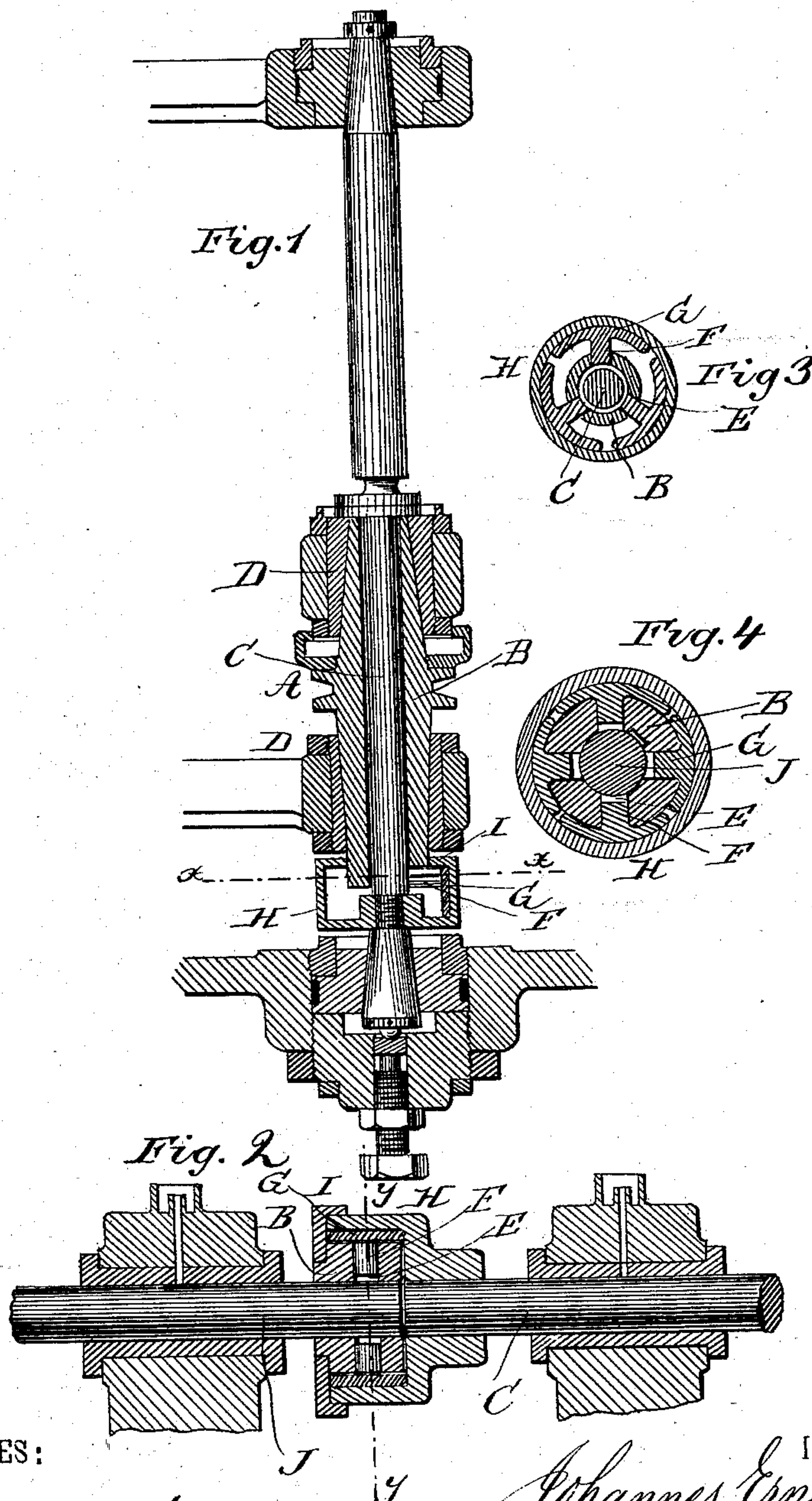


(No Model.)

J. E. MEYER.
FRICTION CLUTCH.

No. 283,009.

Patented Aug. 14, 1883.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHANNES E. MEYER, OF COPENHAGEN, DENMARK.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 283,009, dated August 14, 1883.

Application filed April 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES ERNST MEYER, a citizen of Denmark, residing at Copenhagen, in the Kingdom of Denmark, have invented certain new and useful 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 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, and in which—

Figure 1 is a longitudinal sectional view of a vertical shaft provided with my improved friction-clutch. Fig. 2 is a similar view of a horizontal shaft provided with the same, with a slight modification in the manner of attaching the same. Fig. 3 is a cross-section on line *x x*, Fig. 1; and Fig. 4 is a similar view on line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to friction-clutches adapted to connect and to communicate motion from one rotated shaft to another, and it contemplates certain improvements upon a clutch actuated by centrifugal force, and particularly adapted to couple that portion of the shaft of a centrifugal machine or other machine driven at high speed which receives its rotation from the motive power to that portion to which the rotation is to be imparted; and it consists to that end in the improved construction and combination of parts of such a clutch, as hereinafter more fully described and claimed.

In Figs. 1 and 3 of the accompanying drawings is shown the manner of attaching the clutch upon a vertical shaft, which I will proceed to describe, the construction shown in Figs. 2 and 4 being substantially the same, with a very slight modification.

The drive-pulley A is fastened upon a hollow double conical sleeve, B, which surrounds the shaft C which is to be rotated, and to which the machinery to be operated is connected. This sleeve is of the shape of two cones standing base to base, and turns in inverted conical bearings D, and the drive-pulley is fastened at the point where the bases of

the two cones adjoin, and may be made in one with the sleeve or keyed upon it. The lower end of the sleeve B has three (or more or less) radial notches or slots, E, cut through its entire thickness, into which fit the shanks F of a corresponding number of T-shaped blocks, G, the outer surfaces of the heads of which form parts of a cylinder-surface, and may be brought to bear, when the sleeve is rotated, against the inner surface of a cylindrical box, H, the centrally-perforated bottom of which is fastened to the shaft C, which passes up through the same, while its upper edge is provided with an inward-bent flange, I, which fits close around sleeve B, above the notches, excluding all dust and dirt from the clutch. It will now be seen that as the sleeve B is rotated, the blocks G will be forced outward by the centrifugal force and press with their heads against the inside of the cylindrical box H, and when, as the sleeve rotates, the centrifugal force becomes stronger, the friction of the blocks upon the inner surface of the box becomes proportionally greater, rotating the box and the shaft with it, first slowly, and gradually increasing, so that it will be seen that the sleeve may be set in motion at high speed, and the shaft will first gradually assume the same speed, and it will likewise be seen that if the sleeve is suddenly stopped the blocks will recede from pressing against the inside of the box, and the box and shaft will continue rotating, gradually slackening in speed until their momentum is spent.

In Figs. 2 and 4 the motive power is imparted to a shaft, J, forming a continuation of shaft C, but separate from it, and the sleeve B is reduced in length, and keyed or otherwise fastened to shaft J, while the T-shaped blocks and box H are of the same construction, and perform the same functions as in the construction shown in Figs. 1 and 3.

If desired, springs may be inserted inside the shanks of the T-shaped blocks, which will cause the same to bear harder against the inside of the cylindrical box in starting; but their action will be overcome by the centrifugal power, when a larger amount of speed is obtained, when the springs will be forced outward, only acting by their weight, until in stopping the springs and blocks will recede,

when the former, pressing the latter outward, will cause them to act as brakes in gradually stopping the revolutions of axle C and its cylindrical box.

5 Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A friction-clutch consisting of a series of T-shaped blocks, the outer surfaces of the
10 heads of which form parts of a cylinder-surface, sliding with their shanks in radial notches or recesses in a rotating sleeve or shaft, and a cylindrical box or casing fastened upon the shaft to be rotated, and inclosing and surround-
15 ing the blocks, as and for the purpose shown and set forth.

2. The clutch consisting of the rotating sleeve B, turning on shaft C, and having radial notches or recesses E at its lower end,
20 blocks G, the shanks F of which slide in the said recesses, having outer bearing-surfaces forming parts of a cylinder-surface, and cylin-

dric al box H, fastened upon shaft C, as and for the purpose shown and set forth.

3. The combination of the rotating sleeve B, 25 having radial recesses E, T-shaped blocks G, the heads of which form parts of a cylinder-surface, and shaft C, having cylindrical box H, having inwardly-bent annular flange I, as and for the purpose shown and set forth. 30

4. The combination of the double conical sleeve B, turning upon shaft C in inverted conical bearings D, having drive-pulley A, and radial notches or recesses E at its lower end, T-shaped blocks G, and shaft C, having 35 cylindrical box H, as and for the purpose shown and set forth.

In testimony whereof I have hereunto affixed my signature in presence of two witnesses.

JOHANNES ERNST MEYER.

Witnesses:

ALBERT KINDERMANN,
EMIL HANSEN.