July 31, 1962 H. E. BALSIGER 3,046,967

CORNER DRESSING MEANS FOR GRINDING WHEELS

Filed April 3, 1959 2 Sheets-Sheet 1

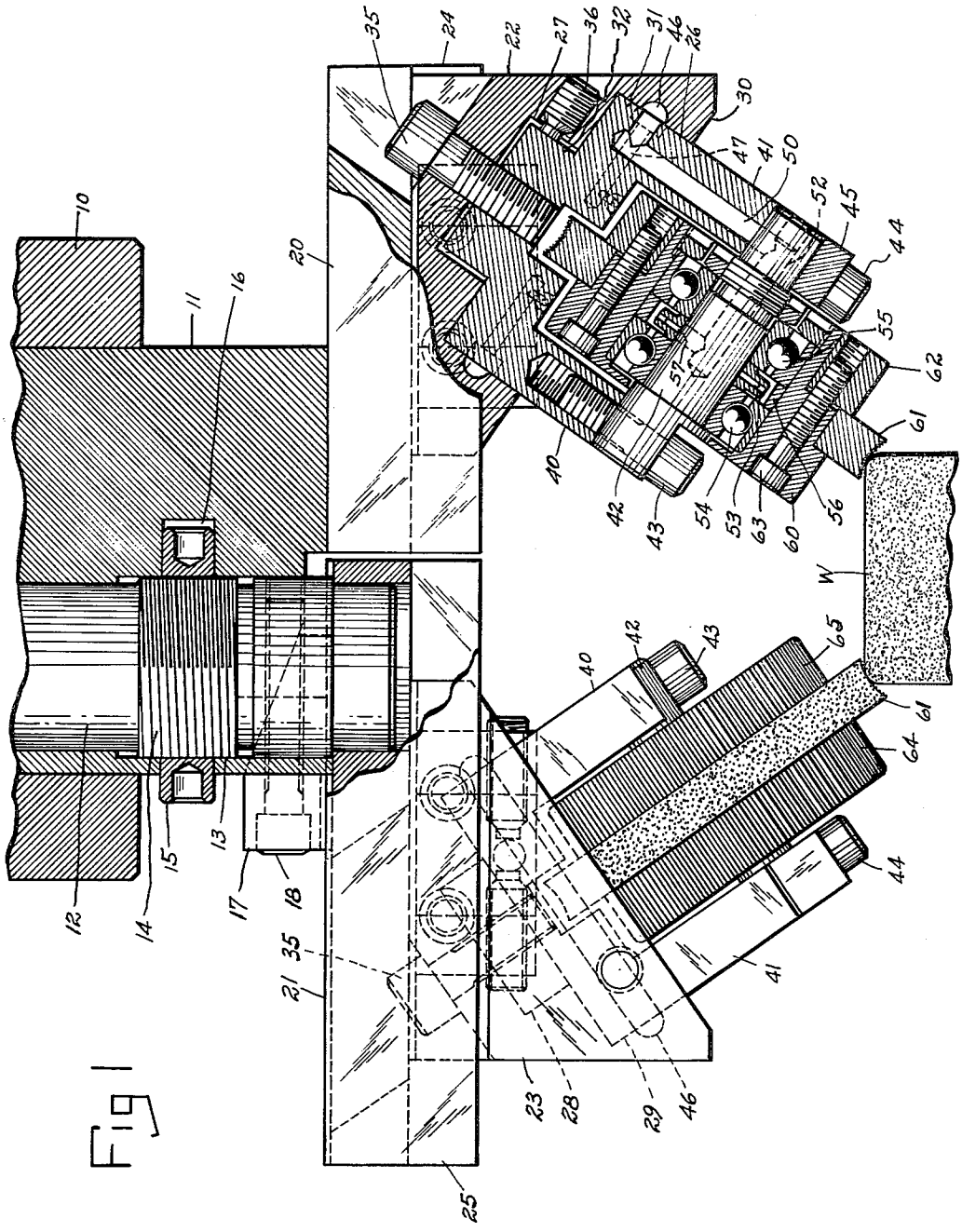


Fig 1

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Fig 2

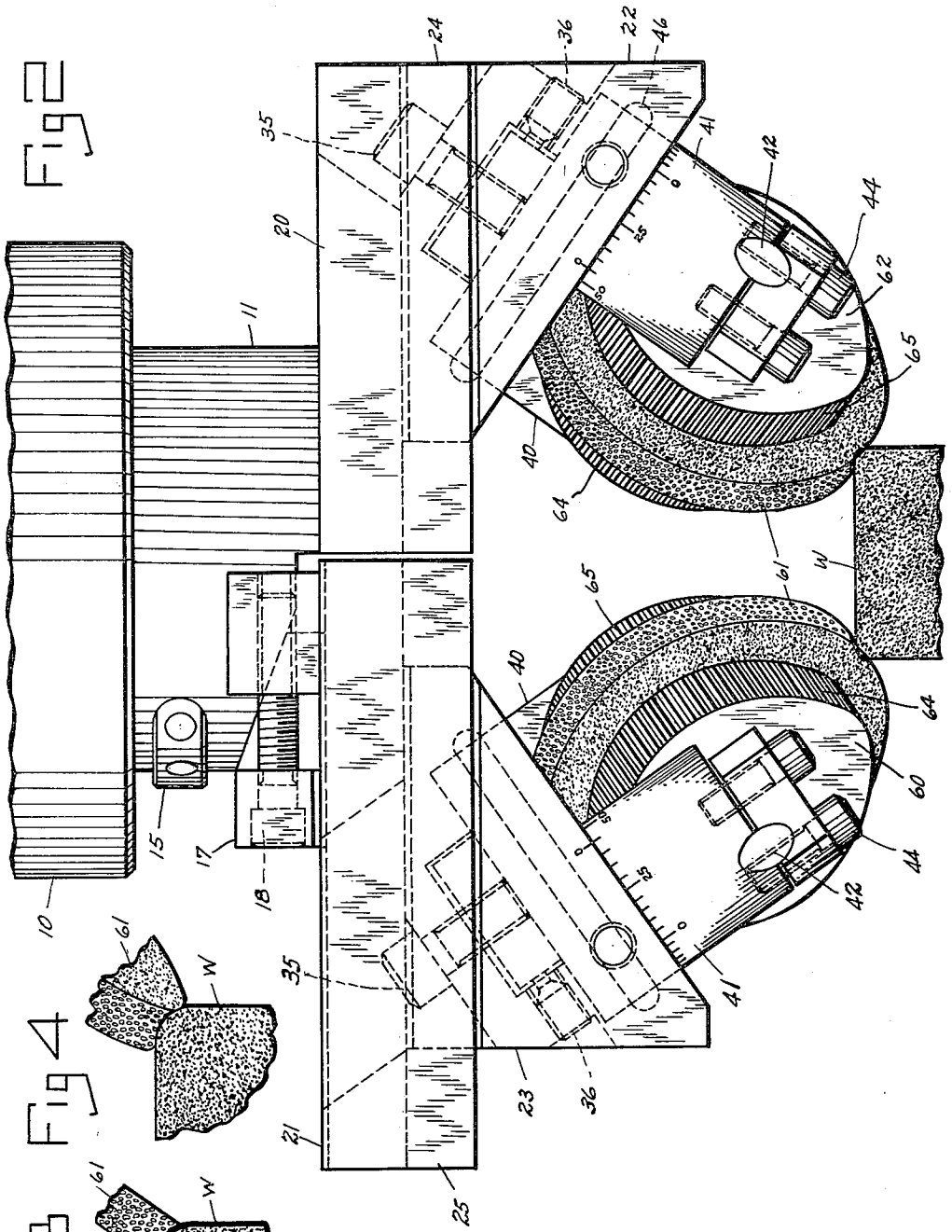
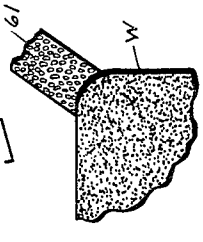


Fig 4

Fig 3



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CORNER DRESSING MEANS FOR GRINDING WHEELS

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This invention relates to dressing tools for abrasive wheels, particularly for wheels having corners or other angular portions which must be rounded to blend with adjacent straight portions.

Previous devices for this purpose generally consisted of one or the other of two types of dressing devices, namely, a single or multiple diamond tool guided by a template or profile bar, or rollers formed to a desired shape and made of hardened materials suitable for crush dressing or diamond impregnated rollers for diamond dressing. All of these previous devices were subjected to relatively rapid wear and, therefore, required frequent adjustment or replacement of wearing parts to maintain the required shape.

It is, therefore, an object of this invention to provide a dressing tool which may be mounted on a conventional dresser bar and which will be capable of providing a substantially greater number of dressing operations before it is sufficiently worn to require replacement.

Another object is to provide dressing tools consisting of diamond impregnated or hardened rollers having a formed peripheral surface which is not necessarily the form to be dressed on the abrasive wheels.

Another object is to provide a dressing tool having a formed dressing roller which may be angularly positioned to dress curved surfaces of different radii on the grinding wheel.

Another object is to provide means for effecting rotation of said roller by means other than contact of the roller with the rotating abrasive wheels.

FIGURE 1 is a partial sectional front elevation of a dressing device for dressing the corner of a grinding wheel.

FIGURE 2 is a partial front elevation with the dressing rollers in an angularly adjusted position for dressing a small radius.

FIGURE 3 is a partial front elevation of a dressing roller in zero position.

FIGURE 4 is a partial front elevation of a dressing roller in adjusted position for dressing a larger radius than that shown in FIGURE 2.

In the drawing, numeral **10** is the housing for the dresser. **11** is a dresser bar slidably mounted in housing **10**. **12** is an auxiliary bar mounted in an off center bore **13** in bar **11**. Bar **12** has a threaded portion **14** and a nut **15**. A horizontal slot **16** in bar **11** provides means for adjusting bar **12** axially in bar **11**. Nut **15** may be locked in adjusted position by a wedge-shaped member **17** actuated by screw **18**.

At the lower end of each of the bars **11** and **12**, there is attached a pair of dressing tool supports **20** and **21**. Each of said dressing tool supports **20** and **21** has a carrier member **22** or **23** slidably mounted in a radial dove-tail guide **24** or **25**. Each of said carrier members **22** or **23** has a pair of concentric bores **26** and **27** in carrier member **22**, and **28** and **29** in carrier member **23**. The axes of said bores are inclined inwardly toward grinding wheel W at an angle approximately 35° to the axis of dresser bar **11** or the plane of grinding wheel W. While the 35° angle is preferred, other angles are not excluded.

The apparatus of the devices mounted in said bores are identical in construction. Therefore, the rest of the specification will be directed to a single device.

It consists of a tool supporting member **30** having

concentric cylindrical portions **31** and **32** corresponding to bores **26** and **27** respectively in carrier member **22**. Tool supporting member **30** is held in carrier member **22** by means of screw **35**. Member **30** may be held in a predetermined angular position by means of set screw **36**. Member **30** has two depending portions **40** and **41** to which shaft **42** is attached by means of screws **43** and **44** and cap member **45**.

In bore **26**, there is a peripheral groove **46** in line with a plurality of radial passages **47** in portion **31**. Groove **46** is also connected to a longitudinal passage **50** in depending portion **41**. Passage **50** is connected to passage **52** in shaft **42**. Passage **52** is, in turn, connected to collar **53** on shaft **42** between a pair of anti-friction bearings **54** and **55**. Collar **53** serves as a spacer for the inner rings of said bearings **54** and **55**. The outer rings are spaced by a ring-like member **56**. Collar **53** has a plurality of radial passages **57** peripherally spaced therein. Bearings **54** and **55** provide a rotatable supporting means for a roller supporting element **60** on which dressing roller **61** is clamped by means of clamping member **62** and clamping screws **63**. The peripheral surfaces of the roller supporting element **60** and clamping member **62** are roughened either by knurling **64** or other suitable means. The peripheral surface of dressing roller **61** is concave having a radius preferably greater than the maximum radius to be dressed on the corner of grinding wheel W. Dressing roller **61** may be impregnated with diamonds for diamond dressing or may be of a carbide material for crush dressing.

A mixture of lubricant and air under pressure is introduced into groove **46**. A portion of said mixture is distributed through passage **50** and radial passages **57** to lubricate bearings **54** and **55**. Another portion of said mixture is directed through radial passages **47** from which it is directed at high velocity on to the knurled peripheral surfaces **64** and **65** of the roller supporting element **60** and clamping member **62** to rotate dressing roller **61** at speeds suitable for engaging the grinding wheel W for diamond dressing or for crush dressing.

By changing the angular position of tool supporting member **30** in carrier member **22**, roller **61** will dress a different radius on grinding wheel W. A chart may be prepared showing the radius which may be dressed for each angular position of tool supporting member **30**. For example:

Roller setting—degrees:	Radius of wheel corner, inches
0	.3125
5	.3092
10	.284
15	.2347
20	.1636
25	.078
27.8	.0

I claim:

1. A dressing device for dressing a corner of a grinding wheel comprising a housing, a dresser bar slidably mounted in said housing for movement toward and from said grinding wheel, a carrier mounted on said dresser bar for adjustment relative to said grinding wheel, a tool supporting member mounted for angular adjustment in said carrier, a dressing roller rotatably mounted in said tool supporting member, said dressing roller having a concave peripheral surface of a radius greater than the radius of said grinding wheel corner, means for effecting preliminary rotation of said dressing roller comprising knurled collars on each side of said dressing roller, and means for directing high velocity streams of air against said collars.

2. A dressing device for a grinding wheel comprising a housing, a dresser bar mounted in said housing for move-

ment toward and from said grinding wheel, a tool holder mounted on said dresser bar, a dressing roller rotatably mounted in said tool holder, means for effecting preliminary rotation of said dressing roller comprising a knurled surface on said dressing roller, and means for directing a high velocity stream of air against said knurled surface.

3. A dressing device for a grinding wheel comprising a housing, a dresser bar mounted in said housing for movement toward and from said grinding wheel, a dressing roller rotatably mounted on said dresser bar, means for effecting preliminary rotation of said dressing roller comprising a roughened surface on said dressing roller, and means for directing a high velocity stream of air against said surface.

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