Oct. 8, 1929. J. D. SLYDER 1,730,482

WORK DRIVER FOR LATHES

Filed April 8, 1925

Fig. 1.

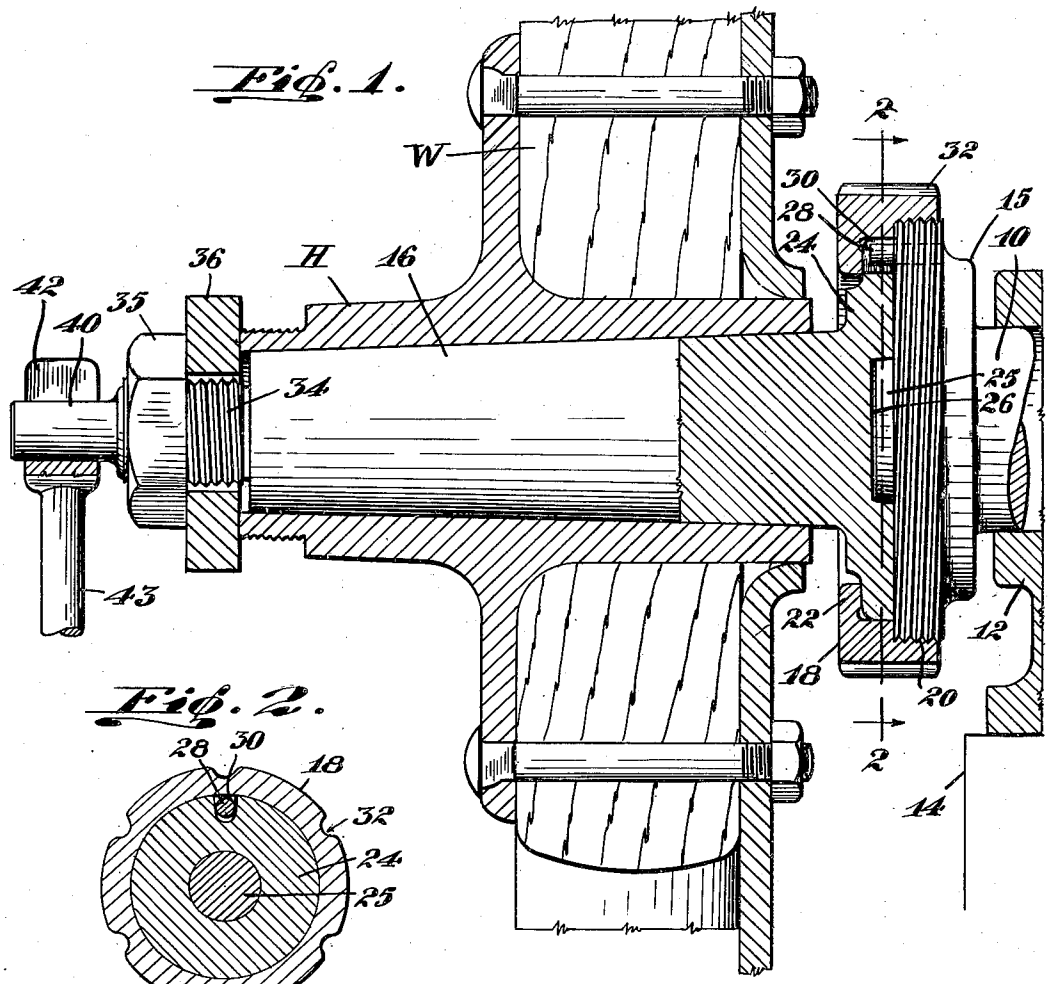


Fig. 2.

Fig. 3.

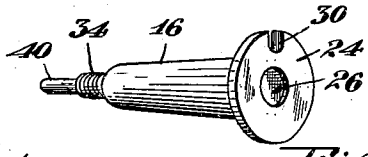


Fig. 4.

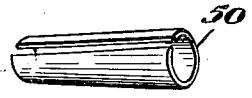


Fig. 5.

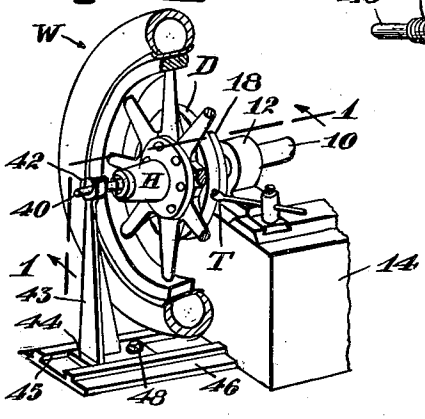
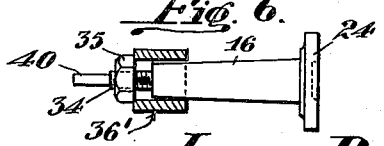


Fig. 6.



Inventor

Jesse D. Slyder,

By R. S. Burns

Attorney

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UNITED STATES PATENT OFFICE

JESSE D. SLYDER, OF LOS ANGELES, CALIFORNIA

WORK DRIVER FOR LATHES

Application filed April 8, 1925. Serial No. 21,574.

This invention relates to machines for trueing brake drums of automobile wheels and the like, and is applicable to that type of machine disclosed in United States Letters Patent No. 1,554,302, issued September 22, 1925, to Jesse D. Slyder and Charles R. McMinn, on which brake drums are trued without removal from their wheels.

The primary object of the invention is to provide such a machine which shall be readily adapted for receiving wheel hubs of various sizes for the purpose of presenting the drums of the wheels to the drum-trueing tool. Another object is to firmly secure on the machine wheel-hubs which vary from standard size due to wear.

A further object is to increase the range of work that may be performed on a single machine, and eliminate the necessity of providing a large number of machines to care for the usual large variety of sizes of hubs.

These objects are accomplished in one form of the present invention by providing the driven shaft of the machine with means for removably mounting thereon arbors or mandrels of varying sizes adapted to receive hubs of wheels for presentation of the drums thereon to the trueing tool while still attached to the wheels. In addition to providing the interchangeable feature, variously sized sleeves or shims, which may conveniently be split, are employed, these being adapted to be placed upon the mandrels to care for small variations in size particularly those due to wear.

The invention resides in the novel combination and arrangement of parts and in the features of construction disclosed in certain forms in the accompanying drawings, described generally and pointed out in the claims, it being understood that the invention is limited only as defined by the claims.

In the drawings, wherein certain embodiments of the invention are shown by way of illustration—

Figure 1 is a longitudinal section through a mandrel of the present invention with a wheel hub in operative position thereon;

Figure 2 is a cross section on the line 2—2 of Figure 1;

Figure 3 is a perspective view of one of the removable mandrels;

Figure 4 is a perspective view of a split sleeve or shim adapted to be employed upon a mandrel;

Figure 5 is a perspective view showing an automobile wheel in operative position on the device with the drum of the wheel presented to the trueing tool; and

Figure 6 is a longitudinal section indicating a modified form of filler nut which may be employed where the wheel hub is short.

In carrying out the present invention I provide an independent tapered mandrel 16 adapted to be passed through the hub H of a vehicle wheel, which mandrel is designed to be removably carried upon a driven shaft 10 mounted in one or more bearings 12 supported by a base 14. For the purpose of detachably receiving the mandrel, the end of the shaft 10 is provided with a head 15 externally threaded as shown, this head constituting in effect a live stock for driving the mandrel 16, the latter being secured to said head 15 by means of a nut 18, internally threaded at 20 to engage said threaded head and having an inturned flange 22 for engagement with the back of an enlarged head 24 formed on the inner end of the mandrel. The head 15 is provided with a tapered boss 25 adapted to enter a recess 26 formed on the enner end of the mandrel 16 for the purpose of centering the parts and positioning the mandrel in axial alignment with the shaft. For the purpose of holding the mandrel against turning relatively to the shaft the head 15 is provided with a stud 28 which enters a notch 30 in the mandrel head 24. If desired, the periphery of the nut 18 may be fluted, as at 32, to insure firm engagement by a tool or by one's hand for tightening said nut.

The outer end of the mandrel 16 is provided with a reduced threaded extension 34 for receiving a positioning nut 35 which serves as a means for forcing the wheel hub into wedged engagement with the tapered mandrel and to hold the hub in its engaged position; the nut 35 being here shown as bearing against a filler sleeve 36 encompassing the extension 34 between the nut 35 and

the hub H of the wheel W to anchor the latter upon said mandrel. In Figure 6 there is shown a slightly modified form of filler sleeve 36′ adapted to pass over the end of the mandrel 16 to engage the end of a short hub. The outer end portion of the mandrel 16 is formed with a smooth cylindrical projection extending beyond the threaded portion 34 for rotary engagement in a positioning yoke 42 carried on a standard 43 provided with a base 44 which is adapted to be adjustably moved between guides 45 on a rigidly positioned support 46. The base 44 is adapted to be secured in adjusted position by means of a set screw or the like 48. Thus the standard 43 serves as a tail stock to position the outer end of the mandrel 16 especially if said mandrel is unusually long.

From the foregoing it will be apparent that mandrels 16, of various sizes may be readily interchanged upon the driven shaft 10, merely by removal of the nut 18, so that a great variety of sizes of wheel hubs may be positioned for rapid work of the tool T upon the brake drums D of said wheels. Since each mandrel 16 is slightly tapered, as indicated, a considerable number of different sizes of hubs may be accommodated by a single mandrel by reason of the fact that a smaller hub will be positioned nearer the outer end of the mandrel 16 and be held by the filler sleeve 36 while somewhat larger hubs will be positioned farther up on the mandrel 16 and be engaged by the filler sleeve 36′. Other variations may be cared for on the same mandrel by employment of split sleeves or shims 50, as indicated in Figure 4, these being provided in several sizes.

Thus by providing a number of mandrels 16 of various sizes, one drum-trueing machine will take care of all of the wide range of work coming into the shop, and the work may be turned out with considerable dispatch.

By the use of this invention trueing of brake drums of vehicle wheels may be readily effected without removing the brake drum from the wheel or wheel hub on which it is mounted, as the mandrel 16 affords an effective means for engaging the hub of the vehicle wheel in such manner that the wheel will be supported and rotated in the brake drum trueing machine in substantially the same manner as it is supported on the vehicle axle or wheel spindle. This is advantageous as it effects a saving of time and labor over the present general practice of dismounting the brake drum as where the latter is trued on an ordinary lathe, and as it also insures trueing of the brake drum in proper relation to the axis of the wheel on which it is carried. Securing of the mandrel to the rotary shaft 10 is facilitated by reason of the nut 32 forming a part of the mandrel yet being turnable relatively thereto as by bringing the nut into engagement with the threaded head of the shaft 10 while the latter is rotating and holding the nut stationary, the mandrel may be very quickly applied to the shaft.

Furthermore, by providing a wheel-carrying mandrel adapted to extend through a wheel hub, together with means for clamping the hub on the mandrel, as contemplated by my invention, a substantial support is afforded the wheel during the drum trueing operation, and also quick mounting and demounting of the wheel on the brake drum trueing machine may be accomplished.

While I have shown and described a specific embodiment of my invention, it is to be understood that it embraces other forms that come within the scope of the appended claims, for example, the mandrel may have any desired shape according to the type of vehicle wheel and hub to be carried thereon.

I claim:—

1. A machine for truing brake drums on vehicle wheels comprising a base, a bearing supported by the base, a shaft rotatably mounted in the bearing, an externally threaded head formed on the shaft, an independent mandrel for insertion through a wheel hub, a head on said mandrel, and internally threaded nut encircling said mandrel, and an inturned flange on said nut arranged to seat on the mandrel head, said nut being screwable on the threaded head of said shaft for detachably securing the heads of the shaft and mandrel.

2. In a machine for truing a brake drum on a vehicle wheel, a revoluble shaft, an independent mandrel formed to pass through the hub of a vehicle wheel and effect wedge engaged therewith, means for detachably connecting the inner end of said mandrel to said shaft, and means on the outer end of said mandrel for bearing against the hub of a vehicle wheel positioned on the mandrel and operable to force the hub into wedge engagement with the mandrel and hold it in place thereon.

3. In a machine for truing a brake drum on a vehicle wheel, the structure specified in claim 2 including a cylindrical extension on the outer end of the mandrel, and a standard on which said extension seats.

4. In a machine for truing brake drums on a vehicle wheel, a revoluble shaft, an independent tapered mandrel formed to pass through the hub of a vehicle wheel, means for detachably connecting the inner end of the said mandrel to the shaft, a reduced threaded projection on the outer end of said mandrel, and a nut screwed on said projection operable to force the hub into wedge engagement with the mandrel.

JESSE D. SLYDER.