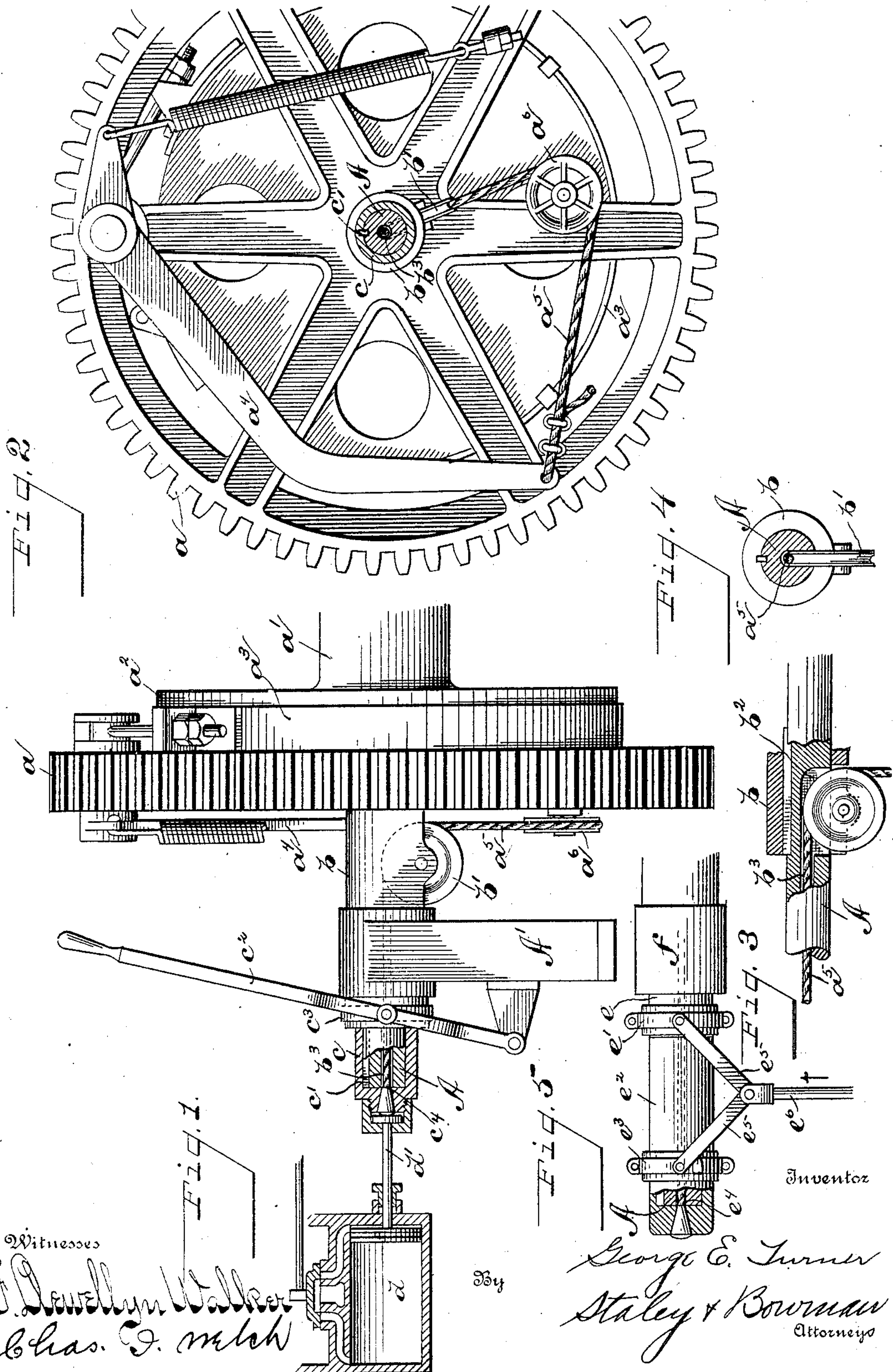


No. 828,690.

PATENTED AUG. 14, 1906.

G. E. TURNER.  
FRICTION CLUTCH.

APPLICATION FILED SEPT. 26, 1904.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## FRICION-CLUTCH.

No. 828,690.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed September 26, 1904. Serial No. 226,086.

*To all whom it may concern:*

Be it known that I, GEORGE E. TURNER, a citizen of the United States, residing at Bellefontaine, in the county of Logan and State of Ohio, have invented certain new and useful Improvements in Friction-Clutches, of which the following is a specification.

My invention relates to improvements in friction-clutches of the strap or friction-band type, and particularly relates to an improved means of operating the clutch mechanism shown and described in my pending application, Serial No. 218,811, filed July 30, 1904.

The object of my invention is to provide a simple and positive means of tightening the brake-band upon its drum, which may be operated either by hand or by power.

My invention consists of the means, mechanism, construction, and mode of operation hereinafter described, and set forth in the claim.

In the drawings, Figure 1 is a side elevation of the clutch and its operating parts. Fig. 2 is an end view of the clutch. Figs. 3 and 4 are sectional detail views. Fig. 5 is a view showing a modified form of operating mechanism.

Like parts are indicated by similar characters of reference throughout the several views.

$a$  is a spur-gear keyed upon a shaft  $A$  and constituting the driving member.  $a'$  is a drum loosely mounted on the shaft  $A$  and constitutes the driven member. The shaft  $A$  is provided with a bearing in a support  $A'$ . The drum  $a'$  is formed with a head having a friction-surface  $a^2$ , around which extends a strap or friction brake-band  $a^3$ , adapted to be tightened or loosened by the operation of a pivoted lever  $a^4$  through the medium of a flexible cable  $a^5$ , all of which mechanism is fully described in my aforesaid application.

The essential feature of my present application consists in the means for tightening the flexible cable  $a^5$ , whereby the pivoted lever  $a^4$ , and thereby the clutch mechanism, is operated, and is as follows:

$b$  is a projecting hub upon the spur-gear  $a$ , slotted on one side and having journaled in said slot a sheave  $b'$ , over which the flexible cable  $a^5$  is carried from a sheave  $a^6$ .

The shaft  $A$  is formed with a pocket or mortise  $b^2$ , adapted to register with the slot

of the hub  $b$ , and into this pocket or mortise extends the sheave  $b'$ , as shown in Fig. 3. The shaft  $A$  is further provided with a longitudinal bore  $b^3$ , extending from said mortise  $b^2$  to the end of the shaft. A sleeve or thimble  $c$  is secured on the shaft  $A$  by the key  $c'$  and rotates therewith, but is permitted a longitudinal movement thereon. A lever  $c^2$ , pivoted upon a stationary portion of the frame, preferably the portion  $a'$ , and engaging a split collar  $c^3$  upon the sleeve  $c$ , provides the means of shifting said sleeve longitudinally upon the shaft  $A$ . There is also illustrated in Fig. 1 a ram  $d$ , the piston-rod  $d'$  of which is secured to the sleeve  $c$  in a suitable manner, whereby steam, air, or water power may be utilized to shift the sleeve  $c$ . The flexible cable  $a^5$  after passing over the sheaves  $a^6$  and  $b'$  is carried through the bore  $b^3$  and connected with the sleeve  $c$ , as shown at  $c^4$ .

It is obvious that the outward movement of the sleeve  $c$  either by means of the lever  $c$  or the ram  $d$  will draw upon the cable  $a^5$  to operate the lever  $a^4$ , when the brake-band will be set, as before mentioned.

Instead of the bore  $b^3$  in the shaft  $A$  the mortise  $b^2$  may be extended to the end of the shaft in the form of a slot, as in Fig. 4.

In Fig. 5 is shown a modified mechanism for moving the sleeve outward to draw the cable  $a^5$ . The modified construction consists of a collar  $e$ , splined on the shaft  $A$  and provided with a split collar  $e'$  adjacent to the collar  $e$ , and also splined on the shaft is the longitudinally-movable sleeve  $e^2$ , equipped with a split collar  $e^3$ . The cable  $a^5$ , extending through the shaft  $A$ , is attached to the sleeve  $e$ , as at  $e^4$ . Toggle-bars  $e^5$  connect the split collars  $e'$  and  $e^3$  with a longitudinally-movable rod  $e^6$ , which in turn may be connected with either a hand-lever or ram.

The movement of the rod  $e^6$ , as indicated by the arrow, will cause the sleeve  $e^2$  to be forced outwardly away from the collar  $e$ , and so draw the cable  $a^5$  to operate the clutch mechanism. The thrust of the collar  $e$  is against the fixed bearing  $f$  of the shaft.

Referring to Fig. 1, it is obvious that both the hand-lever and ram may be used in the same device, or either one might be used without the other.

By this construction there is provided a means for operating the clutch which is posi-

tive in its action, cheap in construction, simple in its operation, capable of being either power or hand operated, and unlikely to get out of repair.

5 Having thus described my invention, I claim—

10 The combination of a driving and a driven member, a shaft upon which said members are mounted having an axial bore and a radial recess or mortise therein, a sheave extending into said recess and tangent with said axial bore, clutch mechanism between said driving and driven members, an operating device for said clutch mechanism, including

a flexible connection passing over said sheave 15 and through said axial bore, a longitudinally-movable sleeve on said shaft, an engagement between said flexible connection and movable sleeve, and means for positively moving said sleeve, substantially as specified. 20

In testimony whereof I have hereunto set my hand this 23d day of September, A. D. 1904.

GEORGE E. TURNER.

Witnesses:

LEWIS E. PETTIT,  
KARL S. KUMLER.