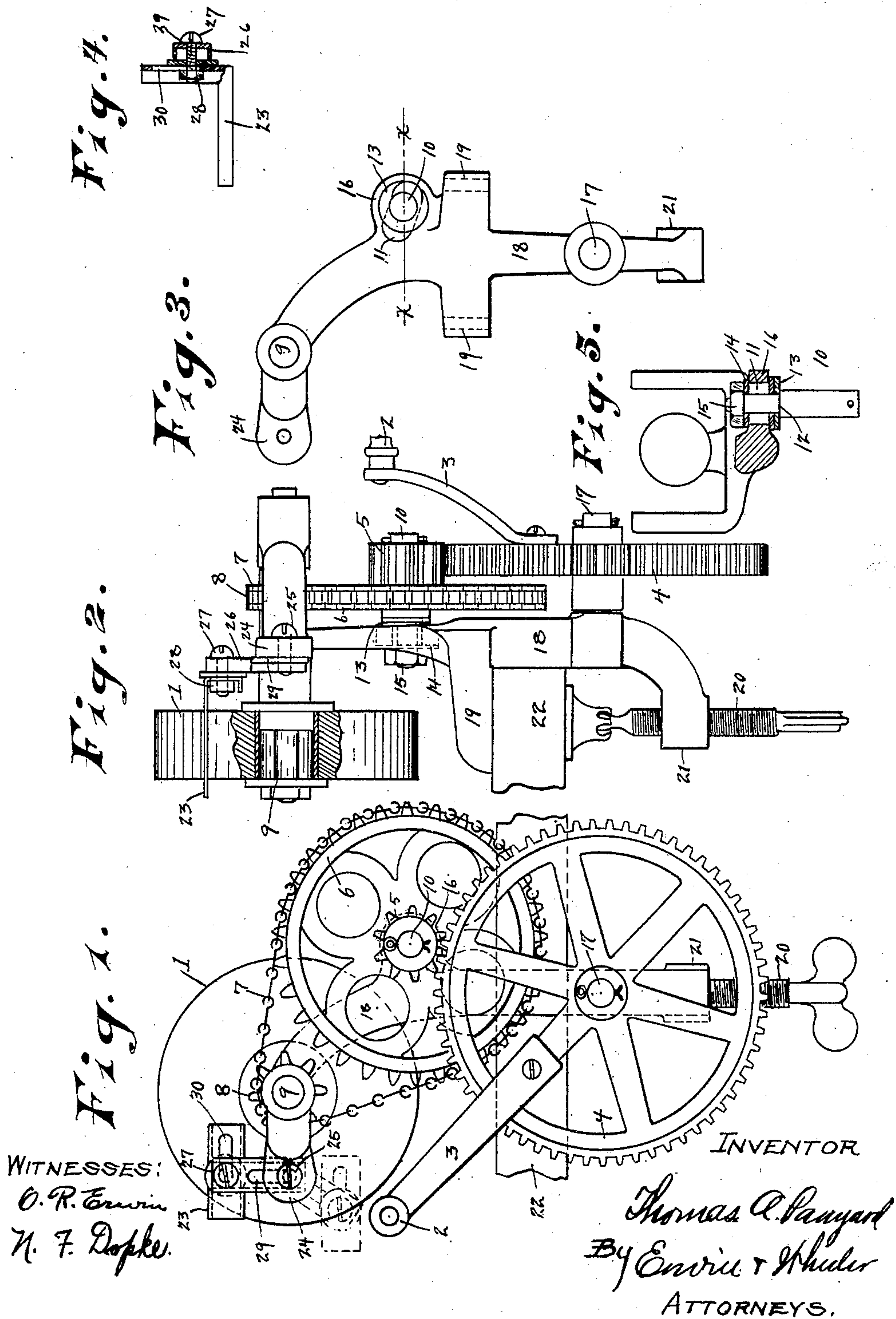


T. A. PANYARD.
 ROTARY GRINDER.
 APPLICATION FILED MAR. 7, 1908.

912,259.

Patented Feb. 9, 1909.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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ROTARY GRINDER.

No. 912,259.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed March 7, 1908. Serial No. 419,613.

To all whom it may concern:

Be it known that I, THOMAS A. PANYARD, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Rotary Grinders, of which the following is a specification.

My invention relates to improvements in that class of rotary grinders which are adapted to be temporarily attached to a bench or table by a clamping screw, and it pertains more especially among other things, first to the construction of the gear supporting frame, cast integrally from a single piece of metal including the journal bearings of the respective gears, clamping arms, and a screw supporting bracket. Second to the relative arrangement of the gear supporting journals and clamping arms by which the main driving shaft, to which the crank is attached, is located below the clamping arms, and whereby the driving mechanism is brought in close proximity to the supporting table or bench and the machine thereby more rigidly supported and less liable to become loose when used. And third to the device for adjusting the driving mechanism to take up the slack caused by wear in the sprocket chain or driving gears, and to adjust the lower pinion near to or farther from the main driving gear.

It also pertains further to the mechanism for changing the adjustment of the tool rest relatively to the abrading wheel.

The construction of my invention is explained by reference to the accompanying drawings in which,—

Figure 1 is a side view thereof as it appears supported from the edge of a table. Fig. 2 is a front view of the device shown in Fig. 1. Fig. 3 represents the main supporting frame which is formed integrally from a single piece of metal. Fig. 4 is a top view of the tool rest shown in Fig. 1. Fig. 5 is a transverse section of the frame drawn on line X—X of Fig. 3.

Like parts are identified by the same reference characters throughout the several views.

1 represents the abrading wheel formed of emery or any other suitable material adapted to the purpose.

2 is an operating handle by which motion is communicated to the grinder by the manual act of the user. Motion is communicated

from the handle 2 to the abrading wheel 1 through the crank arm 3, gear wheel 4, pinion 5, sprocket wheel 6, sprocket chain 7, pinion or sprocket wheel 8 and wheel supporting shaft 9. It will be understood that both the abrading wheel 1 and wheel 8 are rigidly affixed upon the supporting shaft 9. It is a well known fact that owing to the high speed usually employed for driving abrading wheels of the class described the sprocket chain becomes worn and loose upon its supporting wheels, whereby it is liable to become disengaged from such supporting wheels. With a view of taking up the slack and overcoming this objection, I have provided an elongated slot 11 for the pinion supporting shaft 10 which slot permits of the lateral adjustment of said shaft nearer to or further from the wheel supporting shaft 9 upon which the sprocket wheel 8 is supported. The shaft 10 is provided with a shoulder 12 against which the clamping washer 13 is adapted to bear and also with a washer 14 against which the clamping nut 15 is adapted to bear. The nut 15 and washer 14 being removed, the shaft 10 is inserted through the slot 11 when the washer 14 is put in place and the nut 15 is turned down against it when said washers 13 and 14 are firmly clamped against the respective sides of the shaft supporting lug 16, whereby said shaft 10 is rigidly secured in place. Thus it is obvious that when the sprocket chain 7 becomes slack from wear, expansion or toher cause, such slack may be readily taken up by loosening the nut 15 on the shaft 10 and moving said shaft and sprocket wheel 6 downwardly and away from the shaft 9 until the chain 7 is brought to the required tension when the shaft 10 is rigidly clamped at such point of adjustment. The slot 11 is also made of slightly greater width than the shaft 10, whereby it may be adjusted slightly toward or from the wheel supporting shaft 17 as may be necessary to adjust the pinion 5 to smoothly and nicely mesh with the teeth of the driving wheel 4. It will of course be understood that both of said adjustments are accomplished by first releasing said nut 15 slightly upon the shaft 10. When said shaft is adjusted and at the desired point to both take up the slack of the chain 7 and bring the pinion 5 in its proper relative position to the periphery of the driving wheel 4. The several sprocket wheels, gears, abrading

wheel and driving gears are all supported from a single frame 18, and said frame 18 is provided with clamping arms 19 clamping screw 20 and screw supporting bracket 21 by which said frame and the parts supported thereon are secured to a table 22 in the ordinary manner.

23 is a tool rest which is adjustably supported from a lug 24 which lug is formed integrally with the frame 18 by the clamping screws 25, arm 26, clamping screw 27 and clamping nut 28. The arm 26 is preferably provided with an elongated slot 29 which permits of the vertical adjustment of said arm, while the tool rest 23 is provided with an elongated slot 30 which permits of the lateral adjustment of said rest nearer to or farther from the surface of the abrading wheel. Thus it is obvious that by loosening the clamping screws 25, and 27, said rest 23 may be adjusted either nearer to or farther from the surface of the abrading wheel, above or below the horizontal centers of the wheel supporting shaft and at various angles to the surface of the wheel as may be found most convenient when supporting a tool thereon as it is being ground.

Attention is called to the fact that the upper end of the machine supporting frame is inclined forwardly at an angle to the lower supporting portion, whereby the abrading wheel is brought in front of the driving mechanism and in close proximity to the supporting bench or table whereby two important objects are attained. First, the dust produced by grinding is less liable to drop or be thrown upon the driving mechanism while the driving mechanism is also thereby brought nearer to the supporting table.

Having thus described my invention what I claim as new and desire to secure Letters Patent is,—

1. In a rotary grinder of the class described an integrally formed gear supporting frame,

comprising a lower vertical portion and an upper forwardly inclined portion provided with a plurality of shaft supporting bearings, clamping arms and a screw supporting bracket, said clamping arms being located above the bearings of the main driving shaft and between it and the shaft bearings of the driven gears, a pair of sprocket wheels and wheel supporting shafts supported from said frame, the shaft of the larger sprocket wheel being adapted to be adjusted both longitudinally and transversely in a supporting slot formed in said frame, a sprocket chain operating upon said sprocket wheels and means for communicating motion to said sprocket wheels and chain and from said sprocket wheels and chain to an abrading wheel and means for rigidly securing the shaft of the larger sprocket wheel at various points of adjustment in said slots, both in relation to the shaft of the other sprocket wheel and the main driving wheel.

2. In a rotary grinder of the class described the combination of a pair of sprocket wheels and wheel supporting shafts, a sprocket chain operating upon said sprocket wheels, a driving wheel, means for manually operating said driving wheel, means for communicating motion from said driving wheel to the larger of said sprocket wheels, means for changing the adjustment of said sprocket wheel to each other to take up slack in said sprocket chain, and means for changing the adjustment of the larger of said sprocket wheels relatively to said driving wheel to take up wear between said driving wheel and the pinion of said sprocket wheel, substantially as and for the purpose specified.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS A. PANYARD.

Witnesses:

JAS. B. ERWIN,
O. R. ERWIN.