

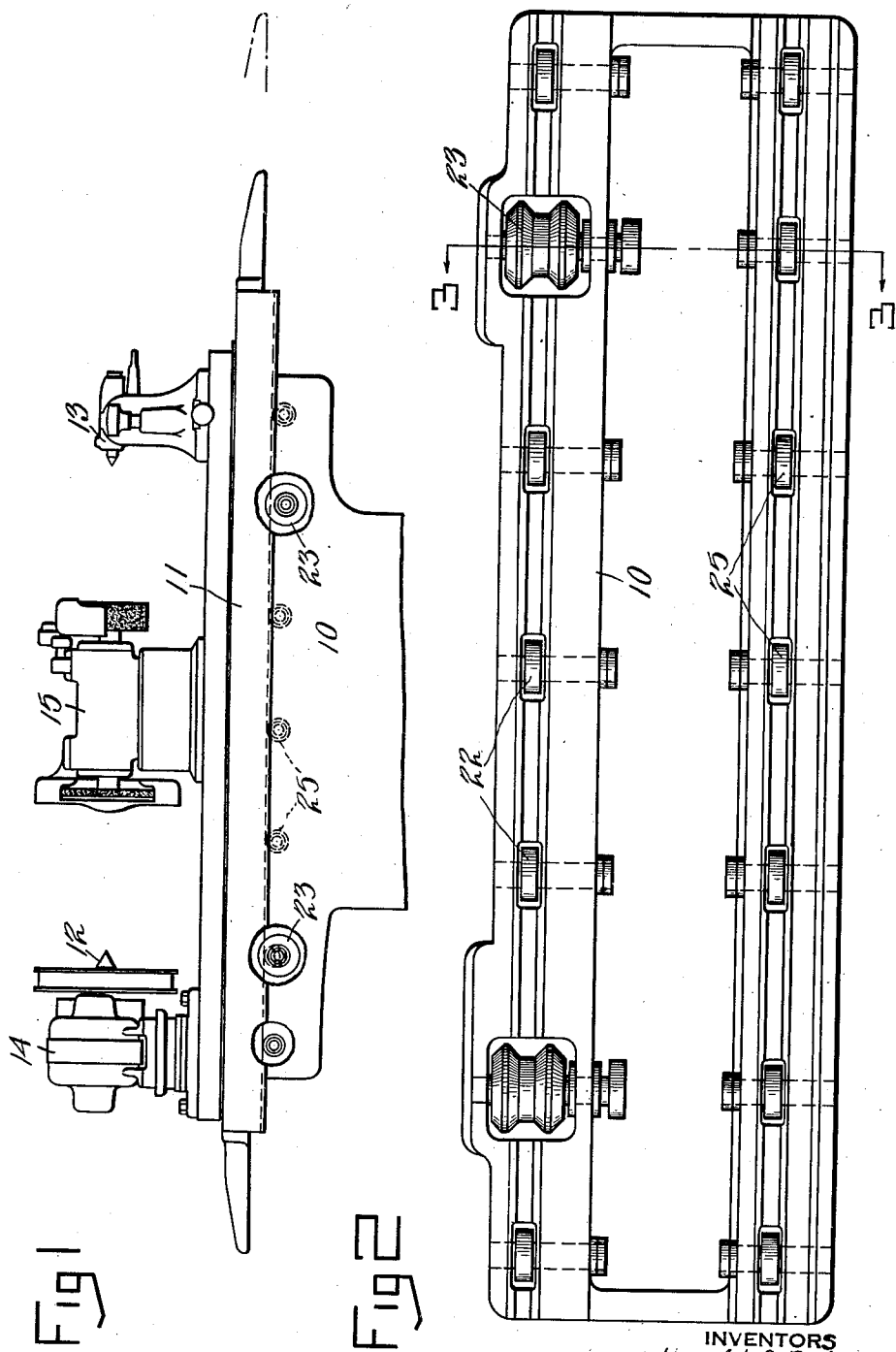
June 15, 1937.

H. E. BALSIGER ET AL

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Original Filed Nov. 25, 1931 5 Sheets-Sheet 1



INVENTORS
Harold E. Balsiger
BY Conrad L. Ott.
Attorney

June 15, 1937.

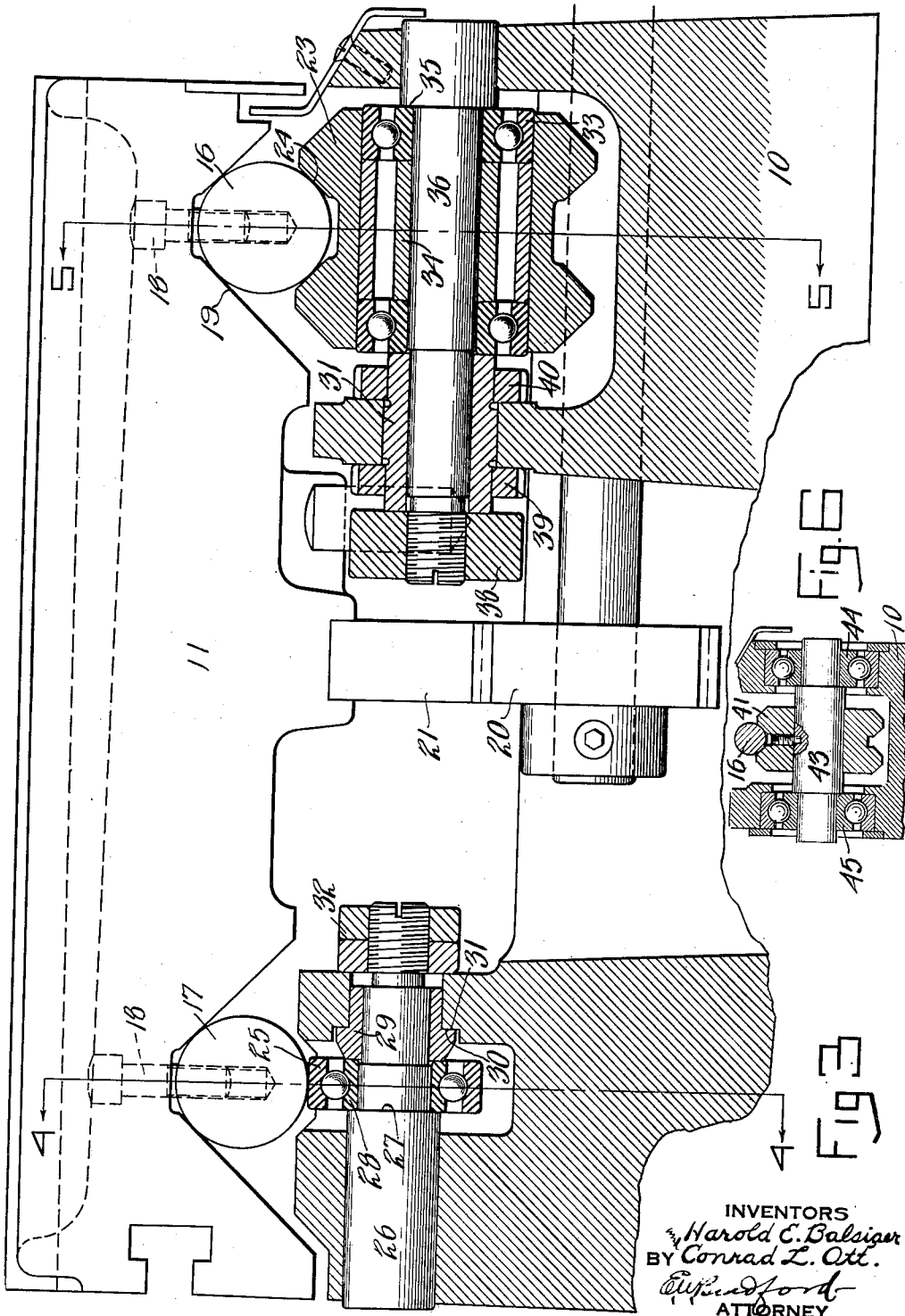
H. E. BALSIGER ET AL

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Original Filed Nov. 25, 1931

5 Sheets-Sheet 2



June 15, 1937.

H. E. BALSIGER ET AL

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Original Filed Nov. 25, 1931 5 Sheets-Sheet 3

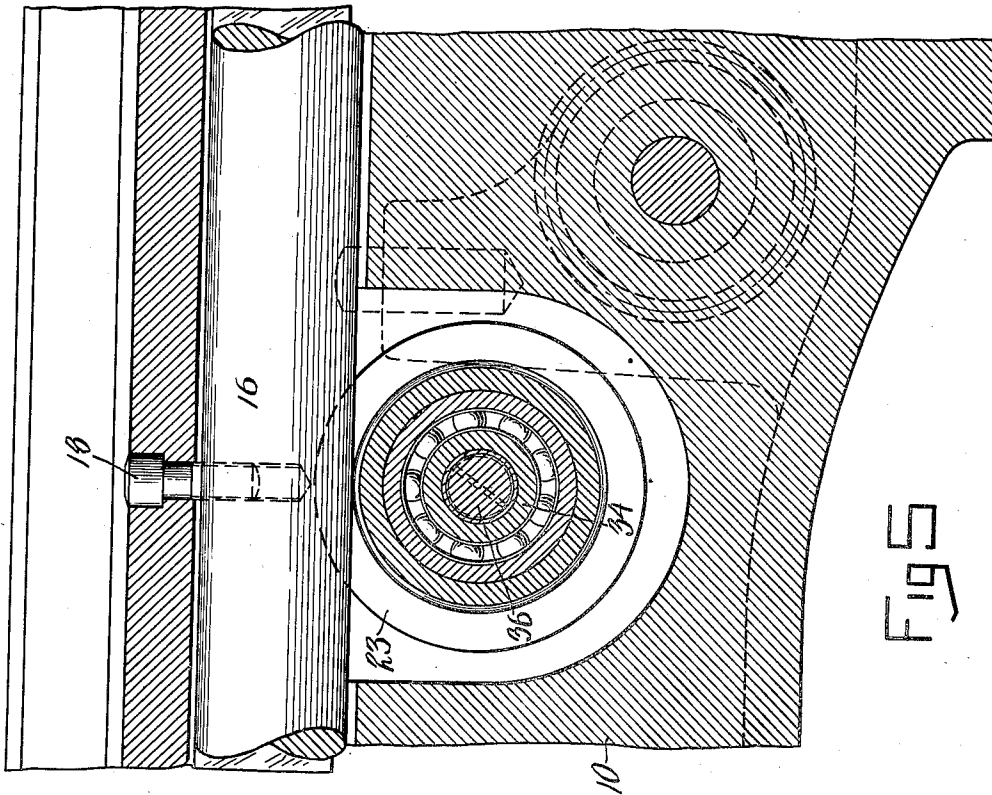


Fig 5

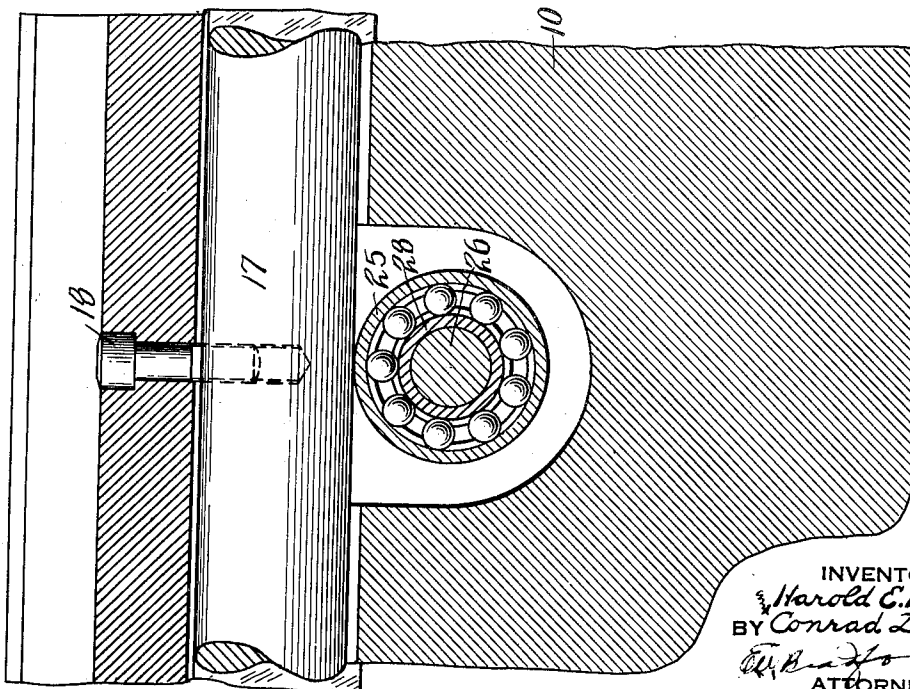


Fig 4

INVENTORS
Harold C. Balsiger.
BY Conrad L. Ott.
W. B. Bradford -
ATTORNEY

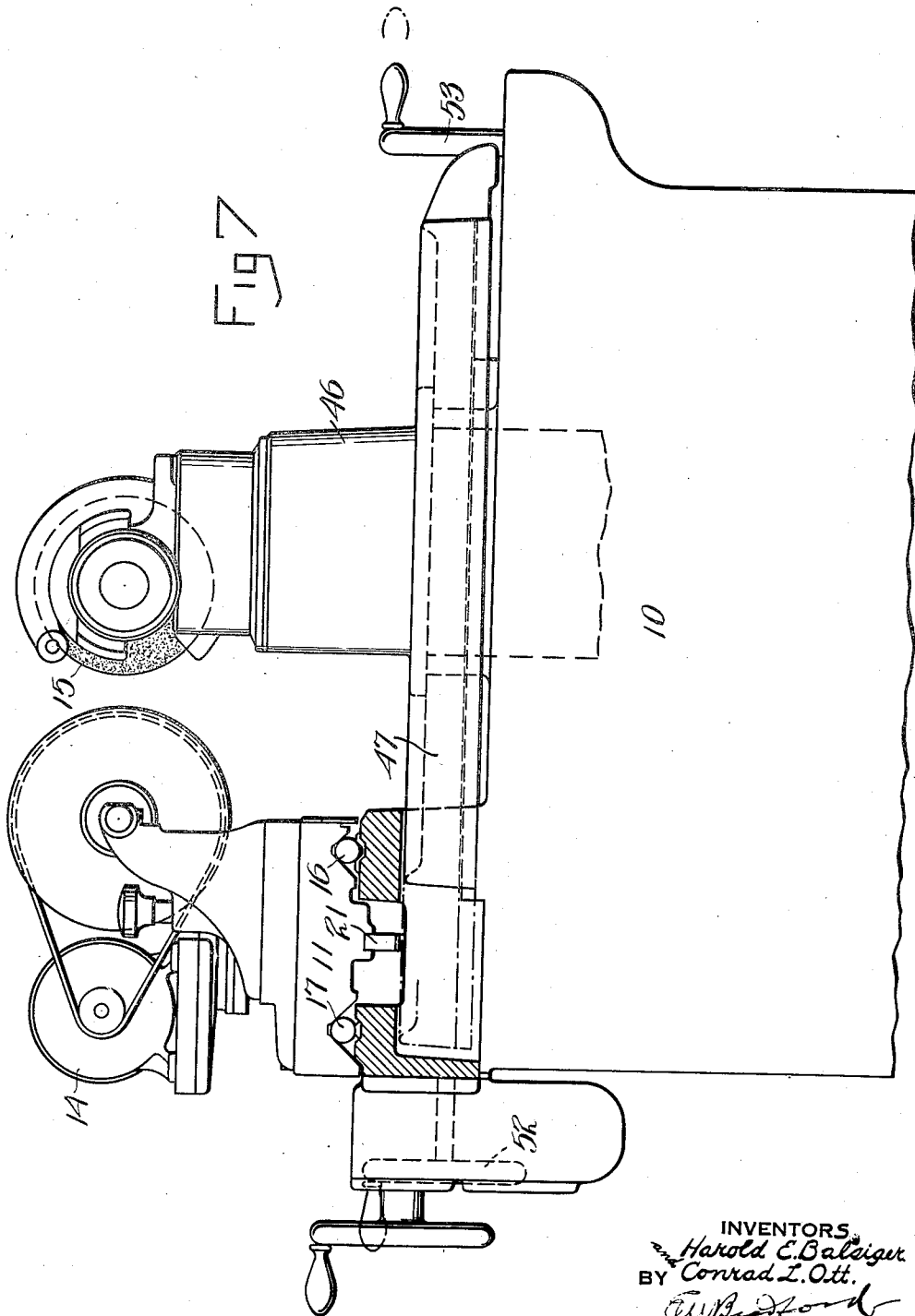
June 15, 1937.

H. E. BALSIGER ET AL

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Original Filed Nov. 25, 1931 5 Sheets-Sheet 4



INVENTORS
Harold E. Balsiger
BY Conrad L. Ott.
ATTORNEY

June 15, 1937.

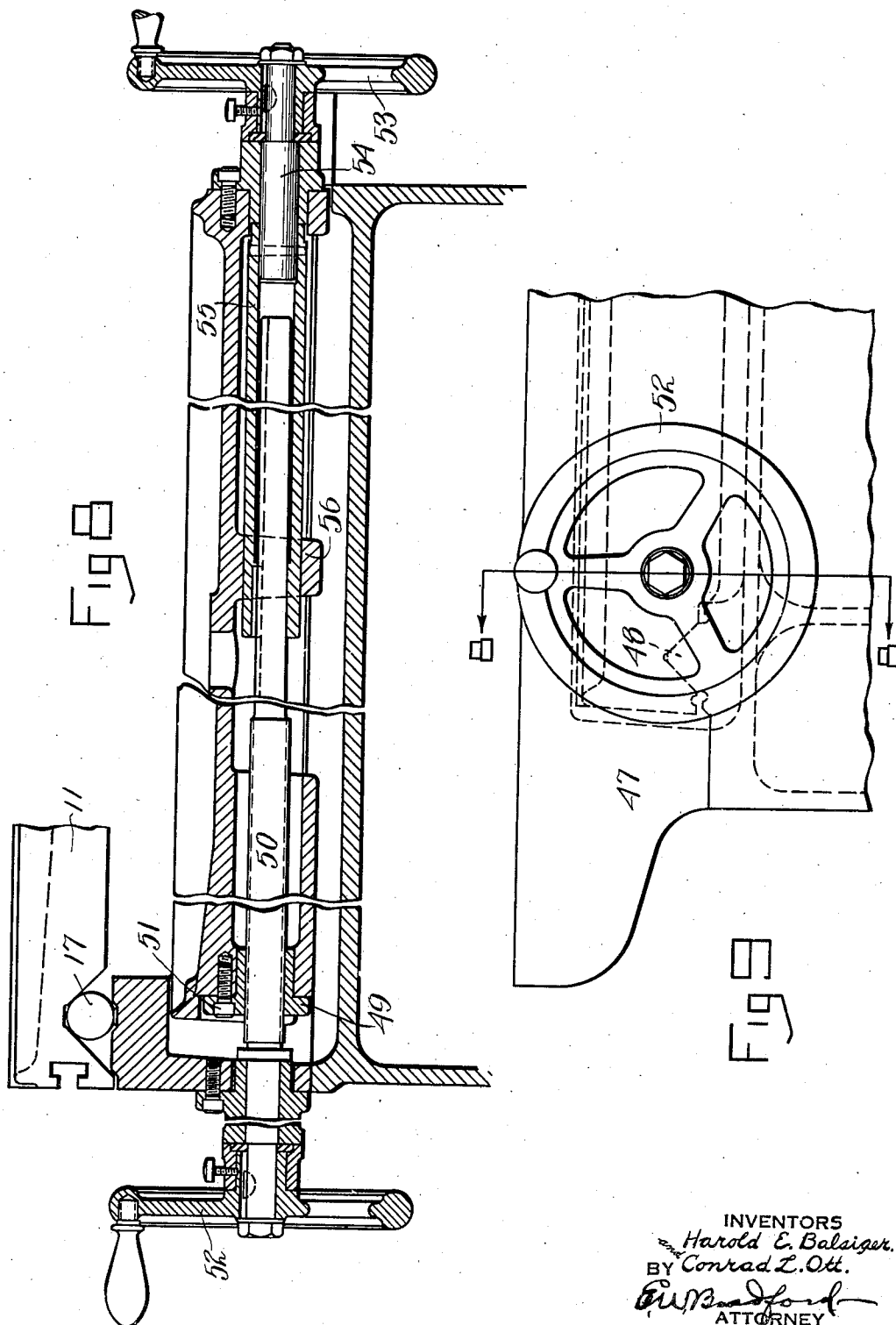
H. E. BALSIGER ET AL

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Original Filed Nov. 25, 1931

5 Sheets-Sheet 5



INVENTORS
Harold E. Balsiger.
BY Conrad L. Ott.
E. W. Bradford
ATTORNEY

UNITED STATES PATENT OFFICE

2,083,682

CARRIAGE MOUNTING FOR GRINDING MACHINES

Harold E. Balsiger and Conrad L. Ott, Waynesboro, Pa., assignors to Landis Tool Company, Waynesboro, Pa., a corporation of Pennsylvania

Application November 25, 1931, Serial No. 577,318
Renewed November 12, 1936

2 Claims. (Cl. 308—6)

This invention relates to the art of grinding machines and its object is to provide roller bearing means for the traverse carriage in place of the usual sliding contact between the carriage and the base on which it slides. Heretofore the work carriage and wheel carriage of grinding machines were provided with V-shaped portions which slid in V-shaped grooves on the bed of the machine. Our invention provides roller bearings on the bed of the machine along with the necessary guiding means in place of the slide bearings heretofore used.

A further object is to provide improved mounting and operating means for the grinding wheel support.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a side elevation of a work carriage mounted according to our invention,

Figure 2, a plan view of the machine base showing the roller bearings upon which the carriage drives,

Figure 3, a section on line 3—3 of Figure 2,

Figure 4, a section on line 4—4 of Figure 3,

Figure 5, a section on line 5—5 of Figure 3,

Figure 6, a detail view of a modified form of roller bearings,

Figure 7, an end view of a grinding machine showing some parts in section and showing the mounting of the grinding wheel base on the body of the machine,

Figure 8 is a section on line 8—8 of Figure 9, and

Figure 9 is a front elevation of a portion of the machine showing the operating means for the wheel base.

In the drawings numeral 10 indicates the bed of a grinding machine having a work carriage 11 traversably mounted thereon. The work carriage carries head stock 12 and tail stock 13, the head stock being driven by means of a motor 14. A grinding wheel 15 of usual form is mounted on the bed of the machine. To the under side of the work carriage are secured bars 16 and 17 by means of bolts 18. These bars are seated in grooves or channels 19 formed on the under side of the carriage. The carriage is driven by means of a pinion 20 mounted in the bed of the machine engaging a rack 21 which is secured to the under side of the carriage. The bar 16 rests upon the peripheries of ball bearing elements 22 and 23. Bearings 23 are preferably ably grooved as shown at 24 to provide means

for holding the carriage in correct alignment as it traverses upon the bed of the machine. The bar 17 preferably rests upon the peripheries of ball bearing elements 25. Each of ball bearing elements 25 is mounted upon a shaft 26 which is mounted in the bed of the machine. The shaft 26 preferably is provided with a shoulder portion 27 against which the inner element 28 of the ball bearing race is held. The other side of the ball bearing race element abuts against the inner end of a sleeve 29 which has a shoulder portion 30 which abuts against the corresponding shoulder 31 on a portion of the machine bed. Nuts 32 are screw threaded on the inner end of the shaft 26 to hold the shaft against endwise movement. Ball bearing elements 22 are similar to those just described. Bearing elements 23, however, consist of an outer grooved portion having ball bearing cages 33 in each end which cages are spaced apart by a sleeve 34. The ball bearing assembly just described is held against a shoulder 35 on a shaft 36 by means of a sleeve 37 held in place by a nut 38. Nuts 39 and 40 screw threaded on the sleeve 31 hold the shaft against endwise movement relative to the bed of the machine 10.

Under certain circumstances and with certain classes of machines it may be possible or expedient to make the outer ball bearing element 41 integral with a sleeve and both secured upon a shaft 43, the shaft being supported in ball bearing elements 44 and 45 which are secured in the bed of the machine 10 in any suitable way as shown in Figure 6.

Numerical 46 indicates a portion of the wheel base which is mounted on a slide 47 which moves on slideways or guides 48 on the bed of the machine. A nut 49 threaded on its interior to receive a correspondingly threaded portion on a shaft 50 is held to the wheel slide by means of a bolt or screw 51. The shaft 50 extends out through the bed of the machine and has an operating hand wheel 52 attached thereto. Rotation of the shaft 50, as will be apparent, will move the wheel base toward and from the work. Another hand wheel 53 at the rear of the machine is mounted on a shaft 54 which extends into and is keyed to a sleeve 55. The sleeve 55 is guided in a depending lug 56 in which it is rotatably mounted. The inner end of the shaft 50 extends into the sleeve 55 and is keyed to the sleeve so that they must rotate together when either of the hand wheels 52 or 53 is rotated.

The forward end of the wheel slide 47 extends under the traverse carriage. This provides for the necessary travel of the grinding wheel and at the same time insures a proper support for the wheel. In constructions heretofore it has been necessary to provide a deep machine base to support the grinding wheel when moved to the rear.

It will be obvious to those skilled in the art that various changes may be made in our device without departing from the spirit of the invention and therefore we do not limit ourselves to what is shown in the drawings and described in the specification, but only as indicated by the appended claims.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a grinding machine in combination a work carriage, a machine base, a plurality of rotatable

bearings fixed in said base, a pair of parallel grooves in the underside of said carriage, each groove having a bar fixed therein and secured to the carriage, said bars resting upon the peripheries of the bearings for preventing lateral movement of the carriage as it is traversed longitudinally of the said base.

2. In a machine of the kind described a base, a carriage movably mounted on said base, spaced parallel bars on one of said parts, a plurality of rotatable bearing members mounted on the other part, two or more of the bearings engaging one of said bars having grooved peripheral surfaces whereby to prevent lateral movement of said carriage during the traverse thereof, the bearings engaging the other of said bars having straight peripheral surfaces.

HAROLD E. BALSIGER.
CONRAD L. OTT.