April 3, 1928.

1,664,949

O. SANN

GRINDER

Filed Feb. 25, 1925

3 Sheets-Sheet 1

Fig. 4.

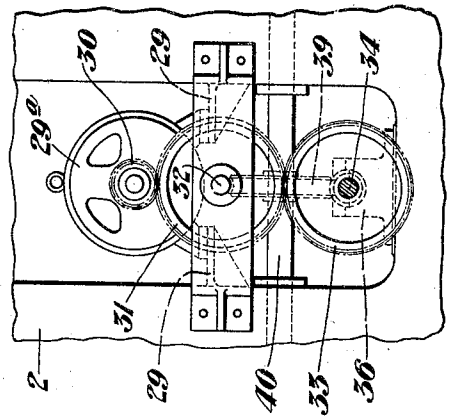


Fig. 1.

Witnesses:
Edwin Taub

Inventor:
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April 3, 1928.

1,664,949

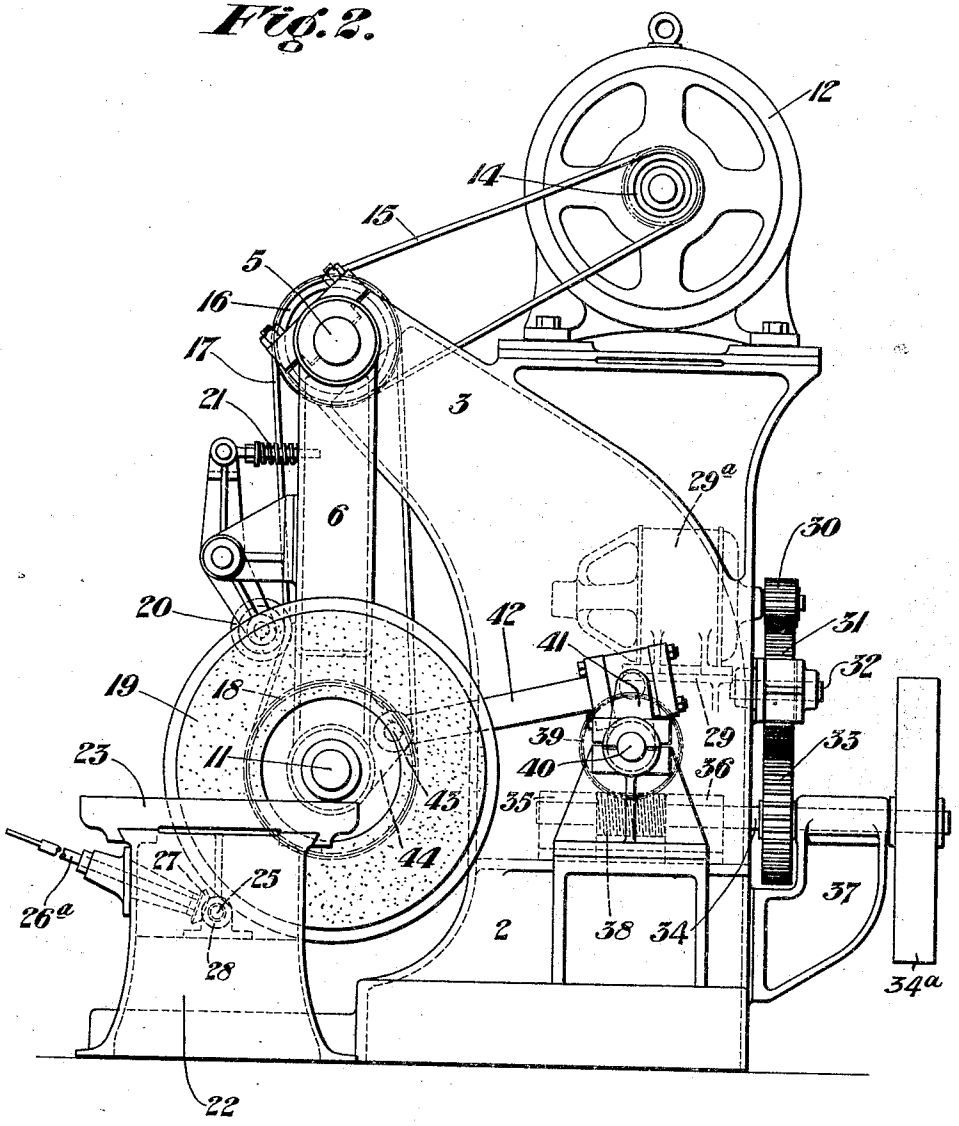
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GRINDER

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3 Sheets-Sheet 2

Fig. 2.



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1,664,949

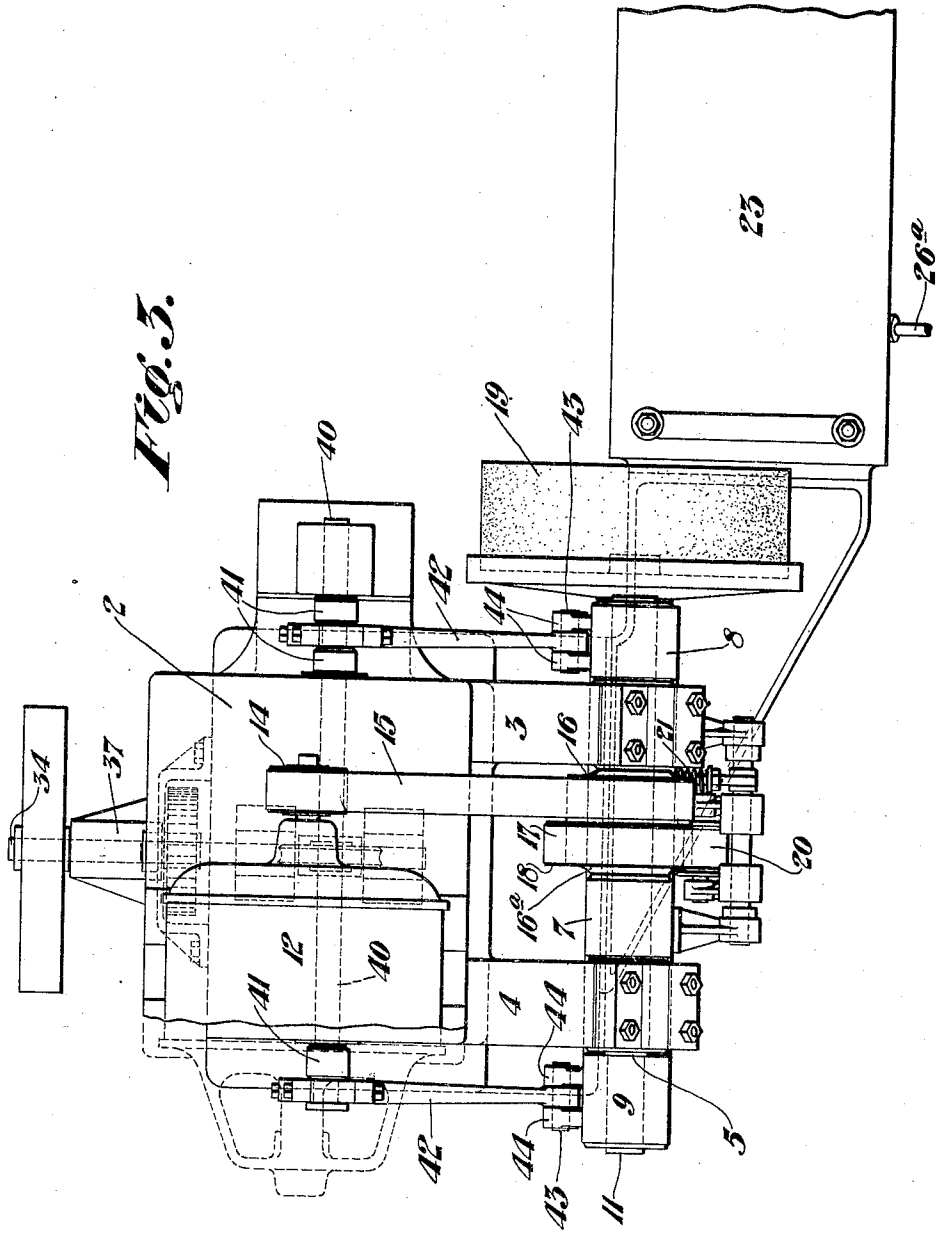
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GRINDER

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3 Sheets-Sheet 3

Fig. 3.



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Patented Apr. 3, 1928. 1,664,949

UNITED STATES PATENT OFFICE.

OTTO SANN, OF JOHNSTOWN, PENNSYLVANIA.

GRINDER.

Application filed February 25, 1925. Serial No. 11,564.

This invention relates to grinders, and while not limited thereto, relates to heavy duty grinders used in finishing the end faces of track structures such as switches, frogs, crossings, etc.

One object of the present invention is to provide a heavy duty grinder of this class which withstands the strains and stresses, since due to its simple construction, heavier and fewer moving parts may be used in its construction.

Another object is to provide a grinder having the novel construction, design and combination of parts hereinafter described and illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a front elevation of a grinder embodying my invention.

Figure 2 is a side elevation thereof.

Figure 3 is a top plan thereof.

Figure 4 is a fragmentary rear elevation showing the gearing for driving the rocking mechanism for the grinding wheel support.

Referring more particularly to the drawings, the numeral 2 designates the main housing as a whole, which is bolted or otherwise fixedly secured to a suitable foundation (not shown). The housing 2 is provided with a pair of forwardly and upwardly projecting integral supporting arms 3 and 4. A shaft 5 is mounted in the forward ends of the arms 3 and 4, and forms a support for a grinding wheel support or frame 6. The frame or support 6 is formed substantially U-shaped at its upper and lower ends forming bearing arms 7—8 and 9—10, respectively. The arms 7 and 8 at the upper end of the frame 6 are bored and fitted on the shaft 5. The arms 9 and 10 at the lower end of the frame 6 are bored and form bearings for a grinding wheel shaft 11.

The upper end of the main body of the housing 2 is flat and forms a mounting bed for an electric motor 12 which has its armature shaft provided with a sprocket 14 connected by a chain belt 15 to a sprocket pulley 16 journaled on the shaft 5 between the arms 7 and 8. A second sprocket pulley 16^a is also journaled on the shaft 5 and connected with the pulley 16 so as to rotate therewith. The pulley 16^a is connected by a chain belt 17 with a sprocket pulley 18 on the grinding wheel shaft 11. From the above it will be readily understood that the motor 12 furnishes the power for operating the grinding wheel shaft.

A grinding wheel 19 is fixedly secured to the one end of the shaft 11.

In order to maintain the belt 17 at operative tension, a suitable automatic belt tightener 20 is mounted on the frame 6 and is forced continually against the belt 17 by spring 21.

A suitable work support comprising a base 22 fixedly mounted on a suitable foundation (not shown) and bolted or otherwise secured to the base of the housing 2, projects to the one side of the housing 2. A suitable table member 23 is mounted on the base 22 and adapted to be moved longitudinally thereof or toward and away from said grinding wheel. The table 23 is provided with a nut 24 threaded on an adjusting screw 25 which is journaled in suitable bearings 26 in the base 22. The screw 25 is adapted to be rotated by crank 26^a connected to the screw through beveled gears 27 and 28, and rotation of the screw 25 will cause the nut 24 and, therefore, the table 23 to move longitudinally of the base 22.

The frame or support 6 is adapted to be oscillated or swung about the shaft 5 during the grinding operation in order to move the grinding wheel back and forth over the work piece.

The housing 2 is hollow and is provided with a motor support 29 on which is mounted an electric motor 29^a. The motor 29^a has its armature shaft provided with a pinion 30 which meshes with a reducing gear 31 on a stub shaft 32. The gear 31 is in turn meshed with a gear 33 on a shaft 34 mounted in bearings 35 and 36 and bearing bracket 37. The shaft 34 is provided with a fly wheel 34^a at one end and a worm 38 adjacent its other end which is in mesh with a worm wheel 39 on a shaft 40 extending transversely of the main housing 2. The fly-wheel 34^a on the shaft 34 serves to store up energy when the working forces are light and to give up such energy when the working forces become heavy, thereby reducing the strains on the motor 29^a and the parts operated thereby so as to cause a constant oscillation of the frame or support 6.

The shaft 40 is provided with suitable crank arms 41 at each end which are con-

nected to one end of connecting rods 42. The rods 42 have their other ends connected to wrist pins 43 mounted in brackets 44 on the frame 6.

From the above it will be seen that the shaft 40 receives its power and is rotated by the motor 29ª and that due to the eccentric mounting of the connecting rods 42 the rotation of said shaft 40 will cause a swinging or oscillating movement of the grinding wheel support or frame 6 about the shaft 5.

The operation of this grinder will be readily understood. The work piece is first mounted on the table 23 and the table is moved along its base 22 until the work piece projects into the path of the grinding wheel 19. The motors 12 and 29ª are then started, causing the grinding wheel 19 to rotate, and the support or frame 6 to be oscillated. The oscillation of the frame 6 serves to move the grinding wheel 19 into and out of engagement with the work piece. As the wheel 19 clears the work piece the operator will turn the crank 26ª so as to rotate the screw 25 and feed the table 23 and work piece forward so as to present a new surface to the grinding wheel.

While I have shown and described one preferred embodiment of my invention, I do not wish to be limited thereto, since various modifications may be made without departing from the scope of my invention as defined in the appended claim.

I claim—

A grinder comprising, in combination a fixed vertically disposed housing having a pair of forwardly projecting arms, a shaft mounted in the upper ends of said arms, a grinding wheel support having its upper end journaled on said shaft so as to permit oscillating movement of said support relative to said shaft, a second shaft journaled adjacent the lower end of said support, a grinding wheel on said second named shaft, a motor on said housing, means for transmitting power from said motor to said second named shaft to rotate said shaft and said grinding wheel, a power shaft journaled in said housing, a fly-wheel fixed on said power shaft, a second motor, gearing connecting said second motor with said power shaft, a second shaft journaled in said housing, gearing connecting said last named shaft and said power shaft, and at least one connecting rod having one end eccentrically mounted on said last named shaft and having its other end connected to said grinding wheel support, whereby said support is oscillated.

In testimony whereof, I have hereunto set my hand.

OTTO SANN.