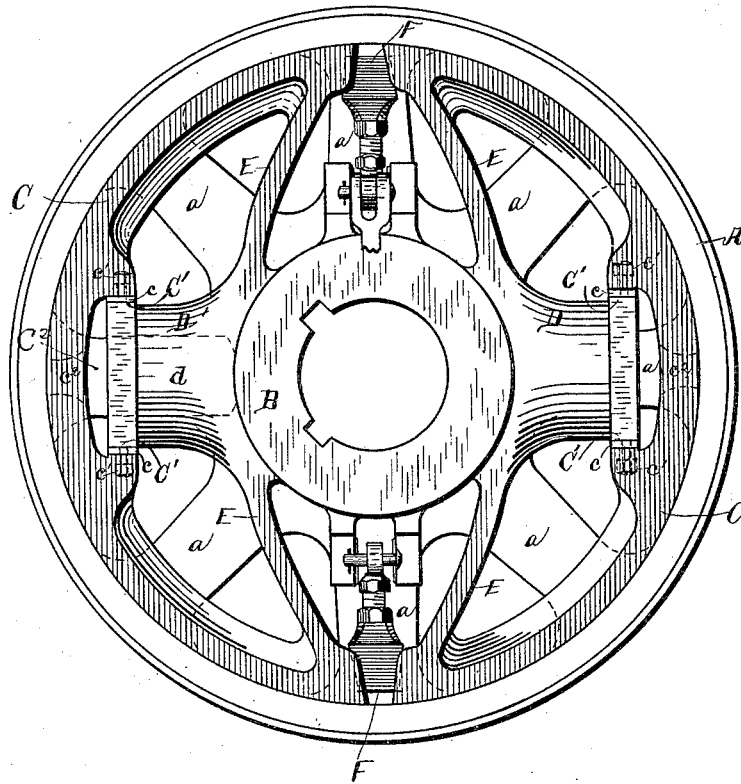


(No Model.)

J. WALKER.  
FRICTION CLUTCH.

No. 421,332.

Patented Feb. 11, 1890.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN WALKER, OF CLEVELAND, OHIO.

## FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 421,332, dated February 11, 1890.

Application filed September 3, 1889. Serial No. 322,897. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WALKER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful  
5 Improvements in Friction-Clutches; and I do hereby 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 pertains to make and use the same.

10 My invention relates to improvements in friction-clutches in which the male member thereof includes a friction-band constructed in halves, the two halves being forced apart by wedges inserted between the opposing  
15 ends of the friction-band. A central supporting-hub is connected by means of tangential arms with the ends of each band-section, whereby the bending of these arms expands the band-sections, so as to fit the rim of the  
20 female member of the clutch. Rigid arms serving as drivers extend radially from opposite sides of the hub and engage shoulders of the respective band-sections at the central portions of the latter, the band-sections, tan-  
25 gential arms, drivers, and hub being cast integral to the end that a powerful friction-clutch is thus had, the male and female members of which are always concentric with each other, whereby approximately an equal distri-  
30 bution of friction and wear is had throughout the surface of the friction-band.

The accompanying drawing is a side elevation partly in section.

The female member of the clutch is of ordinary construction, comprising everhanging  
35 rim A and a supporting-spider *a*, the latter, of course, being rigidly secured to its shaft. (The latter not shown.) The male member of the clutch comprises, in the main, hub B, segmental friction-band sections C C, sub-  
40 stantially in halves, drivers D D, the latter extending radially from opposite sides of the hub, and expanding arms E, the latter being preferably of the curved variety shown and  
45 joining the hub tangentially and joining, respectively, the ends of the friction-band sections. The hub, drivers, and curved arms are integral, and the latter are integral with the friction-band sections, joining the latter  
50 at the ends thereof, as shown.

F are the wedges for expanding the friction-bands. As there is no novel feature

claimed in this application on the mechanism for operating these wedges, and as such mechanism is well known, it is not considered nec- 55  
essary to show or describe the same. The drivers are respectively embraced with an easy fit by shoulders C' C' of the respective friction-band sections, chambers C<sup>2</sup> being  
60 cored in the band-sections opposite the ends of the drivers, so that the band-sections can play in and out on the drivers a limited distance.

In preparing the mold for casting the male member of the clutch, steel plates *c c* are set  
65 parallel with each other in the mold and in the relative positions shown, the opposing faces of these plates having been polished and coated preferably with plumbago-wash, the reverse sides of these plates having been  
70 coated with tin, and each plate having a suitable number of anchors *c'* attached for securing the plate to the casting. The tin coating causes the cast metal to adhere to the plates. The plumbago-wash disappears in casting, 75  
but remains long enough to prevent the metal of the drivers from adhering to plates *c*, and the result is a snug but easy fit of the drivers between the embracing-shoulders, plates  
80 *c c* serving merely as facings for these shoulders. The drivers are usually cored, as shown in dotted lines at *d*, to save metal, and preferably an opening C<sup>2</sup> is cored through the friction-band sections opposite the cavities  
85 of the drivers for convenience in cleaning out the sand from these cavities.

With such construction the drivers do not interfere in the least with the movement of the band-sections in the direction toward and from rim A, and at the same time these driv- 90  
ers relieve arms E of any labor in driving the clutch. Arms E can therefore be made comparatively light, so that they will readily bend the limited distance required, the recoil of arms E being sufficient to collapse the fric- 95  
tion-band sections when the wedges are backed. From the location and shape of arms E it is evident that when the wedges force apart the band-sections the outer ends of these arms will sweep outward and dis- 100  
tend the bases of the band-sections, whereby the friction-band while being distended retains a circular form, and consequently fits rim A when it engages the latter, thus dis-

tributing equally the friction and wear on the faces of the band and rim. With such construction, also, it is obvious that the male and female members of the clutch will always  
5 be concentric with each other.

What I claim is—

In a friction-clutch, in combination, expandible friction-band in halves, the two members thereof being adapted to be forced apart  
10 by wedges operating between opposing ends of the band-sections, arms integral with the respective ends of the band-sections, such arms tangentially joining and integral with a cen-

tral hub, and drivers integral with the hub and extending from opposite sides thereof, 15 the free ends of these drivers engaging shoulders of the friction-band sections, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 20 27th day of June, 1889.

JOHN WALKER.

Witnesses:

CHAS. H. DORER,  
ALBERT E. LYNCH.