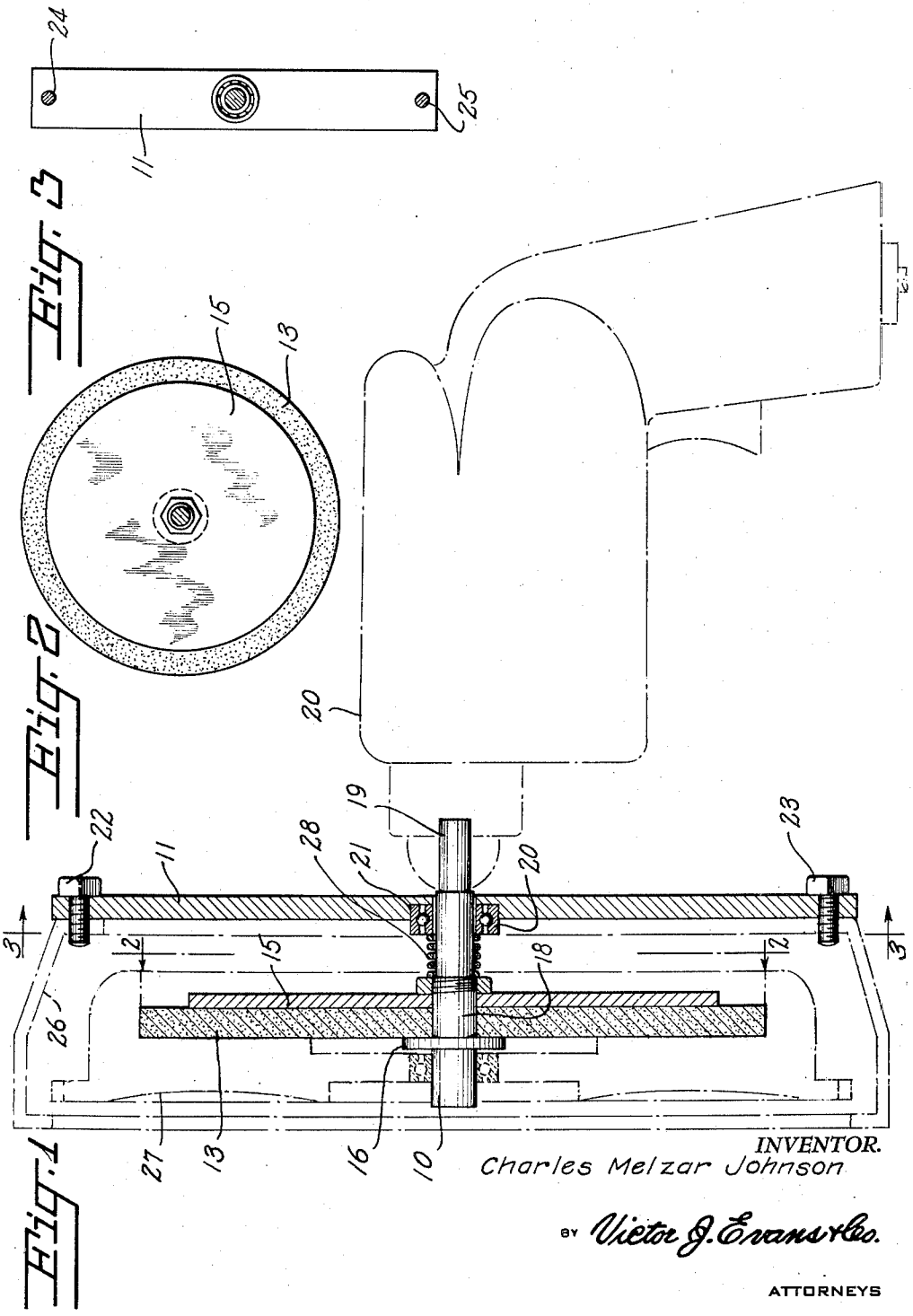
Dec. 20, 1949 C. M. JOHNSON 2,491,565

CLUTCH PRESSURE PLATE AND FLYWHEEL REFACING AND HONING TOOL

Filed May 7, 1948 2 Sheets-Sheet 1



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Fig. 5

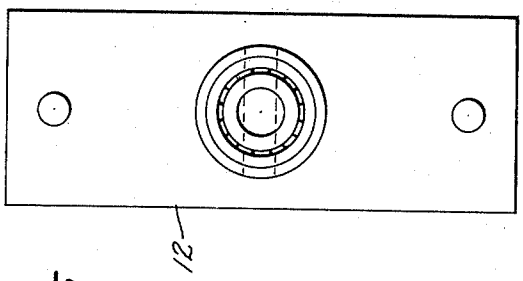


Fig. 6

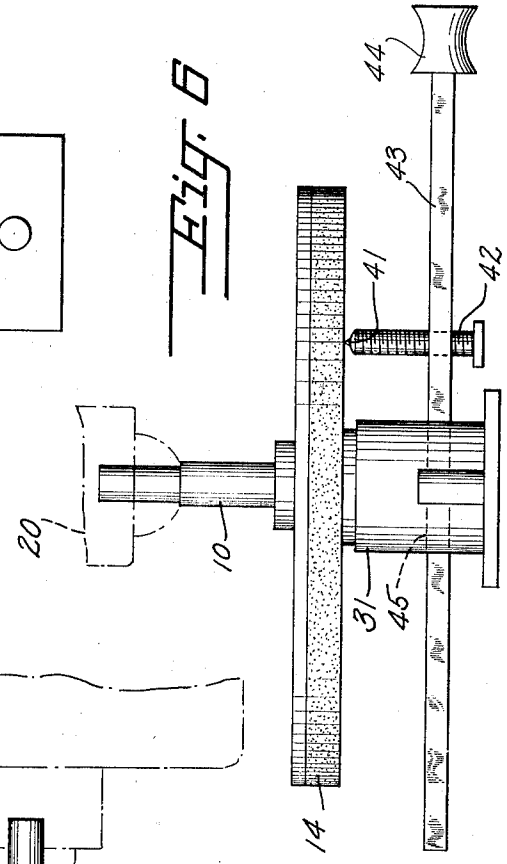
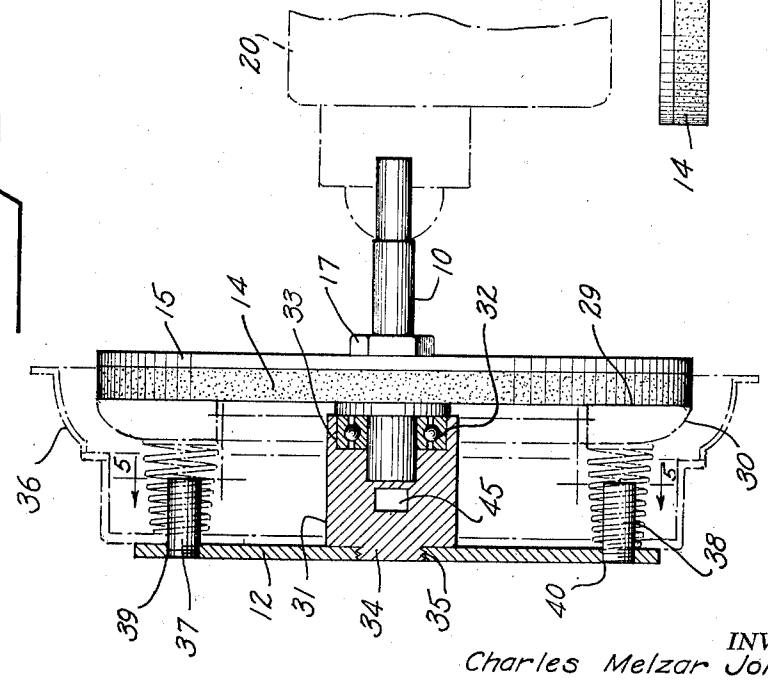


Fig. 4



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CLUTCH PRESSURE PLATE AND FLYWHEEL REFACING AND HONING TOOL

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Application May 7, 1948, Serial No. 25,628

5 Claims. (Cl. 51—241)

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This invention relates to refinishing and honing tools for pressure plates and fly-wheels of motor vehicle clutches, wherein the parts may be refinished without removing the motor or fly-wheel, and in particular the invention relates to an arbor with a supporting bar and plate by which it may be attached to the fly-wheel housing and clutch cover, respectively, and upon which grinding stones may be mounted for refacing the clutch plate and clutch surface of the fly-wheel.

The purpose of this invention is to provide a portable tool for refacing, refinishing and honing the plate and clutch surfaces of the fly-wheel of a motor vehicle clutch in which the tool may be attached to the housing and cover without removing the motor or fly-wheel.

In the usual motor-vehicle clutch, the clutch surface of the fly-wheel and clutch plate wear, and in some clutches the rivets cut grooves in the working faces, thereby causing failure of the clutch in a comparatively short time. In some vehicles, the pressure plate and fly-wheel are apparently in perfect condition; but, upon examination, they are found to be out of true, allowing only part of the surfaces to make contact. With only a small amount of wear, it is hardly advisable to remove the motor and the fly-wheel, which is a costly repair job, and with this thought in mind, this invention contemplates a portable tool that may be readily bolted to the parts, whereby the defective surfaces may readily be refinished at comparatively low cost.

The object of this invention is therefore to provide a comparatively inexpensive portable tool for refinishing pressure plates and fly-wheels of clutches, without removing the fly-wheel or motor.

Another object of the invention is to provide a portable tool for refinishing motor vehicle clutch pressure plates and fly-wheels in which interchangeable grinding stones are used on a common arbor for grinding the different parts.

Another object of the invention is to provide an arbor adapted to accommodate grinding stones of different sizes and means for attaching the arbor to the clutch cover and fly-wheel housing of a motor-vehicle clutch, so that with power applied to the arbor, the pressure plate and clutch surface of the fly-wheel may be refinished.

A further object of the invention is to provide a portable tool for refinishing the working surfaces of a motor-vehicle clutch that may be bolted to the housing of the part, which is a comparatively simple and economical construction.

With these and other objects in view, the invention consists of the new and useful combination, construction and arrangement of parts, as hereinafter more fully described, set forth in the claims appended hereto and disclosed in the accompanying drawings forming part hereof, wherein:

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Figure 1 is a view showing a longitudinal section through the fly-wheel housing of a motor-vehicle clutch with the grinding tool bolted thereto and with the housing and power actuating device shown in dotted lines.

Figure 2 is a view showing a side elevation of the grinding wheel with a plate providing a washer positioned thereon.

Figure 3 is a detail showing a mounting bar by which the tool is attached to the fly-wheel housing.

Figure 4 is a longitudinal section through the clutch cover with the grinding tool mounted thereon, wherein the clutch cover and the power actuating device are indicated in dotted lines and the arbor and grinding stone are shown in elevation.

Figure 5 is a detail showing the mounting plate for holding the tool to the clutch cover.

Figure 6 is a view showing a side elevation of the tool, with a dressing tool in combination therewith.

Referring now to the drawings wherein like reference characters denote corresponding parts, the clutch refinishing tool of this invention includes an arbor 10, a fly-wheel housing mounting bar 11, a clutch cover mounting bar 12, grinding wheels 13 and 14, and a washer 15.

The arbor 10 is provided with a flange 16, against which the grinding wheels 13 and 14 are held by a nut 17 with the washer 15 against the wheels. The nut is threaded on the intermediate portion 18 of the arbor on which the grinding wheels and flange are also mounted and the outer end of the arbor is provided with a stem 19, to which a power-actuating device 20 is attached, as shown in Figures 1 and 4.

In the design shown in Figure 1, the arbor is rotatably mounted in the bar 11 through a bearing 20 in a recess 21, and the bar is secured by bolts 22 and 23 which are positioned in openings 24 and 25, in the ends of the bar to the fly-wheel housing, as indicated by the dotted lines 26. The bolts 22 and 23 are threaded into the usual stud openings in the flange of the housing.

With the parts positioned in this manner, the grinding stone 13 contacts the clutch surface 27 of the fly-wheel, and the stone is resiliently held against the surface by a spring 28 on the arbor as

it is rotated. The bar 11 accurately positions the stone, so that the surface 27 will be ground smooth and true.

In the design shown in Figure 4, the stone 13 is replaced by the grinding stone 14 which corresponds with the face 29 of the pressure plate 30 of the clutch and the arbor is mounted in a cylindrical post 31 through a bearing 32 in a recess 33 in the post. The post is provided with a threaded stud 34 that is threaded into an opening 35 in the plate 12 and the plate is mounted on the clutch cover 36 through studs 37 and 38, which are threaded in openings 39 and 40 in the ends of the plate 12, respectively.

In this design the power-actuating element 20 is applied to the outer end of the arbor 10, and as the arbor rotates, the grinding or emery wheel 14 refinishes the surface 29 of the pressure plate.

The tool is also provided with a dressing tool as illustrated in Figure 6 in which a diamond point 41 on the end of screw 42 is mounted in a bar 43 having a handle 44 at the outer end and the bar is slidably mounted in a socket 45 in the post 31. With the parts arranged in this manner, the wheel 14 may be rotated by the power-actuating device 20 through the arbor 10, and as the wheel rotates, the dressing tool or point 41 may be moved across the face thereof to true up the working or grinding face. The dressing tool may also be used with the stone 13 shown in Figures 1 and 2.

With this tool, the clutch surface of the flywheel and also the corresponding surface of the pressure plate may be reground or honed with the parts in their respective housings, and with the grinding wheels bolted to the housings, the clutch surfaces will be ground true.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A portable clutch refinishing tool comprising an arbor having a flange spaced from one end thereof and a stem to which power-actuating means is applied on the other end, a grinding wheel positioned on the arbor and against the flange, a washer positioned against the opposite surface of the grinding wheel, a nut threaded on the arbor clamping the grinding wheel against the flange, a mounting plate adapted to be bolted to the clutch housing, a post having a ball bearing socket in the outer end carried by the mounting plate for rotatably mounting the arbor on the mounting plate.

2. A portable clutch refinishing tool comprising an arbor having a flange spaced from one end thereof and a stem on the other end for receiving power-actuating means, a grinding wheel positioned on the arbor and against the flange, a washer positioned against the opposite surface of the grinding wheel, a nut threaded on the arbor clamping the grinding wheel against the flange, a mounting plate having a threaded centrally disposed opening and bolt holes in the outer ends for bolting the mounting plate to the clutch housing, and a post having a ball bearing socket in the outer end and a threaded stem positioned in the centrally disposed threaded opening of the mounting plate for rotatably mounting the arbor on the mounting plate.

3. In a refinishing tool for a clutch having a centrally disposed bearing and a clutch face in a plane perpendicular to the axis of the bearing, a spindle having one end positioned for mounting in the bearing of the clutch, a grinding wheel carried by the spindle and positioned to engage the said clutch face with the end of the spindle in the bearing of the clutch, a mounting plate positioned on the spindle and having bolt holes in the ends thereof, and a bearing in said mounting plate in which the spindle is journaled in said plate, said spindle having an extending stem for receiving power actuating means.

4. In a refinishing tool for a clutch having a centrally disposed bearing and a clutch face in a plane perpendicular to the axis of the bearing, a spindle having one end positioned for mounting in the bearing of the clutch, a grinding wheel carried by the spindle and positioned to engage the said clutch face with the end of the spindle in the bearing of the clutch, a mounting plate positioned on the spindle and having bolt holes in the ends thereof, a bearing in said mounting plate in which the spindle is journaled in said plate, said spindle having an extending stem for receiving power actuating means, and a spring positioned on the spindle between the said mounting plate and grinding wheel for urging the grinding wheel against the face of the clutch.

5. In a refinishing tool for a clutch having a centrally disposed bearing and a clutch face in a plane perpendicular to the axis of the bearing, a spindle having one end positioned for mounting in the bearing of the clutch, a grinding wheel carried by the spindle and positioned to engage the said clutch face with the end of the spindle in the bearing of the clutch, said spindle having a flange thereon against which the grinding wheel is positioned, a backing plate positioned against the outer surface of the grinding wheel, a nut threaded on the spindle for locking the grinding wheel and backing plate against the flange, a mounting plate positioned on the spindle and having bolt holes in the ends thereof, a bearing in said mounting plate in which the spindle is journaled in said plate, said spindle having an extending stem for receiving power actuating means, and resilient means on the spindle between the said mounting plate and nut urging the grinding wheel against the face of the clutch.

CHARLES MELZAR JOHNSON.

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