(No Model.)

E. WRIGHT.

FRICTION BAND CLUTCH.

No. 442,346. Patented Dec. 9, 1890.

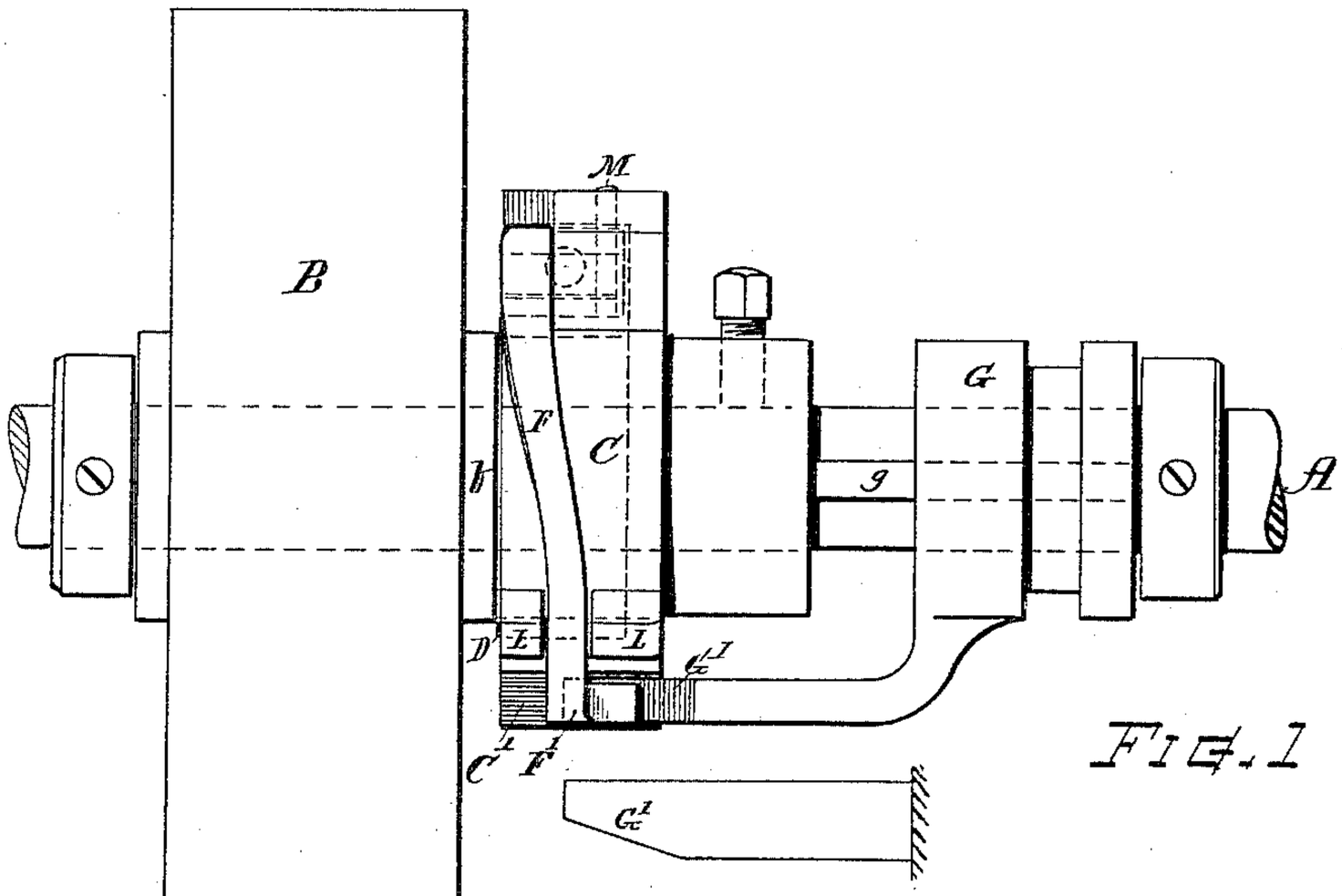

FIG. 1

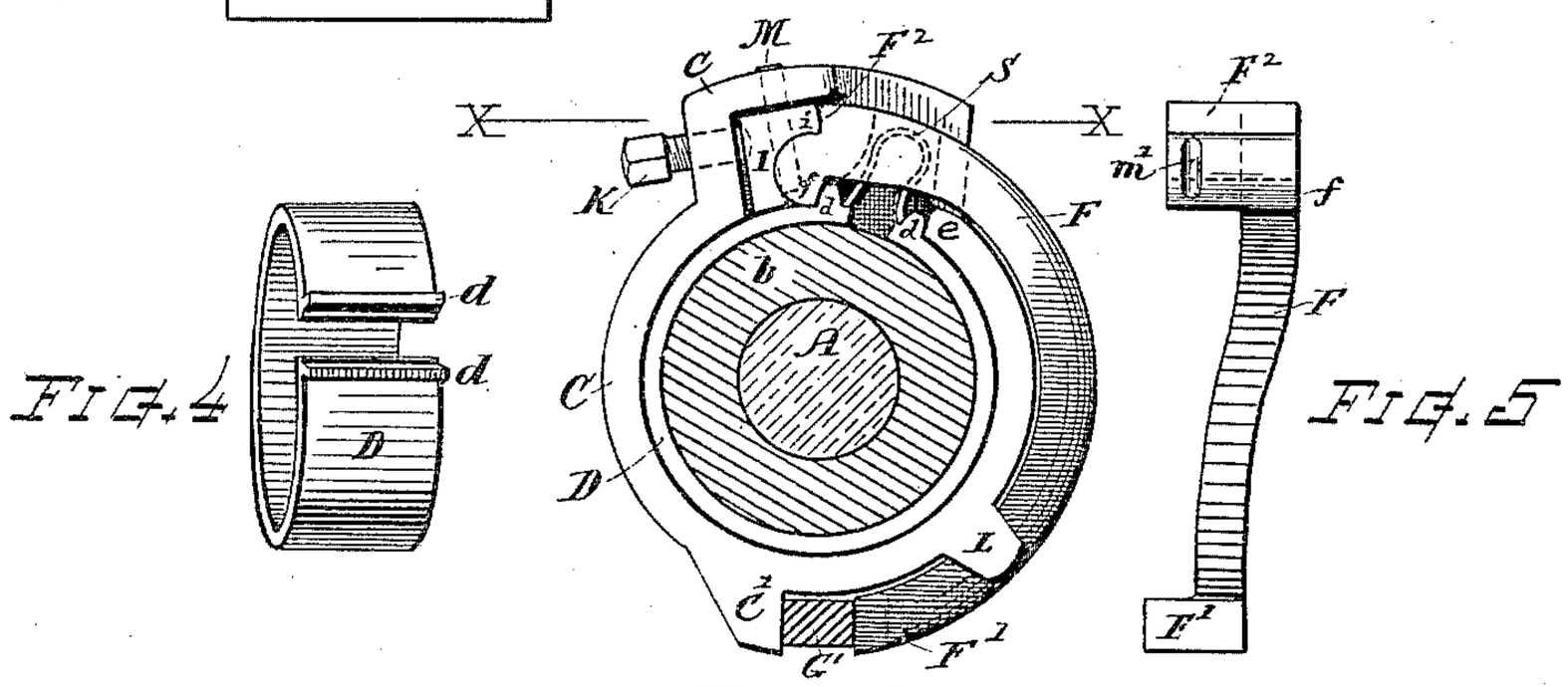

FIG. 2

FIG. 4

FIG. 5

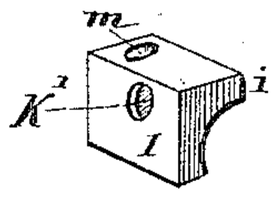

FIG. 6

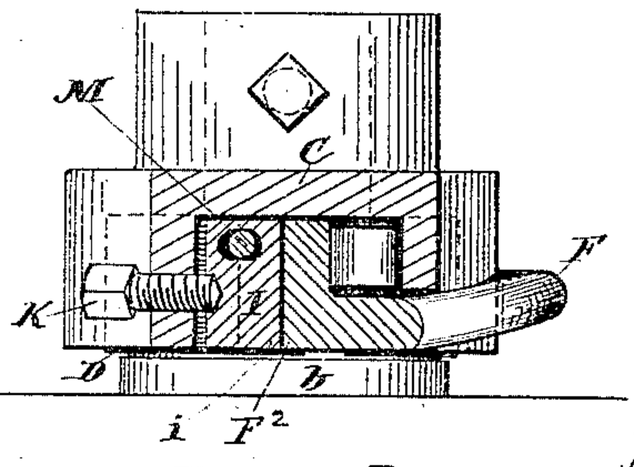

FIG. 3

FIG. 7

Witnesses

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FRICTION-BAND CLUTCH.

SPECIFICATION forming part of Letters Patent No. 442,346, dated December 9, 1890.

Application filed May 10, 1890. Serial No. 351,248. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WRIGHT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Friction-Band Clutch, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to afford a friction-band clutch of improved construction adapted for clutching onto the hub of a wheel or pulley, and to provide therein means for the convenient adjustment of the operating parts to take up the wear in the mechanism and give accuracy of action. These objects I attain by the mechanism herein shown and described.

In the drawings, Figure 1 is a side view of my improved clutch. Fig. 2 is a transverse section through the shaft and pulley-hub, showing an end of the clutch mechanism. Fig. 3 is a horizontal section at line *x x*. Fig. 4 is a perspective view of the friction-band. Fig. 5 shows the inner side of the closing-lever. Fig. 6 is a perspective view of the adjusting-block, and Fig. 7 is a perspective view showing a spring that may in some instances be employed.

Referring to parts, A denotes the shaft; B, the drive wheel or pulley; C, the body or case of the clutch; D, the friction-band; F, the closing-lever; G, the shipper-sleeve provided with the wedge-shaped tongue for moving the closing-lever; I, an adjustable seat or fulcrum-block, and K the adjusting-screw for said fulcrum-block.

The casing C is fitted upon and secured to the shaft A by a set-screw or in other suitable manner, and has at one end a cylindrical chamber for receiving the end of the wheel-hub *b* and containing the friction-band D, which surrounds the end of said hub in a well-known manner. The adjacent surfaces of the hub and band are turned off or finished in the proper manner to engage each other by frictional contact. Adjoining said cylindrical chamber is a side chamber, within which is arranged the fulcrum-block I and the head of the closing-lever F.

The friction-band D is made, as shown in Figs. 2 and 4, open at one side and provided with a lug or shoulder or transverse rib *d* on each of its ends. One of said ribs bears, against a shoulder *e* on the casing, while the other engages with the closing-lever F, which is made, as shown in Figs. 2 and 5, of semicircular form to extend around the case, so that its tail end F′ will be at the opposite side of the shaft-axis from its head. Said lever is best provided with a rounded head having an inwardly-projecting lip at *f* and a bearing-shoulder F^2 on its outer side. The rounded part of the lever-head fits into a concavity in the fulcrum-block I, its lip *f* locks over the flange *d* on the end of the friction-band, and its upper shoulder F^2 bears against the upper part *i* of the fulcrum-block, the fulcrum-point being just above the rounded portion. The tail end F′ of the lever is confined between lugs L, that project from the exterior of the casing C.

The fulcrum-block I is fitted and supported within the case in such manner that it can be adjusted back and forth, and it is sustained against the pressure of the closing-lever by the adjusting-screw K, which is screw-threaded in the side of the body, its end entering a recess K′ in the back of the block, as indicated. The casing, the lever, and the fulcrum-block are so made that the pieces match together directly from the castings without any special fitting, and said lever and block are confined in a manner to give freedom of action, while prevented from dropping out of the casing, by means of a stud, pin, or screw M, that is fixed in the metal of the casing and passes down through an opening *m* in the block and a recess *m′* in the lever-head in radial direction, as indicated by dotted lines in Fig. 2.

The tongue of the shipper-sleeve is wedge-shaped, as at G′, and enters between a lug C′, fixed on the casing, and the tail end F′, and swings the lever F outward, the shoulder at F^2 acting as a fulcrum against the block I, causing the lip *f* to press forward the end of the band D, so that said band will bind firmly by frictional contact upon the end of the pulley-hub, thus clutching the shaft and pulley together for operation.

The friction-band may be made, in some

instances, of metal that will itself spring outward from the face of the hub. In other instances it may be desirable to form this band of copper or some metal that will not have sufficient expansive force to relieve the frictional contact. In such cases I introduce a spring S for opening the band. Said spring is best formed, substantially as indicated in Figs. 2 and 7, in U shape, of flat metal, and introduced into the chamber beneath the lever-head, the ends of the spring resting against the lugs on the ends of the friction-band for exerting thereon an expansive force tending to open the band when the latter is released by the withdrawal of the wedge-shaped tongue from beneath the tail of the lever. I do not, however, desire to confine my invention to this particular form of spring, as a spiral coil or other suitably-shaped spring can be used in the same position, to give equivalent action as the U-shaped spring here shown. The shipper-sleeve G is fitted with a spline *g* to move longitudinally on the shaft, and can be operated in the usual manner.

By the use of the adjustable fulcrum-block I, in combination with the head of the lever, as herein described, the clutch can be readily adjusted for giving the required degree of friction without undue pressure, or for taking up the wear of the parts occasioned by use. The operation of the clutch will thus be smooth and easy, and the shipper can move in and out freely without binding or sticking and without requiring the exertion of extreme force to effect the clutching operation.

It will be understood that I do not claim, broadly, a friction-band with a lever for operating the same in a clutch, as such parts have heretofore been known and used.

What I claim as my invention, herein to be secured by Letters Patent, is—

1. The combination of the casing C, the friction-band D, the closing-lever F, having the lip *f* and bearing-shoulder F^2, the adjustable fulcrum-block I, fitted in the casing and bearing against the closing-lever at said shoulder, and the adjusting-screw K, acting against said fulcrum-block, substantially as set forth.

2. The combination, substantially as described, of the chambered body or casing C, the friction-band D, having transverse lugs *d* at its ends, the closing-lever F, having the lip *f* and shoulder F^2, the fulcrum-block I, and the expanding-spring S between the ends of the friction-band, for the purposes set forth.

3. The combination, with the casing C, lever F, and fulcrum-block I, of the stud, pin, or screw M, fixed in the casing and engaging recesses *m m'* in said lever-head and fulcrum-block, for confining said lever and fulcrum-block within the chamber of the casing, substantially as set forth.

4. The combination of the shaft A, the wheel B, rotatable thereon, the clutch-casing C, keyed to said shaft and chambered to receive the end of the wheel-hub *b*, the open-side friction-band D, embracing said hub within the casing and provided with ribs *d* at its ends, the semicircular closing-lever F, having the fulcrum-shoulder F^2, the lip *f* for engaging said band, and the tail F′ at the opposite side of the axis, the adjustable fulcrum-block I, sustaining the head of said lever, the block-adjusting screw K, and the shipper-sleeve G, provided with a wedge-shaped tongue G′, entering between the tail of the closing-lever and a lug C′ fixed on the casing, all substantially as and for the purpose set forth.

Witness my hand this 24th day of April, A. D. 1890.

EDWARD WRIGHT.

Witnesses:
FANNIE V. WRIGHT,
ELLA P. BLENUS.