A. A. P. NEEL.

BAND CLUTCH.

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1,167,010.

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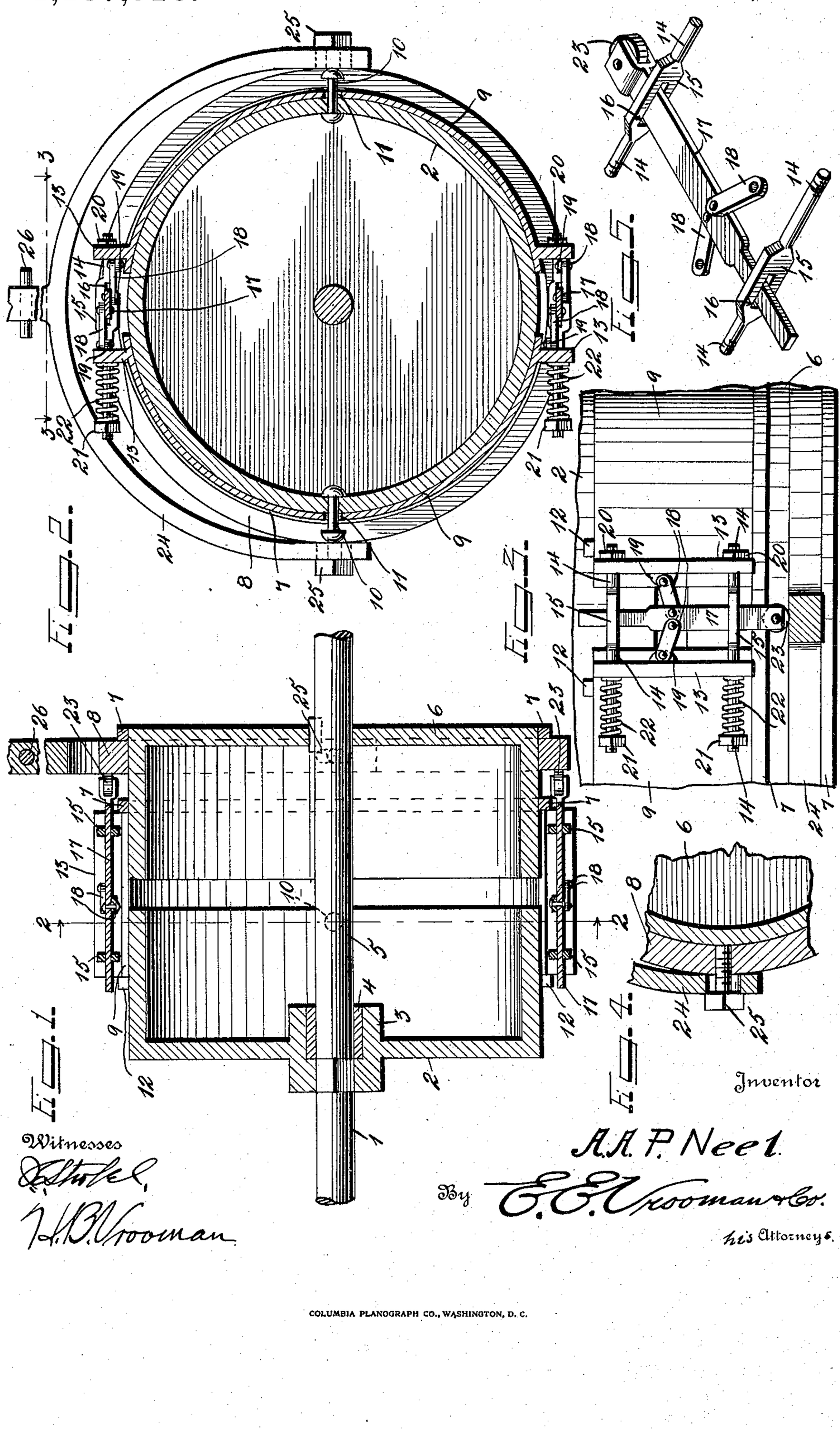

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BAND-CLUTCH.

1,167,010. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, ALLEN A. P. NEEL, a citizen of the United States of America, residing at Marshall, in the county of Fauquier and State of Virginia, have invented certain new and useful Improvements in Band-Clutches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to clutches and has particular reference to a band clutch for frictionally locking the driving shaft to the driven shaft.

One of the principal objects of the invention is the production of a simple and efficient means for throwing the band clutch into and out of engagement with the operating drums forming a part of the clutch mechanism.

A still further object of this invention is the production of a simple and efficient toggle mechanism for throwing the band clutch to an inoperative position.

With these and other objects in view this invention consists of certain novel combinations, constructions, and arrangements of parts as will be hereinafter fully described and claimed.

In the accompanying drawing:—Figure 1 is a central vertical section of the band clutch. Fig. 2 is a section taken on line 2—2, of Fig. 1. Fig. 3 is a section taken on line 3—3, of Fig. 2, the band clutch being shown in top plan. Fig. 4 is an enlarged sectional view showing the manner of attaching the clutch lever to the operating ring. Fig. 5 is a detail perspective of the toggle mechanism used for throwing the band clutch to an inoperative position.

By referring to the drawing it will be seen that 1 designates the driving shaft which driving shaft carries a drum 2, the drum being fitted on the squared end thereof. The drum 2 is provided with an integral inwardly extending collar 3 carrying a bushing 4 within which bushing fits one end of the driven shaft 5. A drum 6 is keyed to the driven shaft 5 and is adapted to rotate therewith.

The drum 6 is provided with a pair of spaced rings 7 constituting flanges upon the drum 6 and an operating ring 8 is loosely mounted upon the drum 6 and is held against lateral displacement from the drum by means of the ring 7. A pair of segmental bands 9 are connected to the drum 2 by means of the studs or pins 10, which studs or pins 10 extend through the enlarged apertures 11 formed upon the segmental bands 9. These pins or studs 10 constitute an anchoring means for holding the segmental bands 9 against displacement from the drum 2. A plurality of stop lugs 12 are carried by the drum 2 and engage the edge of the segmental bands 9 for bracing the bands 9 adjacent the point wherein the toggle mechanism is supported.

Each segmental band 9 is provided at each end with an outwardly extending flange 13 and the laterally extending flanges 13 of the opposite bands 9 are connected by means of the transversely extending bolts 14. Each bolt 14 is provided with a flattened body portion 15 having an elongated aperture 16 formed therein through which the plunger 17 of the toggle mechanism is slidably mounted. It will, therefore, be seen that these slots or apertures 16 will constitute a guiding means for the plunger 17. A pair of oppositely extending toggle links 18 are pivotally connected to the plunger 17, and these toggle links 18 engage the ears 19 of the clutch bands 9. Nuts 20 are threaded upon the fixed ends of the bolts 14, whereas the opposite ends of the bolts 14 carry nuts 21. Compression springs 22 are interposed between the nuts 21 and the flange 13 of one of the bands 9 as clearly illustrated in Fig. 3 so as to normally urge the bands 9 in frictional engagement with the respective drums 2 and 6.

It should be understood that both ends of the bands 9 are connected in a similar manner such as illustrated in Figs. 1, 2 and 3, but it is only thought necessary to describe in detail the construction of one toggle mechanism. Each plunger 17 of the toggle mechanism carries a roller 23, and the rollers 23 of the plungers 7 are adapted to engage the operating ring 8. A forked-lever 24 straddles the ring 8 and is fixedly secured to the ring by means of the bolts 25 as clearly illustrated in detail in Fig. 4. It should be understood that this lever 24 may be pivotally supported upon a pivot pin 26 and shifted in any desired manner for accomplishing the desired purpose.

From the foregoing description and by carefully considering the illustration it will be seen that the compression springs 22 will normally urge the bands 9 in frictional engagement with the drums 2 and 6 and that

the bands are released from the drums 2 and 6 by means of swinging the lever 24 and pushing the operating ring 8 against the rollers 23 of the levers 17, thereby causing the toggle links 18 to spread the bands 9 away from or out of frictional engagement with the drums 2 and 6.

It should be further understood that the tension of the springs 22 may be regulated by means of the nuts 21 which are threaded upon the outer ends of the bolts 14. It should be further understood that the bands 9 may readily rotate with respect to the operating ring 8, in view of the fact that the plungers 17 of the toggle mechanism engage the operating ring 8 by means of the rollers 23.

It should be understood that the present clutch mechanism is especially adapted for use in connection with automobiles, although the same may be employed upon other devices without departing from the spirit of the invention. When used upon automobiles the device is adapted to connect the driving mechanism with the means for furnishing power.

Having thus described the invention what is claimed as new, is:—

1. A clutch mechanism of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental clutch bands carried by one of said drums and adapted to engage the other drum, means for normally urging said segmental bands in frictional engagement with said drums, and means for throwing said bands out of frictional engagement with said drums.

2. A clutch mechanism of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by one of said drums and adapted to engage the other drum, means for holding said segmental bands in frictional engagement with said drums, and means for forcing said bands to an inoperative position relative to the drum carried by said driven shaft.

3. A clutch mechanism comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by the drum carried by said driving shaft and adapted to engage the other drum, means for yieldably drawing said segmental bands together, and a toggle mechanism interposed between the adjacent ends of said bands for facilitating the moving of said bands to an inoperative position relative to said drum carried by said driven shaft.

4. A clutch of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands secured to one of said drums and adapted to engage the other drum, means for yieldably holding said bands together and in frictional engagement with the other drum, toggle means for facilitating the spreading of said segmental bands apart, and a laterally slidable ring engaging said toggle mechanism for actuating said toggle mechanism.

5. A device of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by one of said drums and adapted to engage the other drum, each band provided with a laterally extending flange at each end thereof, bolts carried by said flanges and extending therethrough, compression springs carried by one end of each bolt and engaging one of said flanges for yieldably forcing said bands together, and a toggle mechanism for facilitating the spreading of said bands apart.

6. A device of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by one of said drums and adapted to engage the other drum, each band provided with a laterally extending flange at each end thereof, bolts carried by said flanges and extending therethrough, compression springs carried by one end of each bolt and engaging one of said flanges for yieldably forcing said bands together, said bolts provided with enlarged body portions having slots formed therein, a plunger working through said slots, and toggle links engaging said bands for facilitating the forcing of said bands apart and to an inoperative position.

7. A device of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by one of said drums and adapted to engage the other drum, each band provided with a laterally extending flange at each end thereof, bolts carried by said flanges and extending therethrough, compression springs carried by one end of each bolt and engaging one of said flanges for yieldably forcing said bands together, said bolts provided with enlarged body portions having slots formed therein, a plunger working through said slots, toggle links engaging said bands for facilitating the forcing of said bands apart and to an inoperative position, a roller carried by said plunger, and an operating ring engaging said roller and adapted to be shifted laterally for actuating said plunger and spreading said bands apart to an inoperative position.

8. A device of the class described comprising a driving shaft, a driven shaft, a drum carried by each shaft, a plurality of segmental bands carried by one of said drums and adapted to engage the other drum, each band provided with a laterally extending flange at each end thereof, bolts

carried by said flanges and extending therethrough, compression springs carried by one end of each bolt and engaging one of said flanges for yieldably forcing said bands together, said bolts provided with enlarged body portions having slots formed therein, a plunger working through said slots, toggle links engaging said bands for facilitating the forcing of said bands apart and to an inoperative position, a roller carried by said plunger, an operating ring engaging said roller and adapted to be shifted laterally for actuating said plunger and spreading said bands apart to an inoperative position, and an operating lever engaging said ring.

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

ALLEN A. P. NEEL.

Witnesses:
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