a base, carriages slidably mounted upon the base, chuck bodies rotatably and slidably mounted on the carriages and normally held against movement in any direction, and opposed work-engaging jaws slidably mounted upon the inner face of each chuck body.

2. In a chuck, the combination of a pair of carriages, means for causing said carriages to approach or recede, chuck bodies rotatably fitted in said carriages and adapted for limited movement longitudinally of the carriages, work engaging jaws mounted upon each of the chuck bodies, and means for causing the jaws upon each chuck body to approach or recede.

3. In a chuck, the combination of spaced carriages each having a standard erected thereon, said standard being provided with a longitudinally extending opening through its upper end, chuck bodies each having a cylindrical stem rotatably and slidably fitted in the opening in the adjacent standard, means for normally holding the chuck bodies against movement, and a pair of work-engaging jaws slidably mounted upon each chuck body to move toward and from each other.

4. In a chuck, the combination of spaced standards each having an opening through its upper end and provided in its inner face with a horizontal groove communicating with said opening and having flared upper and lower walls, chuck bodies each having a cylindrical stem extending through the opening in the adjacent standard, said bodies being provided with beveled upper and lower faces adapted to engage the said flared walls, and work-engaging jaws slidably mounted on each of said chuck bodies to move toward and from each other.

5. In a chuck, the combination of a standard having an opening through its upper end and provided in its inner face with a horizontal groove communicating with said opening and having flared upper and lower walls, a chuck body having beveled faces at its outer side adapted to enter between and engage the flared walls of said groove, said body having a cylindrical stem projecting from between said beveled faces to extend through the opening in the standard, a shiftable stop fitted upon said stem at the outer side of the standard to prevent sliding movement of the chuck body, and work-engaging jaws carried by the chuck body and slidable thereon toward and from each other.

6. In a chuck, the combination of a pair of standards, a chuck body carried by each standard and rotatable thereon, means for effecting angular engagement between the standards and the chuck bodies to hold the chuck bodies normally against rotation, a pair of work engaging jaws mounted upon each chuck body, the members of each pair being movable toward and from each other on their respective chuck bodies, and means for effecting a limited relative movement between the standards and the chuck bodies whereby the bodies may be free to rotate and reverse the work.

7. In a chuck, the combination of a standard, a chuck body rotatably and slidably mounted therein and provided in its inner

face with a longitudinal groove having a channeled base wall, work-engaging jaws slidably mounted upon the chuck body and each having a stem fitting in said groove, said stem having a threaded groove opposing the channeled base wall of the groove in the chuck body, an operating screw disposed within said threaded groove and the channel opposed thereto and operatively engaging the threaded groove, and bearing supports for said screw inserted transversely through the chuck body and extending across the channel therein to engage the smooth extremity of the screw.

8. In a chuck, the combination of a carriage, a chuck body mounted therein, a pair of work-engaging jaws mounted on the body and slidable thereon toward and from each other, means for normally holding the chuck body in a set position relative to the carriage, and means for effecting relative movement between the carriage and the body to permit reversal of the body while retaining the jaws in a relatively set position.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK B. MOSS. [L. S.]

Witnesses:
W. T. BLAKEY, JR.,
E. R. DOWDY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."