June 24, 1930. J. J. KEYSER 1,767,290

REVERSING GEAR

Filed Aug. 12, 1929

Fig. 1

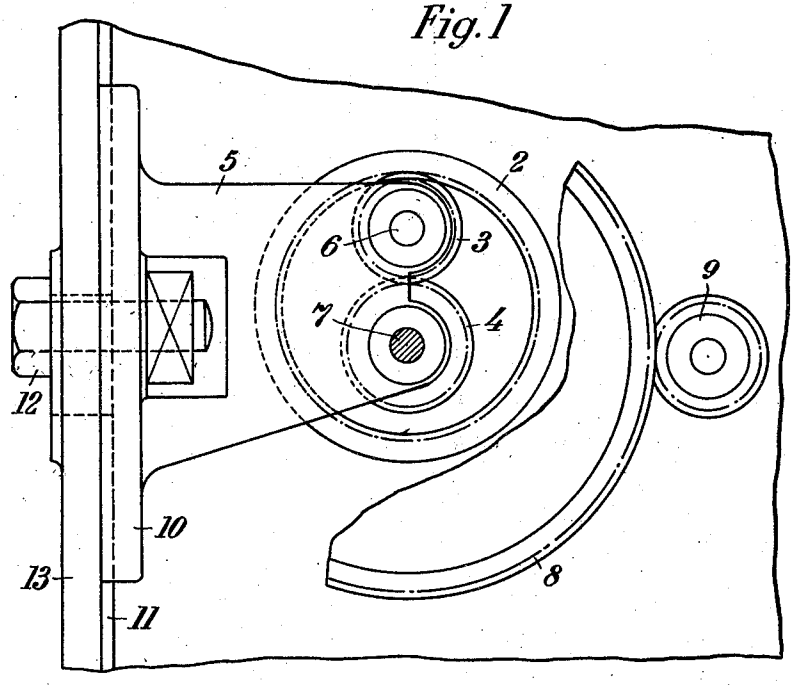
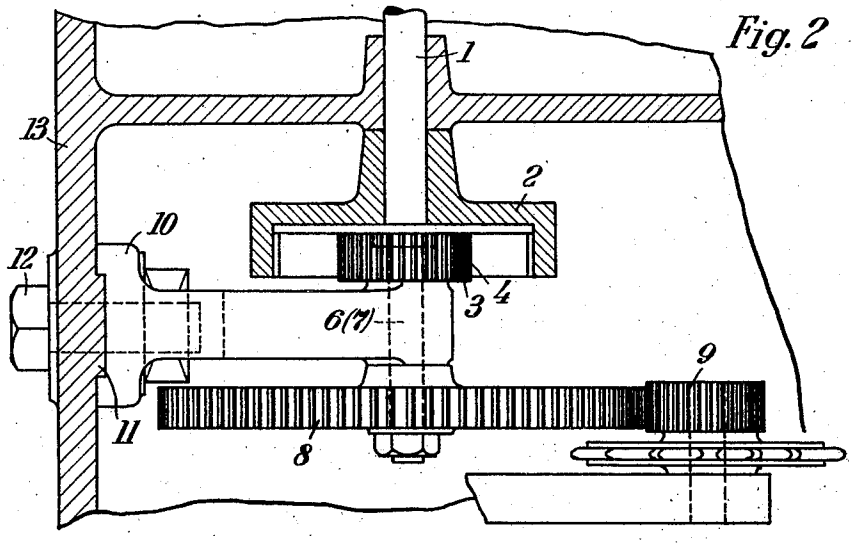


Fig. 2



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REVERSING GEAR

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Improvements in spinning and twisting machine gears.

The speed changing and reversing gears for the actuation of the feeding and stretching mechanism of spinning and twisting machines heretofore in use were normally so constructed that a change of the direction of rotation was only possible by an exchange of pinions. My present invention permits such change to be effected at the exclusion of undesired bevel gears and at the further exclusion of non-parallel shafts, the driving and driven shafts being usually arranged in parallelism with this type of machinery. I obtain this result by arranging on one of the parallel shafts an interiorly toothed pinion adapted to mesh with the one or other of two permanently meshing intermediate pinions the one of which is in a permanent operative connection with the other shaft. The two intermediate pinions are preferably carried by a slide-bracket or support adapted to be adjusted into and locked in two operative positions corresponding, respectively, to a left or right hand rotation of the shaft of the feeding and stretching mechanism.

In the drawing illustrating a preferred embodiment of my invention,

Fig. 1 is a front view of the new reversing gear, partly broken out,

Fig. 2 is a plan view thereof, partly in section.

In the drawing 1 designates the main shaft of the stretching or feeding mechanism of a spinning or twisting machine, upon which an internally toothed pinion 2 is mounted. Within the said pinion I arrange two permanently intermeshing pinions 3 and 4, supported upon a slide-bracket 5 and being each adapted to mesh with pinion 2 by a vertical adjustment of slide 5. The combined numbers of teeth or diameters of pinions 3 and 4 are such with relation to the pinion 2, that when pinion 3 is in mesh with pinion 2, pinion 4 will be out of engagement therewith and vice versa, as will be readily understood.

Pinion 3 is loosely mounted upon a pin 6 supported by bracket 5, whereas pinion 4 is mounted on a shaft 7 carrying at its one end a transmission gear 8 permanently meshing with a pinion 9 which is operated through intermediate sprocket or any other suitable mechanism by the main drive of the machine not shown. The bracket 5 is guided at its base 10 on a guiding bar or rail 11 of the main machine frame or shield 13 and may be fixedly clamped thereto by bolt 12. It will be noted that all of the shafts 1, 6, 7 and the shaft of pinion 9 are arranged in parallelism, as this is customary and desirable with the type of machinery in consideration.

When gear 8 is actuated by pinion 9 it acts on pinion 2 either by both pinions 3 and 4 (Fig. 1), when the bracket 5 is in its upper position, or directly, by pinion 4 alone, when the bracket is in its lower end position, pinion 3 being idle in this instance, so that by a simple upward or downward shift of bracket 5 the direction of rotation of shaft 1 may be reversed. It will be noted that upon such reversal the actuating pinion 8 is also vertically adjusted while maintaining its engagement with the driving pinion 9; the vertical adjustment of slide 5 being however comparatively small, it does in no way affect the proper and permanent intermeshment of the pinions 8 and 9.

I claim:

1. In a reversing gear for spinning and twisting machines having feeding and stretching mechanism an actuating shaft for the said feeding and stretching mechanism, an internally toothed pinion mounted on the said shaft two permanently meshing intermediate pinions having a permanent operative connection with a driving shaft arranged parallel with the said actuating shaft and sliding means carrying the said intermediate pinions and permitting to effect intermeshment thereof, respectively, with the said internally toothed pinion while maintaining their operative connection with the said other shaft.

2. In a reversing gear for spinning and twisting machines having feeding and stretching mechanism an actuating shaft for the said feeding and stretching mechanism,

an internally toothed pinion mounted on the said shaft two permanently meshing intermediate pinions, a driving shaft arranged parallel with the said actuating shaft and having a permanent operative connection with the one of the said intermediate pinions, and a lockable slide carrying the said intermediate pinions and permitting to effect intermeshment thereof, respectively with the said internally toothed pinion so that the same may be rotated by the said driving shaft directly and in the one direction through the intermediary of the intermediate pinion which has the operative connection with the driving shaft or in the opposite direction by the intermediary of both intermediate pinions.

3. In a reversing gear for spinning and twisting machines two shafts arranged in fixed parallel relation, an internally toothed pinion on the one shaft, two permanently meshing intermediate pinions, an operative pinion connection between said intermediate pinions and the other shaft including a pinion on said other shaft and a pinion on the shaft of one of said intermediate pinions, and means for effecting intermeshment respectively of the one or the other of the two permanent meshing intermediate pinions with the said internally toothed pinion while maintaining the operatve pinion connection between said intermediate pinions and said other shaft.

4. In a reversing gear for spinning and twisting machines having feeding and stretching mechanism, an actuating shaft for the said feeding and stretching mechanism, an internally toothed pinion mounted on the said shaft, two permanently meshing intermediate pinions, a driving shaft arranged in fixed parallel relation with said actuating shaft and having a permanent operative pinion connection with one of said intermediate pinions, and means for effecting intermeshment of the one or the other respectively of the two intermediate pinions with said internally toothed pinion so that the same may be rotated by said driving shaft directly and in the one direction through the intermediary of the intermediate pinion which has the permanently operative pinion connection with the driving shaft or in the opposite direction through the intermediary of both intermediate pinions and the said permanently operative pinion connection.

In testimony whereof I affix my signature.

JOHANN JACOB KEYSER.