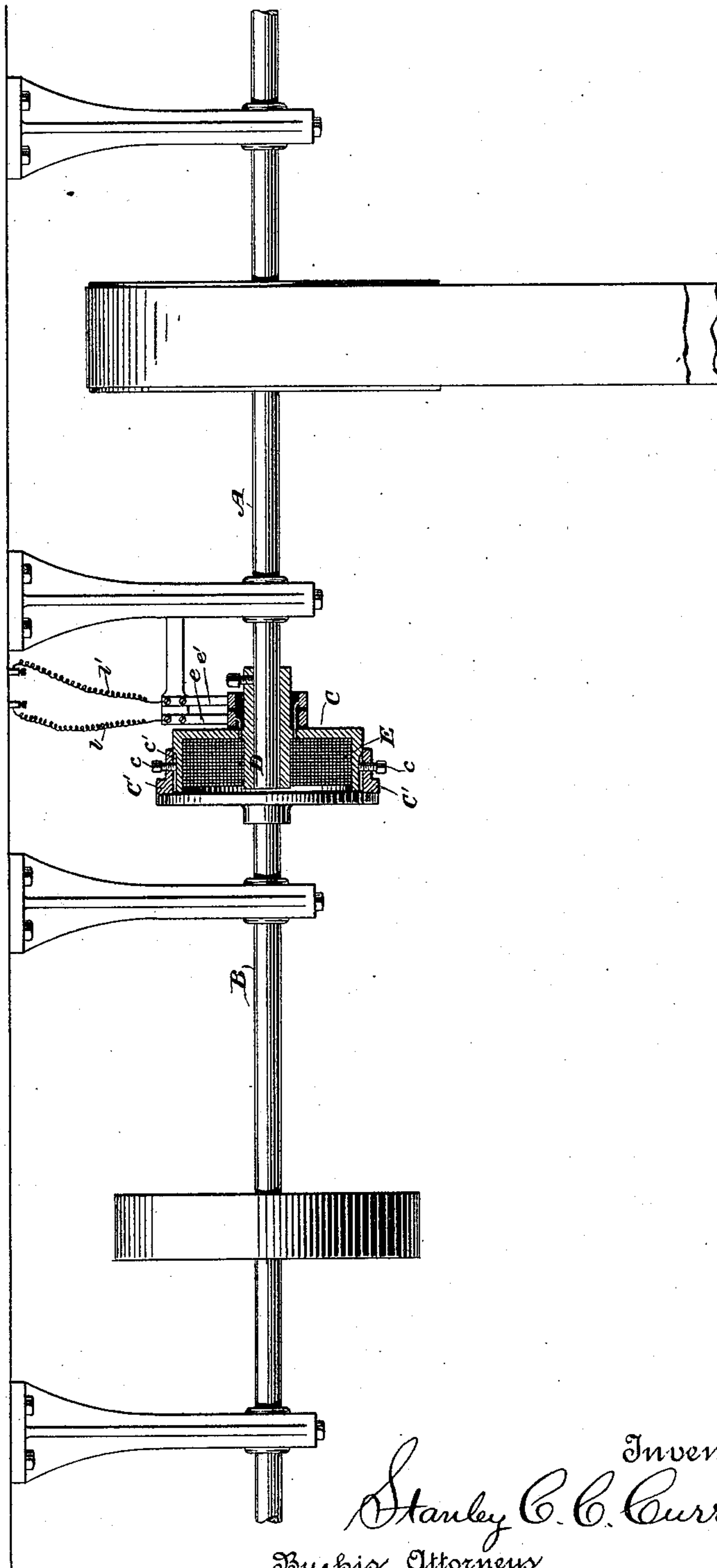


(No Model.)

S. C. C. CURRIE.
ELECTRO MAGNETIC CLUTCH.

No. 434,382.

Patented Aug. 12, 1890.



Witnesses

Geo. W. Breck
Henry W. Lloyd.

Inventor
Stanley C. C. Currie,
By his Attorneys
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UNITED STATES PATENT OFFICE.

STANLEY C. C. CURRIE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE UNITED GAS IMPROVEMENT COMPANY,
OF SAME PLACE.

ELECTRO-MAGNETIC CLUTCH.

SPECIFICATION forming part of Letters Patent No. 434,382, dated August 12, 1890.

Original application filed April 11, 1890, Serial No. 347,461. Divided and this application filed May 16, 1890. Serial No. 352,032.
(No model.)

To all whom it may concern:

Be it known that I, STANLEY C. C. CURRIE, a subject of the Queen of Great Britain, at present residing in Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Electro-Magnetic Clutches, of which the following is a specification.

The object of my invention is to provide a clutch acting magnetically under the influence of an electric current for the transmission of power. One illustration of the use of the invention, and that illustrated in the accompanying drawing, is to connect two shafts for the transmission of power from one to the other.

The drawing is a view, partly in elevation and partly in section, illustrating two shafts, one of which carries the electro-magnetic clutch, by which it is to be locked to the other for the transmission of motion. The shaft A, carrying the clutch, may be the driven shaft and may be actuated from any source of power, electric or otherwise. The shaft B may be employed for the transmission of power to any desired mechanism. The clutch-magnet is preferably formed with two cores, the outer one C being in the form of a hollow cylinder and the inner one D preferably solid. The coil E is wound or seated between the two.

In the drawing, the inner core D is shown as formed in part by one end of the shaft A and by a hub or sleeve enveloping it, while the outer cup-shaped cylindrical core or casing C is secured to this sleeve and in magnetic contact with the central core. The cylinder or core C is provided with a collar or polar extension C', capable of adjustment by means of set-screws c, which pass through the collar and enter longitudinal grooves or depressions c' in the cylinder. Of course any well-known mechanical devices for effecting this adjustment of the polar extension of the cylinder C may be adopted. The armature for this magnet may consist of a plate or disk of iron secured upon the shaft B in such manner that the shaft will be driven by it when the clutch is thrown into operation, as

presently described. I prefer always to arrange the parts so that this armature-disk will bear upon the edge of the outer core or cylinder or its polar-extension piece without touching the central core D. Of course it is immaterial whether the armature-disk has a slight play longitudinally upon its shaft, or whether the shaft B has a slight endwise motion in its bearing. The current is led to the coil E of the magnet through brushes e e', bearing respectively upon insulated rings mounted upon a hub carried by the sleeve or the cylinder C, and with which the terminals of the coil E are connected. The current enters the coil by the wire l or l' and leaves the coil by the wire l or l'. It is thought to be unnecessary to illustrate a source of electrical energy, as the current for actuating this clutch may be derived from any suitable source or generator. When no current is flowing in the coils of the clutch-magnet, the shaft A revolves freely without imparting motion to the shaft B. When, however, a current is passed through the coil of the clutch-magnet, the armature F is attracted and held down upon the edge of the cylinder C. The effect of this is gradually, though nevertheless in a very brief moment of time, to lock the two shafts together. The adjustment of the collar or polar extension C' affords a means for compensating for wear. This embodiment of my invention I have found to be a thoroughly practical and efficient one. In the broader aspect of the invention the shaft A stands for or represents any driven mechanism, and the shaft B for any mechanism to be driven, the electro-magnetic clutch being interposed between the two to effect the transmission of power from one to the other.

This application is a division of my original application, filed April 11, 1890, Serial No. 347,461.

I claim as my invention—

1. The combination, substantially as set forth, of a driven shaft or mechanism, the clutch-magnet consisting of a central core and an exterior cylindrical core slightly longer than the central core, with the coil located

between them, the armature, and the shaft or driven mechanism.

2. The combination, substantially as set forth, of a shaft, the clutch electro-magnet
5 carried thereby and consisting of a central core and an exterior concentric cylindrical core, with the coil concentrically arranged between the two cores, the armature of the clutch-magnet, and the driven shaft or mech-
10 anism.

3. The combination, substantially as set forth, of the shaft A, the clutch electro-mag-

net carried thereby and consisting of a central core and a cylindrical core, with the coil between them, the adjustable polar extension 15 of the cylindrical core, and the armature of the clutch-magnet.

In testimony whereof I have hereunto subscribed my name.

STANLEY C. C. CURRIE.

Witnesses:

WALTER C. RODMAN,
F. H. MACMORRIS.