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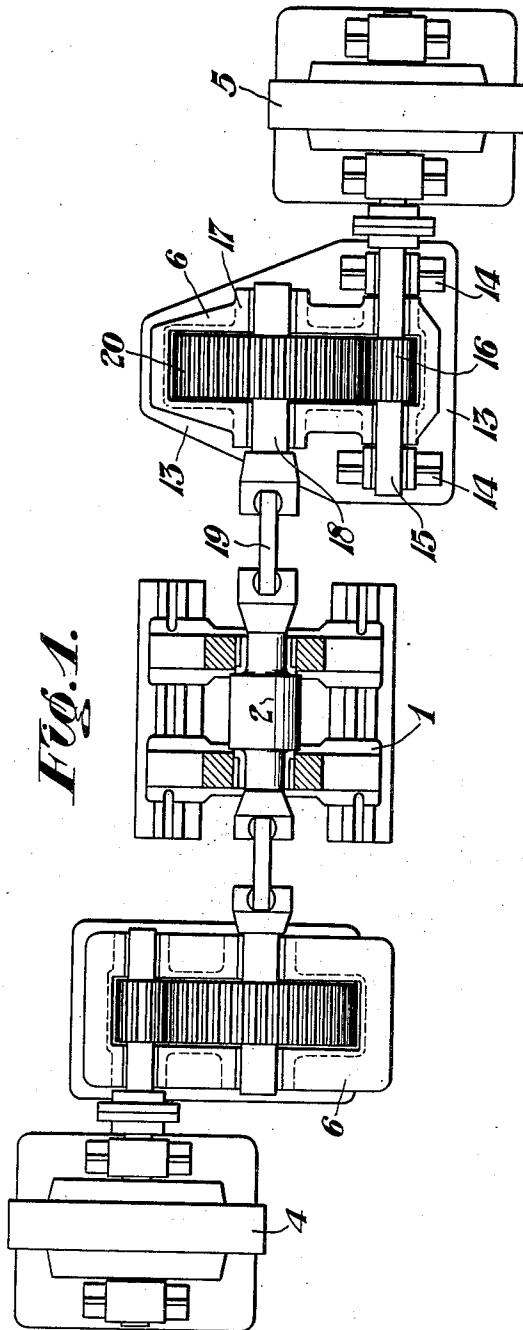
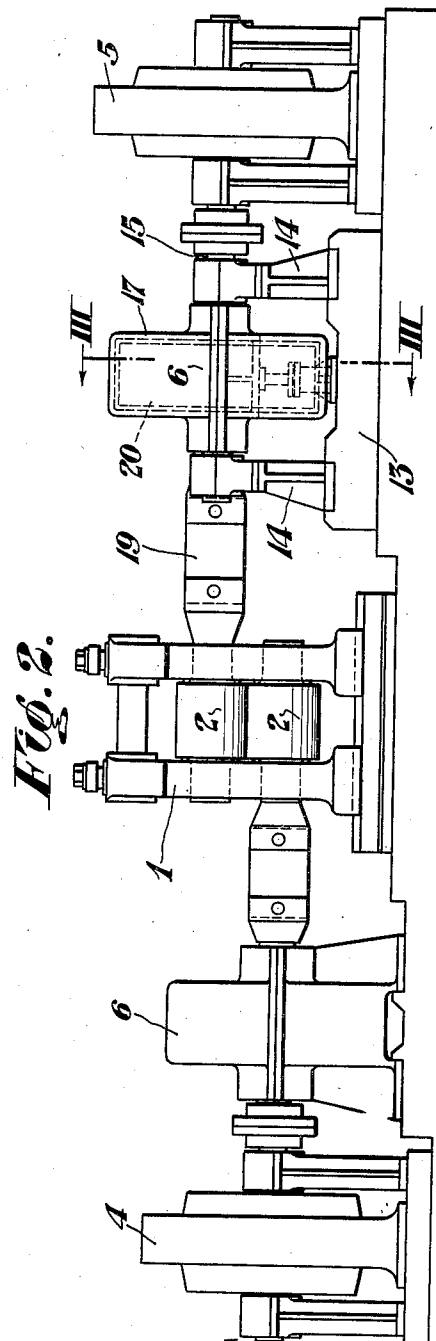
A. C. CUMMINS

2,102,355

ROLLING MILL DRIVE

Filed March 21, 1934

2 Sheets-Sheet 1



Inventor:
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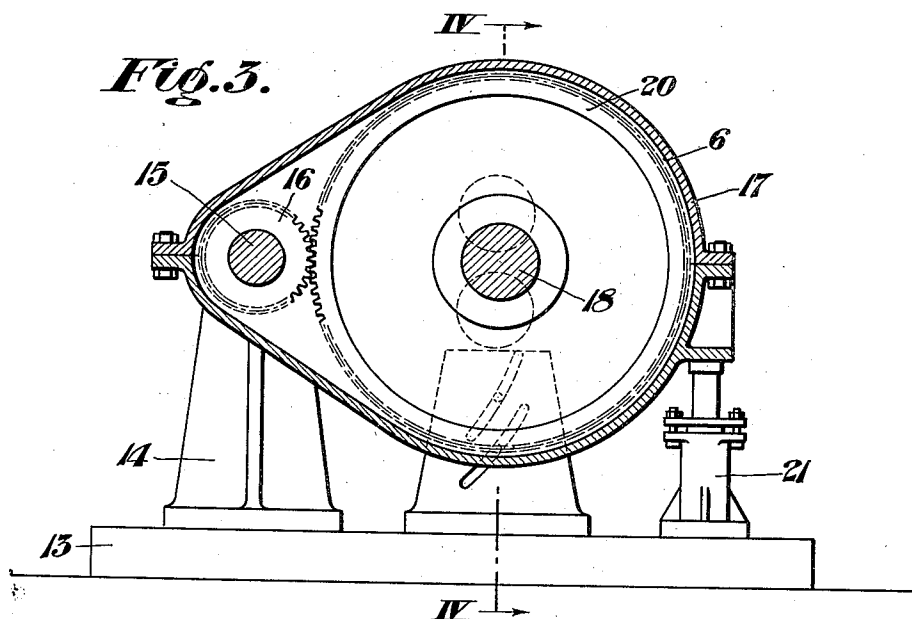
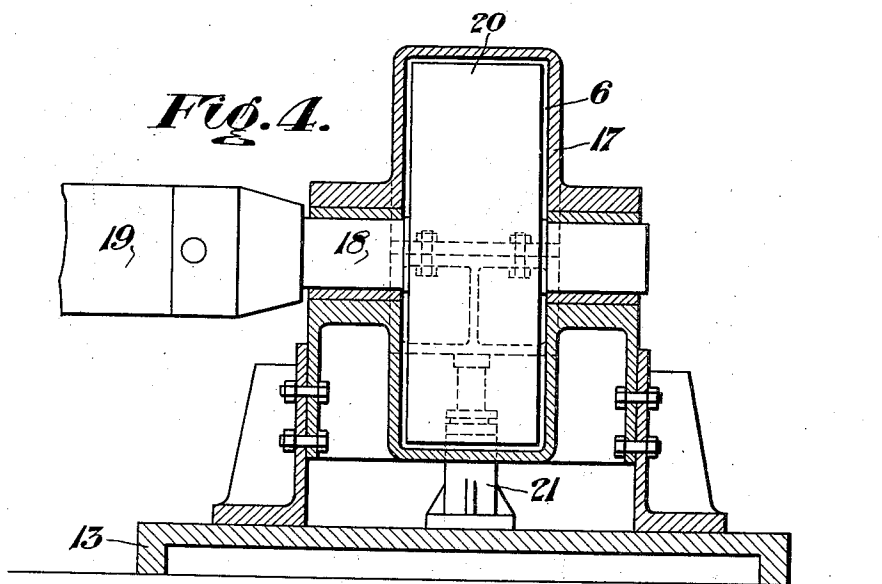
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UNITED STATES PATENT OFFICE

2,102,355

ROLLING MILL DRIVE

Alden C. Cummins, Duquesne, Pa.

Application March 21, 1934, Serial No. 716,686

2 Claims. (Cl. 80—54)

This invention relates to rolling mill drives, one of the objects being to provide a drive that is improved in that it can accommodate relatively large variations in the positions of a mill roll respecting the drive. Other objects may be inferred.

Referring to the accompanying drawings:

Figure 1 is a top view of a die-rolling mill including an example of the new drive, the matrices in the rolls not being shown because not required to illustrate the invention.

Figure 2 is a side view.

Figure 3 is a cross-section from the line III—III in Figure 2.

Figure 4 is a cross-section from the line IV—IV in Figure 3.

The above drawings illustrate a die-rolling mill for the reason that the cooperative rolls of such a mill must be often substituted by others of different diameters to accommodate different lengths of work being thus rolled.

This means that the vibrating spindle through which power is usually transmitted to the upper one of these rolls must work through a relatively wide range of angles. Good practice limits the angularity of a vibrating spindle to around 15 degrees, this limiting the capacity of the mill to the use of rolls whose maximum diameters do not throw the spindle beyond this angle. Sometimes this angle is exceeded, but excessive wear and power losses make this rather expensive.

In the present instance, the two working rolls are driven by separate motors 4 and 5 through gear boxes 6. The motor 4 is arranged on one side of the mill and the other motor 5 is arranged on the other side of the mill. So far as is known, this idea alone is new as applied to a mill having parallel rolls which work longitudinally on the metal being formed.

The right-hand one of the gear boxes 6 is constructed to include a base 13 having upstanding supports 14 by which it journals a shaft 15. This shaft 15 is coupled to the motor 5 in any conventional manner. The shaft 15 has a pinion 16 fixed to it which is enclosed by a housing 17 also journaled on this shaft. A second shaft 18 is journaled by the housing 17 and connects to the upper one of the rolls 2 through a vibrating spindle 19. The shaft 18 has a gear 20 fixed to it which meshes with the pinion 16.

Now it is obvious that the housing 17 can swing about the shaft 15, it being journaled on the latter. This permits the shaft 18 to move up and down so that it may be substantially aligned with the upper one of the rolls 2, the gear and pinion being constantly meshed. A jack 21 may be mounted on the base 13 so as to engage the swing-

ing end of the housing 17. This is one means for adjusting this housing.

Since the horizontal shaft 18 may be substantially aligned with the upper one of the rolls 2, the vibrating spindle 19 need never depart from a horizontal position. Of course, it must sometimes work at a slight horizontal angle, but this angle need never exceed that indicated by good practice, assuming that the gear box 6 has been positioned properly respecting the mill 1.

Although a specific example of this invention has been described in accordance with the patent statutes, it is not intended to limit the scope of the invention exactly thereto, except as defined by the following claims.

I claim:

1. A drive for a rolling mill having a frame adapted to horizontally mount rolls at different axial levels, said drive including the combination of a pinion fixedly journaled in spaced relation to the ends of rolls mounted by said frame, a gear journaled by means constantly holding it in mesh with said pinion while permitting it to swing to different levels and a vibrating spindle for interconnecting said gear and the ends of rolls mounted by said frame, whereby power from a stationary power source may be transmitted to rolls mounted by said frame through said spindle and the latter maintained at efficient operating angles regardless of differences in the axial levels of said rolls by swinging said gear to the levels required, said spindle moving universally to accommodate swinging of said gear.

2. A drive for a rolling mill having a frame adapted to horizontally mount rolls at different axial levels, said drive including the combination of a shaft fixedly journaled parallel to rolls mounted by said frame and in spaced relation to their ends, a housing journaled on said shaft to swing thereon, a shaft journaled by said housing parallel the first named shaft, intermeshing gears fixed to said shafts, a vibrating spindle for interconnecting the second named shaft to the ends of rolls mounted by said frame and means for swinging said housing on the first named shaft and for holding it at different levels, whereby power from a stationary source may be transmitted to rolls mounted by said frame through said spindle and the latter maintained at efficient operating angles regardless of differences in the axial levels of said rolls by swinging said housing by said means to swing the second named shaft to the levels required and holding it there by said means, said spindle moving universally to accommodate swinging of the second named shaft.

ALDEN C. CUMMINS.