No. 730,724. PATENTED JUNE 9, 1903.

F. WEIMAR & S. P. SMURR.

CLUTCH.

APPLICATION FILED MAY 26, 1902.

NO MODEL.

Fig. 1.

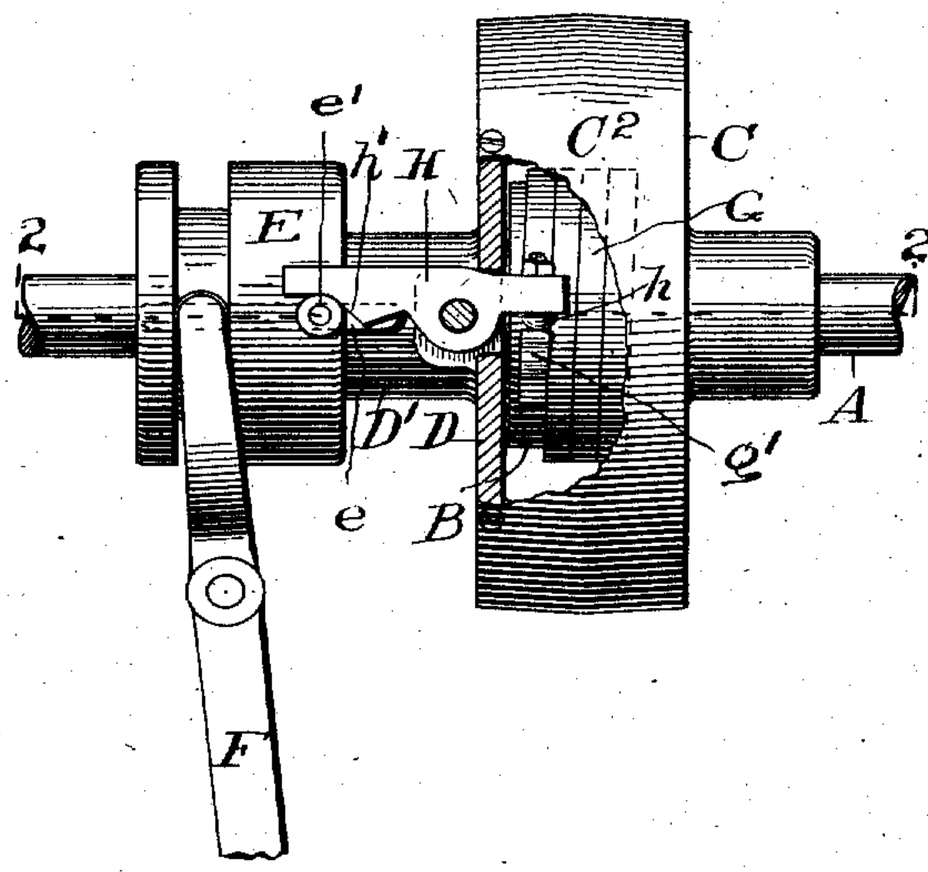


Fig. 2.

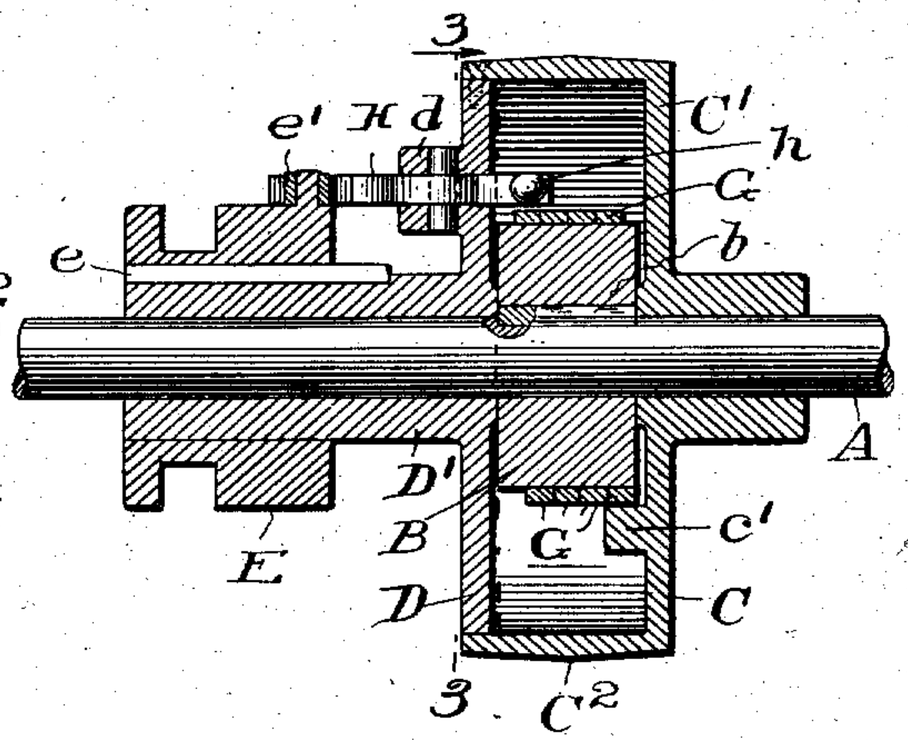


Fig. 3

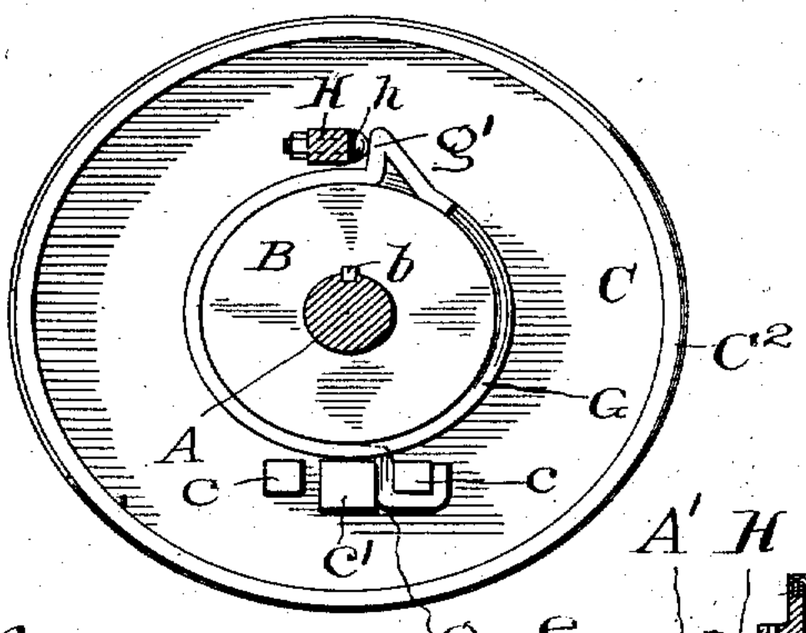


Fig. 4.

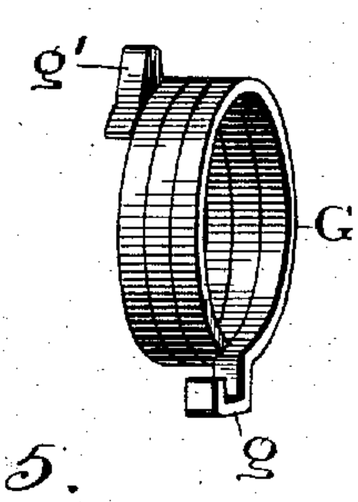
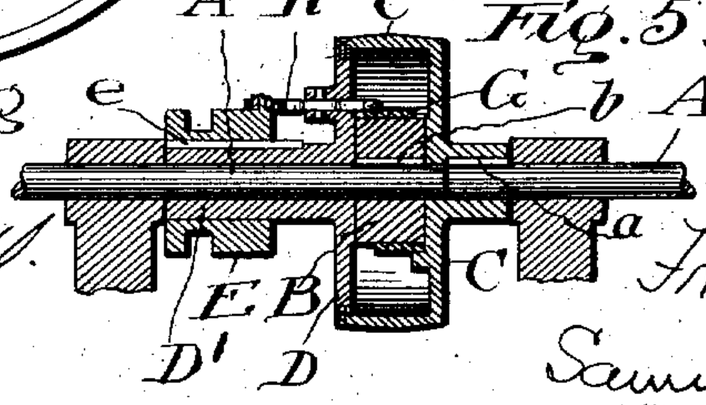


Fig. 5.



Witnesses:

Chas. O. Shurtz.

S. Bliss.

Inventors:

Fred. Weimar and

Samuel P. Smurr

by A. Bitner

Atty

No. 730,724. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

RED WEIMAR AND SAMUEL P. SMURR, OF CHICAGO, ILLINOIS, ASSIGNORS OF TWO-THIRDS TO GARRIE S. FRENCH, OF CHICAGO, ILLINOIS; SAID SMURR ASSIGNOR TO SAID WEIMAR.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 730,724, dated June 9, 1903.

Application filed May 26, 1902. Serial No. 108,890. (No model.)

To all whom it may concern:

Be it known that we, FRED WEIMAR and SAMUEL P. SMURR, citizens of the United States of America, residing at Chicago, in the County of Cook and State of Illinois, have invented certain new and useful Improvements in Clutches, of which the following is a specification.

Our invention relates to certain new and useful improvements in clutches; and its object is to provide a device of this class which shall be cheaper and more effective than those hitherto in use.

To these and certain minor ends our invention consists in certain novel features of construction, which are fully illustrated in the accompanying drawings and described in this specification.

In the drawings, Figure 1 is a side elevation of our improved clutch, a certain portion of the pulley being broken away to show the interior construction. Fig. 2 is a diametrical section in the line 2 2 of Fig. 1. Fig. 3 is a section in the line 3 3 of Fig. 2. Fig. 4 is a perspective of the spiral band, which is the connecting element of the clutch; and Fig. 5 is a diametrical section illustrating the clutch upon a line-shaft and adapted to connect the two adjacent ends of two sections of the same.

Referring to the drawings, A is a shaft on which the pulley is mounted.

B is an enlarged cylindrical portion or boss, which closely fits the shaft and is secured against rotation by a key *b*.

C is the pulley, which runs loose on the shaft and is constructed as shown in Fig. 2, wherein C′ is a suitable web forming one end face of the pulley, and C^2 is the peripheral portion thereof. The opposite end of the pulley C is formed by a web D, integral with a sleeve D′, which also runs loose upon the shaft. The web D is rigidly secured to the peripheral portion C^2 of the pulley C. Upon the sleeve D′ is a longitudinally-movable collar E, secured against rotation on the sleeve by a key *e*. This collar can be shifted longitudinally by a suitable fork of the usual type, (designated by the letter F.)

Inside the hollow pulley C is a spiral strap G, surrounding the boss B. A suitable hook *g* engages a projecting lug *c* upon the web C′ of the pulley and is held in place by a similar lug *c*′. The opposite end of the strap terminates in an upward bend or shoulder *g*′. (Shown in Fig. 3.) Against this shoulder rests the head of a screw *h*, adjustably secured in the end of a lever H, which is pivoted between its ends on a suitable bracket *d*, secured to the web D. This lever has a beveled surface *h*′, which is engaged by a suitable roller *e*′ upon the periphery of the collar E. It will be seen that when the collar E is forced toward the pulley C the roller *e*′ bears upon the beveled surface *h*′ of the lever, thereby swinging the lever and correspondingly moving the shoulder *g*′ of the strap G through the contact of the screw *h* therewith. This tightens the strap upon the boss B and causes the pulley C, sleeve D, and collar E to rotate with the shaft and boss. When the fork F is shifted back to the position shown in Fig. 1, the elasticity of the strap, which is preferably constructed of spring-steel, loosens it upon the boss and releases the pulley from its connection therewith. This is, in brief, the operation of the clutch.

The advantage of this clutch lies in the fact that the clutching-surface is elastic and adapts itself to any irregularities of the surface of the boss. In clutches of ordinary types it is almost impossible to get an absolutely true surface, and as a result only a few points are in actual engagement at any one time, an unsatisfactory result being thereby produced. With our clutch, however, the strap tightens up and accommodates itself to any irregularities which may exist, either originally or in consequence of wear upon the boss, and a tight grasp is at all times assured.

This clutch can be equally well applied to line-shafts, and this modification is illustrated in Fig. 5, wherein the construction is precisely the same, except that two shafts A′ and A^2 are shown supported in any suitable journals. The shaft A′ is a driving-shaft, and it has keyed to it the boss B, as has the driving-shaft in the preferred form. A^2 is the driven shaft, and to it is keyed the pul-

ley C by means of a suitable key *a*. It is obvious that the operation will be precisely identical with that of the other form.

We claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with a shaft, a pulley running loose thereon, and a strap having a suitable shoulder secured at one end, and at the end opposite to said shoulder, to said pulley, of a lever pivoted on said pulley and having a suitable portion adapted to engage said shoulder to push upon the same and tighten said strap, and means for actuating said lever, substantially as described.

2. In a device of the class described, the combination with a shaft, a pulley thereon, a strap secured at one end to said pulley and a shoulder upon the opposite end of said strap, of a lever pivoted upon said pulley, means for actuating said lever and a suitable adjustable screw adapted to engage said shoulder when said lever is moved, substantially as described.

3. In a device of the class described, the combination with a shaft, a pulley loose thereon, a suitable strap secured at one end to said pulley and surrounding said shaft, a lever adapted by its motion to tighten said strap upon said shaft, pivoted to said pulley and a suitable beveled surface upon said lever, of a suitable ring, longitudinally movable with respect to said pulley and secured against rotation with respect thereto, and a suitable projection upon said ring adapted to engage said beveled surface and rotate said lever when said ring is moved longitudinally, substantially as described.

4. In a device of the class described, the combination with a shaft, a pulley loose thereon, a suitable strap secured at one end to said pulley and surrounding said shaft, a lever adapted by its motion to tighten said strap upon said shaft, pivoted to said pulley and a suitable beveled surface upon said lever, of a suitable ring, longitudinally movable with respect to said pulley and secured against rotation with respect thereto, and a suitable roller upon said ring adapted to engage said beveled surface and rotate said lever when said ring is moved longitudinally, substantially as described.

5. In a device of the class described, the combination with a shaft, a pulley loose thereon, a suitable strap secured at one end of the pulley and surrounding the shaft, a lever adapted by its motion to tighten said strap upon the shaft, pivoted to said pulley, and a suitable beveled surface on said lever terminating in a surface parallel to the length of said lever, of a suitable ring longitudinally movable with respect to said pulley and secured against rotation with respect thereto, and a suitable projecting member upon said ring, adapted to engage said beveled surface and rotate said lever when said ring is moved longitudinally and with continued motion to slide onto the surface of said lever parallel to its length, thereby locking the lever in place, substantially as described.

In witness whereof we have hereunto set our hands, at Chicago, in the county of Cook and State of Illinois, this 17th day of May, A. D. 1902.

FRED WEIMAR.
SAMUEL P. SMURR.

Witnesses:
CHAS. O. SHERVEY,
S. BLISS.

Corrections in Letters Patent No. 730,724.

It is hereby certified that in Letters Patent No. 730,724, granted June 9, 1903, upon the application of Fred Weimar and Samuel P. Smurr, of Chicago, Illinois, for an improvement in "Clutches," errors appear requiring the following corrections, viz: In the grant and in the printed head of the specification it is stated that said applicants had assigned two-thirds to Garrie S. French, of Chicago, Illinois, said Smurr, assignor to said Weimar, whereas it should have stated that said applicants had assigned *the entire interest to said Weimar and Garrie S. French;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of July, A. D., 1904.

[SEAL.]

E. B. MOORE,
Acting Commissioner of Patents.

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5. In a device of the class described, the combination with a shaft, a pulley loose thereon, a suitable strap secured at one end of the pulley and surrounding the shaft, a lever adapted by its motion to tighten said strap upon the shaft, pivoted to said pulley, and a suitable beveled surface on said lever terminating in a surface parallel to the length of said lever, of a suitable ring longitudinally movable with respect to said pulley and secured against rotation with respect thereto, and a suitable projecting member upon said ring, adapted to engage said beveled surface and rotate said lever when said ring is moved longitudinally and with continued motion to slide onto the surface of said lever parallel to its length, thereby locking the lever in place, substantially as described.

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