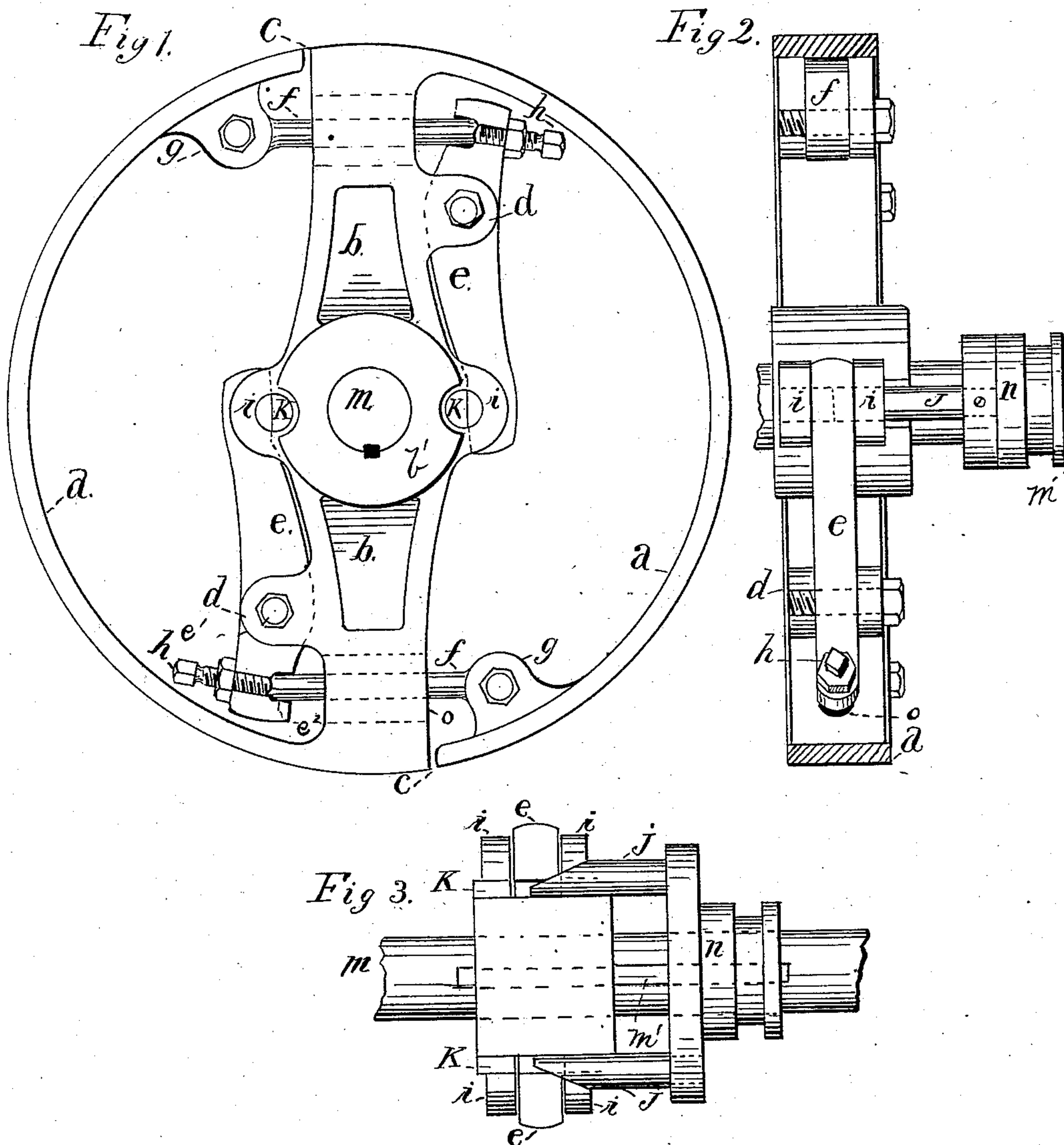


(No Model.)

D. C. WALTER.
FRICTION CLUTCH.

No. 301,842.

Patented July 8, 1884.



Witnesses:
John Watson
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UNITED STATES PATENT OFFICE.

DAVID C. WALTER, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO
ALONZO NOTEMAN, OF SAME PLACE.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 301,842, dated July 8, 1884.

Application filed October 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. WALTER, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Friction-Clutches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improved friction-clutches; and it consists in the construction, combination, and arrangement hereinafter described and claimed.

In the drawings, Figure 1 is a side view of my expansible clutch-wheel. Fig. 2 is a vertical section of same, also showing the sliding sleeve in side view; and Fig. 3 is a detail view showing the operation of the sliding sleeve, all of which will be explained.

The shaft *m* is slotted at *m'* to permit of the keying of the clutch-wheel thereon. The arms or spokes *b* join centrally in the hub *b'*, and are provided with the lugs *i i*, arranged in pairs diametrically opposite each other, as shown. These lugs are provided with perforations *k*, to receive the pins, presently described. The arms are also provided near their outer ends with the lugs *d*, and from their outer ends I project the segmental plates *a*, held at one end rigidly to the arms *b*, and expansible at their opposite ends, as will be readily understood. The levers *e* are pivoted at *e'* between the lugs *d*, and their inner ends rest between the lugs *i*, while their outer ends are provided with a shallow socket, *e''*, to receive the end of the connecting-rod. From this socket a threaded opening is formed through the lever to receive the adjusting-bolt *h*, which turns in said opening against the end of connecting-rod *f*, which has its opposite end pivoted between the lugs *g*, secured on the inner side of the free end of the expansible plates *a*. These lugs *g* are arranged centrally between the edges of the plate, so that the

pushing action of the levers is exerted directly against the middle portion of the plate, and no twisting or bending of same occurs. The rods *f*, it will be seen, pass through openings *o*, formed through the arms near the outer ends of the latter. By this construction all lateral displacement of the outer or free ends of the segments is prevented, and the latter and the levers *e* are held in line with each other, as will be readily understood. The adjusting-bolt, turning against the end of the connecting-rod, enables the taking up of all wear on the expansible plates. The sleeve *n* is placed on the shaft *m*, and provided with a feather or spline fitting in the groove *m'*, so that the sleeve may be moved along, but is revolved with the shaft. This sleeve is adapted to be engaged by a shifter or other means, whereby it may be moved to and from the clutch-wheel. Pins *J* are projected forward from the sleeve *n* and into the openings *k*, formed in the lugs *i*, and under the inner ends of the levers *e*, as clearly shown in Fig. 3. The ends of said pins are beveled, as shown in Fig. 3, so as to force the inner ends of levers *e* out to effect the expansion of the plates *a* by reason of the connections before described.

The operation of my invention is simple, and will be readily understood. The clutch-wheel fits in under the rim of a pulley that is loosely journaled on the shaft *m*. When it is desired to revolve the said pulley, the expansion-plates are spread apart in the manner before described, and the pulley and clutch-wheel are secured together by frictional contact.

It is obvious that modifications in the form of the various parts and manner of operating the levers could be made without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a clutch, the combination of the hub provided with arms having segmental plates extended from their outer ends and provided with perforated axial lugs, the levers pivoted to the arms, and having their outer ends con-

connected with the free ends of the segmental plates, and their inner ends rested between the axial lugs, and the sleeve having pins adapted to be inserted through the perforations in the axial lugs and engage the inner ends of the levers, substantially as and for the purposes set forth.

2. In a clutch, the combination, with the hub provided with arms having segmental plates projected from their opposite ends and openings near their outer ends, of the levers pivoted and arranged to operate in a plane approximately parallel to the line of rotation of the arms, means for operating the inner ends of said levers, and rods or links passed through openings in the arms, and having one end connected with the outer ends of the levers, and their other end connected with the outer or free ends of the segmental plates, all substantially as and for the purposes specified.

3. The combination of the hub provided with arms *b*, having expansible plates *a*, formed integral with and projected from its opposite ends, the levers pivoted to the arms and having their outer ends connected with the free ends of the expansible plates, and means for operating the said levers, substantially as set forth.

4. The combination, in a clutch, of the hub having radial arms *b*, provided with lugs *d* and perforated lugs *i*, the segmental plates *a*, the levers *c*, pivoted to lugs *d*, and having

their inner ends rested between the lugs *i*, and rods or links connecting the outer ends of the levers and segmental plates, substantially as and for the purposes set forth.

5. The clutch, substantially as hereinbefore described and shown, composed of the hub provided with arms having plates *a*, lugs *d*, and perforated lugs *i*, and provided with openings *o* near their outer ends, the levers pivoted to lugs *d*, and having their inner ends rested between the lugs *i*, the links *f*, connecting the levers and the plates *a*, and the adjusting-bolt *b*, substantially as and for the purposes specified.

6. The combination, in a clutch, of the shaft *m*, having groove *m'*, the hub having arms *b* keyed on the shaft and provided with segmental plates, the lever pivoted to the arms and having their outer ends connected with the segmental plates, and the sleeve placed on the shaft and constructed with a feather fitted to groove *m'*, and pins projected from the sleeve and arranged to engage the inner ends of the levers, substantially as and for the purposes specified.

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

DAVID C. WALTER.

Witnesses:

A. NOTEMAN,

C. S. CURTIS.