

**No. 665,695.**

**Patented Jan. 8, 1901.**

**V. ROYLE.**  
**CLUTCHING MECHANISM.**  
(Application filed Dec. 19, 1898.)

(No Model.)

*Fig. 1.*

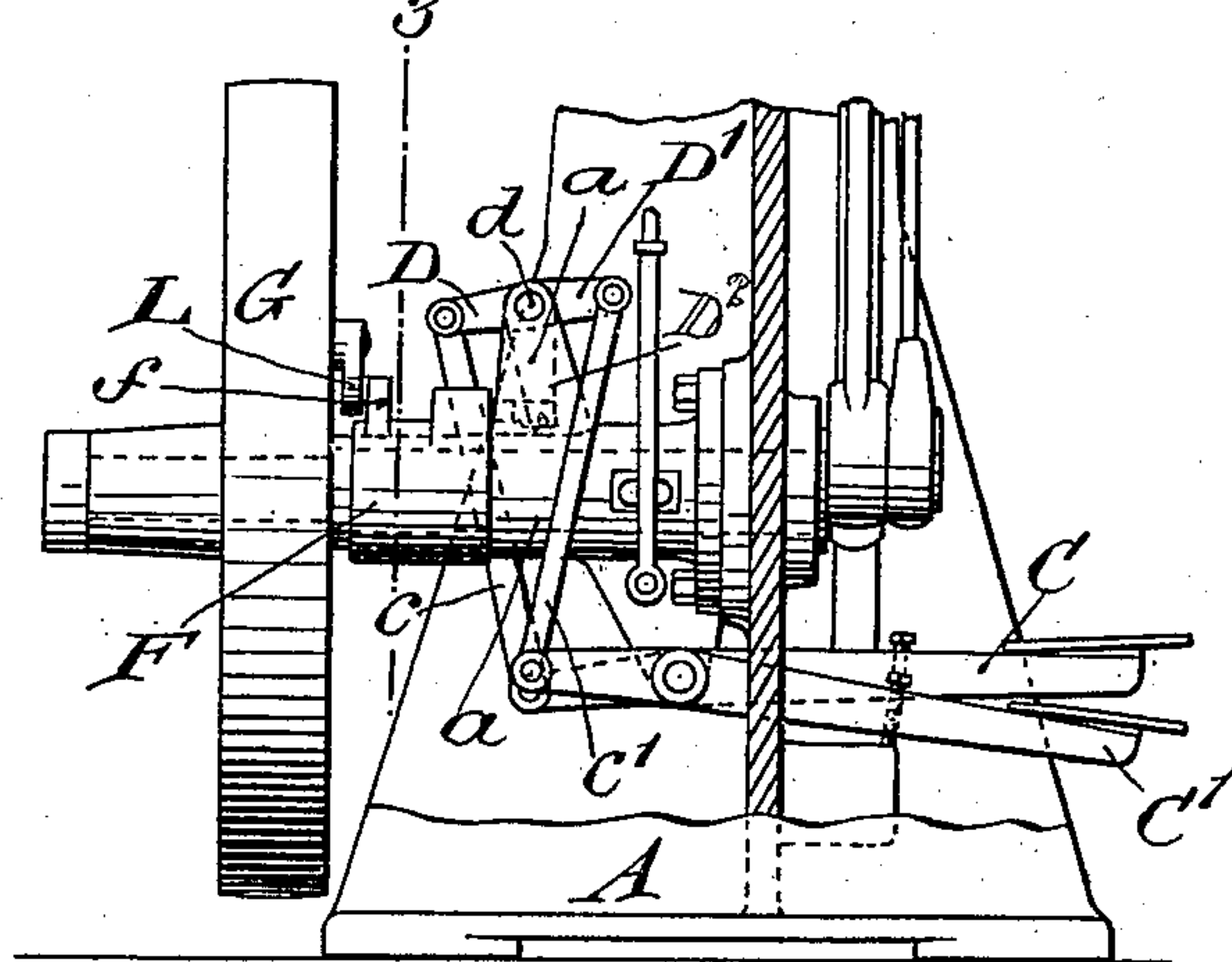


Fig. 2.

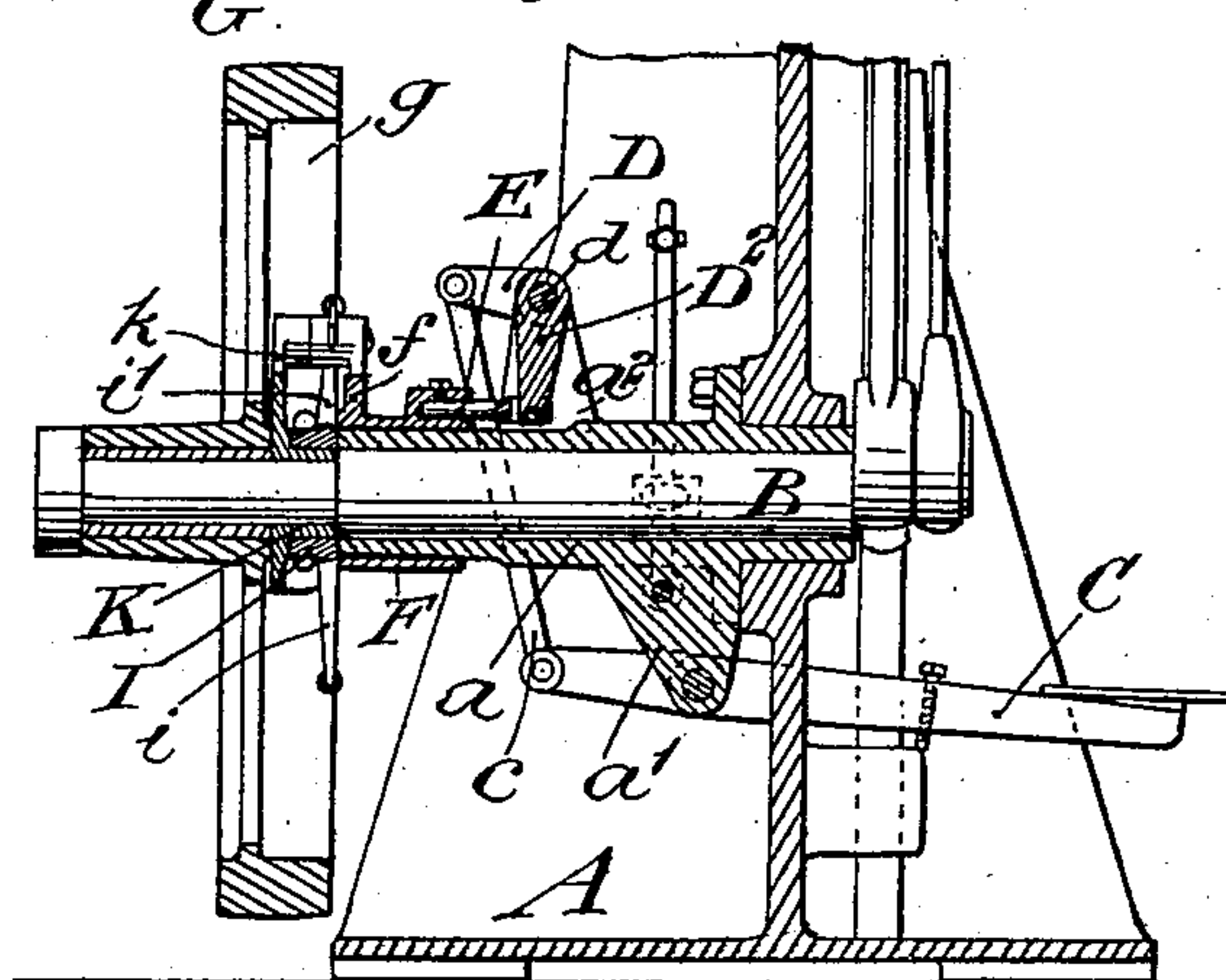
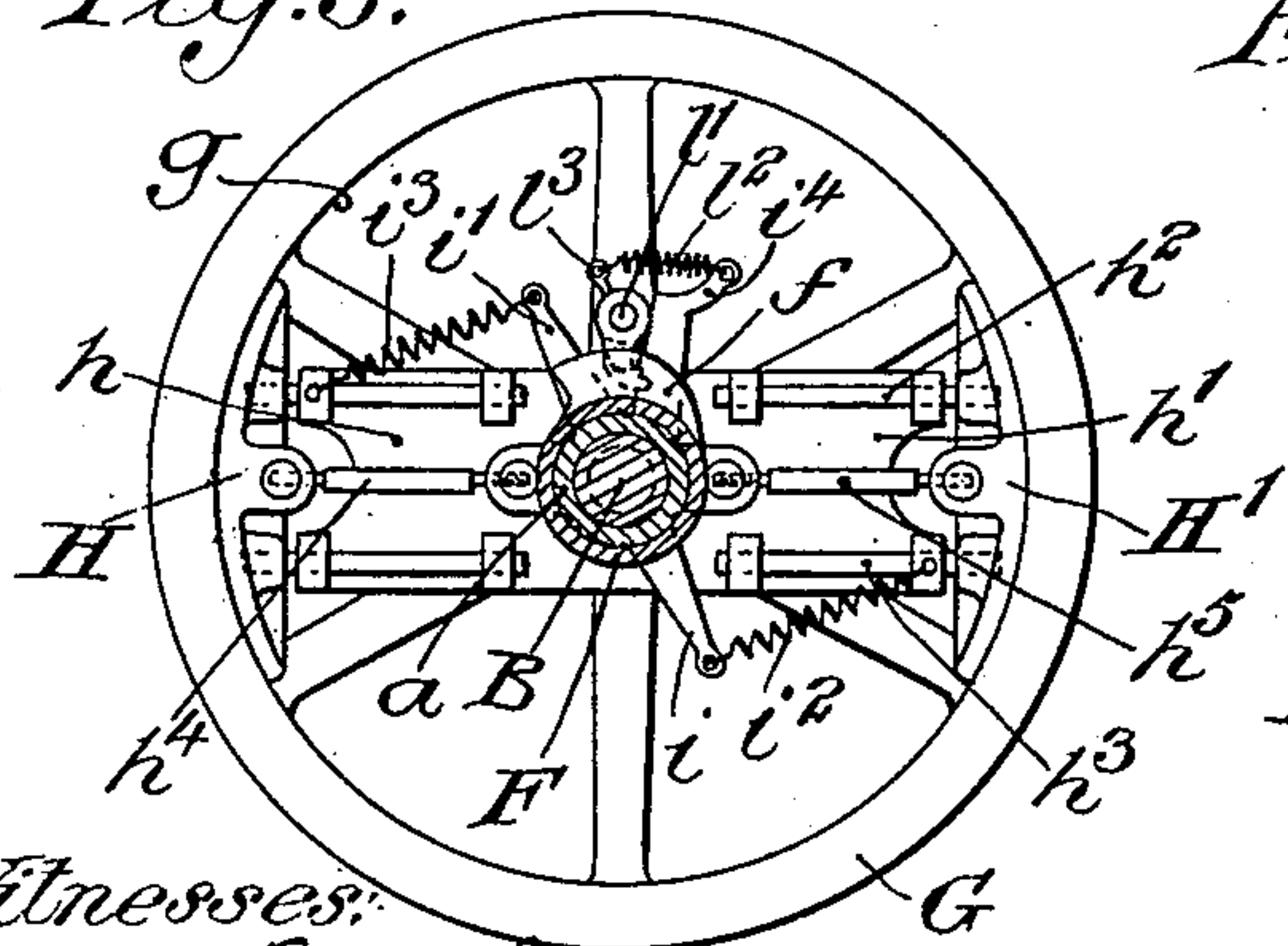
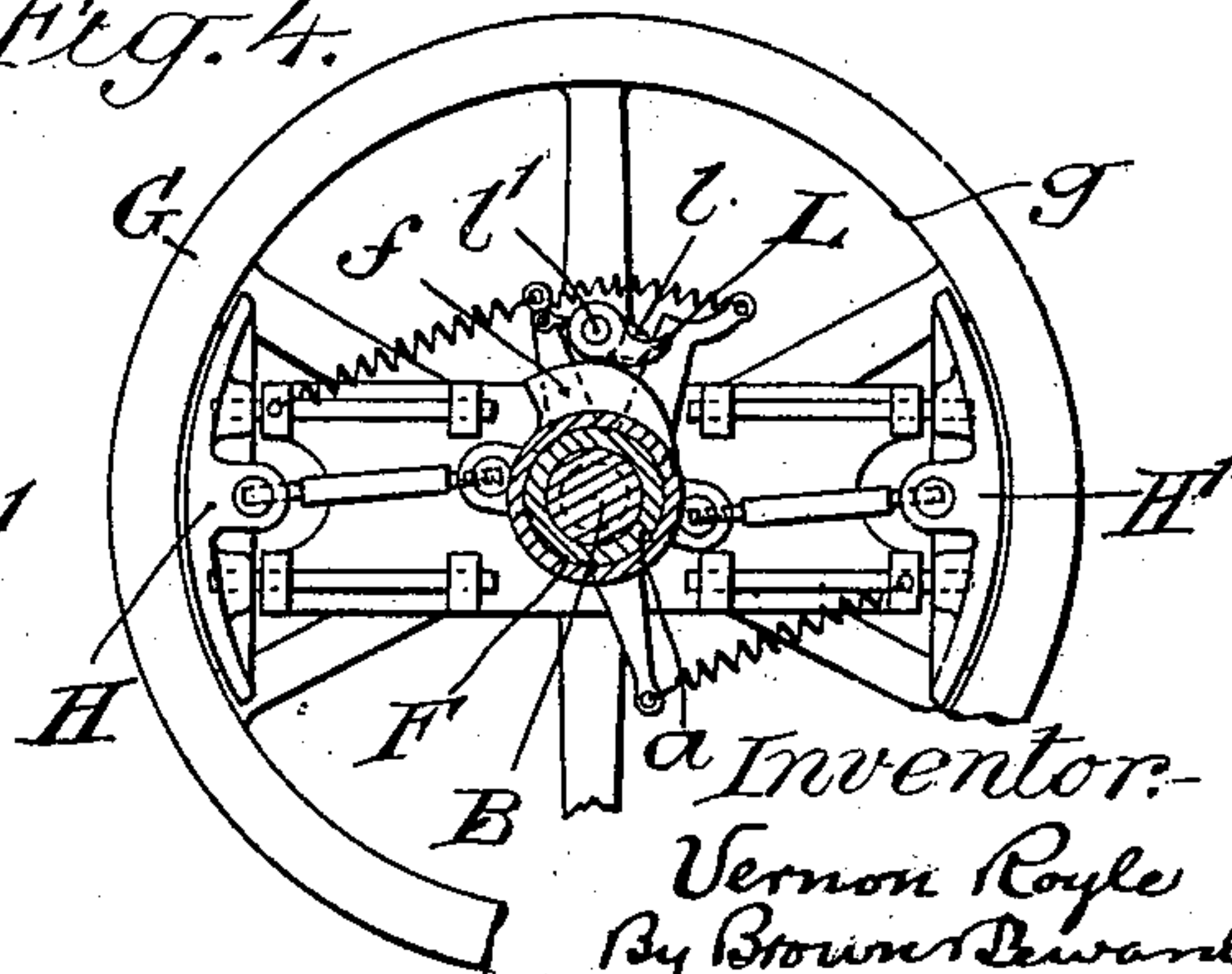


Fig. 3.



Witnesses:  
George Bany J.  
Edward Viler.

Fig. 4.



*a Inventor:-  
Vernon Royle  
By Brown & Dewand  
his Attorneys.*



# UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

## CLUTCHING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 665,695, dated January 8, 1901.

Original application filed August 14, 1896, Serial No. 602,755. Divided and this application filed December 19, 1899. Serial No. 740,907. (No model.)

*To all whom it may concern:*

Be it known that I, VERNON ROYLE, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Clutching Mechanism, of which the following is a specification.

My invention relates to a clutching mechanism with the object in view of providing a prompt and efficient means for throwing a continuously-driven pulley into and out of locked connection with a shaft which is to be intermittently driven.

The present application is a division of my pending application entitled "Power-machine for punching jacquard-cards," Serial No. 602,755, filed August 14, 1896.

In the accompanying drawings, Figure 1 represents the clutching mechanism in side elevation, showing the parts in the position which they assume when the driving-pulley is locked to the shaft. Fig. 2 is a vertical longitudinal section showing the position which the parts assume when the pulley is released from the shaft. Fig. 3 is a transverse section in the plane of the line 3-3 of Fig. 1, showing the parts in the position which they assume when the pulley is locked to the shaft; and Fig. 4 is a similar view showing the position which the parts assume when the pulley is released from the shaft.

A represents a supporting-frame of any well-known or approved form, in the present instance the support being represented as the foot of a pedestal having an extended bearing-sleeve *a* projected from its web for receiving a drive-shaft B. The drive-shaft B is here shown as provided with eccentrics for operating a punching and feed mechanism, (not shown,) the same forming no part of my present invention. The bearing *a* is provided with a depending bracket *a'*, in the lower end of which a pair of foot-levers are fulcrumed, the levers being denoted, respectively, by C and C'. These levers C C' are connected at their inner ends by means of connecting-rods *c c'* with the ends of arms D D', fixed to rock with a shaft *d*, mounted in a pair of upwardly-extending ears *a<sup>2</sup> a<sup>3</sup>* on the bearing *a*. A third arm D<sup>2</sup> projects downwardly from the shaft *d* and is connected by a link E with a

sleeve F, mounted on the bearing *a* to slide longitudinally and carrying a cam *f* for releasing the clutch and permitting it to act, as will hereinafter appear.

The drive-pulley G is loosely mounted on the shaft B and is assumed to be continuously driven from a suitable source of power. (Not shown.) Fixed to rotate with the shaft B are clutching-shoes H H', placed in the present instance diametrically opposite one another and attached to their supporting wings or plates *h h'* by stems *h<sup>2</sup> h<sup>3</sup>*, (two for each shoe,) which permit the shoes to slide radially toward and away from the inner curved surface of the rim *g* of the pulley G. The supporting wings or plates *h h'* extend outwardly from a hub K, mounted on the shaft B and fixed to rotate therewith. The shoes are connected with a hub I, mounted to rock independently of the wings *h h'*, in the present instance on a projected portion of the hub K by what I am pleased to call "toggle-dogs" *h<sup>4</sup> h<sup>5</sup>*. Arms *i i'* radiate from the hub I and have their free ends connected by springs *i<sup>2</sup> i<sup>3</sup>* with fixed supports on the wings *h h'*, the tension of the springs being such that when free to act they will rock the hub I in a direction to throw the toggle-dogs into or toward the radial lines—for example, from the position shown in Fig. 4 to the position shown in Fig. 3—to press the shoes H H' simultaneously toward the rim of the pulley to clutch the shaft thereto. The hub I is positively rotated in the opposite direction to release the shoes from the pulley by means of an arm *i<sup>4</sup>*, which is operated by the nose or cam *l*, fixed to rock with the dog L, mounted on a spindle *l'*, projecting from a lug *k*, in the present instance integral with the hub K, from which the hub-supporting wings project. The dog L in its turn is positively operated by the cam *f* on the sliding sleeve F, hereinbefore referred to. A spiral spring *l<sup>2</sup>*, attached to the arm *i<sup>4</sup>* and to a tailpiece *l<sup>3</sup>* on the dog L, serves to hold the dog normally rocked in a position to engage the cam *f* and also in a direction to release the arm *i<sup>4</sup>* whenever the cam *f* is removed from its engagement with the dog.

In operation, assuming the parts to be in the position shown in Figs. 1 and 3, with the

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clutching - shoes in engagement with the wheel G to lock the wheel to the shaft B, when it is desired to release the shaft B from the wheel G the pedal C is depressed, thereby  
 5 sliding the sleeve F into the position shown in Fig. 2, with its cam *f* in position to engage the dog L, when the latter, carried by the pulley G, reaches it during the rotary movement of the wheel. As the dog L rides up on  
 10 the cam *f* it rocks the nose *l* against the arm *i*<sup>4</sup>, which in turn rocks the hub I, to which the arms *i* *i'* are fixed, against the tension of the springs *i*<sup>2</sup> *i*<sup>3</sup> into the position shown in Fig. 4, thereby withdrawing the clutching-shoes H  
 15 H' from contact with the rim of the wheel G and permitting the wheel to rotate independently of the hubs K and I and the parts carried thereby, the latter remaining locked to the sleeve F by the engagement of the cam *f* with  
 20 the dog L. When it is desired to lock the shaft to the wheel, the pedal C' is depressed, thereby withdrawing the cam *f* from engagement with the dog L and permitting the hub I to rock under the tension of the springs *i*<sup>2</sup> *i*<sup>3</sup>  
 25 to throw the clutching-shoes into engagement with the rim of the wheel, and thereby lock it to the shaft B.

What I claim is—

30 1. The combination with a drive-shaft and a drive-wheel loosely mounted on the shaft, of a radially-sliding clutch connected to rotate with the shaft, a toggle-dog for operating the clutch, a spring the tension of which tends to move the toggle-dog in a direction to

crowd the clutch against the drive-wheel and 35 means for releasing the clutch from the drive-wheel against the tension of the clutch-operating spring, substantially as set forth.

2. The combination with a drive-shaft and a drive-wheel loosely mounted on the shaft, 40 of a radially-sliding clutch connected to rotate with the shaft, a hub free to rotate independently of the clutch-support, a toggle-dog connecting the clutch and rotary hub, a spring tending to hold the hub in rotary ad- 45 justment to lock the clutch to the wheel and means for rotating the hub against the tension of the spring to release the clutch, substantially as set forth.

3. The combination with a drive-shaft and a drive-wheel loosely mounted on the shaft, 50 of a radially-sliding clutch connected to rotate with the shaft, a spring-actuated rotary hub connected with the clutch to throw it into and out of engagement with the drive- 55 wheel, a dog for rotating said spring-actuated hub, a sleeve mounted to slide longitudinally of the shaft and provided with a cam for operating the dog and means for reciprocating the sleeve, substantially as set forth. 60

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 22d day of November, 1899.

VERNON ROYLE.

Witnesses:

FREDK. HAYNES,  
EDWARD VIESER.